KCSE 2019

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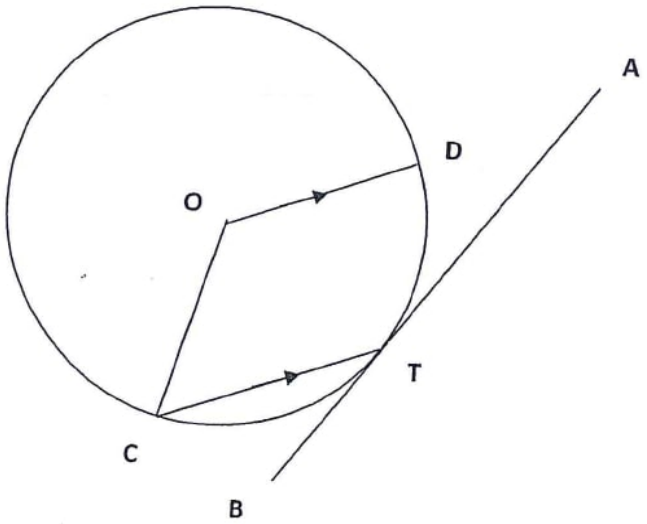
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MATHEMATICS PAPER 1 - 2019 K.C.S.E Prediction Set 1

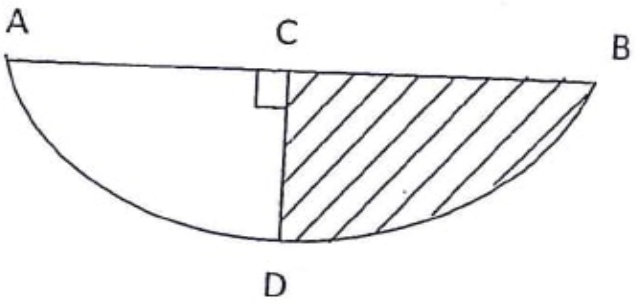
SECTION I (50 marks)

*Answer **all** the questions in this section*

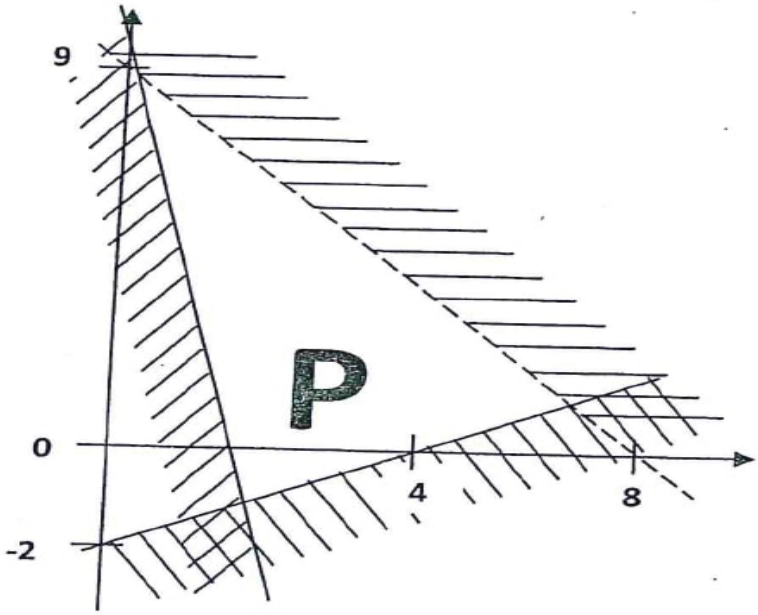
1. Use logarithms to evaluate (4 marks)
$$\frac{log 0.0430}{22.43+13.67}$$
2. Solve for x in the equation given below (3 marks)
$9^{2x+1} = 30 - 34^{4x}$
3. The lengths of a triangle are in the ratio 5:6:9. if its area is $250\sqrt{2}$, calculate its perimeter (4 marks)
4. Simplify completely without using mathematical tables or calculator (3 marks)
$$\frac{cos120°sin300°}{cos(-390°)}$$
5. Four metal rods of length $15x^3h^2y$, $3x^2yh^5$ and $9x^4y^2h$ are to be cut into smaller pieces of the same length such that there is no metal left. What is the maximum length of one of the pieces (1 mark)
6. Given that the log 2 = 0.30103 and log 7 = 0.84510, find without using mathematical tables or calculator, log 9.8 (3 marks)
7. Given that $3x - y = 17$, find the value of $y^2 + 9x^2 - 6xy - 9$ (2 marks)
8. The center of a circle is C (6,7). A tangent to the circle passes through the point P (8,3) lying on the circle. Find the eqaution of the tangent (4 marks)
9. Coffee grade 1 at sh 30 per 50 g is blended with coffe grade 2 at sh 20 per 25g and the mixture is sold at sh 96 per 100g at a profit of 22%. Calculate the ratio in which the two brands of coffee were mixed. (4 marks)
10. In the figure below, O is the centre of the circle which passes through thepoints C, T and D. CT is parallel to OD and line ATB is tangent to the circle at T. If the angle BTC is 44^o, find the size of angle TOD. (3 marks)



11. Two similar solids have masses of 1000g and 1728g. if it costs Ksh 1080 to paint the outside of the larger solid, how much will it cost to paint the outside of the smaller solid (3 marks)
12. The figure below shows part of a circle. AB = 12 cm and CD= 6 cm. AC = CB. Calculate the shaded area. (4 marks)



13. Three interior angles of a polygon are 155^o, 153^o and 160^o. Each of the other interior angles is 148o. How many sides does the polygon have (3 marks)
14. Write down the inequalities that describe the set of points in the unshaded region P. (3 marks)



15. The position vectors $\overrightarrow{OA}$ and $\overrightarrow{OB}$ are $4\underset{\sim}{i}-\underset{\sim}{j}+4\underset{\sim}{k}$ and $-5\underset{\sim}{i}-b\underset{\sim}{j}$ respectively. Given that the length of AB is $7\sqrt{2}$, find the value of b. (3 marks)
16. A line segment AB is shown below. Construct a triangle CBA = 30^o. Hence use the constructed line AC to find a point T such that B divides At in the ratio 5: −2 (3 marks)



SECTION II (50 Marks)

*Answer **Five** questions only from this section*

17. A cylindrical tank is to be constructed. A model of the tank is made such that it is similar to the actual tank. The curved surface area of the model is 2160 cm^2 and that of the proposed tank is 135m^2
    a. Given that the length of the model is 6cm, calculate the height of the tank in metres. (3 marks)
    b. Caculate the volume of the model given that the diameter of the actual tank is 14 m. (3 marks)
    c. Determine the volume of the actual tank in m^3 (2 marks)
    d. The actual tank is used to store some liquids whose density is 0.82 g/cm^3. If the tank is half full, determine the mass of the liquid in kg. (2 marks)

18.

a. A bus travelling at 99km/hr passes a check point at 10.00 a.m and a matatu travelling at 132 km/h in the same direction passes through the check point at 10:15 a.m. If the bus and the matatu continue at their uniform speeds, find the time the matatu will overtake the bus. (6 marks)

b. Two passenger trains A and B which are 240 m apart and travelling in opposite directiosn at 164 km/h and 88km/h respectively approach one another on a straight railway line. Train A is 150 metres long and train B is 100 metres long. Determine time in seconds that elapses before the two trains completely pass each other. (4 marks)

19.

a. On the grid provided, draw the garph of the function $y = x^2 + x + 9$ for $-3 \leq x \leq 3$

X	−3	−2	−1	0	1	2	3
Y			9	9			21

b. Calculate the mid-ordinate for 5 strips between x = −2 and x = 3 and hence use the mid-ordinate rule to aapproximate the area under the curve between x = −2, x = 3 and the x -axis

c. Assuming that the area determined by inetgration to be the actual area, caluate the percentage error in using the mid-ordinate rule. (2 marks)

20. On the graph paper provided plots the points P (2,2) Q (2,5) and R(4,4).

a. Join them to form a triangle PQR (1 mark)

b. Reflect the triangle PQR in the line X = 0 and label the image P'Q'R'. (2 marks)

c. Triangle PQR is given a translation by vector $T\binom{2}{2}$ to P"Q"R". Plot the triangle P"Q"R". (3 marks)

d. Rotate triangle P"Q"R" about the origin through -90^o. State the coordinates of P'''Q'''R'''. (3 marks)

e. Identify two pair of triangles that are direct congruence (1 mark)

21. Three warshisps P,Q,R are at sea such that ship Q is 400 km on a bearing of 030^o from ship P. Ship R is 750 km from ship Q and on a bearing of $S60^oE$ from ship Q. Ship Q is 100km and to the north of an emeny warship S.

a. Taking a scale of 1 cm to represent 100 km, locate the position of ships P,Q,R and S. (4 marks)

b. Find the compass bearing of:

i. Ship P from ship S (1 mark)

ii. Ship S from ship R (1 mark)

c. Use the scale drawing to determine

i. The distance of S from P (1 mark)

ii. The distance of R from S (1 mark)

d. Find the bearing of

i. Q from R (1 mark)

ii. P from R (1 mark)

22. A certain number of people agreed to contribute equally to buy books worths shs. 1200 for a school library. Five people pulled out and so the others agreed to contribute an extra sh. 40 each. Their contribution enabled them to raise the sh. 1200 expected

a. If the original number of people was x, write an expression of how much each was originally going to contribute (1 mark)

b. Write down the expression of how much each contributed after the five people pulled out.

c. Calculate how many people made the contributions (5 marks)

d. If the prices of books before buying went up in the ratio 5:4, how much extra did each contributor give. (3 marks)

23. PQRS is a trapezium where PQ is parallel to SR. PR and SQ intersect at X, so that SX = KSQ and PX = hPR wher k and h are constants. Vectors PQ = 3q and PS = s,SR = q

    a. Show this information on a diagram (1 mark)
    b. Express vector SQ in terms of s and q (1 mark)
    c. Express SX in terms of k, q and s (1 mark)
    d. Express SX in terms of h, q and s (1 mark)
    e. Obtain h and k (4 marks)
    f. In what ratio does X divide SQ? (2 marks)

24. A solid cylinder has a radius of 21cm and a height of 18 cm. A conical hole of radius r is drilled in the cylinder on one of the end faces. The conical hole is 12 cm deep. If the material removed from the hole is $2^2/_3$% of the volume of the cylinder, find: (Use $\pi = {}^{22}/_7$)

    a. The surface area of the hole(5 marks)
    b. The radius of a spherical ball made out of the material (3 marks)
    c. The surface area of the spherical ball (2 marks)

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MATHEMATICS PAPER 2 - 2019 K.C.SE Prediction Set 1

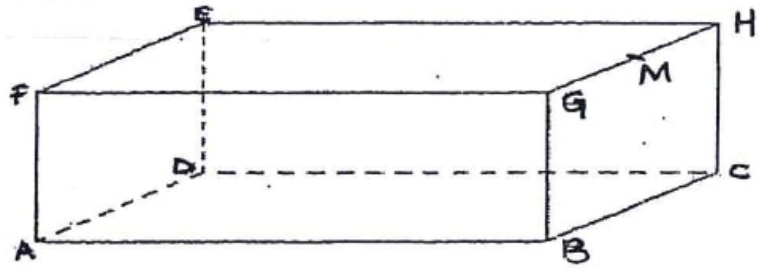
SECTION I (50 Marks)

*Answer **all** questions in this section*

1. When asked to find $^{7}/_{18}$ of a certain number, Juma found by mistake $^{7}/_{8}$ of it. Hence the answer was too large by 105. Find the number. (3 marks)
2. Simplify leaving the answer in the form of a√2 + b√5 where a and b are constants. (3 marks)

$$\frac{5}{2\sqrt{2}-\sqrt{5}}-\frac{2}{2\sqrt{2}+\sqrt{5}}$$

3.
   a. Expand completely $(x-0.2)^5$ (1 mark)
   b. Hence use your expansion to find the exact value of $(9.8)^5$ (2 marks)
4. The figure below represents a solid cuboid ABCDEFGH with a rectangular base. AB = 12 cm, BC = 10 cm and CH = 5 cm. M is the midpoint of GH



   Calculate the anle between BM and CE (3 marks)
5. A ball allowed to drop from a height of 16 cm on to a flor rebounds to $^{3}/_{4}$ of its previous height. Find the total distance the ball wil have travelled when it hits the ground for the tenth time correct to four significant figures. (2 marks)
6. Calculate the standard deviation for the distribution below (4 marks)

No. of children	0	1	2	3	4	5	6
No. of families	4	2	4	7	8	3	2

7. Make x the subject of the formula (3 marks)

$$Y=\frac{MX}{X^2+F}$$

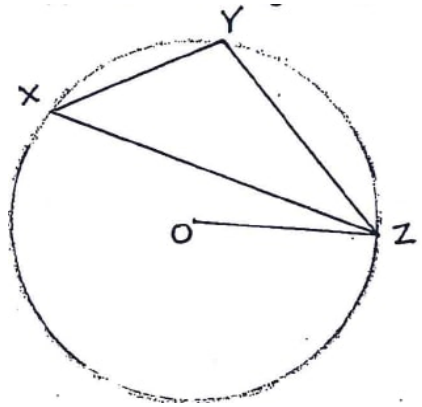
8. A triangle whose area is 7.2 cm^2 is mapped onto a triangle whose area is 3.6cm^2 by the matrix given below. Find the two possible values of x. (3 marks)

$$\begin{pmatrix} x+4 & 6 \\ 5 & x \end{pmatrix}$$

9. Simplify completely the expression (3 marks)

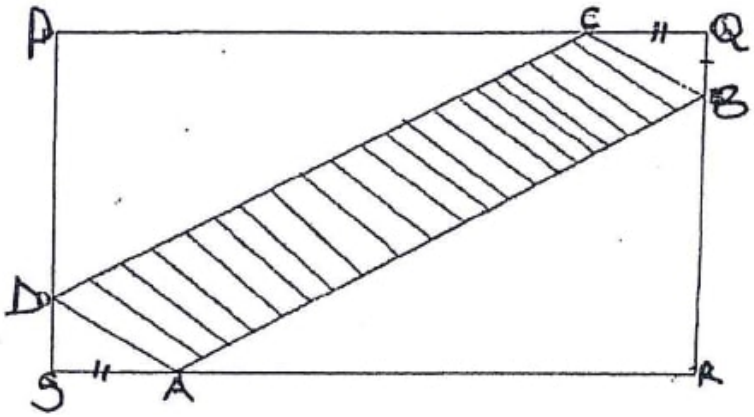
$$\frac{-2ax-3by+2ay+3bx}{3b-2a}$$

10. Find the amount after 3.25 years if Kshs 234,000 is invested at 10% p.a compunded semi annually. (3 marks)
11. In the figure below XY and YZ are chords of the circle centre O. XY = 6 cm and XZ = 9 cm. Find



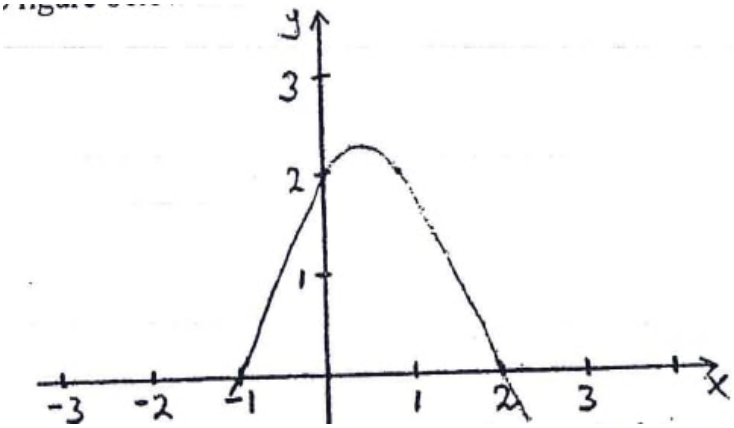
a. The value of angle XYZ
b. The length of OZ

12. In the figure below PQRS is a rectangle. PQ = 30cm and PS = 10 cm
The unshaded portions are cut off leaving a parallelogram ABCD



Given that line BQ = DS = x cm and line CQ = SA = 3x cm. Find the value of x when the area of the parallelogram ABCD is maximum (4 marks)

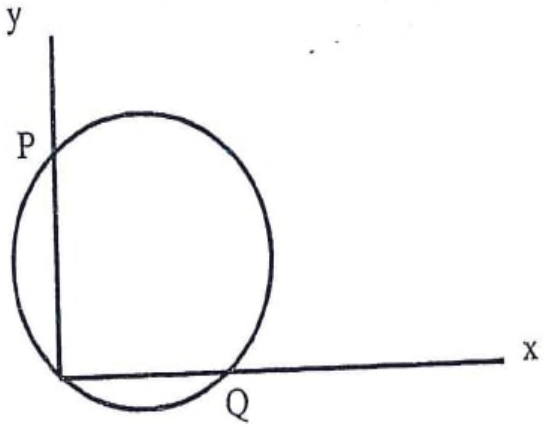
13. The figure below is a sketch of the graph of the quadratic function D = k(x-2) (x+1). Find the value of k. (3 marks)



14. Evaluate without using mathematical tables or calculator (2 marks)

$$\frac{450 \times \sqrt{0.36}}{27^{2/3} \div 81^{3/4}}$$

15. The figure below shows a circle passing through the origin cutting through P (K,0) and Q (0,K). If its radius is 3√2, find the equation of the circle in the form of x2 + y2 +ax + by + c = 0 (4 marks)



16. A quantity Q varies jointly as the square root of X and inversely as Y. Given that when Y is reduced by 20% and X increased by A%, Q increased by 37.55 %, find the value of A. (3 marks)

SECTION II (50 Marks)

*Answer **any Five** Questions from this Section*

17. The table below shows income tax rate for the year 2014

Income in Kshs per month	**Rate %**
1 - 9680	10%
9681 - 18800	15%
18801 - 27920	20%
27921 - 37920	25%
Over 37920	30%

    a. In the tax year of 2014 the tax of Kamau's monthly income was Ksh 10,880. If he is entitled to a tax relief of Ksh 1156. Find
        i. Gross tax of Kamau (1 mark)
        ii. Taxable income per month in shillings (5 marks)
    b. Apart from basic salary, Mr. Kamau also earns a house allowance of Ksh 12, 000, a medicall allowance of Ksh 3,060 and a hardship allowance of Ksh 4,635. Find the his basic salary per month (2 marks)
    c. Other deductions for Kamau include; SACCO loan kshs. 3000, SACCO contributions Ksh. 6,000 and hire purchase repayment Kshs. 2,000. Calculate Kamau's net pay per month (2 marks)

18. Water flows through a cylindrical pipe of diameter 8.4 cm at a speed of 50m/minute.
    a. Calculate the volume of water delivered by the pipe per minute in litres. ($\pi = {}^{22}/_{7}$) (3 marks)
    b. A cylindrical storage tank of radius 105 cm is filled by water from this pipe at the same rate of flow. Water begins flowing into the empty storage tank at 9.30 a.m and is full at 2.00 pm. Calculate the height of the tank in metres. (4 marks)
    c. A family consumes the capacity of this tank in one month. The cost of water is sh 50 per thousand litres and fixed basic charge of Ksh 1650 per month. Calculate the cost of this family's water bill for a year. (3 mks)

19. The position of two towns A and b on earth's surface are (60oN, 36oE) and (60^{o}N, 144^{o}W) respectively. Taking the radius of the earth as 6370 km and $\pi = {}^{22}/_{7}$

    a. Calculate the shortest distance between A and B in km to 1 dp. (2 marks)
    b. Calculate the distance between A and B along the parallel of latitudes in km (2 marks)
    c. Another town C is 840 km east of twon B and on the same latitude as town A and B. Find the position of town C. (3 marks)

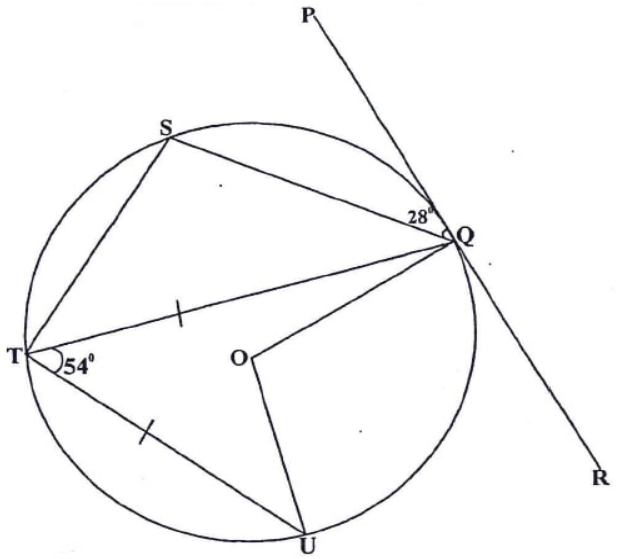
d. If an aircraft leaves town A at 8.30 am at a speed of 720 km/h to K ($60^oN,50^oW$). At what local time is it expected at K to the nearest minute? (3 marks)

20.

a. In a chemistry form 4 class in Jaribu high school $^1/_3$ of the class are girls and the rest are boys. $^4/_5$ of the boys and $^9/_{10}$ of the girls are right handed while the rest are left handed. The probability that a right handed student breaks a conical flask in any practical session is $^3/_{10}$ and the corresponding probability for a left handed student is $^4/_{10}$.
   i. Represnt the above infomation on a tree diagram (2 marks)
   ii. Determine the probability that a student chosen at random from the class is left handed and does not break a conical flask in its simplest form (2 marks)
   iii. Determine the probability that the flask is broken in any practical session in simplest form (2 marks)

b. The probability of Peter scoring grade A in his exam is 0.6 while the probability of Ali scoring the same grade is 0.7.
   Determine the probability that,
   i. Both will score grade A (1 mark)
   ii. None of them will score grade A (1 mark)
   iii. Only one of them will score grade A (1 mark)
   iv. At least one of them will score grade A (1 mark)

21. In the figfure below, O is the centre of the cricle. PQR is a tangent to the circle at Q. Angle PQS = 28^o, angle UTQ = 54^o and UT = TQ



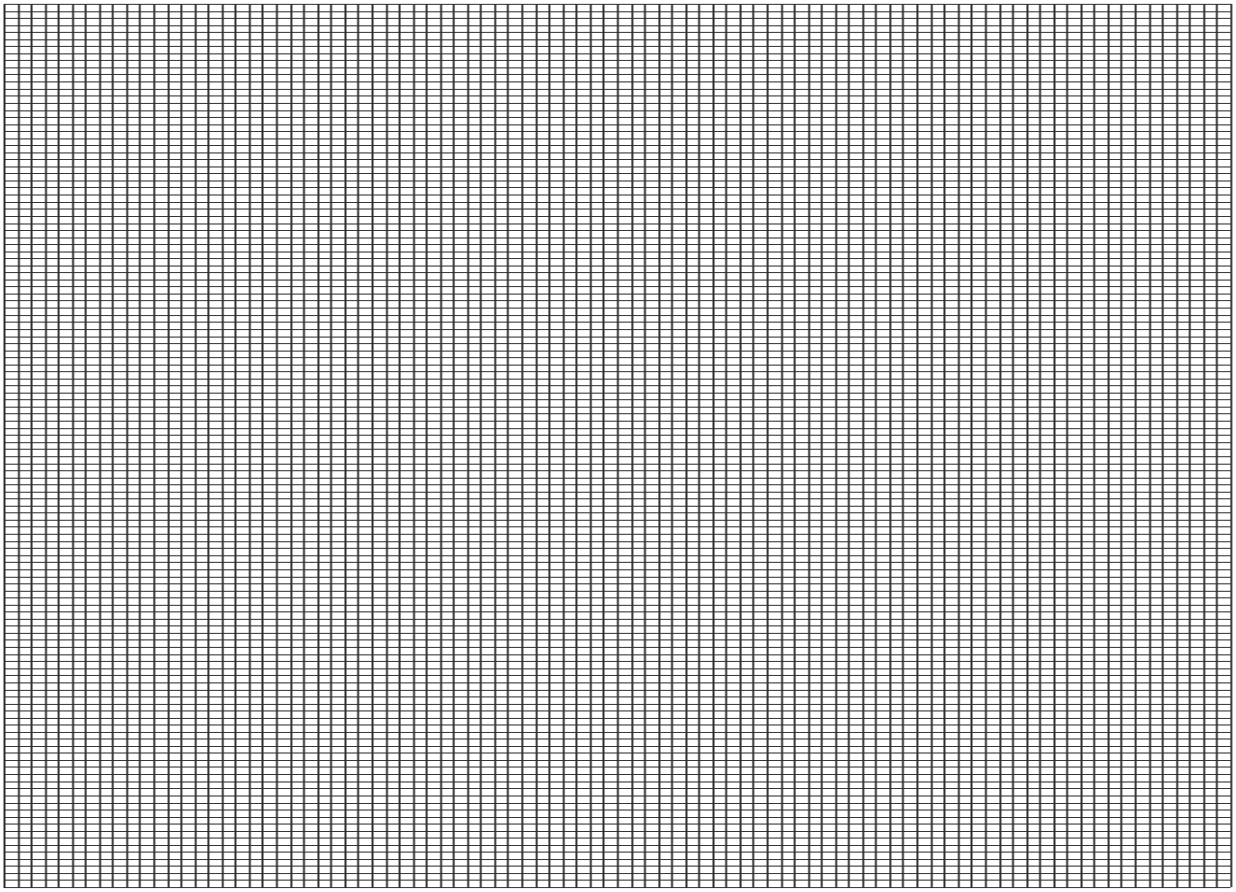
Giving reasons, detrmine the size of
   a. Angle STQ (2 marks)
   b. Angle TQU (2 marks)
   c. Angle TQS (2 marks)
   d. Reflex angle UOQ (2 marks)
   e. Angle TQR (2 marks)

22.

a. Using a ruler and pair of compasses only, construct a triangle ABC such that AB = 8 cm and angle ABC = 75^o and angle BCA = 45^o. Let AB be on the line drawn below(3 marks)
b. On the upper side of line AB, Locate the locus of p such that AP = PB and P is equidistant from AC and AB. (2 marks)
c. Construct the locus of a point T such that angle ATB = 120^o (2 marks)
d. Construct a rectanbgle ABXY on the lower side of AB such that its area is 32 cm^2 (2 marks)

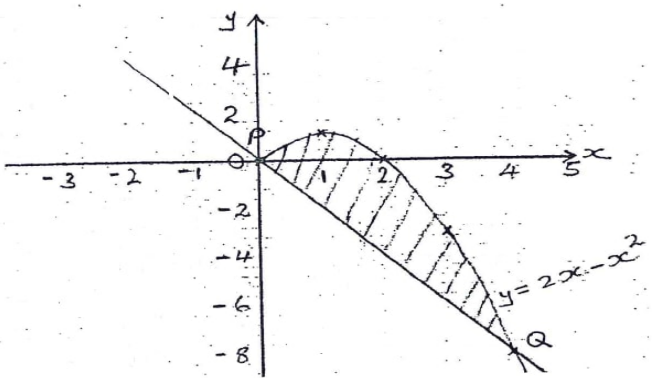
e. Shade the region R inside the rectangle suchthat XRY≥90^o and angle ATB≥120^o (1 mark)

23. A farmer wishes to keep some chicks and ducks. Chicks cost Kshs. 60 each while ducks costs Kshs. 80 each. She cannot afford to spend more than Ksh 24,000. She finds it uneconomical to keep less than 250 birds. She also wishes to keep more chicks than ducks but chicks must be less than 200.
    a. Taking x and y to be the number of chicks and ducks resectively, write down all the inequalities that satisfy the above conditions (3 marks)
    b. Represent the inequalities graphically using a sclae of 1 cm represents 50 birds on both axis (4 marks)



    c. If the farmer sells a mature chick at Kshs. 200 and a duck at Kshs 250, find the number of chicks and ducks she must keep in order to maximize her revenue. State the maximum revenue (3 marks)

24. The diagram below shows a line PQ and the curve y = 2x − x^2 intesrecting at point P and Q



    a. Find the coordinates of P and Q
    b. Calculate the area of the shaded region

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PHYSICS PAPER 1 - 2019 K.C.SE Prediction Set 1

SECTION A (25 Marks)

*Answer **all** the questions in this section*

1. Draw a section of the main scale and full Vernier scale that would give a reading of 3.07 cm (1 mark)
2. **Figure 1** shows a burette partly filled with a liquid. The liquid was initially at the level shown. If the 400 drops of the liquid each volume $0.015cm^3$ was removed from the burette, mark the new level of liquid in the burette (1 mark)

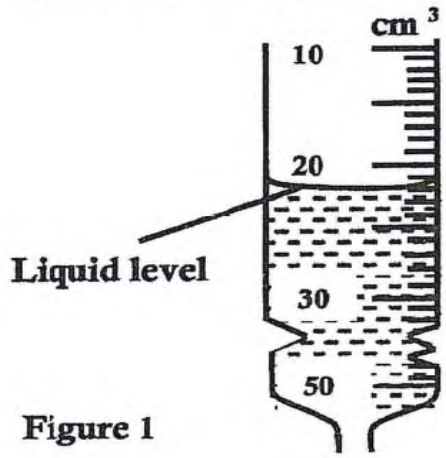


Figure 1

3. A block of metal of mass 150g at 100°C is dropped into a lagged calorimeter of heat capacity 45 JK^{-1} containing 100g of water at 25°C. The temperature of the resulting mixture is 34°C. Determine the specific heat capacity of the metal block. (Take the specific heat capacity of water as 4,200 J/kgK) (3 marks)
4. An object is placed on water and it floats. Write an equation connecting all the forces acting on the body. (1 mark)
5. **Figure 2** shows a 150 g mass tied on a string and whirled in a vertical circle of radius 30 cm with a uniform speed. At the lowest position of the circle the tension is 9.5 N. Calculate the speed ***v*** of the mass(3 marks)

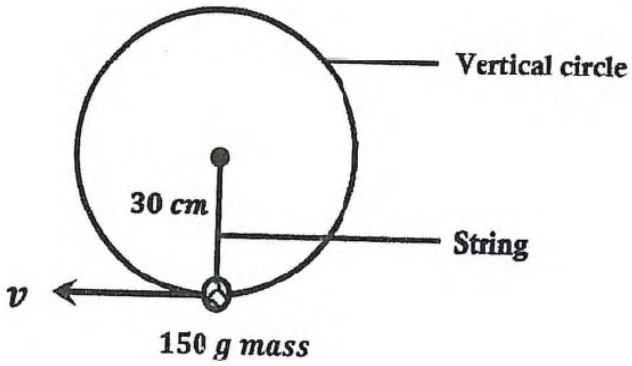


Figure 2

6. **Figure 3** shows two systems of spring arragements A and B. The springs are identical and have a spring constant K

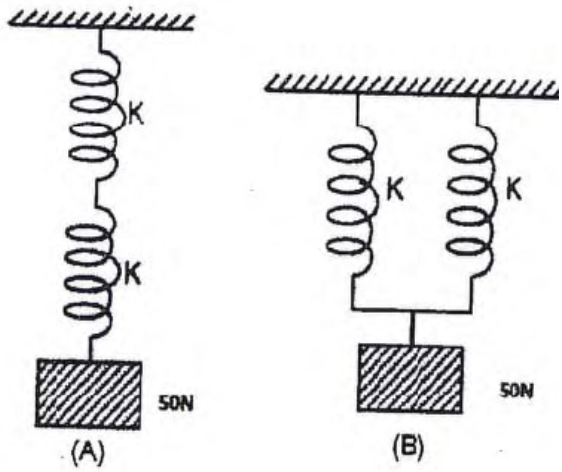
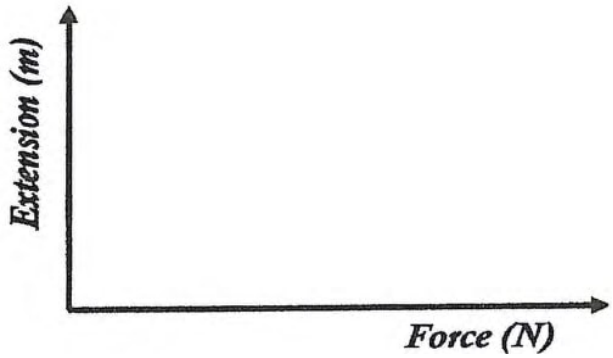


Figure 3

a. State with a reason which system of springs is stiffer (2 marks)
b. On the axes provided, sketch the graphs of systems A and B assuming that the springs obey Hooke's law



c. Determine the value K if the extension in system B was 25 cm (2 marks)

7. A piece of paper is wrapped round the joint of a rod partly made of iron and partly wood so that some of the paper is over the iron rod and the other part over the wooden rod as shown in **Figure 4**

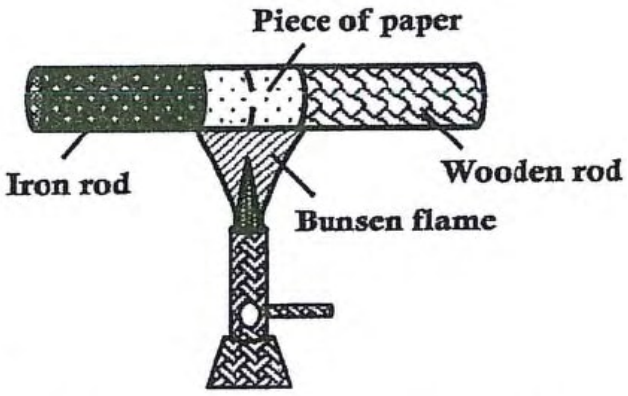


Figure 4

When a bunsen flame is passed over the paper several times it is observed that the paper gets charred or blacked on the region covering the wooden rod while the one covering the iron does not. Explain this observation made (2 marks)

8. A meter rule of mass 50 g is balanced by masses 35 g and 15 g suspened from its ends. Find the position of its pivot from 25g mass (3 marks)

Figure 5 shows a bunsen burner which is used for heating substances in a laboratory. Use the information given to answer Questions 9 and 10 below

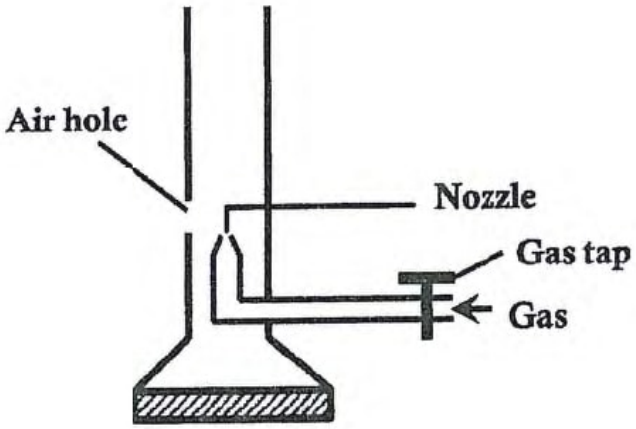


Figure 5

9. Explain the principle of worklikng of a bunsnen burner (2 marks)
10. Give a reason why the Bunsen burbner in the **Figure 5** has a wide base (1 mark)
11. Water rises up in capillary tubes but mercury which is also liquid, falls in capillary tubes to a level below the outside surafce as shown in **Figure 6**. Explain this observation. (2 marks)

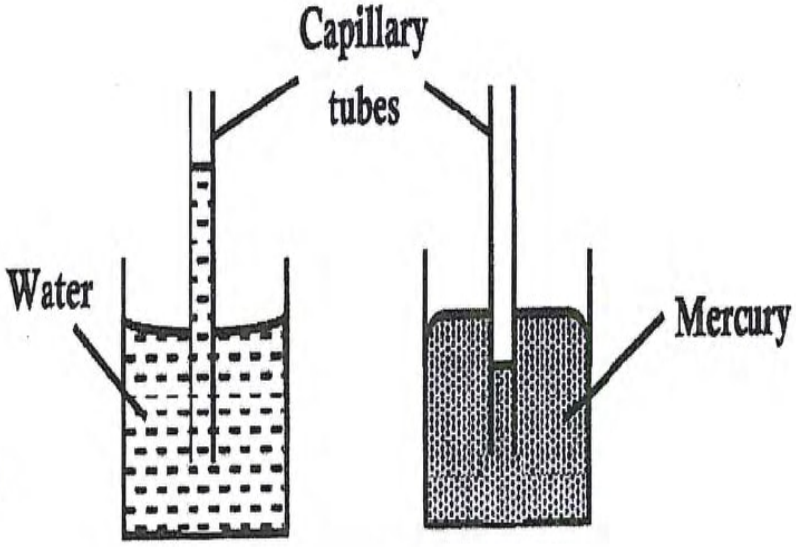


Figure 6

12. State the molecular difference between a real gas and an ideal gas (1 mark)

SECTION B (55 Marks)

Answer **all** the questions in this section

13.

a. **Figure 7** shows a car braking system. The brake fluid is an oily liquid

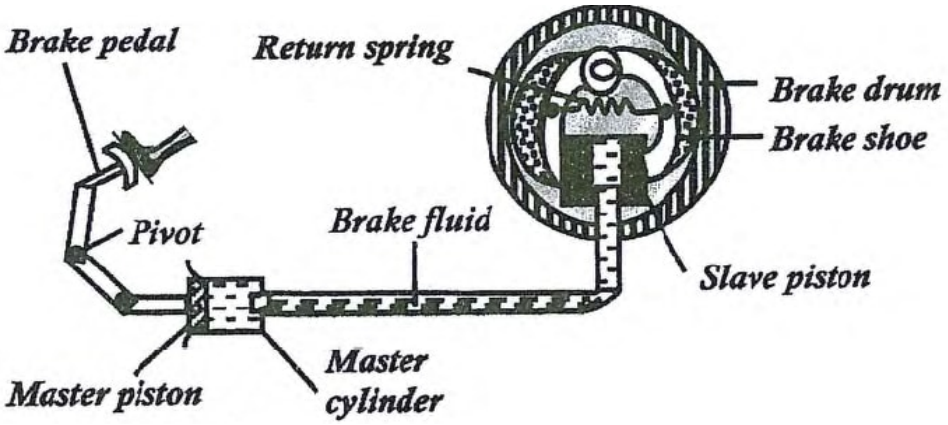


Figure 7

i. State the principle by which a car braking system works (1 mark)

ii. State one property of the brake fluid used in this system (1 mark)

iii. The cross-sectioanl area of the master piston is 5.0cm^2. A force of 1540 N is applied to the master psiton. Calculate the force exerted on each slave piston by the brake fluid given that the cross-sectional area of each slave psiton is 7.2 cm^2 (3 marks)

b. A diver is 15 m below the surface of water in a dam as shown in **Figure 8**

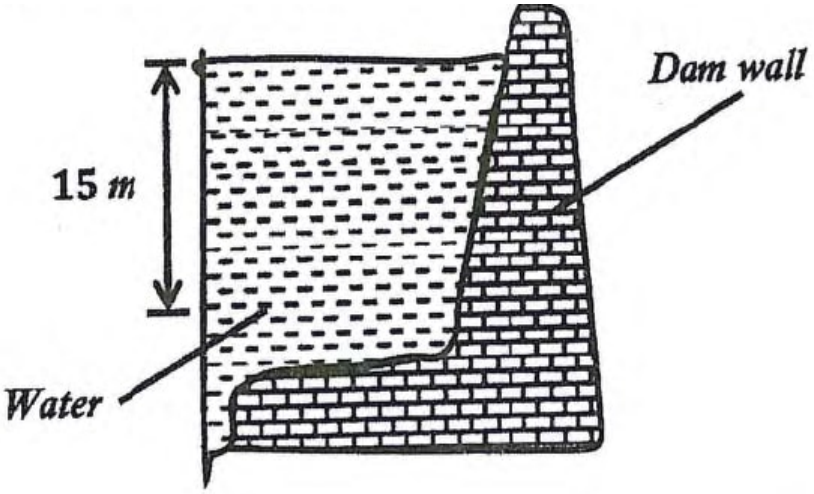


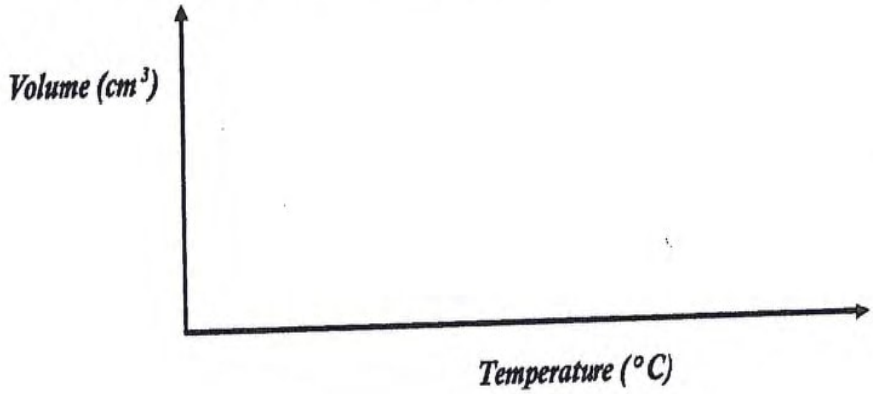
Figure 8

If the density of water is 1000 kg/m^3 and gravity is 10N/kg, determine

i. The total pressure acting on the diver given that the atmospheric pressure at this place is 1.0 × 10^5 N/m^2 (3 marks)

ii. Dam walls are made wider at the bottom than at the top. Explain (1 mark)

c. Water in a measuring cylinder is placed in a refrigerator and allowed to cool from about 15^{o}C to 0^{o}C. Assuming the water does not freeze, sketch on the axes provided the graph of Volume of water against temperature (1 mark)



d. **Figure 9** shows a column of air trapped by mercury thread 5 cm long. If the atmospheric pressure is 750 mmHg, determine the length of the air column when the tube is horizontal (3 marks)

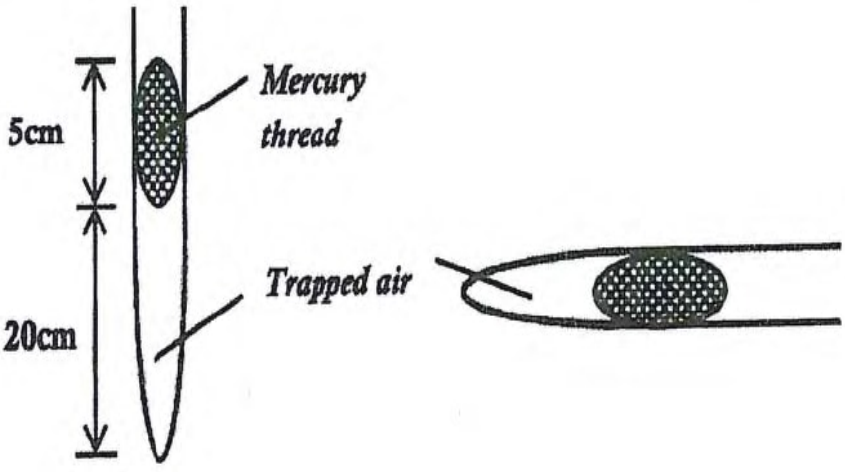


Figure 9

14.

a. **Figure 10** shows a car of mass m moving along a curved part of the road with a constant speed

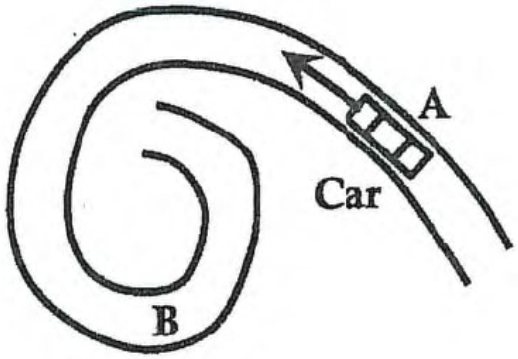


Figure 10

Explain why the car is more likely to skid at point B of the road if the speed is not changed (2 marks)

b. A particle P tied to a string is moving in a horizontal circle about O as shown in **Figure 11**. Particle P moves with a constant speed ***v***

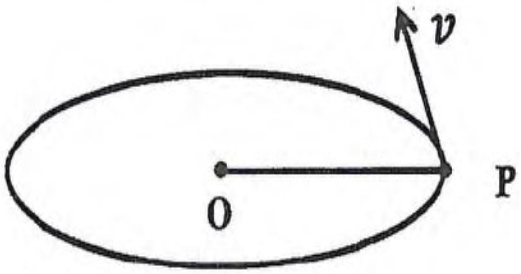


Figure 11

i. State what provides the centripetal force. (1 mark)
ii. Use an arrow to indicate the direction in which the net force F acting on P will act (1 mark)
iii. Give a reason why particle P above experiences centripetal acceleration even thopugh it is moving with a constant speed ***v*** (1 mark)

c. **Figure 12** shows two masses 0.2 kg and 0.4 kg connected by a string through a hole on a smooth horizontal surface

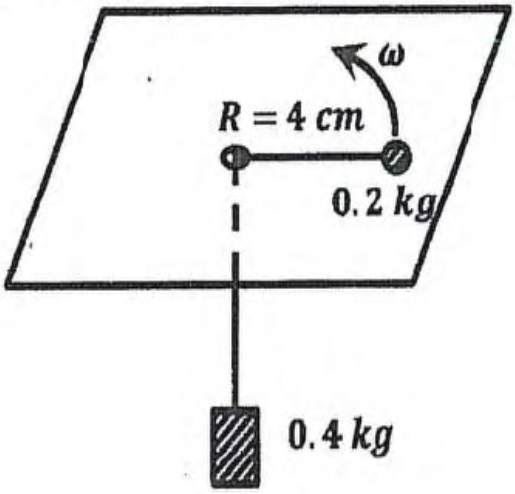


Figure 12

The 0.2 kg mass rotates in a horizontal circle of radius 4 cm. Calculate the angular velocity of the mass when the system is in equilibrium. Take acceleration due to gravity, g= 10 m/s^2 (3 marks)

d. A jet starts from rest with a uniform acceleartion of 500 m/s^2. how long does it take to cover a distance of 40 km? (3 marks)

15.

a. A horizontal force of 50 N is applied on a wooden block of mass 2.5 kg placed on a horizontal surface. Given that the coefficient of kinetic friction between the surface and the block is 0.5, determine the acceleration of the block (3 marks)

b. **Figure 13** shows a graph of velocity aginst time for a ball bearing released at the surface of a viscous liquid

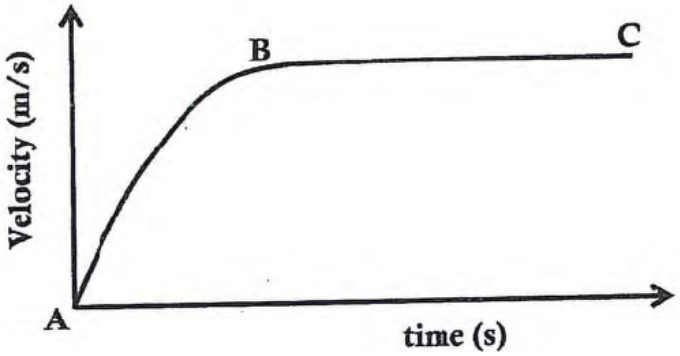


Figure 13

i. Write an expression/equation connecting all the forces acting on the ball bearing parts

I. AB (1 mark)

II. BC (1 mark)

ii. Indicate on the graph the terminal velcoty $\mathbf{V_t}$ of the ball bearing (1 mark)

c. **Figure 14** shows a pulley system being used to lift a load of 150 N by applying an effort of 60N

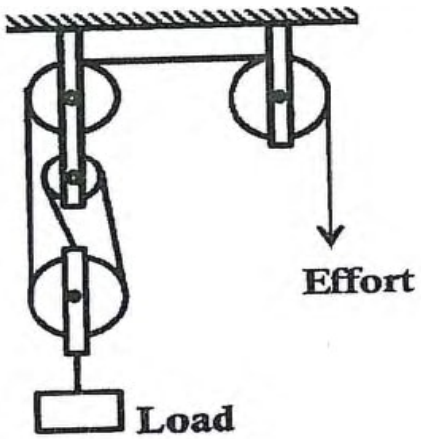


Figure 14

i. State the velocity ratio of the pulley system (1 mark)

ii. Calculate the efficiency of the pulley system (4 marks)

d. Show that the velocity ratio of a wheel and axle machine whose cross-section is shown in **Figure 15** is given by **V.R.** $= {}^{R}/_{r}$ where R is the radius of the wheel while r is the radius of the axle (2 marks)

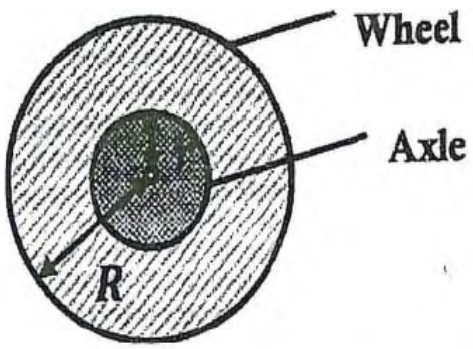


Figure 15

16.

a. Define the term "***specific latent heat of fusion***" of a material (1 mark)

b. A metal bar of mass 30 g and specific heat capacity 880 J/kgK is placed in a small furnace. **Figure 16** shows how the teperature of the metal bar varies with time t in seconds

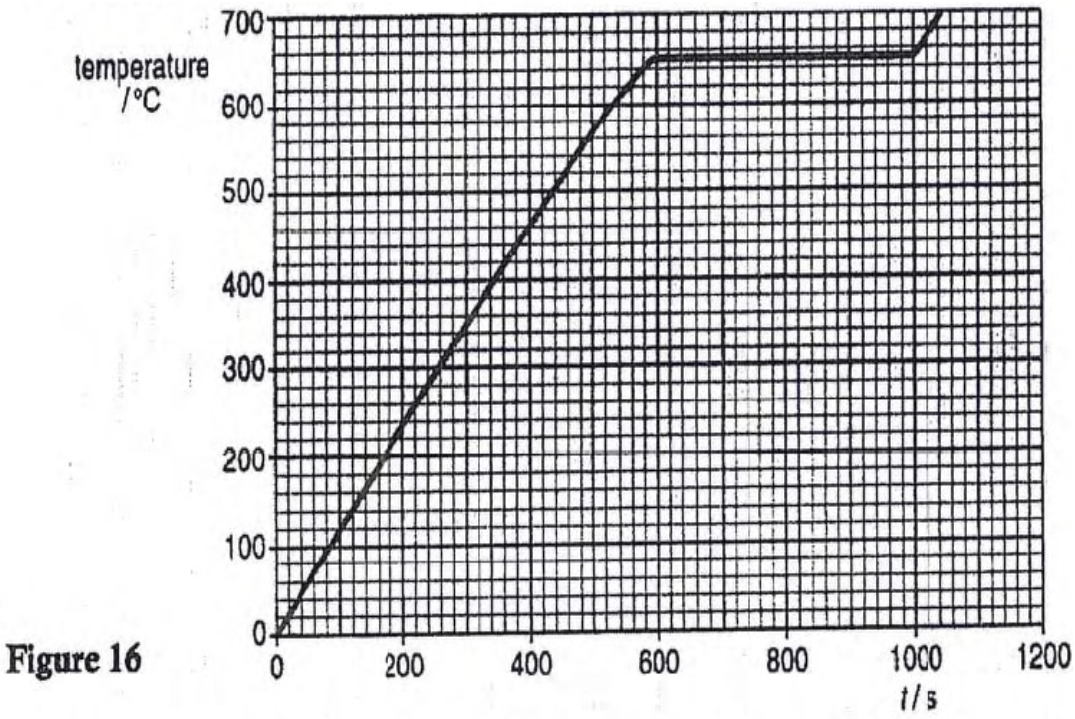


Figure 16

i. State what happens to the bar betwen t = 600s and 1000s (1 mark)

ii. Calculate the energy supplied to the bar between t = 0s and 600s (3 marks)

iii. Between t = 600s and 1000s the furnace supplies 30 joules of energy per secodn to the bar. Calculate the specific latent heat of fusion oof the metal bar (3 marks)

17.

a. State ***Archimedes' principle*** (1 mark)

b. The system in **Figure 17** below is in equilibrium

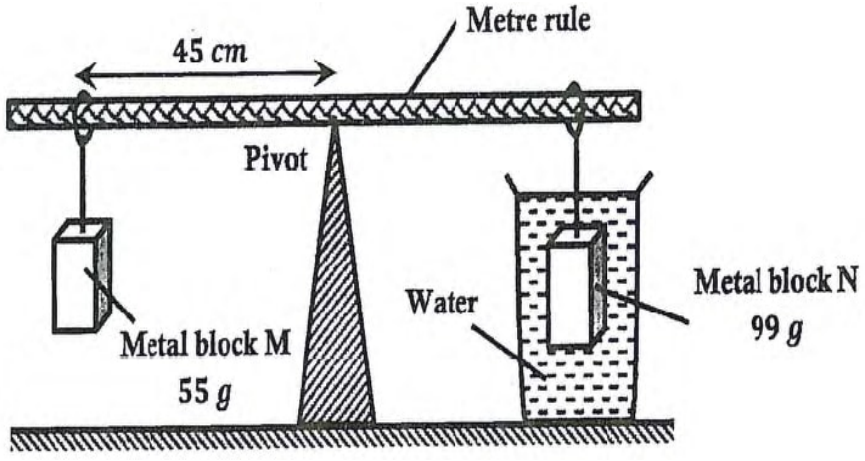


Figure 17

i. When the temperature of the water is raised the system is observed to tilt to the right, state the reason for this observation (2 marks)

ii. Calculate the apparent loss of weight of the metal block N given the dimensions of the block are 2cm × 2cm × 6cm (3 marks)

iii. Determine the apparent weight of the metal block N (2 marks)

iv. How far is the metal block N from the pivot? (2 marks)

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PHYSICS PAPER 2 - 2019 K.C.SE Prediction Set 1

SECTION A (25 Marks)

*Answer **all** the questions in this section*

1. **Figure 1** shows a plane mirror, a point object (P) and the position of the observer's eye. Show whether the observer will see the image of the object point P or not. (1 mark)

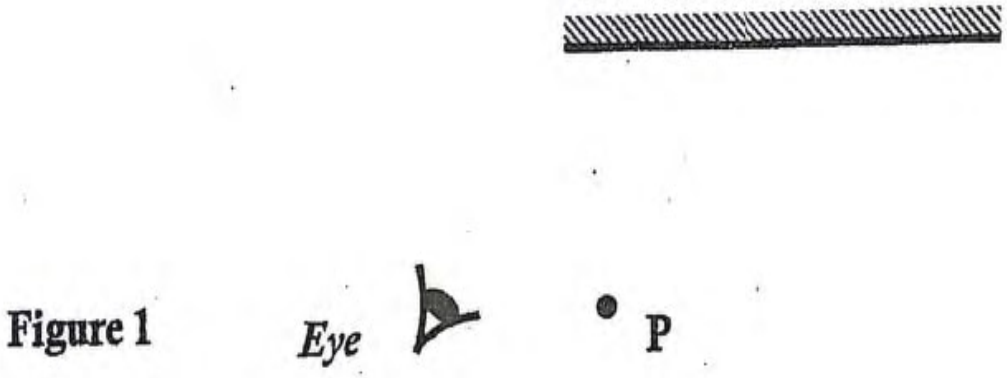


Figure 1

2. State one difference between a lead-acid battery cell and a Leclanche cell (1 mark)
3. A form one student at Elimu Girls' High School connected a simple electric circuit as shown in **Figure 2** below.

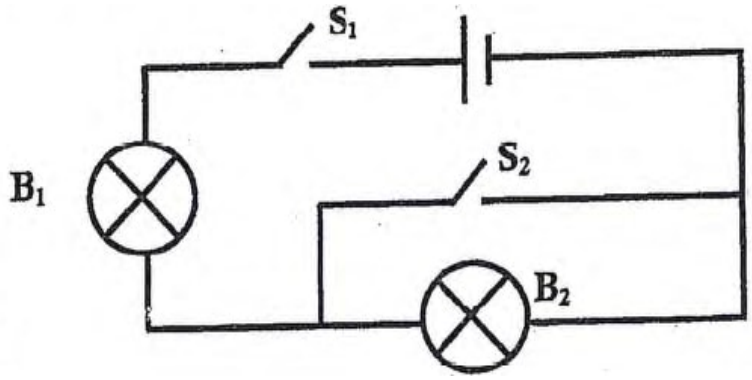


Figure 2

State and explain the observation made on bulbs B_1 and B_2 when switches S_1 and S_2 are both closed (2 marks)

Figure 3 shows an X - ray tube used to produce X - rays. Use it to answer questions 4 and 5

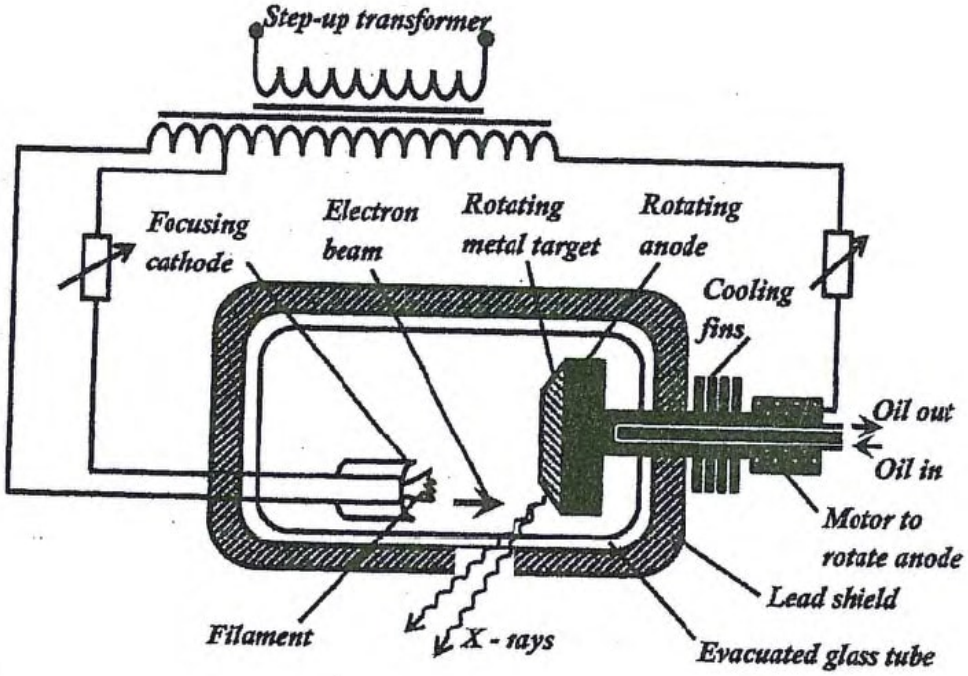


Figure 3

4. Give a reason why;
    a. The metal target is made to rotate (1 mark)
    b. Lead metal is used to shield the X-ray tube (1 mark)
5. The X-ray tube in **Figure 3** produces elctrons which are accelerated by a p.d of 12 kV. Assuming all the enrgy goes to produce X- rays, determine the maximum frequency of the X-rays produced. (Planck's constant $h = 6.62 \times 10^{-34}$ *Js*) and charge on an electron, $e = 1.6 \times 10^{-19}$ *C*) (3 marks)
6. **Figure 4**(not drawn to scale) shows a bright electric bulb placed behind a screen which has a hole with an object cross-wire. A concave mirror of focal length 30 cm is placed in front of the screen. The position of the mirror is adjusted until a sharp image of the cross-wire is formed on the screen

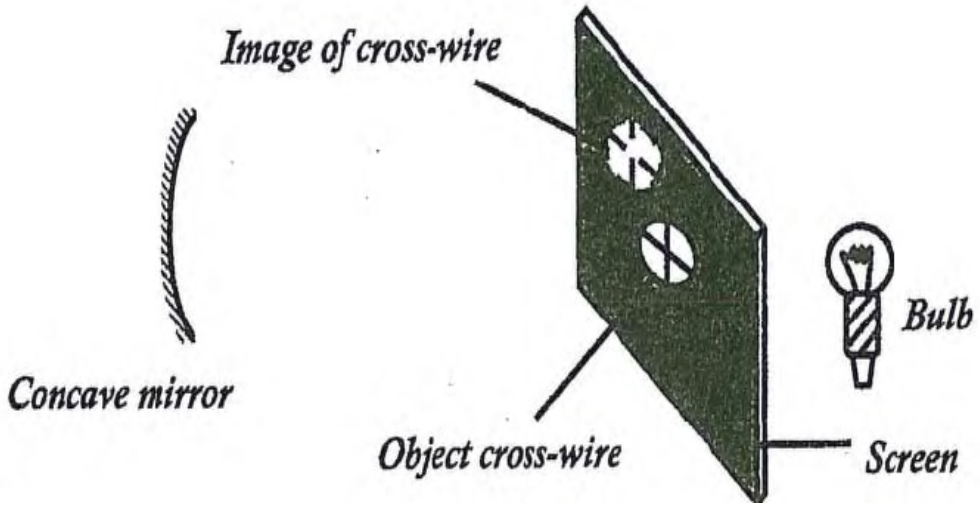


Figure 4

Detrmine the distance between the mirror and the screen (1 mark)
7. In a house, there is a cooker rated 6 kW. The mains potential is 240 V and the fuses available are 35A, 30 A, 15 A and 13 A. Determine the fuse that would be suitable for the cooker (3 marks)
8. When X- rays are passed above the cap of a positively charged electroscope it is observed that the leaf divergence decreases. Explain this observation (2 marks)
9. Several 200 Ω carbon resistors are to be connected in a circuit so that a current of 2A flows from a 50 V source. Determine how many resistors are required. (3 marks)
10. **Figure 5** shows part of a wiring circuit for a house

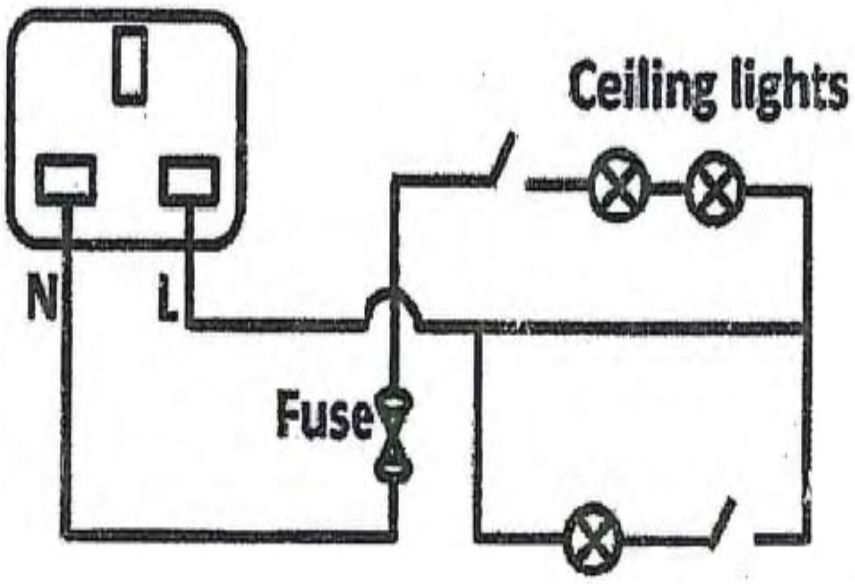


Figure 5

Correct two faults made in the wiring (2 marks)
11. The current of elctrons hitting the screen of a C.R.O is 15 mA. Given that the charge of one elctron is 1.6×10^{-19} C, determine the number of electrons that hit the screen per second (2 marks)
12. **Figure 6** shows an electromagnetic spectrum in the increasing order of wavelength from X to Y

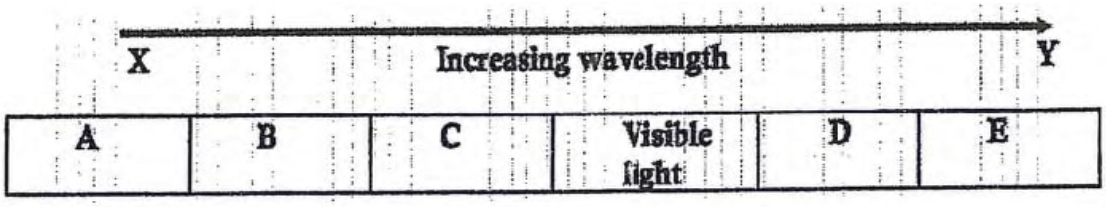


Figure 6

a. Identify the region of the spectrum labeled C (1 mark)
b. Give one similarity between the spectrum labeled B and the visible light (1 mark)

13. Give a reason why electrical power is transmitted over long distances at high voltage (1 mark)

SECTION B (55 Marks)

Answer **all** the questions in this section

14.

a. State what is meant by thermionic emission (1 mark)
b. **Figure 7** shows a beam of cathode rays entering the space between two charged metal plates. Continue the dotted line to show the path of the cathode rays as they travel between the plates and into the space beyond the plates (1 mark)

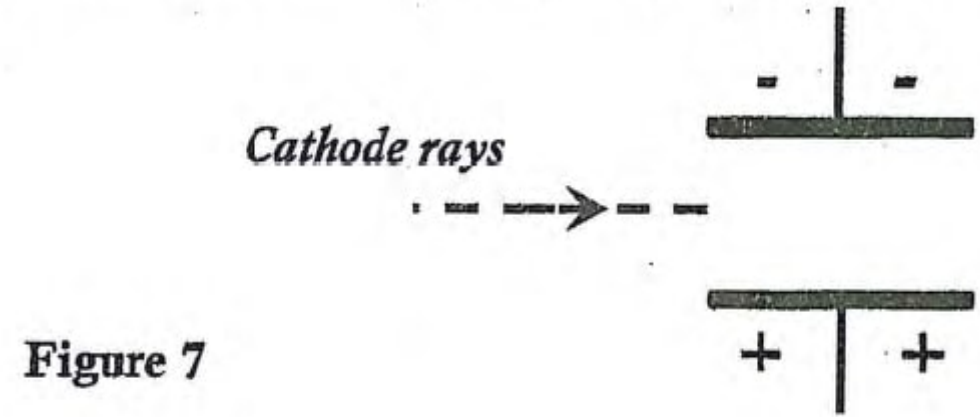


Figure 7

c. **Figure 8** shows a cathode ray tube of cathode ray oscilloscope (C.R.O)

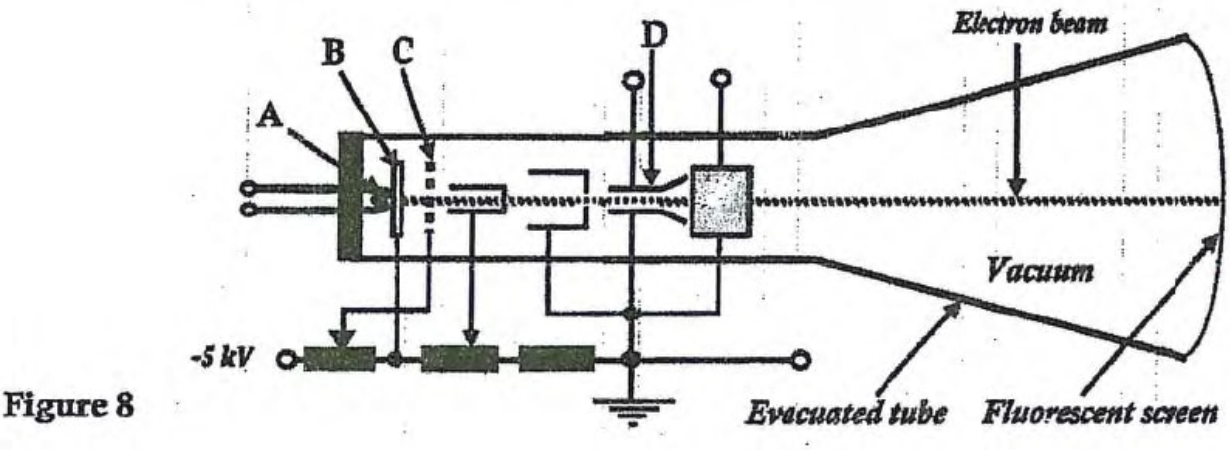
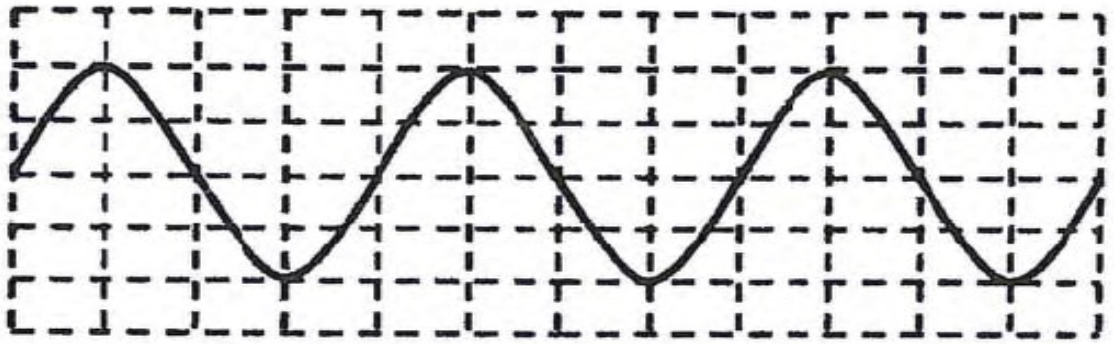


Figure 8

i. Name the parts labeled A and D (2 marks)
ii. What property does the part labeled B have for its efficient functioning (1 mark)
iii. State the function of the part labeled C (1 mark)

d. The figure below shows the trace on the screen of an ac signal connected to the Y plates of a CRO with time base on
Given that the time base control is 50 ms/div, determine the frequency of the a.c signal (3 marks)



15.

a. A piece of light object (cork floats on the surface of water as shown in **Figure 9** below. A straight edge vibrator placed at point A of the ripple tank generates water waves which travel towards point B

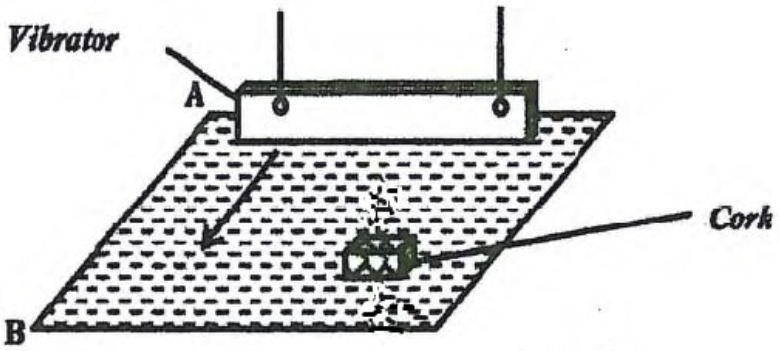


Figure 9

i. Successive waves pass the cork every 0.4 secodns and the speed of the wave is 0.5 m/s. Determine the wavelength of the waves (2 marks)

ii. Indicate on the diagram the direction in which the card moves as the waves pass on it (1 mark)

b. **Figure 10** shows a ray of light travelling from water towards its interface with air. The critical angle, C of water is 49^0

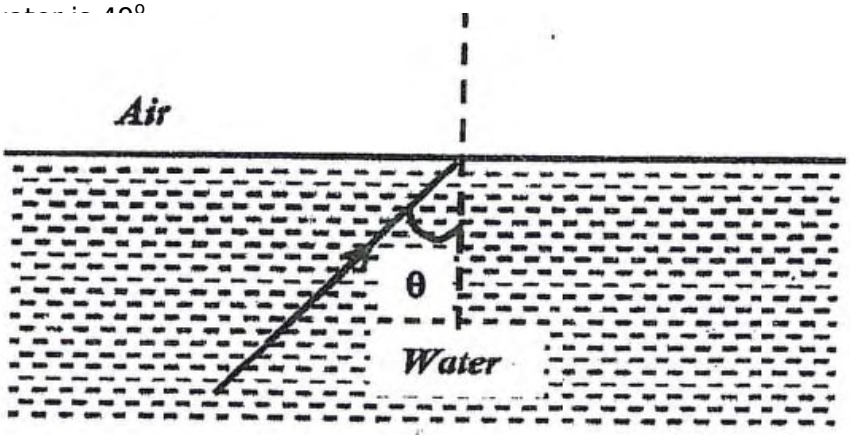


Figure 10

i. Skecth the path of the ray on the diagram above after striking the interface at
   I. An angle if incidence, **θ = C**. Label the ray as **R_1** (1 mark)
   II. An angle of incidence **θ >C**. Label the ray as **R_2** (1 mark)

ii. Calculate the absolute refractive index, n, of water (3 marks)

c. A student struck the prongs of a tuning fork agaisnt a hard surface in the laboratory. The prongs vibrate producing a longitudinal wave passing through air as shown in the **Figure 11**

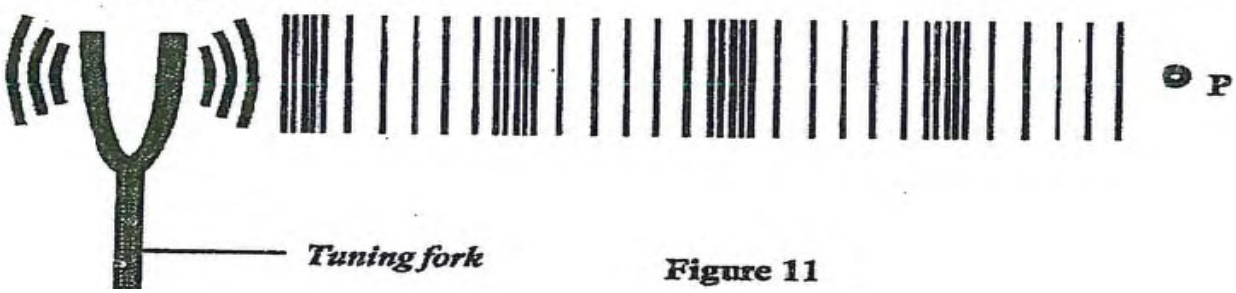


Figure 11

i. Label the compression and rarefaction regions in the longitudional wave. (1 mark)

ii. Using a lline with a double arrow, indicate on the diagram a distance d equal to one wavelength of the wave (1 mark)

iii. On the diagram, show with an arrow the direction of motion of the air particle P as the waves pass (1 mark)

d. State one advantage of optical fibre cable over conventional copper cables as used in telecommunication (1 mark)

16.

a. **Figure 12** shows ammeters and resistors connected to a battery of em.f. 15.0 V and negligible internal resistance

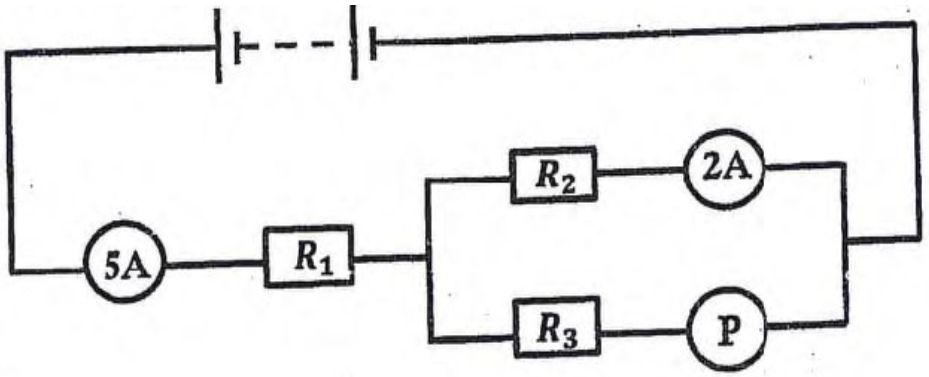


Figure 12

i. Find the reading of the meter P

ii. If the resistance R_1 is 1.2 Ω , determine as shown in figure 1 the values of R_2

b. **Figure 13** shows two charged plates P and Q one is earthed and the other is connected using a copper wire to the cap of an elctroscope which was initially unchanged.

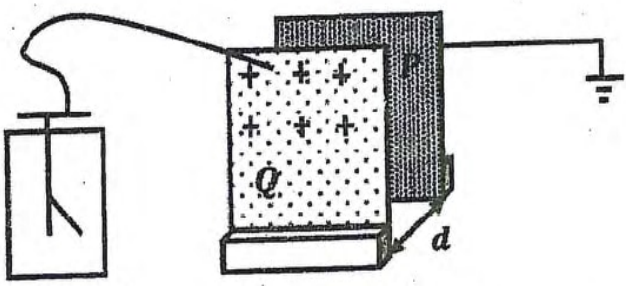


Figure 13

State what happens to the leaf of the eletrocope when plate P is moved sideways while

keeping plate Q and distance of separation constant. (1 mark)

c. **Figure 14** shows a circuit where a battery of emf 4.5 V, switches A and B, two capacitors C_1 = 0.4 µF and C_2 = 0.6 µF and a voltmeter are connected.

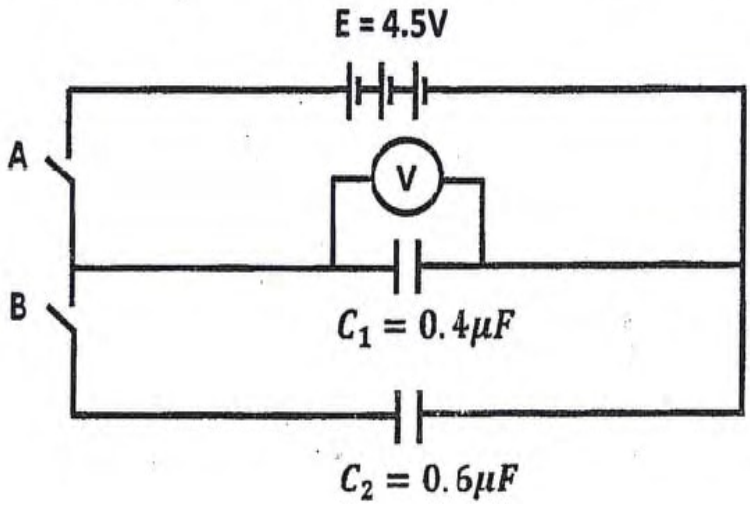


Figure 14

Determine the voltmeter reading when

i. Switch A is closed and switch B is open (1 mark)

ii. Switch A is closed and opened, and then B is closed (3 marks)

d. **Figure 15** shows a conductor C placed on a negatively charged polythene rod. Identify the charges on conducto C and sphere S when C is connected to S using a wire

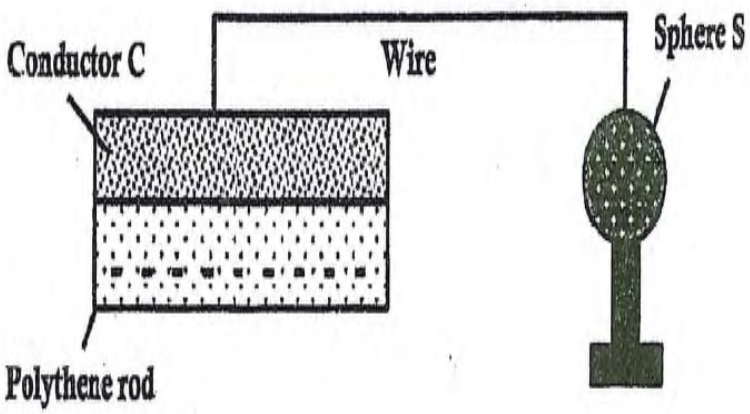


Figure 15

Conductor C (1 mark)

Sphere S (1 mark)

17.

a. **Figure 16** below shows a steel bolt being magnetized

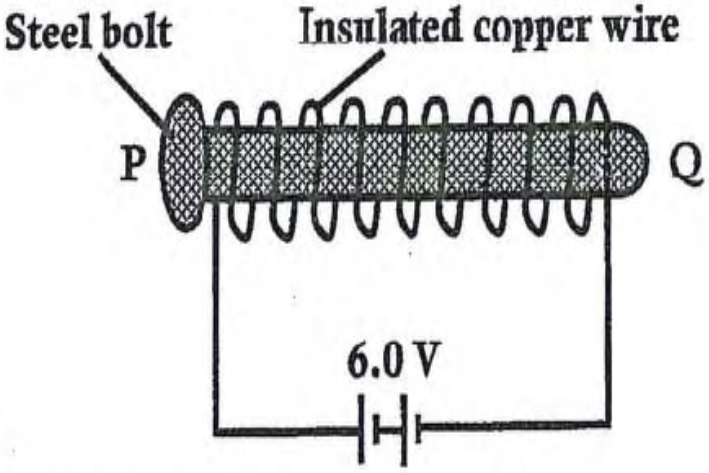


Figure 16

Identify the pole P and Q of the resulting magnet

b. **Figure 17** shows an electric device running on a battery

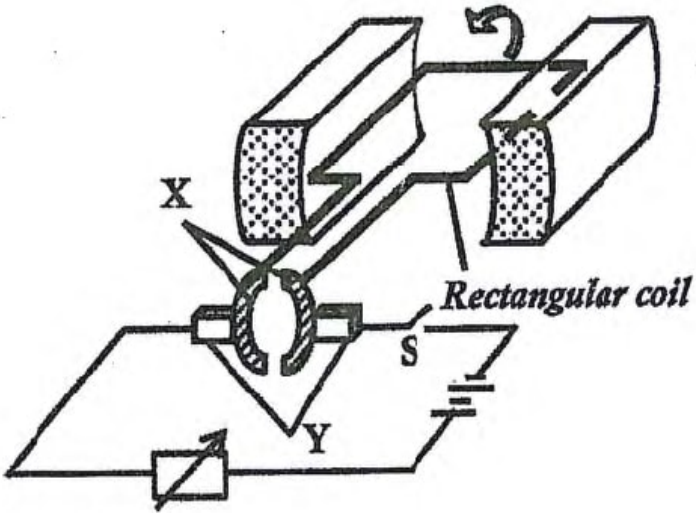
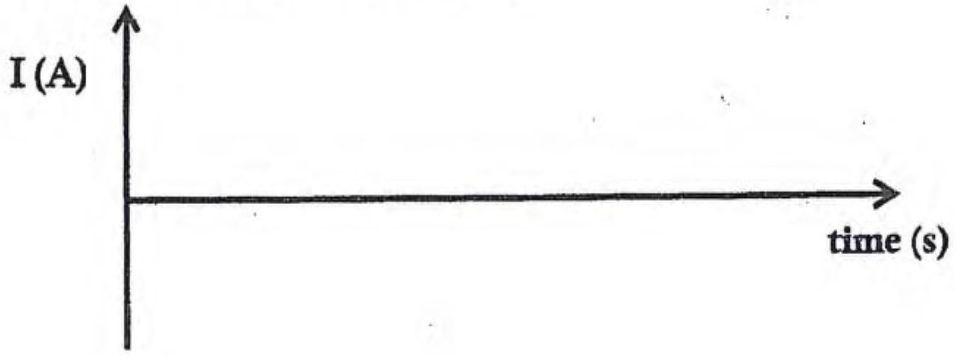


Figure 17

i. Name the parts labelled X and Y (2 marks)

ii. Given the direction of rotation of the coil is as shown in the diragram, indicate the poles of the magnet on the diagram

iii. If the battery was replaced with a copper wire, sketch on the axes below a graph of induced current against time flowing through the variable resitors if the coil is made to rotate as it is in the figure above (1 mark)



iv. Suggest an improvement that can be made to increase the magbitude of induced current in (iii) above

c. The input voltage of a transformer is 220 V and its output voltage is 12 V. When a 60 W bulb is connectd across the secondary coil, the current in the primary coil is 0.32 A. Determine the efficiency of the transformer (3 marks)

d. One of the causes of energy loss in a tranformer is through fromation of eddy currents. State one way in which eddy currents lead to energy loss in a transformer (1 mark)

e. **Figure 18** shows a connection to a three pin plug

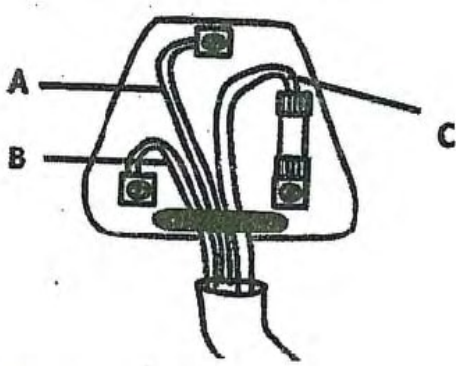


Figure 18

i. Identify the leads labelled B and C (2 marks)

ii. Give a reason why the pin onto which lead A is connected is normlly longer than the other two pins (1 mark)

18.

a. **Figure 19** shows a human eye with a defect

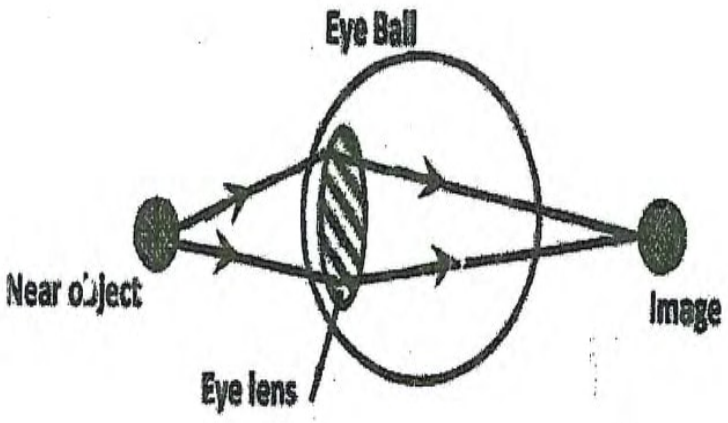


Figure 19

i. Name the defect (1 mark)

ii. State one possible cause of this defect (1 mark)

b. A lens forms an image that is four times the size of the object on a screen. If the distance between the object and the screen is 150 cm, determine;

i. State with reasons what type of lens was used (2 marks)

ii. The focal length of the lens (3 marks)

c. A barber holds a concave mirror a short distance from his client's face. Given that the described arrangement is as shown on **Figure 20** and the radius of curvature is 40 cm

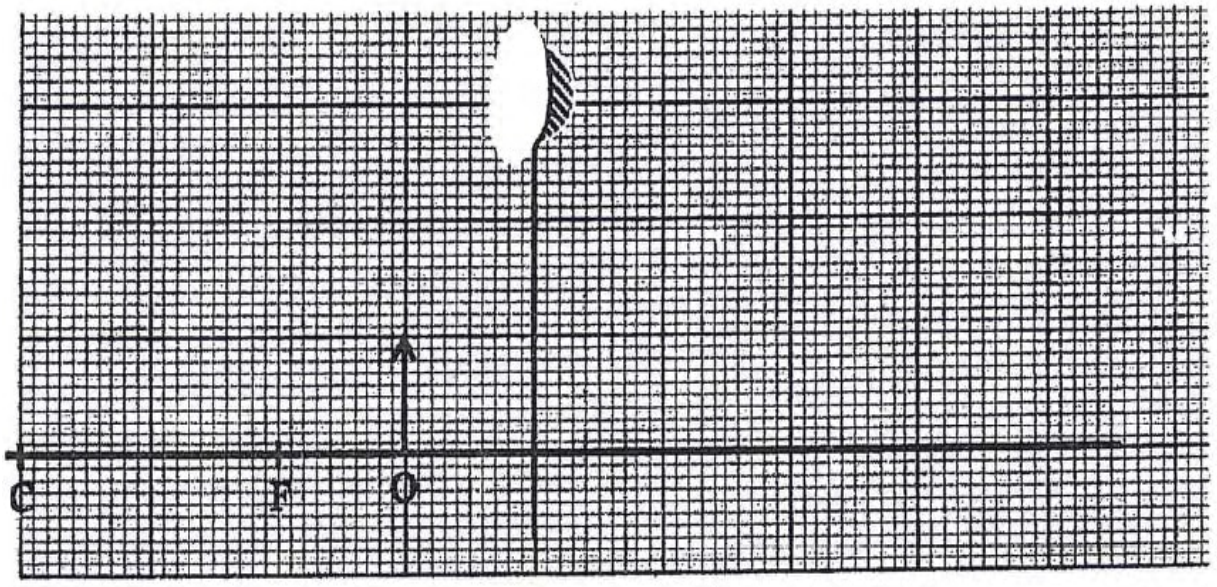


Figure 20

i. draw on the same figure, a ray diagram to show the position of the image of the client's face (2 mark)

ii. Use the ray diagram to determine the magnification of the image (1 mark)

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PHYSICS PAPER 3 - 2019 K.C.SE Prediction Set 1

Question 1

You are provided with the following apparatus

- Micrometer screw gauge
- A plastic drinking straw
- A white label with a horizontal line across the centre
- Some plasticine mass 5.0 g
- Half a meter rule
- A 200 ml beaker
- A 100 ml measuring cylinder
- Two rubber bands
- Seven shoe tacks
- Electronic beam balance
- Jockey

Proceed as follows

a. Place the seven shoe tacks on the eletronic beam balance and record the mass M.
M=.....kg (1 mark)

b. Given that W = 1.429 M, where W is the weight of one tack, determine the value of W (1 mark)

c.

i. Fix the half meter rule vertically agaisnt the measuring cyliner using rubber band with the zero mark of the half meter rule at the bottom of the measuring cylinder

ii. Measure 150ml of water using the beaker and pour it into the measuring cylinder.

iii. Roll the plasticine into a spherical ball and push one ened of the straw into the plasticine to block one end

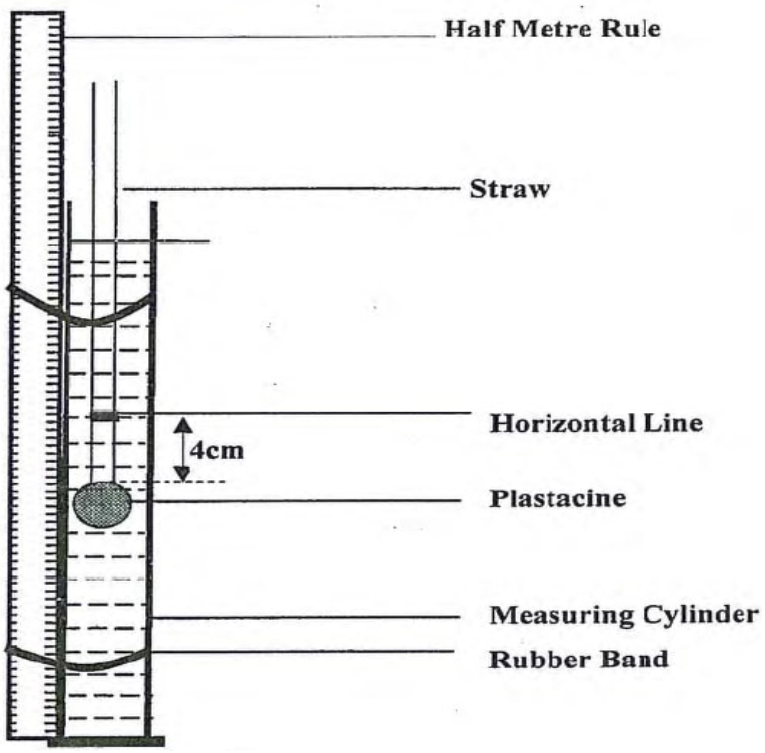
iv. Insert the drinking straw with the plasticine into the mesuring cylinder such that it floast vertically

v. Remove the straw and fix the white label at 4 cm above the plasticine so that the line at the centre runs horizontally. Ensure the line is submerged under the water as shown below

Record the position of the horizontal line as indicated on the half meter rule
L_o = ...cm (1 mark)

vi.

vii. Also record this value in the table as L when there is no shoe tack in the straw. Insert one shoe tack into the straw and record the new level L of the horizontal line in the table. Repeat the procedure for each number of shoe tacks indicated while recording the level each time.



Complete the values of L with number of stacks on the table below (6 marks)

No of shoe tacks N	0	1	2	3	4	5	6	7
Level L (cm)								
h = L_o - L (m)								

d. On the grid provided plot a graph of h against N (4 marks)

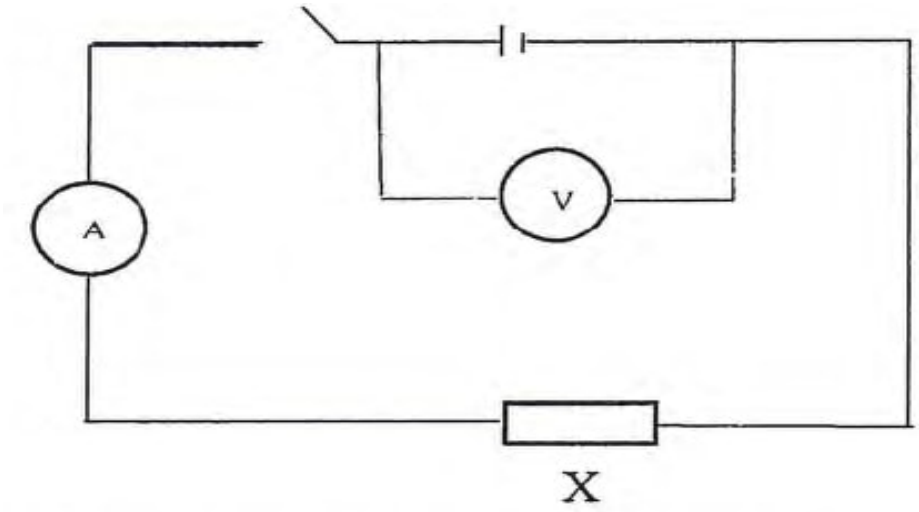
e. Determine the slope S of the graph
f. Given the upthrust U of one shoe tack is given as $U = {}^{4\pi S}/_{10000}$, determine the value of U (2 marks)
g. Determine the apparent weight of one shoe tack (2 marks)

Question 2

You are provided with the follwoing

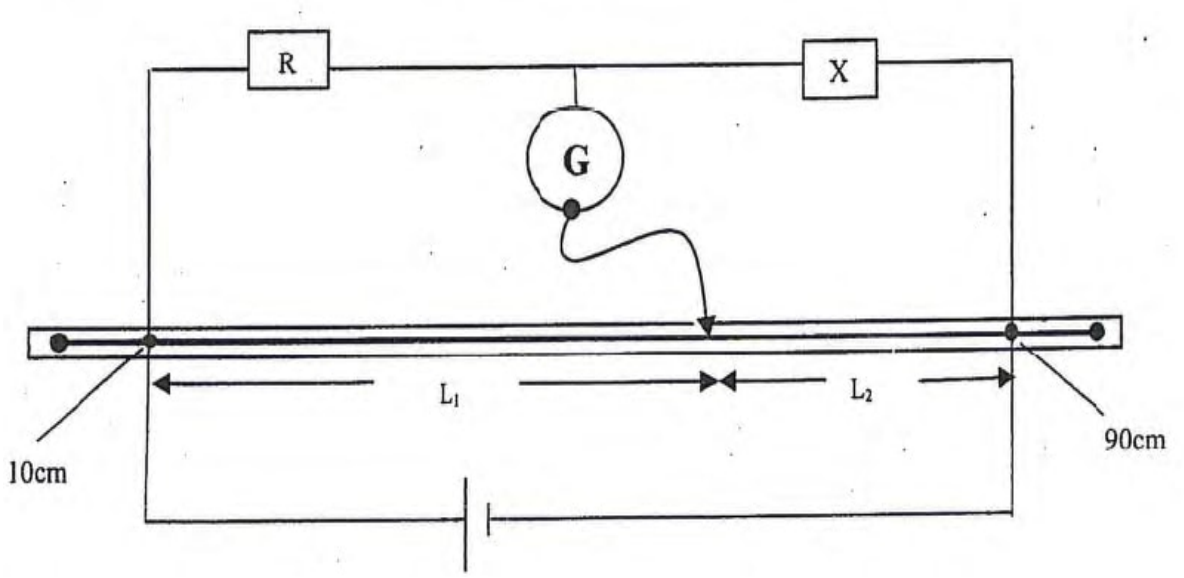
- A carbon resisitor marked X
- Resistance wire marked R
- Micrometer screw gauge (to be shared)
- Voltmeter
- Ammeter
- Resistance wire mounted on a wire labelled L
- A cell, Cell holder
- Centre-zero Galvanometer
- 8 connecting wires
- jockey

a. Using the micrometer screw gauge, measure and record the diameter D of the resistance wire R provided
D.....(m) (1 mark)
b. Setup the following circuit



i. Record the voltmeter reading when the switch is open
E=..... V (1 mark)
ii. Close the switch and record the voltmeter and ameter readings V and I
V=.....V (1 mark)
I=.....A (1 mark)
iii. Now connect the voltmeter across the carbon resistor X and record voltmeter reading V_1
V_1=.....V (1 mark)
iv. Compare the values of V and V_1 giving a reason why they are different (2 marks)
v. Calculate X_1 given that $X_1 = {}^{V_1}/_{I}$
vi. Calculate the inetrnal resistance r of the cell given that $r = {}^{(E-V)}/_{I}$ (2 marks)
vii. Calculate X_2, given that $E = I(X_2+r)$
viii. Calculate X the average values of X_2 and X_1

c. Connect anothe circuit as shown below



i. Move the sliding pointer along the resistance wire until the galvanometer reading comes to zero. Recor L_1 and L_2

ii. Obtain the value of the unknown resistance R given that $^{R}/_{X} = {}^{L_1}/_{L2}$

Interchange the positions of R and X and repeat the procedure in i above and acalculate the value of R using similar argument

L1.....L2.....(1 mark)

d.

i. Calculate the average values of R (2 marks)

ii. Given that, $R = {}^{35S}/_{100\pi D^2}$ (2 marks)

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ENGLISH PAPER 1 - 2019 K.C.SE Prediction Set 1

101/1 ENGLISH

PAPER ONE

TIME: 2HRS

INSTRUCTIONS TO CANDIDATES

1. Write your details in the spaces provided above.
2. Answer all the questions in this paper.
3. Answer the questions in English

1. **FUNCTIONAL WRITING**

   Students in your school have raised concerns about poor hygiene in the school. In a bid to address these concerns, the principal appoints a four member committee to investigate the health situation and give recommendations. You are the secretary of the committee, write down the report you will present to your principal. (20mks)

2. **CLOZE TEST (10MKS)**
   Fill in the blank spaces with the most appropriate words.

   A new research title “Underage drinking in Kenya”, has .....1.....that nearly one third of form four students aged below 18 years take alcohol .....2..... As our society ponders this sad .....3....., the urgent message to children who are taking alcohol .....4..... do not drink another sip. Advice to those children is to strongly say “no”. .....5.....irresponsible behaviour, to alcoholism, there are many.....6.....effects of alcohol. It is wrong and illegal for children to drink alcohol. This report also states that 46 percent of the children received .....7.....first pint from friends and .....8..... Do you offer alcohol to a child? As a parent or guardian, do you nurture .....9.....? How much time do you spend with them? Notably, ...10.....of guidance and supervision are stimuli to underage drinking.

3. **ORAL SKILLS (30MKS)**
   Read the poem below and answer the questions that follow

   Make me a grave where’er you will,
   In a lowly plain, or a lofty hill;
   Make it among earth’s humblest graves,
   But not in a land where men are slaves.

   I could not rest if around my grave
   I heard the steps of a trembling slave;
   His shadow above my silent tomb
   Would make it a place of fearful gloom

   I could not rest if I heard the tread

Of a coffle going to the shambles led,
And the mother's shriek of wild despair
Rise like a curse on the trembling air

(by Frances Ellen Watkins Harper)

Questions

a. Describe the rhyme scheme of the poem above. (2mks)
b. Apart from rhyme, mention two other ways they have achieved rhythm? (4mks)
c. Mention two ways in which you would know that your audience is fully participating during the recitation of the poem above. (2mks)
d. How would you say the last line of the poem? (2mks)
e. Indicate whether the following items have a falling or a rising intonation. (4mks)
    i. Get out now!
    ii. The man was accused of theft.
    iii. How did you find the English exam?
    iv. Could he have left?
f. Underline the silent letters in the following words. (4mks)
    i. Corps
    ii. Parliament
    iii. Leopard
    iv. Fracas
g. Provide a homophone for each of the following words. (4mks)
    i. Bury
    ii. Claws
    iii. Guest
    iv. Male
h. The underlining indicates the stressed word in the sentences below. Briefly explain what each sentence mean (3mks)
    i. The <u>lady</u> in a red dress lost her purse
    ii. The lady in a <u>red</u> dress lost her purses
    iii. The lady in a red dress lost her <u>purse</u>.
i. Identify the odd word out according to the pronunciation of the underlined sound. (2mks)
    i. S<u>ai</u>d H<u>ea</u>d G<u>a</u>te L<u>e</u>d
    ii. <u>F</u>ace <u>Ph</u>rase She<u>ph</u>erd <u>Ph</u>ase
j. Below is a dialogue between Muthomi and James who are candidates. Read it and answer the questions that follow.

Muthomi: James, I'm worried about my performance in English. It's not encouraging.
James: Ah! I'm happy with mine in Biology. I got an A in the last exam.
Muthomi: I really don't know what to do about English, maybe…
James: I don't like History and P.E teacher. He thinks he is the only one who can a pick-up truck. My mum told me she would be buying one soon.
Muthomi: (Trying to bring him back to the topic) Tell me James, how do you revise English?
James: Oh! Is that Betty? She promised to bring me a movie. (Calling out) Betty! Betty! (The runs after her)
    i. Identify the shortcomings in the dialogue above (3mks)

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ENGLISH PAPER 2 - 2019 K.C.SE Prediction Set 1

INSTRUCTIONS TO CANDIDATES

1. Write your details in the spaces provided above.
2. Answer all the questions in this paper.
3. Answer the questions in English

1. **COMPREHENSION**

Read the passage below and answer the questions that follow

The process of developing social skills among children at an early age is important. Researchers have cited rejection by peers as the greatest challenge children face in their quest to build meaningful social skills. It has been reported that children who get bullied and snubbed by peers are more likely to have problems in relating with others. In recent times, researchers have found at least three factors in a child's behaviour that can lead to social rejection. The factors involve a child's inability to pick up on and respond to nonverbal cues from their pals. In the United states 10 to 13 percent of school-going children experience some form of rejection by their peers. In addition to causing mental health problems, bullying and social isolation can increase the likelihood of a child getting poor grades, dropping out of school,, or developing substance abuse problems.

It is reported that the social skills that children gain on the playground or elsewhere could show up later in life, according to Richard Lavoie, an expert in child social behaviour. He says that children experiment with the relationship styles they will have as adults during unstructured playtime-when children interact without the guidance of an **authority figure.** Researchers say that the number-one need of any human is to be liked by other humans. However, researchers have expressed concern that our children are like strangers in their own land. They don't understand the basic rules of social behaviour and their mistakes are usually unintentional.

Children who face rejection may have problems in at least one of three different areas of nonverbal communication, which is the reason they are rejected. These are reading nonverbal cues; understanding their social meaning; and coming up with options for resolving a social conflict. A child, for example, simply my not notice a person's scowl of impatience or understand what a tapped foot means. In another situation, a child may have trouble reconciling the desires of a friend with her own. Anyone trying to help children on their social skills should try to pinpoint the weaknesses a child has and then build those up.

When children have prolonged struggles with socializing, "a vicious cycle begins," children who are **shunned** by others have few opportunities to practice social skills whereas popular children have more than enough opportunities to perfect theirs. However, having just one or two friends can be enough to give a child the social practice he or she need.

Parents, teachers and other adults in a child's life can help, too. Instead of reacting with anger or embarrassment to a child who, say, asks Aunt Vera if her new hairdo was a mistake, parents should teach social skills with the same tone they use for teaching numeracy skills or proper hygiene.If presented as a learning opportunity, rather than a punishment, children usually appreciate the lesson. It is important to note that most children are so desperate to have friends that they **just jump on board.**

To teach social skills, Lavoie advises a five-step approach in his book. The process works for

children with or without learning disabilities and is best conducted immediately after a wrongdoing has been made. First, ask the child what happened and listen without judgment. Second, ask the child to identify their mistake. Often children only know that someone got upset, but don't understand their own role in the outcome. Third, help the child identify the cue they missed or mistake they made, by asking something like: "How would you feel if Emma was hogging the tyre swing?" Instead of lecturing with the word "should," offer options the child "could" have taken in the moment, such as "You could have asked Emma to join you or told her you would give her the swing after your turn. "Fourth, you can create an imaginary but similar scenario where the child can make the right choice. For example, you could say, "If you were playing with a shovel in the sand box and Aiden wanted to use it, what would you do?" Lastly, give the child" social homework" by asking him to practice this new skill, saying: "Now that you know the importance of sharing, I want to hear about something you share tomorrow."

(Adapted from livescience.com-Tue Feb 2, 2010)

Questions

a. In one sentence, explain what this passage is talking about? (2mks)
b. What is the number one need of any human being? (1mk)
c. What are cited as the causes for social rejection according to the passage (2mks)
d. What is social rejection likely to lead to (2mks)
e. What vicious cycle is referred to in this passage (2mks)
f. How can a parent make children appreciate the lesson on social skills? (2mks)
g. "How would you feel if Emma was hogging the tyre swing?" Re-write in reported speech. (1mk)
h. Make notes on the five-step approach to teach children social skills (5mks)
i. Explain the meanings of the following words and phrases as used in the passage (3mks)
    i. Authority figure
    ii. Shunned
    iii. Jump on board

2. **Read the excerpt below and answer the questions that follow (25mks)**

A Doll's House:

Krogstad: (Controlling himself) Listen to me, Mrs. Helmer. If necessary, I am prepared to fight for my small post in the Bank as if I were fighting for my life.

Nora: So it seems

Krogstad: It is not only for the sake of the money; indeed, that weighs least with me in the matter. There is another reason-well, I may we well tell you. My position is this. I daresay you know, like everybody else, that once, many years ago, I was guilty of an indiscretion.

Nora: I think I have heard something of the kind.

Krogstad: The matter never came into court; but every way seemed to be closed to me after that. So I took to the business that you know of. I had to do something; and, honestly, I don't think I've been one of the worst. But now I must cut myself free from all that. My sons are growing up; for their sake I must try and win back as much respect as I can in the town. This post in the Bank was

like the first step up for me – and now your husband is going to kick me downstairs again into the mud.

Nora: But you must believe me, Mr. Krogstad; it is not in my power to help you at all.

Krogstad: Then it is because you haven't the will; but I have means to compel you.

Nora: You don't mean that you will tell my husband that I owe you money?

Krogstad: Hm! – suppose I were to tell him?

Nora: I would be perfectly infamous of you. *(Sobbing)* To think of his learning my secret, which has been my joy and pride, in such an ugly, clumsy way – that he should learn it from you! And it would out me in a horribly disagreeable position-

Krogstad: Only disagreeable?

Nora: *(Impetuously)* well, do it, then! – and it will be the worse for you. My husband will see for himself what a blackguard you are, and you certainly won't keep your post them.

Krogstad: I asked you if it was only a disagreeable scene at home that you were afraid of?

Nora: If my husband does get to know of it, of course he will at once pay you what is still owing, and we shall have nothing more to do with you.

Krogstad: *(Coming a step nearer)*Listen to me, MrsHelmwe. Either you have a very bad memory or you know very little of business. I shall be obliged to remind you of a few details.

Questions

a. What happens just before this excerpt? (2mks)
b. Identify and illustrate any two themes evident in the excerpt. (4mks)
c. Using about fifty words, summarise why Krogstad is prepared to fight for the small post in the bank (5mks)
d. Identify and illustrate any two character traits of; (4mks)
    i. Krogstad
    ii. Nora
e. Identify and illustrate any two stylistic devices used in the excerpt. (4mks)
f. Explain the meaning of the following words as used in the extract (2mks)
    i. Compel
    ii. Blackguard
g. "I shall be obliged to remind you of a few details". Which are those details? (4mks)

3. **Read the following narrative then answer the questions that follow (20mks)**

Once upon a time Hare and Hyena were very good friends. They visited each other every day and herded their cows together.

There came a time when the cows started dying one after the other. The two friends wanted to find out why the cows were dying. Hare said, 'Let us go and kill our mothers and take out their livers. We shall then cook and taste these livers. The bitter liver will show whose mother was making the cows die. At once Hyena went and killed his mother. He took out the liver and cooked it. Hare went and hid his mother in the garden in bushy banana plants. He then went and killed an antelope,

took out its liver and cooked it.

The two friends met to eat their livers. “My liver is very bitter”, said the Hyena. “Mine is very sweet,” said Hare, “So it was your mother who was making the cows die.” Hyena kept quiet and went home feeling sad. He moved from the old house to a smaller one because now he had no mother. Hare did the same

After a short time, there was great famine in the land. The two friends decided that each of them was to look for food on alternate days sharing, on an equal basis what was available. When it was Hyena’s turn, he went and found only honeycombs without any honey. When Hyenabrought these, Hare refused this because he had secretly gone to his mother who had given him some bananas. This went on for many days, and Hyena grew thinner and thinner. Then he started wondering. “How does my friend remain fat and he doesn’t eat anything. I will find out.”

One day he followed Hare. Hare went to his mother as usual. ‘Mother, mother, I have come’ and the mother dropped some bananas which Hare ate quickly. He then looked for some honeycombs and took them to the friend. “This is all I could find my friend.” The Hyena kept quiet. The next day he went to the banana plant and called. His voice however was very deep and no bananas were dropped for him.

There was an old hyenawho was staying at the end of the forest and used to give advice to people. So Hare’s friend went to her and told her his problem. “Go and put your tongue on the path of black ants,” He was told, “Let them bite your tongue until it hurts. That’s how your voice will be soft.”

Hyena went and did as he was told. When he went to Hare’s mother his voice was as soft as Hare’s. “Mother, mother I have come.” And Hare’s mother dropped bananas for his him. Then he told her to come and greet him. When she came down and saw it was Hyena she screamed but there was nobody near to help. Hyena killed her immediately.

Hyena went and met Hare as usual saying nothing about Hare’s mother. The following day it was Hare’s. “Mother, mother I have come.’ And Hare’s mother dropped bananas for his him. Then he told her to come and greet him. When she came down and saw it was Hyena she screamed but there was nobody near to help. Hyena killed her immediately.

Hyena went and met Hare as usual saying nothing about Hare’s mother. The following day it was Hare’s turn. He went to his usual place. “Mother” he called again. He climbed up. There was nobody. Having seen some blood on the ground, Hare knew what had happened to his mother.

When Hare got back to Hyena’s house, he said nothing. At night, Hare took all cows including Hyena’s and went away to live in another part of the country. That ended the Hare and Hyena’s friendship. And that is the end of my story to you.

Questions

a. With illustrations, classify the above narrative (2mks)
b. Identify three features of narratives (3mks)
c. Identify three features in this story that are characteristics of oral narratives (3mks)
d. Briefly explain the character traits of the following (4mks)
    i. Hare
    ii. Hyena

e. What moral lesson do you learn from this story? (2mks)
f. Identify two socio-economic activities from the community in which the narrative is taken from. (2mks)
g. You have been selected for a fieldwork research to collect the above item.
    i. Briefly explain two ways in which you would collect information on the item. (2mks)
    ii. Identify two challenges you might encounter during the field work and state how you would solve them. (2mks)
h. Then he started wondering "How does my friend remain fat and he doesn't eat anything. I will find out". (Re-write into indirect speech) (1mk)
i. Describe the irony in the fifth paragraph (2mks)

4. GRAMMAR (15MKS)

a. Rewrite the following sentences according to the instructions given (3mks)
    i. He will not be given a driving license. He passes the road test (Rewrite as one using 'unless')
    ii. The woman left the child with a neighbor and went to the market. (Begin: leaving….)
    iii. The boys went to play in the field (underline the adverbial)
b. Supply the correct preposition to complete the sentences given. (3mks)
    i. Property worth millions of shillings went up ……flames.
    ii. The three boys shared the bread ……themselves.
    iii. We should strive to live ……our means.
c. Use the correct form of the word in brackets to fill in the blank spaces in the sentences below. (3mks)

    i. The audience was offended by the ……(sense) of the speaker.
    ii. The ……(acquire) of a university degree is a great milestone to a student.
    iii. Everyone should obey the law ……of their position in the society.
d. Use the correct alternative to complete the sentences below (4mks)

    i. Teaching ……(practice/practice) is not an easy job for teacher-trainees.
    ii. The prophet's ……(prophesy/prophecy) was misleading to his audience.
    iii. He ……((insured/ensured) his car with Madison.
    iv. Mwita ……(hanged/hung) the chart on the wall.
e. Write the following sentences in indirect speech (1mk)
    "These are juicy mangoes," Ken said.
f. You do not require to cheat to pass (1mk) (Supply a suitable question tag).

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ENGLISH PAPER 3 - 2019 K.C.SE Prediction Set 1

1. Write your details in the spaces provided above.
2. Answer **three** questions only
3. Questions **one** and **two** are **compulsory**
4. In question **three** choose only **one** of the optional texts you have prepared on.
5. Where a candidate presents work on more than one optional text, only the first one to appear will be marked.
6. Each of your essays must **not** exceed **450** words.
7. Candidates should check to ascertain that no questions are missing.

1. **IMAGINATIVE COMPOSITION (20MKS)**
    a. Write a composition ending with the following statement.
    ……a final look at her made me realize that choices have consequences.

    OR

    Write a composition to illustrate the proverb, “once beaten twice shy”.

2. **COMPULSORY TEXT BLOSSOMS OF THE SAVANNAH H.R OLE KULET (20MKS)**

    Parenting should build an environment of trust and peace in a family. Write an essay that explores how this statement applies to the Ole Kaelo family in Blossoms of the Savannah.

3. **OPTIONAL SET BOOKS**
    a. **Drama: David Mulwa: The Inheritance**

    Inheriting a top seat without merit only invites ridicule from subjects. Write an essay showing how satire has been used in The Inheritance by David Mulwa.

    b. **Short stories: Moran (ED) memories we lost.**

    Discuss the major issues highlighted by the writer in the story window seat by Benjamin Branoff.

    c. **John Steinbeck. The Pearl**

    The Pearl potrays humans as beings inherently greedy. Show the validity of this statement with reference to The Pearl.

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KISWAHILI KARATASI YA 1 - 2019 K.C.SE Prediction Set 1

1. Swali la **lazima**
   Nchini Kenya wanachi wamegawanyika katika misingi mbali mbali. Hali hii inatishia usalama na umoja wa kitaifa. Kama mtaalamu na katibu wa shirika lisilo la kiserikali la Kenya Moja, mwandikie rais barua ukipendekeza mikakati ya kuimarisha na kudumisha umoja wa kitaifa
2. Utandawazi unaathari nyingi mbaya kuliko nzuri katika maisha yetu. Jadili
3. Siku ya nyani kufa, miti yote huteleza
4. **Andika insha ikayamalizikia kwa**
   Tokea siku hiyo, maisha yangu yakachukua mkondo mpya

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KISWAHILI KARATASI YA 2 - 2019 K.C.SE Prediction Set 1

1. **UFAHAMU (ALAMA 15)**
   Soma ufhamu kisha ujibu maswali

   Mojawapo ya masuala tata yanayokumba taifa letu la Kenya ni zimwi la ufisadi. Ufisadi huu umekuwa kizingiti kikubwa katika juhudi za serikali katika kuendeleza miradi ya maendeleo kwa raia wake. Kulingana na utafiti uliofanywa na shirika la Transparency International, Kenya imeorodheshwa miongoni mwa mataifa fisadi duniani. Utafiti huu umeleta mwamko mpya kwa serikali, upinzani pamoja na mashirika mengi ya humu nchini na ya kimataifa kupiga darubini suala hili.

   Kwanza, suala la ubepari limeelekezewa lawama. Kuna baadhi ya watu ambao wanatamani kumiliki ulimwengu mzima, wana ***utashi*** wa kupokea mali kwa njia yoyote. Watu kama hawa ndio wameweka vikwazo na kulazimisha wenzao kutoa ***kadhongo*** ili wahudumiwe. Aidha, wafanyakazi wa serikali wasipolipwa vyema wanaweza kuitikia mpango wa ufisadi ili waeze kujipatia riziki. Sababu hhi ndio inawafanya baadhi ya polisi kushirikiana na wahalifu. Badala ya kutarajia pingu za polisi, wanatarajia pambaja baada ya kula mlungula.

   Ukosefu wa kazi nchini pia umechangia pakubwa kukuza ufisadi. Vijana barobaro wanazururra ovyo ovyo huku wakitafuta kazi lakini hawapati kazi wala bazi. Ili wapate kazi wanalazimika kutoa ***kadhongo*** ndipo waajiriwe.

   Ufisadi una madhara chungu nzima. Mojawapo wa madhara haya ni kuzorota kwa usalama nchini. Wahalifu humiliki silaha kinyume cha sheria. Silaha hizi hutumiwa kupora mali na kutekeleza mauaji. Tatizo hili limepiga dhoruba kali uchumi kwani wawekezaji wa kigeni wamesita kuwekeza humu nchini.

   Eneo jingine ambapo ufisadi hutekelezwa ni katika ukwepaji ushuru. Ni bayana kwamba kulipa ushuru ni kujitegemea. Serikali hupata hela muhimu za kugharamia huduma kwa wananchi kupitia ulipaji wa ushuru. Basi ikiwa hela hizi zitapotea kupitia ukwepaji wa ushuru, serikali haitakuwa katika nafasi ya kutoa huduma kwa wananchi. Huduma hizi ni kama vile afya, nguvu za umeme, usalama, ujenzi wa barabara na miuondomsingi mingine miongoni mwa huduma nyingine. Aidha, serikali hushindwa kulipa mishahara ya wafanayikazi wake.

   Ufisadi bila shaka umekuwa kidondandugu katika harakati za kuimarisha uchumi. Serikali inafaa kushutumiwa kwa ***kutovalia njuga*** suala hili ambalo linaendelea kuota mizizi kila uchao. Wanachi hawana budi kushirikiana na taasisi za kukabiliana na ufisadi ili kulizika janga hili katika kaburi la sahau.

   Maswali

   a. Taja kichwa mwafaka cha makala haya (alama 2)
   b. Eleza kiini cha zimwi linalozungumziwa katika makala haya (alama 4)
   c. Thinitisha kwamba ufisadi ni "kidondandugu" (alama 4)
   d. Eleza namna uchumi umelamazwa kwakuwepo kwa ufisadi (alam 2)
   e. Toa maana ya
      i. Utashi
      ii. Kadhongo
      iii. Kutovalia njuga

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2. **UFUPISHO (ALAMA 15)**
Soma makala yafuatayo kisha ujibu maswali

Wataalamu wa maswala ya kielimu wanadai kuwa huenda nchi hii ikalaumiwa kwa kuendeleza mfumo wa elimu unaozingatia maslahi ya wakwasi na kuwapuuza wachochole. Mfumo huu wa elimu umezua mfumo mwingine wa kijamii ambapo watoto wa wenye hadhi wanaapata eleimu bora kuliko watoto wa maskini. Pengo baina ya haya matabaka linzaidi kupanuka kama ardhi na mbingu

Watoto kutoka jamii hohehahe wanasomea katika shule za umma zisizo na lolote wala chochote na watoto wa kifahari wanasomea katika shule za kibinafsi zilizo na vifaa mufti na mazingira faafu. Mfumo wa jinsi hii ni kuitia jamii kitanzi kwa sababu ya kuzuka kwa matabaka yanayohasimiana

Katika nchi ambapo asilimia sitini ya watu inaishi katika hali ambayo ni chini ya dola moja kila siku, watoto wengi huenda shuleni bila kula chochote na hushinda hivyo kutwa nzima na wasing'amue chochote darasani. Walimu wao nao hawana ilhamu au kariha ya kufanya kazi kwa sabau mazingira ya kikazi ni mabovu na huenda shuleni shingo upande kama wakulima bila pembejeo. Madarasa yao ni mabanda na wengine husomea chini ya miti ambayo inaweza kukatwa wakati wowote na wachoma makaa waliokosana na mazingira. Unapowatazama watoto hawa, kile kinachoitwa sare ya shule kinakirihisha na kuyaudhi macho. Ni matambara yaliyosheheni viraka vya kila aina katika mseto wa ufakiri. Hawa ni wenzetu eti!

Tatizo hili limekuwa nyeti hasa kutokana na utandawazi wa mfumo wa soko huru ambao unaruhusu shule za kibinafsi kuendeshwa kama mashirika ya kibiashara. Karo inayolipwa katika shule hizi ni ya kibiashara, majengo na vifaa ni vya kibishiara, walimu ni wa kibiashara, ilmuradi kila jambo lalenga maslahi ya kibiashara ya walala hoi. Hapo ndipo chimbuko la makabila mawili maarufu nchini yaani matajiri walamba vidole na maskini wanaostakimu madongo-kuinama

Uchunguzi umethibitisha kwamba zaidi ya asilimia sitini ya wanafunzi wanaojiunga na shule za kitaifa hutoka katika shule za kibinafsi zinazomilikiwa na matajtri. Mbinu ya wizara ya Elimu ya kugawa nafasi kwa njia ya haki katika shule za kitaifa haijafua dafu kwa sababu matajiri wajanja huwasajili watoto wao kufanyia mitihani katika shule zisizokuwa na ushindani mkubwa zilizomo mashambani. Kwa kufanya hivyo, watoto wa maskini huwa wamefungiwa njia kotekote na kuporwa haki yao. Ama kwa kweli, mwenye nguvu mpishe kwani dau la mnyonge haliendi joshi.

Wanafunzi katika shule za binafsi hufunzwa katika makundi madogo amabyo humwezesha mwalimu kushughulikia mahitaji ya kibinafisi ya kila mtoto. Wazazi wao pia huwaajiri walimu wakati wa mapumziko ili kugongomeza au kushadidia mada ambazo hawakuzielewa vizuri shuleni. Upeo wa lugha wa watoto hawa hauwezi kulinganishwa na wa wenzao kwa sababu shule zao zina maktaba za kisasa, vifaa vya kisasa na vitu meme na hufunzwa teknolojia za kileo kuhsuu mawasiliano. Watoto hawa huandaliwa ziara za kieleimu ili kutanua uelewa wao wa mambo na vile vile hualikiwa watu wanoasifika katika jamii kuwahutubia shuleni mwao kuhusu mada mbalimbali. Wawasilishaji hawa huwa ni kielelezo tosha kwa watoto hawa. Mzazi aliyesoma hujua umuhimu wa elimu na hivyo basi huandaa mikakati mahsusi ili kumfaulisha mwanawe kinyume na wazazi wakata.

Ni bayana kuwa iwapo hivi ndivyo mambo yalivyo basi hata vyuo vikuu vitakuwa himaya ya watoto wa matajiri huku watoto wa kimaskini wakisubiri kuajiriwa nao kama walinzi na matopasi. Sera za elimu nchini haziwezi fanikiwa pale ambapo rasilimali muhimu zinatengewa watu

wachache katika jamii. Watoto wa waunda sera hizi husomea katika shule ambazo hufuata mifumo ya kimataifa ambayo haina ukuruba na yetu hafifu. Katika majukwaa ya kisiasa utawasikia wakisifu mfumo ambao watoto wao wanaukwepa kama ukoma. Imekuja kudhihirika kuwa wale wanaosemekana kuwa viongozi wa kesho ni wale ambao sasa hivi wansomea katika hizo akademia na kufuatilia mifumo ya kigeni au akademia zinazofuata mfumo wetu katika mazingira teule. Swali ni hili, kesho ya mtoto wa kimaskini ni ipi?

Inahitajika mikakati ya kimakusudi ili kulitanzua swala hili kabla ya milipuko ya kijamii kama vile ujambazi, uuaji, ubakaji, uraibu wa mihadarati na kadhalika kutokea. Ipo lazima ya kujenga shule vielelezo katika kila gatuzi ambazo zitafadhiliwa na serikali kwa kupewa mahitaji yote muhimu na lazima mpango wa lishe bora kuanzishwa katika shule za umma ili kukidhi matilaba ya watoto wote. Udahili wa wanfunzi katika shule za kiatifa na katika vyuo vikuu ni sharti uvalishwe vazi la utu na uzalendo bila ubaguzi. Shule za umma ziwe na walimu na madarasa ya kutosha ili kuondoa matatizo yaliyoibuka kutokana na kuanzishwa kwa mpango wa elimu bila malipo katika shule za msingi. Sera kuhusu shule za chekechea lazima izinduliwe kitaifa ili kusawazisha msingi wa kila mtoto kielemu. Walimu wa shule hizi za malezi lazima wawe na maadnalizi sawa yatakayowawezesha kusawazisha viwango kitaalamu. Mitaala yetu ilenge kuzalisha binadamu ambaye atajinufaisha yeye binafsi na taifa kwa jumla.

Maswali

a. Ni mabo yapi muhimu yanayojitokeza katika aya ya tatu hadi ya saba (maneno 80-85) (alama 8, 1 utiririko)
   Matayarisho.....
   .....
   Jibu.....
   .....
b. Ni mapendekezo yapi yanayotolewa katika aya ya mwisho (maneno 55-65) Alama 7, 1 ya utiririko)
   Matayarisho.....
   .....
   Jibu.....
   .....

3. **MATUMIZI YA LUGHA (ALAMA 40)**
   a. Kanusha sentensi ifuatayo:
      Nyumba yake ina milango na mapambo mengi (alam 2)
   b. Eleza maana nne za sentensi ifuatayo (alama 2)
      Alinunuliwa ng'ombe na mtoto wake
   c. Changanua sentensi ifuatayo kwa kutumia mishale (alama 4)
      Wanafunzi wasiofuata maagizo watapata alama ambazo zitawaudhi
   d. Eleza maana ya semi zifuatazo
      i. Ana mkono wa msiba (alama 1)
      ii. Pele hupewa msi kucha (alama 1)
   e.
      i. Eleza maana ya kirai (alama 1)
      ii. Tambulisha aina za virai vilivyopigiwa mstari katika sentensi ifuatayo (alama 1)
      Wale wasichana watundu walijificha **chini ya** dawati mwalimu alipowaita
   f. Taja aina moja ya sentensi kidhamira na kuitolea mfano mwafaka (alama 1)
   g. Andika kifungu kifuatacho katika usemi halisi (alama 4)
      Wanafunzi waliambiwa na mwalimu wao kuwa watakaporudi nyumbani waoge, wale halafu waanze kusoma moja kwa moja badala ya kupoteza wakati wao kutazama vipindi vya

runinga. Aliwasisitizia kuwa waliokuwa wakifanya maonyesho kwenye runinga walikuwa tayari wamefuzu vyuoni na kuajiriwa kazi

h. Andika sentensi ifuatyo katika udogo umoja (alama 2)
Tulipoyaona yalikuwa yakisoma majitabu

i. Tunga sentensi moja kuonyesha matumizi mawili ya kiambishi -KI- (alama 1)

j. Eleza matumizi ya kiambishi -KU- katika sentensi ifuatayo: (alama 2)
Kucheza huku kulitufurahisha ingawa mgeni hakufurahi

k. Iandike upya sentensi hii kwa kugeuza shamirisho kitondo kuwa kiima (alama 2)
Tunamwandalia mgeni chakula sasa hivi

l. Tunga sentensi mbili ili kubainisha matumizi ya alama ya mshazari (alama 2)

m.
   i. Eleza maana ya mofimu (alama 1)
   ii. Bainisha mofimu -li- katika utungo huu (alama 2)
   Alikimbilia shamba

n.
   i. Eleza maana ya shadda (alama 1)
   ii. Tia shadda katika neno hili kutoa maana mbili tofauti (alama 2)
   Katakata

o. Tofautisha maneno haya kwa kutumia sentensi moja (alama 2)
   i. Vuka
   ii. Fuka

p. Tumia neno shirika kama nomino na kama kielezi katika sentensi moja (alama 2)

q. Unda nomino moja dhahania kutokana na kitenzi -cha (alama 1)

r. Eleza sifa bainifu zozote mbili za sauti /ch/ (alama 1)

4. **ISIMU JAMII (ALAMA 10)**

a. Eleza/bainisha ithibati kuwa kiswahili ni lugha ya kibantu (alama 4)

b. Tofautisha istilahi zifuatazo katika Isimu Jamii
   i. Uwili lugha na ujozi lugha
   ii. Lafudhi na lahaja
   iii. Sajili na msimbo

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KISWAHILI KARATASI YA 3 - 2019 K.C.SE Prediction Set 1

MAAGIZO

- Jibu maswali manne.
- Swali la kwanza ni la lazima
- Chagua maswali mengine matatu kutoka kwa sehemu zilizosalia:

Riwaya, Tamthilia, Hadithi fupi na Ushairi.

- Usijibu maswali mawili kutoka sehemu moja.

SEHEMU YA A

1. **SWALI LA LAZIMA**
   a.
      i. Semi nini? (alama 1)
      ii. Fafanua sifa nne za misimu (alama 4)
   b. Soma wimbo ufuatao kisha ujibu maswali

   Ewe kilizi
   Ulozowea kujificha
   Nyuma ya mama kujikinga, dhidi ya milio
   Yanadi ilo juu mbinguni
   Jua kesho ni siku ya siku
   Siku ya kujua mbivu na mbichi
   Kutofautisha jogoo na vipora
   Na riba takaposhika, chake kisu
   Ndipo utakapojua bayana
   Ukoo wetu si wa kunguru
   ikiwa hutayari
   kisu kukidhihaki
   sithubutu kamwe, wanjani kuingia
   sije kuniaibisha miye, amiyo na akraba nzima!

   Maswali

      i. Huu wimbo huitwaje? (alama 1)
      ii. Eleza majukumu yoyote manne yanayotekelezwa na wimbo huu katika jamii (alama 4)
   c.
      i. Mivigha ni nini? (alama 2)
      ii. Eleza sifa tatu za mivigha (alama 3)
   d. Fafanua matatizo matano ambayo yanaikumba fasihi simulizi duniani (alama 5)

SEHEMU YA B

RIWARA: CHOZI LA HERI: ASUMPTA MATEI

2. “...haifai kucheza na uwezo wavijana, wao ni kama nanga. Huwezi kuzamisha na kuiongea merikebu.”
   a. Eleza muktadha wa dondoo hili (alama 4)

b. Bainisha tamathali mbili za usemi zilizotumika katika dondoo (alama 4)
c. Kwa kurejelea riwaya hii, onyesha jinsi vijana wamezamisha merikebu ya wahafidhina. (alama 12)

3. Baada ya dhiki faraja. Onyesha vile ukweli wa methali hii unavyodhihirika kwenye riwaya. (alama 20)

SEHEMU YA C

TAMTHILIA: KIGOGO: PAULINE KEA

4. “Sitaki kuaibishwa na mwanamke mimi, siwezi.”
   a. Yaweke maneno haya katika muktadha wake. (alama 4)
   b. Fafanua kwa hoja nane kuwa msemaji wa maneno haya anafaa kuaibishwa (alama 16)
5.
   a. Jadili jinsi kumi ambazo kwazo maudhui ya ukatili yanajitokeza katika tamthilia ya Kigogo (alama 10)
   b. Eleza mifano mitano ya matumizi ya kinaya katika tamthilia ya Kigogo (alama 10)

SEHEMU YA D : HADITHI FUPI

TUMBO LISILOSHIBA NA HADITHI NYINGINE

6. Eleza nafasi ya vijana katika jamii ukirejelea hadithi fupi zifuatazo.
   a. Mapenzi ya kifaurongo (alama 5)
   b. Shogake Dada ana ndevu (alama 5)
   c. Mame Bakari (alama 10)
7. Ndoto ya mashaka: Ali Abdalla Ali
   “Sasa nimechoka mja. Nimechoka hata naradua kufa kuliko kuishi. Hadi lini haya mashaka ya kutengenezwa? Mashaka ya mashaka!
   a. Eleza muktadha wa dondoo hili (alama 4)
   b. Tambua mbinu mbili za lugha zilizotumika (alama 4)
   c. Fafanua mambo sita yanayomfanya mrejelewa aradue kufa. (alama 12)

SEHEMU YA E: USHAIRI

8. *Soma shairi lifuatalo kisha ujibu maswali*

Barabaraba do ni ndefu
Nami tayari nimecho katiki
Natama ni kuketi
Ni’nyooshe misuli
Nitulize akili

Lakini

Azma ya nisukuma
Mbele ikinihimiza kuendelea
Baada ya miinuko na kuruba
Sasa naona unyoofu wake
Unyoofu ambao unatisha zaidi

Punde natumbukia katika shimo
Nahitaji siha zaidi ili kupanda tena

Ghafla nakumbuka ilivyosema
Ile sauti zamani kidogo
“Kuwa tayari kupanda na kushuka”.

Ingawa nimechoka
Jambo moja dhahiri
Lazima hufuate barabara
Ingawa machweo yaingia
Nizame na kuibuka
Nipandenakushuka

Jambo moja na kumbuka; Mungu
Je nimwombe tena? Hadi lini?
Labda amechoshwa na ombaomba zangu
Nashangaa tena!
Kitu kimoja na kiamini
Lazima niendelee kujitahidi kwa kila hatua mpya
Nijikokote kuiandama hii barabara yenye ukungu
Nikinaswa na kujinasua
Yumkini nitafika mwisho wake
Ikiwa wangu mwisho haitauwahi kabla.

Maswali

a. Taja naueleze aina ya shairi hili (alama 2)
b. Eleza toni ya shairi hili (alama 2)
c. Huku ukitoa mifano mwafaka eleza tamathali tatu za usemi ambazo zinajitokeza katika shairi (alama 3)
d. Mshairi ametumia uhuru wake wa utunzi. Eleza mifano mitatu huku ukitolea mifano. (alama 3)
e. Fafanua dhamira ya mtunzi wa shairi hili (alama 2)
f. Andika kifungu cha mwisho katika lugha ya nathari. (alama 4)
g. Eleza maana ya msamiati ufuatao kama ulivyotumika katika shairi (alama 4)
    i. Kuruba
    ii. Siha
    iii. Machweo
    iv. Kujinasua

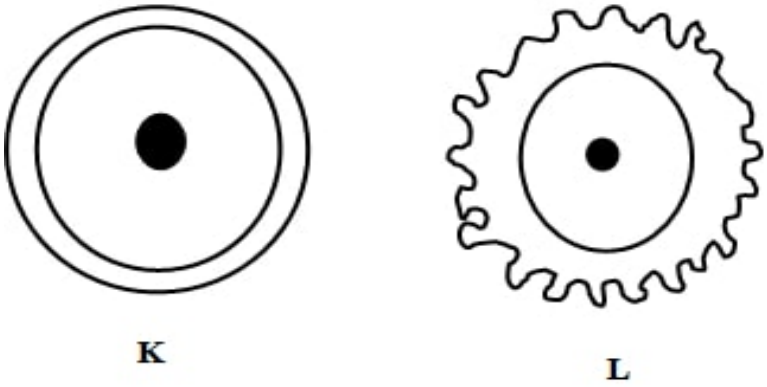
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BIOLOGY PAPER 1 - 2019 K.C.SE Prediction Set 1

1. Name the reagent used for testing presence of (3 marks)
    a. Starch
    b. Reducing sugars
    c. Vitamin c
2. State the processes which occur in each of the following organelles. (2 marks)
    a. Chloroplast
    b. Mitochondrion
    c. Ribosomes
3. A student observed a specimen through a light microscope. He used the objective lens marked X40.If he indicated the magnification of the image as x 400, what was the eye - piece magnification? (Show your working). (3 marks)
4. State the function of the following in mammalian trachea. (3 marks)
    a. Rings of cartilage
    b. Mucus
    c. Cilia
5.
    a. What do you understand by the term biological control? (1 mark)
    b. Explain why all the energy produced by producers does not flow to the tertiary consumers. (2marks)
6. Name any **three** forces that maintain the transpiration stream (3 marks)
7. Give the form in which the following gases are transported in blood. (3 marks
    a. Oxygen
    b. Carbon (IV) oxide
    c. Carbon (II) oxide
8.
    a. Name the **main** group of organisms which comprise the Kingdom Monera. (1mark)
    b. State any **three** ways in which the organisms named in 8 (a) above affect human lives. (3marks)
    c. State the **main** characteristics of Monera which distinguish it from all other kingdoms. (1 mark)
9. State ways in which the xylem tissue is adapted to carry out its function. (3marks)
10. Why is it necessary for an athlete to breathe heavily after running? (2 marks)
11. State ways in which the following diseases can be prevented
    a. Typhoid and amoebic dysentery (2 marks)
    b. Malaria (2 marks)
12. What are the **three** distinguishing features of phylum Arthropoda? (3marks)
13.
    a. Name the **main** product of the dark stage of photosynthesis. (1mark)
    b. What is the role of chlorophyll during photosynthesis (2mark)
14. Name **three** mechanisms that prevent self-pollination in flowers that have both male and female parts. (3 marks)
15. State **three** applications of anaerobic respiration. (3 marks)
16. What is the significance of highly folded inner membrane of a mitochondrion? (2 marks)
17. Why is it necessary for blood from the gut to pass through the liver before joining general circulation? (2 marks)
18. A person’s urine tested positive for reducing sugars.
    a. Name the type of sugar present in the urine. (1mark)

b. Name the gland and the hormone which failed to control the above condition. (2marks)
Gland.....
Hormone.....
c. Which disease was the person suffering from? (1mark)

19. State **two** roles played by the process of reproduction. (2marks)
20. What is the habitat of the following plants? (3marks)
    a. Xerophytes
    b. Hydrophytes
    c. Halophytes
21.
    a. State ways in which molars are adapted to their functions. (2marks)
    b. Name any **two** dental diseases. (2 marks)
22. How is the sperm cell adapted to carry out its function? (3 marks)
23. The following are diagrams of two pollen grains.



    a. State one observable difference between K and L. (1 mark)
    b. State the agent of pollination for each of them. (2 marks)
    K.....
    L.....
24. How do sunken stomata reduce transpiration? (2 marks)
25. Give the classes to which the following animals belong. (3 marks)
    a. Human being
    b. House fly
    c. Spider
26.
    a. State **one** event that occurs in prophase of meiosis I which does not occur in prophase of mitosis. (1 mark)
    b. What are the results of the above phenomena? (2 marks)
27. Explain why growing grass die a few days when salt is sprinkled on it. (3 marks)

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BIOLOGY PAPER 2 - 2019 K.C.SE Prediction Set 1

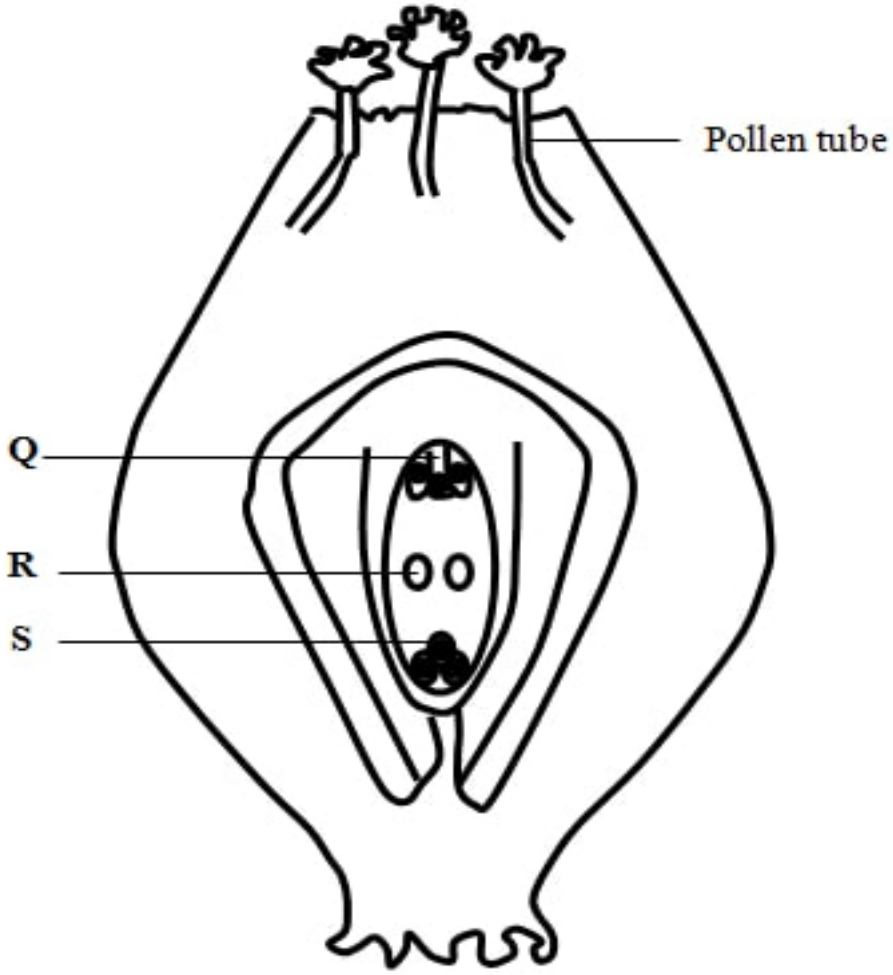
1.

a. What is meant by the following terms?

i. Protandry (1mark)

ii. Self sterility (1mark)

b. The diagram below shows a stage during fertilization in a plant.



i. Name the parts labelled Q,R and S (3 marks)

Q.....

R.....

S.....

ii. State two functions of the pollen tube (2 marks)

iii. On the diagram label the microphyle. (1mark)

2.

a. Explain what happens to excess amino acids in the liver of humans. (3marks)

b. Which portions of the human nephron are only found in the cortex? (3 marks)

c.

i. What would happen if a person produced less antidiuretic hormone? (1 mark)

ii. What term is given to the condition described in C (i) above? (1mark)

3.

a.

i. What is meant by the term biological control? (1mark)

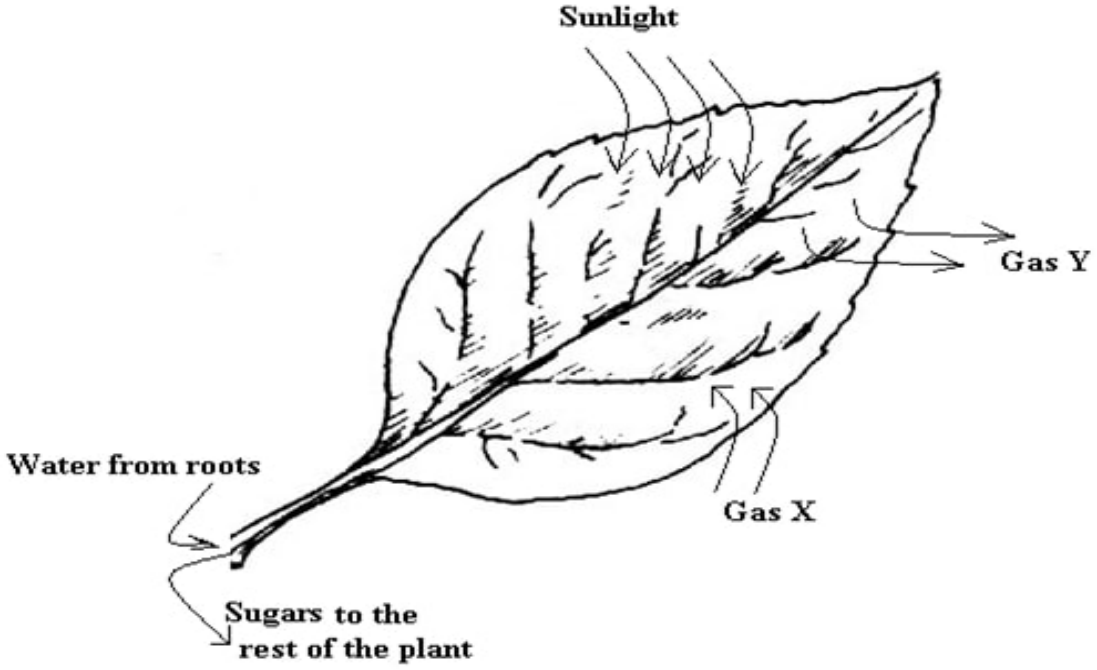
ii. Give an example of biological control. (1mark)

b.

i. What is eutrophication? (3marks)
ii. What are the effects of eutrophication? (3 marks)

c. Name a substance that is responsible for acid rain. (1mark)

4. Leaves are the organs of photosynthesis. The following diagram shows what happens in a plant leaf during photosynthesis.



a. Give two ways in which leaves are adapted to absorb light. (2 marks)
b. Name the gases labelled X and Y. (2marks)
X.....
Y.....
c. Name the tissue which transport:
i. Water in to the leaf. (1 mark)
ii. Sugars out of the leaf. (1 mark)
d. Explain why it is an advantage for the plant to store carbohydrates as starch rather than as sugars. (2marks)

5. Some millet seeds were socked in water for two days. They were then broken into small pieces and placed on the surface of agar containing starch. After two days it was found that the agar no longer contained starch.
a. Suggest how the test for starch in the agar was carried out. (1 mark)
b. Explain why there was no starch in the agar after two days. (2marks)
c. Why was it necessary to soak the seeds? (1mark)
d. Why were the millet seeds broken into small pieces? (1mark)
e. State the observation that would be made if the seeds had been soaked in boiling water? (1mark)
f. Suggest a control experiment that would have been suitable. (2marks)

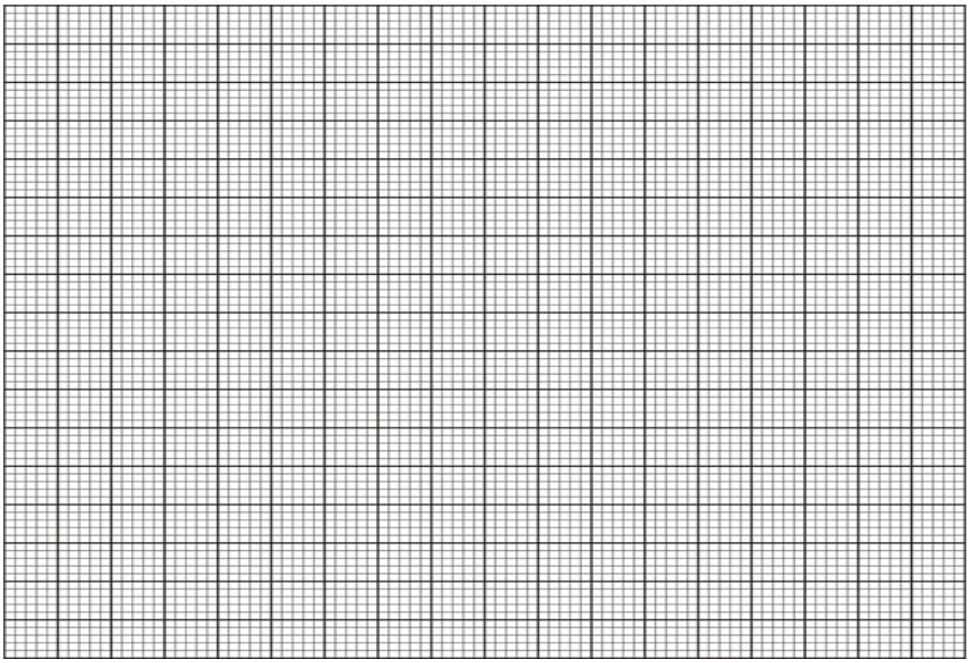
SECTION B:

Answer **question 6 (compulsory)** and either question 7 or 8 in the spaces provided after question 8

6. A research was carried to determine the trend of growth of some boys and girls.Their average mass in kilograms was taken separately for a period of 20 years and tabulated as shown in the table below.

Age	Average mass of boys (kg)	Average mass of girls (kg)
0	2.5	2.5
2	11.5	11.5
4	15.0	16.0
6	18.5	19.3
8	22.1	27.1
10	25.1	27.1
12	27.5	30.5
14	37.0	35.5
16	44.0	44.0
18	46.9	52.0
20	48.5	55

a. On the same axis draw a graph of the average mass of the girls and boys against age. (7marks)



b. From the graph , determine the;-
   i. Mass of boys at the age of 11 years. (1 mark)
   ii. Growth rate of girls between ages 13 and 15. (3 marks)

c. Account for the change in the mass of girls during the age stated in (ii) above. (2 marks)

d. Explain the trend observed in the curves for both boys and girls. (2 marks)

e. Why do girls above 10 years require in take of food that is richer in iron than boys of the same age? (2 marks)

f. Apart from using average mass to estimate growth in human beings, name two other parameters that can be used. (2 marks)

7. Describe how the various parts of the human digestive system are adapted to their functions. (20 marks)

8.

a. State the causes of air pollution. (5 marks)

b. State how air pollutants affect organisms hence state how air pollution should be controlled. (15 marks)

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BIOLOGY PAPER 3 - 2019 K.C.SE Prediction Set 1

1.

a. You are provided with a solution L. Using the reagents provided; determine the food compounds in L. Fill in the table below.

FOOD COMPOUND	PROCEDURE	OBSERVATION	CONCLUSION

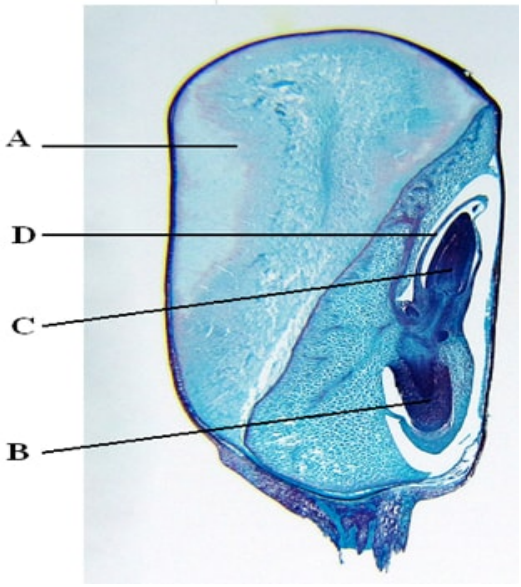
b. Place 10mls of solution L in a visking tubing. Tie both ends and place it in 50mls of distilled water contained in a beaker.leave the set up for 20 minutes and make observations.

i. Observations. (1mark)

ii. Account for the observation in b (i) above. (2marks)

iii. Give the equivalent of a visking in the bodies of living organisms. (1mark)

2. Study the photomicrograph of the longitudinal section of a maize fruit below and answer the questions that follow.



a.

i. Name the parts labelled A, B, C and D. (4marks)

A

B

C

D

ii. Give the role played by A and D. (2 marks)

A

D

b.

i. Name the type of germination exhibited by maize grain. (1 mark)

ii. Place the organisms from where the photomicrograph was obtained into its

Kingdom

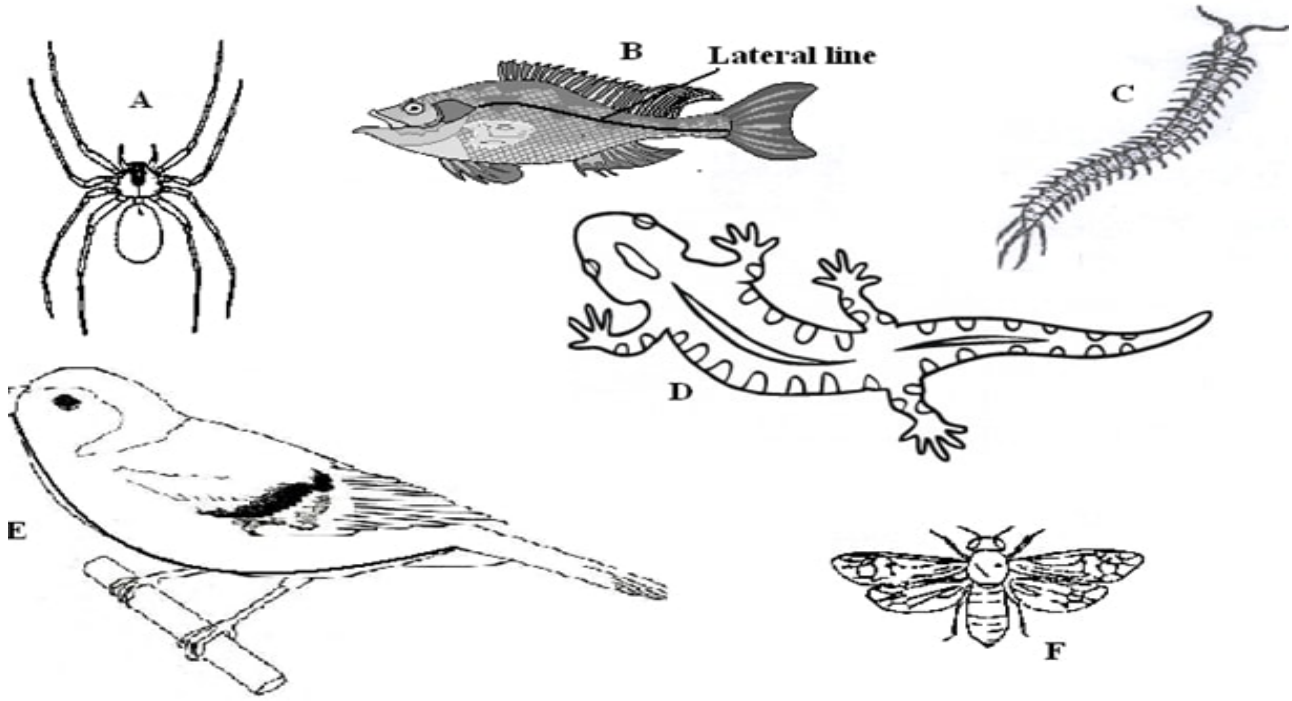
Division

Class (3marks)

iii. State three characteristics of members of the class identified in b (ii) above (3marks

c. Give one reason why the maize grain is classified as a fruit. (1mark)

3. Study the organisms drawn below and answer the questions that follow.



a. Use the dichotomous key below to identify the class the organisms belong to. (12 marks)

a.
- a. Phylum Chordata ..... go to 2
- b. Phylum arthropoda ..... go to 3

b.
- a. Has scales on the body ..... go to 4
- b. Has no scales on the body ..... Mammalia

c.
- a. Has cephalothorax ..... Arachnida
- b. Has no cephalothorax ..... go to 5

d.
- a. Has fins ..... Pisces
- b. Has no fins ..... go to 7

e.
- a. Has three pairs of legs ..... Insecta
- b. Has more than three pairs of legs ..... go to 6

f.
- a. Two pairs of legs per segment ..... Diplopoda
- b. One pairs of legs per segment ..... Chilopoda

g.
- a. Has feathers ..... Aves
- b. Has no feathers ..... go to 8

h.
- a. Has a tail ..... Reptilia
- b. Has no tail ..... Amphibia

Specimen	Step followed	Identity
A		
B		
C		
D		
E		
F		

b. If the actual length from the tip of the mouth to the tip of the tail of the specimen B is 100mm, calculate the magnification. (2marks)

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GEOGRAPHY PAPER 1 - 2019 K.C.SE Prediction Set 1

SECTION A (25 MARKS)

*Answer **ALL** the questions in this section*

1.
   a. State briefly **three** ways how air pressure influences the weather of a place. (3 marks)
   b. Identify **two** Global winds that influence the climate of Kenya. (2 marks)
2.
   a. Give **two** examples of chemically formed sedimentary rocks. (2 marks)
   b. State **three** conditions necessary for the growth of coral. (3 marks)
3.
   a. Name the **two** theories that explain the origin of the earth. (2 marks)
   b. Give **three** proofs that the earth is oblate spheroid. (3 marks)
4.
   a. Name the categories of lakes formed by earth movement. (2 marks)
   b. Give **two** examples from East Africa of each category named in (a). (2 marks)
5.
   a. Define of hydrological cycle. (2 marks)
   b. State **four** factors that determine the amount of water that sinks into the ground or flows on the surface. (4 marks)

SECTION B (75 MARKS)

*Answer question **6** and **any other two** questions from this section.*

6. Study the map of Kitale 1:50,000 (sheet 75/3) provided and answer the following questions.

   a.
      i. Identify **two** human made features found at the grid square 2320. (2 marks)
      ii. What is the altitude of the highest point in the area covered by the map? (2 marks)
      iii. Give **three** types of natural vegetation found in the area East of Easting 40 and North of Northing 27. (3 marks
   b.
      i. What is the bearing of air photo principle point at grid square 2931 from the air photo principle point at grid square 3426. (2 marks)
      ii. Measure the distance of the dry weather road (C640) from the junction at point M(345142) to the junction at N(416200) give your answer in kilometres. (2 marks
   c.
      i. Draw a rectangle measuring 3 cm by 4 cm to represent the area in the map extract bounded by Easting's 28 and 31 and Northing's 11 and 15. (1 mark)
      ii. On the rectangle drawn, mark and name the following;
         - Loose surface road (1 mark)
         - Air photo principle point (1 mark)
         - Swamp (1 mark)
         - Pond (1 mark)
   d.
      i. Identify **four** social services offered in Kitale Municipality. (4 marks)
      ii. Describe the drainage of the area covered by the map. (5 marks)

7. Use the map below to answer questions (a) and (b).



a. Name;
   i. The type of climate found in the shaded area marked Q. (1 mark)
   ii. The ocean current marked R and S. (2 marks)

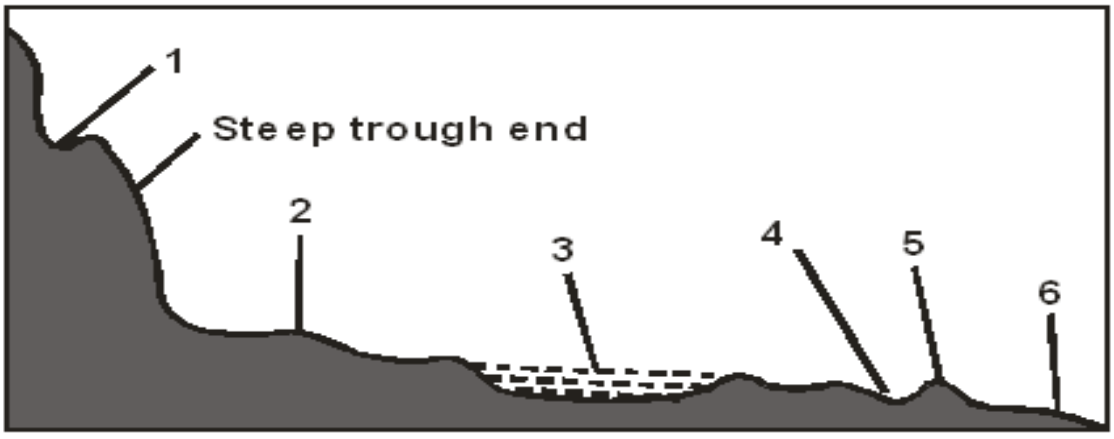
b. Describe the characteristics of the type of climate found in the shaded area marked T. (8 marks)

c. Explain how the following factors influence climate.
   i. Altitude (4 marks)
   ii. Distance from the sea (4 marks)

d.
   i. Explain **two** effects of climate change to the physical environment (4 marks)
   ii. State **two** climatical conditions experienced in the Sahara desert. (2 marks

8.

a.
   i. Identify **two** factors that influence glacial erosion. (2 marks)
   ii. The diagram below shows the long profile of a glacial trough.
   Study it carefully and answer the questions that follow.



   Name the parts labeled 1 to 6. (6 marks)

b. Describe the **four** various ways in which tills are formed at the coast. (8 marks)

c.
   i. What is an erratic? (2 marks)
   ii. Give **three** examples of areas with erratics. (3 marks)

d. A field study was carried out in an area affected by wind action.
   i. List **two** types of interviews the study would have made use of. (2 marks)
   ii. Give **two** problems the researcher would have experienced. (2 marks)

9.

a. What is natural vegetation? (2 marks)

b.

i. Give the types of grassland vegetation found in the following countries. (3 marks)
- New Zealand
- Argentina
- South Africa

ii. State **two** factors why mountain tops have no vegetation. (2 marks)

c.

i. Explain **four** ways in which coniferous forest is adapted to the climatic conditions. (8 marks)

ii. Explain how the following factors influence the distribution of vegetation.
- Altitude (2 marks)
- Human beings (2 marks)

d. You are planning to carry out a fieldstudy on the forest vegetation near your school.

i. State **four** reasons why it is necessary to have a route map. (4 marks)

ii. Give **two** reasons why you need a tape measure. (2 marks)

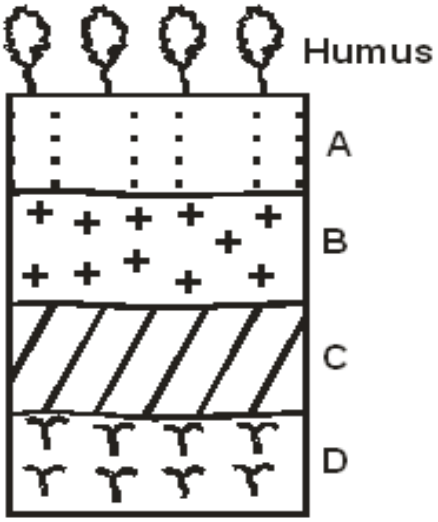
10.

a.

i. What is soil? (2 marks)

ii. Give **three** components of soils. (3 marks)

b. The diagram below shows different layers of soil. Use it to answer questions b) i), ii), iii).



A SOIL PROFILE

i. Name the soil layers marked B, C, and D. (3 marks)

ii. Give **two** main processes of soil formation which takes place in horizon A. (2 marks)

iii. Name **four** characteristics of soil in horizon B. (4 marks)

c. Explain how the following helps in the maintenance of soil fertility and quality.
- Crop rotation (2 marks)
- Mixed farming (2 marks)
- Bush fallowing (2 marks)

d. State **five** significances of soils to human activities. (5 marks)

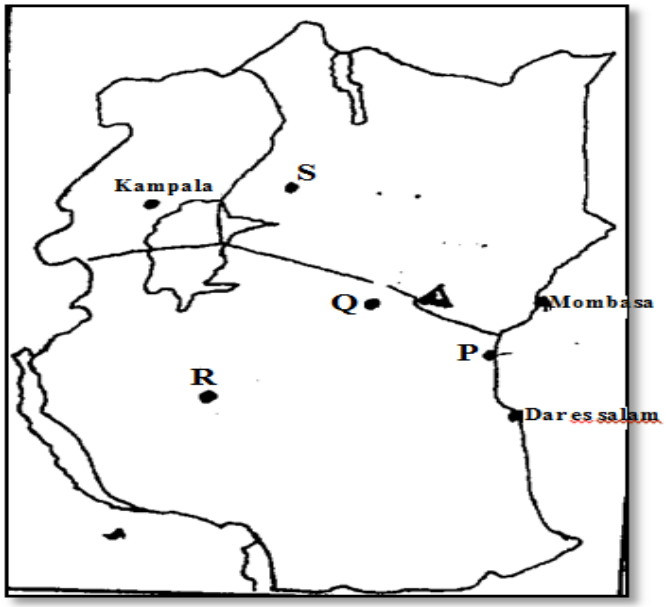
GEOGRAPHY PAPER 2 - 2019 K.C.SE Prediction Set 1

SECTION A (25 MARKS)

*Answer **ALL** the questions in this section*

1.
   a. Name any **two** underground mining methods. (2 marks)
   b. State any **three** negative effects of mining on the environment. (3 marks)
2.
   a. List down **three** human factors that favour wildlife conservation. (3 marks)
   b. State **two** advantages of domestic tourism in Kenya. (2 marks)
3.
   a. What are floods? (2 marks)
   b. Name **three** rivers in Kenya which cause large scale flooding. (3 marks)
4.
   a. Define the following terms;
      i. Fertility rate (1 mark)
      ii. Mortality rate (1 mark)
   b. State **three** types of information that may be derived from an age-sex pyramid. (3 marks)

5. Use the map of East Africa below to answer the questions that follow.



   a. Name the towns marked P, Q and R. (3 marks)
   b. State **two** major functions of the town marked S. (2 marks)

SECTION B (75 MARKS)

*Answer question 6 and **any other two** questions from this section*

6. The table below shows the value of export crops from Kenya in the year 1995.

Crop / Year	**1995**
Maize	224,000,000
Coffee	168,000,000
Tea	320,000,000
Horticultural	190,000,000
TOTAL	902,000,000

Use it to answer the questions below.

a.

i. Draw a divided rectangle measuring 15cm to represent the above data. (9 marks)

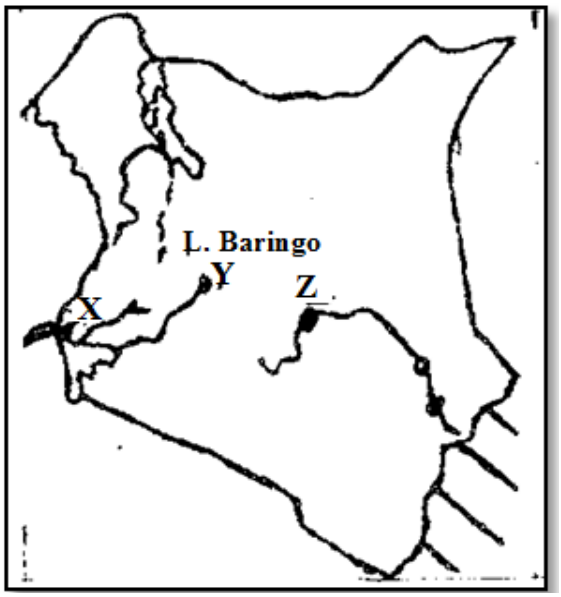
ii. State **three** advantages of using divided rectangles to represent geographical data. (3 marks)

b. State **four** physical conditions that favour coffee growing in Kenya highlands. (4 marks)

c. Describe the processing of coffee from harvesting to marketing. (6 marks)

d. List **three** ways in which planted coffee is taken care by farmers. (3 marks)

7. Use the map of Kenya below to answer question 7. a) i), ii) and iii).



a.

i. Identify the irrigation schemes marked X, Y and Z and in each case the main crop grown. (6 marks)

ii. Explain **four** factors that led to the location of irrigation scheme Y. (8 marks)

iii. State **four** problems that are experienced in the irrigation marked Z. (4 marks)

b. What is a polder? (2 marks)

c. Give **five** benefits of the Zuyder Zee project. (5 marks)

8.

a.

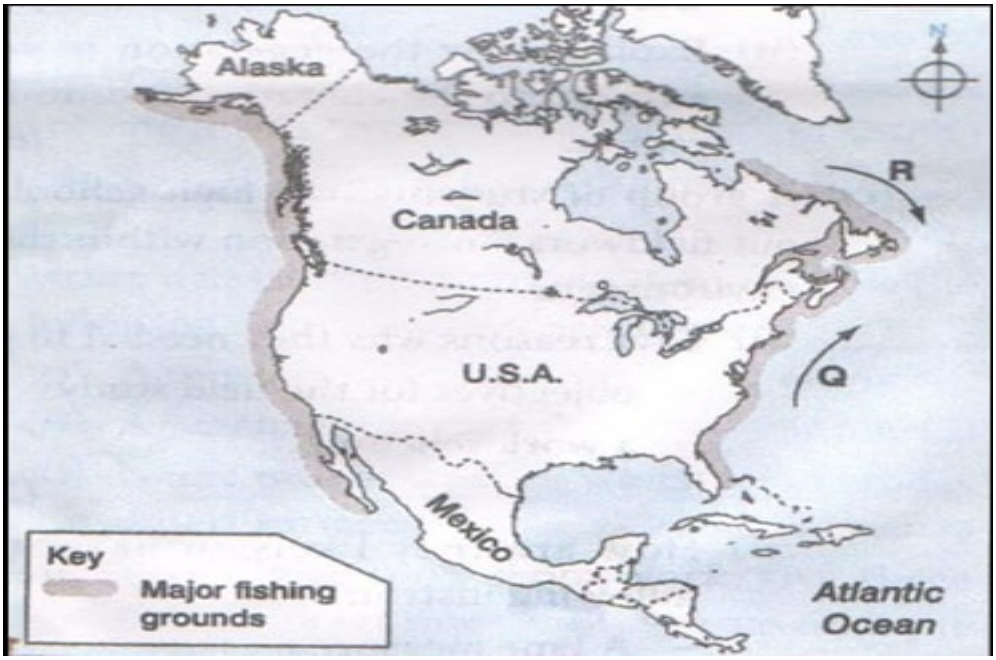
i. Name **two** types of fishing grounds in Kenya. (2 marks)

ii. Give **two** types of fishing methods. (2 marks)

iii. Give **four** reasons why marine fishing industry in east Africa is not well developed. (4 marks)

b. Explain **four** ways in which marine fisheries are being conserved in Kenya. (8 marks)

c. Use the map of North America below to answer questions (i) and (ii).



i. Name **one** method of fishing used in the shaded area. (1 mark)
ii. Name ocean currents marked Q and R. (2 marks)

d. Explain why major fishing grounds of the world are located in the temperate latitudes of the northern hemisphere. (6 marks)

9.

a. Distinguish between manufacturing and tertiary industries. (2 marks)

b.

i. Name **four** agricultural food processing industries in Kenya. (4 marks)
ii. Explain **four** factors that influenced the location of the iron and steel industries in the Ruhr region of Germany. (8 marks)

c. Give **five** reasons why the government of Kenya encourages the establishment of Jua Kali industries. (5 marks)

d. You intend to carry out a field study in a coffee factor near your school.

i. State **three** reasons why you would visit the area of study in advance. (3 marks)
ii. You have prepared a working schedule for your study.
State **three** items you would include in your schedule. (3 marks)

10.

a. Draw an outline map of Kenya. (2 marks)

b. On the map indicate the following forests. (3 marks)

i. Kakamega forest
ii. Mt. Kenya forest
iii. Arabuko sokoke forest

c.

i. Name **three** natural causes of forest depletion. (3 marks)
ii. Describe **four** problems facing forests in Kenya. (8 marks)

d.

i. State **three** factors favouring production of soft wood forests in Canada. (3 marks)
ii. Explain **three** reasons why the Kenyan government should conserve her forests. (6 marks)

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CHRISTIAN RELIGIOUS EDUCATION (C.R.E) PAPER 1 - 2019 K.C.SE Prediction Set 1

1.
   a. Outline **seven** importance of CRE to a secondary school student in Kenya. (7mks)
   b. Describe the second account of creation in Genesis 2:4b-25. (7mks)
   c. Give **six** traditional African views of creation. (6mks)

2.
   a. Describe the call of Moses in Exodus 3:1-22. (8 mks)
   b. Give reasons why Moses was reluctant to go back to Egypt. (6 mks)
   c. What do Christians learn about God from the call of Moses? (6 mks)

3.
   a. Outline seven ways in which King Jeroboam promoted the spread of idolatry in Israel. (7 mks)
   b. Give seven reasons why Elijah was uncompromising in his attitude to the worship of Baal. (7 mks)
   c. State six reasons why Christians should fight against the spread of devil worship in the society. (6 mks)

4.
   a. State **six** titles given to prophets in the Old Testament. (6mks)
   b. Explain the evils committed by other nations that were to be punished by God according to Prophet Amos. (7mks)
   c. Mention **seven** ways how Christians can avoid God's punishment today. (7mks)

5.
   a. Describe how the people of Judah renewed their covenant with God under the leadership of Ezra. (8 mks)
   b. Give **five** reasons why Nehemiah carried out religious reforms in Judah. (5 mks)
   c. In what ways do Christians renew their covenant faith with God? (7 mks)

6.
   a. Identify **seven** occasions when prayers were conducted in Traditional African societies. (7 mks)
   b. Outline **seven** roles of kinship system in traditional African society. (7 mks)
   c. What changes have taken place in property ownership in Traditional African communities. (6 mks)

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CHRISTIAN RELIGIOUS EDUCATION (C.R.E) PAPER 2 - 2019 K.C.SE Prediction Set 1

INSTRUCTIONS: ANSWER ANY FIVE QUESTIONS

ALL ANSWERS MUST BE WRITTEN IN ENGLISH

1.
   a. What does Mary's song (the Magnificat) reveal about the nature of God. (7mrks)
   b. Outline **six** activities that took place when Jesus was born. (6mrks.)
   c. Write down seven ways through which Christians in Kenya express their joy for the birth of Jesus. (7mrks)
2.
   a. Giving examples state seven methods used by Jesus to spread the gospel. (7mrks)

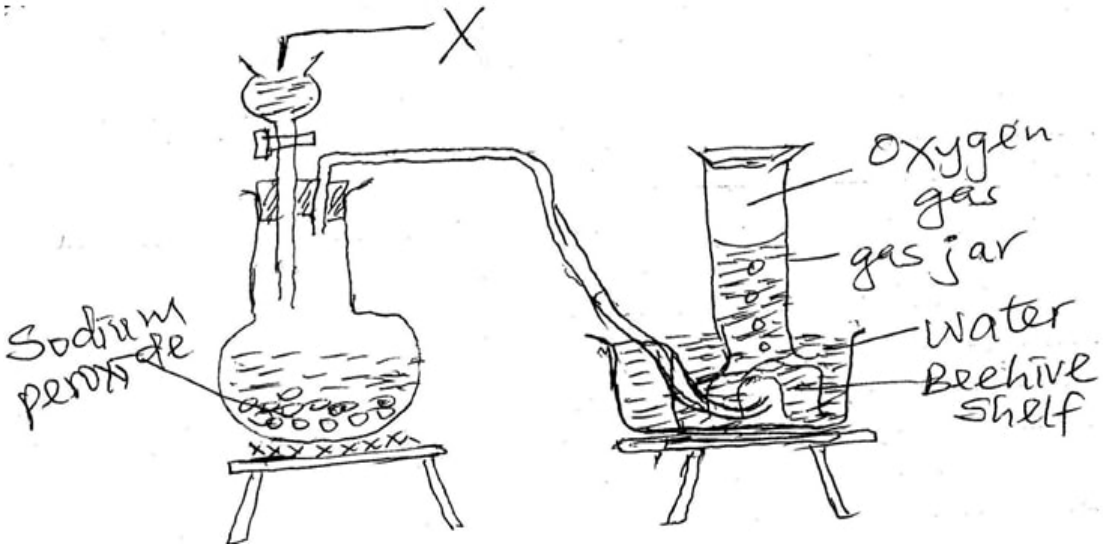
   b. What are the Reasons why Jesus chose the twelve disciples? (6mrks)
   c. Identify **seven** problems faced by new converts in the church today. (7mrks)
3.
   a. With reference to the life and ministry of Jesus, show how he tried to promote social equality. (7mrks)
   b. With the story of the sinful woman as a reference, explain Jesus teachings on forgiveness. (5mrks)
   c. Give ways in which Christians engage themselves in the healing ministry. (8mrks)
4.
   a. Give **seven** reasons why Jesus sent the Holy Spirit to his disciples after ascension (7mrks)
   b. List **seven** fruits of the Holy Spirit (7mrks)
   c. How are the gifts of the Holy Spirit manifested in the church today? (6mrks)
5.
   a. Outline **eight** Christians teachings on work (8mks)
   b. Give **six** factors that cause increased unemployment in Kenya today (6mrks)
   c. How does the church help to reduce the rate of unemployment in Kenya (6mrks)
6.
   a. Explain how unfair distribution of wealth can lead to social disorder in Kenya today (6mrks)
   b. Give reasons why Christians should not involve themselves in gambling (7mrks)
   c. How is corruption affecting the society in Kenya today? (7mrks)

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CHEMISTRY PAPER 1 - 2019 K.C.SE Prediction Set 1

Answer all questions

1. The set up below can be used to prepare oxygen gas. Study it and answer the questions that follow.



   a. Identify X (1mk)
   b. What property of oxygen makes it possible for it to be collected a shown in the above set up. (1 mk)
   c. State two uses of oxygen . (1mk)

2. Write an equation to show the effect of heat on each of the following
   a. Silver nitrate (1mk)
   b. An hydrous iron (ii) sulphate (1mk)
   c. Sodium hydrogen carbonate .(1mk)

3.
   i. What name is given to the process by which alcohol is formed from a carbohydrate.?. (1mk)
   ii. Explain why the solubility of ethane in water is lower than that of ethanol. (2mks)

4.
   i. Complete the nuclear equation below (1mk)

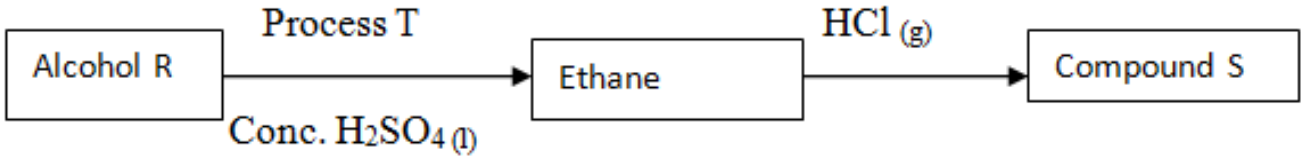
$$^{131}_{53}I \rightarrow {}^{131}_{54}Xe + _____$$

   ii. The half – life of is 8 days
   Determine the half life of if 50 grammes decayed for 40 days. (1mk)
   iii. Give one agricultural use of radio isotope. (1mK)

5. Charcoal is a fuel that is commonly used for cooking. When it burns it forms two oxides
   a. Name the two oxides . (2mks)
   b. State one use of any of the two oxides . (1mk)

6. An element X has a relative atomic mass of 88. When a current of 0.5 amperes was passed through a fused chloride of X for 32 minutes, 10 seconds; 0.44g of X was deposited.
   i. Determine the charge of element X (1 Faraday = 96,500c) . (2mks)
   ii. Write the formula of hydroxide of X. (1mk)

7. Study the following flow chart and answer the questions that follow:



a. Write the formula of
   i. Alcohol R (1mK
   ii. Compound S (1mk)
b. Name process T (1mK)

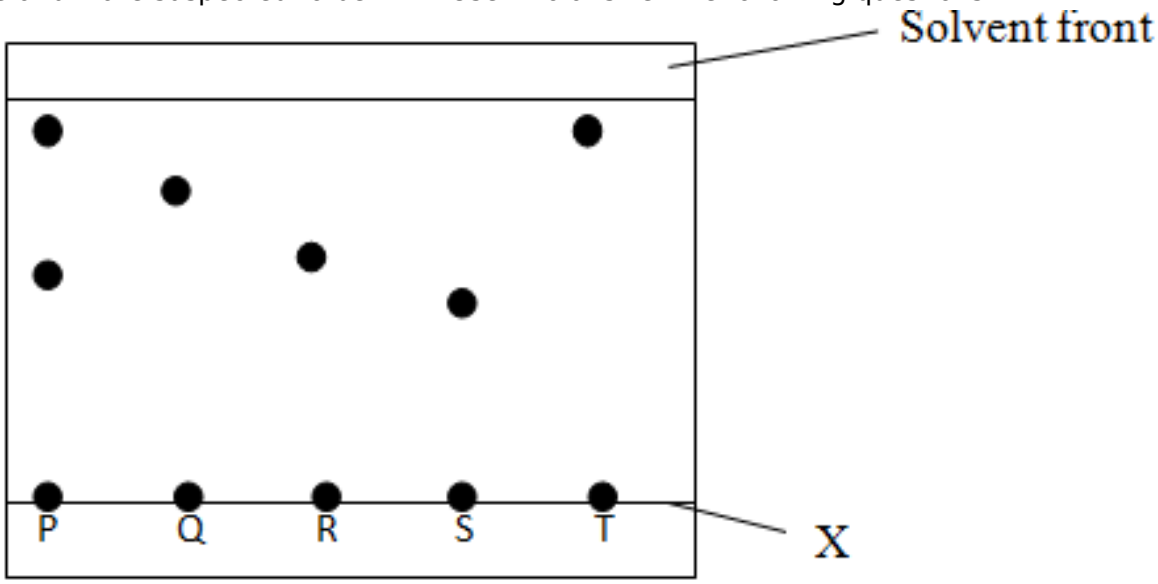
8. $60cm^3$ of oxygen gas diffuses through a porous plug in 50 seconds. How long will it take $80cm^3$ of sulphur (iv) oxide to diffuse through the same plug under the same conditions. (S = 32 O = 16) (3mks)
9. Study the information in the table below and answer the questions that follow.

Salt	Solubility	g/100g water
	At 50o C	At 80oc
G	43	58
Y	82	138

A mixture containing 40g salt G and 120g salt Y in 100g of water at 80^o was cooled to 50^o
   i. Which salt crystallized out?. Give a reason (2mks)
   ii. Calculate the mass of the salt that crystallized out. (1mk)
10.
   a. State two conditions necessary for rusting to occur.(1mk)
   b. State the two reasons why tin coating is used in food cans. (2mks)
11. A form one student was supplied with a colourless liquid which was suspected to be water.
   i. Describe one chemical test that could be carried out to show that the liquid is water.(2mks)
   ii. How could it have been shown that one liquid was pure water (1mk)
12. During extraction of copper, the ore is first concentrated and roasted to produce copper (I) Sulphide.
   i. Name the ore from which copper is commonly extracted. (1mk)
   ii. Write an equation for the reaction in which copper (I) sulphide is produced by roasting the ore in air .(1mk)
   iii. Give one effect that the process in (ii) above could have on the environment. (1mk)
   iv. Give one use of copper metals (1mk)
13.
   a. Name two cations that are present in hard water. (1mk)
   b. Explain how the ion exchange resin softened had water.(2mks)
14. Below is a representation of an electrochemical cell.
   $Pb_{(s)} / Pb^{2+}_{(aq)} // Ag^{+}_{(aq)} / Ag_{(s)}$
   a. What does / / represent ? (1mk)
   b. Given the following: $E^{\ominus}$ (V)
      $Pb^{2+}_{(aq)} + 2e \rightarrow Pb_{(s)}$ - 0.13
      $Ag^{+}_{(aq)} + e \rightarrow Ag_{(s)}$ + 0.80
      Calculate the e.m.f of the electrochemical cell. (2mks)
15. Distingush between ionization energy and electron affinity of an element (1mk)
16. Calculate the percentage by mass of copper in copper (ii) carbonate salt.
   (Cu = 64, C= 12, 0 = 16) (3mks)
17. What name is given to elements which appear in group (II) of the periodic table? (1mk)
18. Explain why the following substances conduct an electric current

a. Magnesium metal (1mk)
b. Molten magnesium chloride (1 mk)

19. The chromatography below was obtained from a contaminated food sample P. Contaminants Q, R, S and T are suspected to be in P. Use it to answer the following questions.



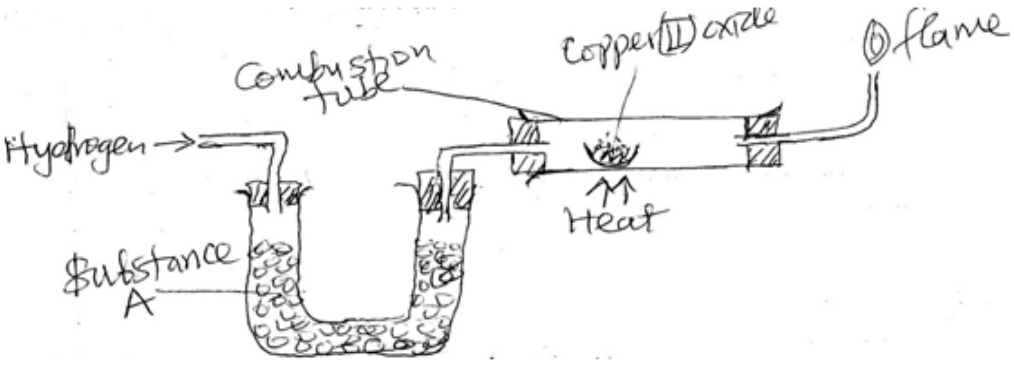
i. Name line labelled X. (1mk)
ii. Identify the contaminants in mixture P.(1mk)
iii. Which is the most soluble contaminant in P. (1mk)

20.
a. Diamond and graphite are allotropes of carbon. What is meant by an allotrope? (1 mk)
b. Explain why graphite can be used as a lubricant while diamond cannot. (2mks)

21. Where 15cm^3 of a gaseous hydrocarbon,p, was burnt in 100 cm^3 of oxygen, the resulting gaseous mixture occupied 70cm^3 at room temperature and pressure. When the gaseous mixture was passed through potassium hydroxide solution, its volume decreased to 25cm^3 .
a. What volume of oxygen was used during the reaction?. (1mk)
b. Determine the molecular formular of the hydrocarbon. (2mks)

22. In terms of structure and bonding, explain the following observations:
a. The melting point of aluminium is higher than that of sodium. (1½ mks)
b. Melting point of chlorine is lower than that of sulphur. (1½ mks)

23. The set up below was used to investigate the reaction between dry hydrogen gas and copper (II) oxide.



i. Name substance A. (1mk)
ii. State the observation made in the combustion tube. (1mk)

iii. Explain the observations made in (ii) above. (1 mk)

24. Hydrogen chloride gas can be prepared by reacting sodium chloride with an acid.
    a. Write an equation for the reaction between sodium chloride and the acid. (1mk)
    b. Give two chemical properties of hydrogen chloride gas (1mk)
    c. State two uses of hydrogen chloride gas. (1mk)
25. State and explain what would happen if a dry red litmus paper was dropped in a gas jar of dry chlorine. (2mks)
26. By using aqueous sodium chloride describe how a student can distinguish calcium ions from lead ions. (2mks)
27. Given the following substances: wood ash lemon juice and sodium chloride
    a. Name one commercial indicator that can be used to show whether wood, lemon juice and sodium chloride are acidic, basic or neutral. (1mk)
    b. Classify the substances in 27(a) above as acids, bases or neutral.(2mks)

28.A solution was made by dissolving 8.2g of calcium nitrate to give 2 litres of solution. Determine the concentration of nitrate ions in moles per litre. (3mks)

CHEMISTRY PAPER 2 - 2019 K.C.SE Prediction Set 1

1.

a. Study the information in the table below and answer the questions that follow.
(The letters do not represent the actual symbol of the substances).

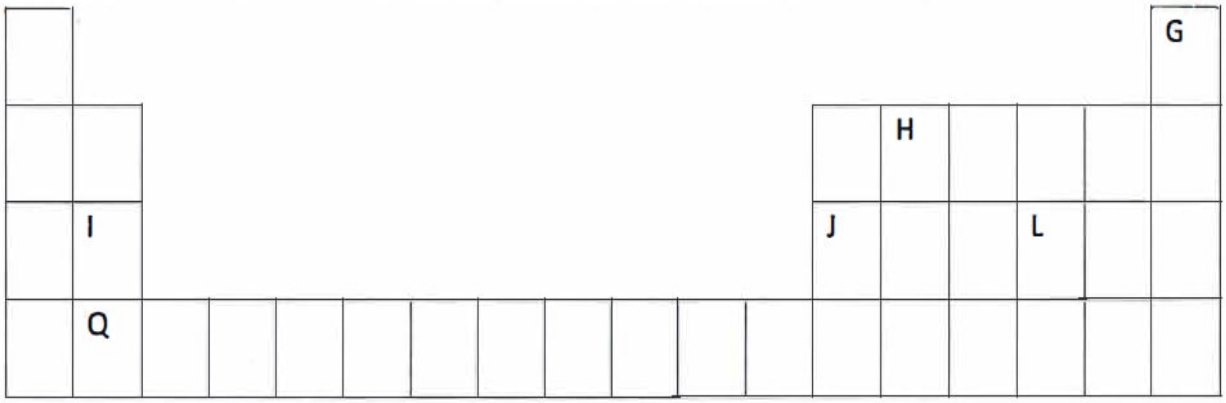
Substance	Density at room temperature g/cm^3	Solubility in water	Boiling point (^oC)	Melting point(^oC)
U	0.8	Very soluble	78.5	-117
V	0.77×10^{-3}	Very soluble	-33	-78
W	1.6	Insoluble	77	-23
X	1.33×10^{-3}	Slightly soluble	-183	-219

i. Select the letter that represents a substance that is a gas at room temperature and which can be collected:
   I. Over water. Explain. {2 marks}
   II. By downward displacement of air. (Density of air is 1.29 x 10-3 g/cm3 at room temperature). {1 mark}

ii. Which substance would dissolve in water and could be separated from the solution by fractional distillation? Explain. {2 marks}

iii. Which substance is a liquid at room temperature and when mixed with water two layers would be formed? {1 mark}

b. The grid below shows part of a periodic table. Study it and answer the questions that follow.



(The letters do not represent the actual symbols of the elements)

i. Name the Group to which element I and Q belong. {1 mark}

ii. Which letter represents the element that is least reactive? {1 mark}

iii. Name the type of bond that is formed between element H and L when they react. Explain. {2 marks}

iv. Write the chemical formula of the compound formed when element J and Oxygen gas react. {1 mark}

v. On the grid, indicate with a tick (√) the position of element R, which forms R^{3-} ions and is in the third period of the Periodic Table. {1 mark}

2.

a. A form four student investigated a property of acids C and E by reacting equal volumes of 1 M sodium hydroxide solution with equal volumes of acid C and E of the same concentration. The results obtained were recorded in the table below.

Acid	C	E
Rise in temperature (Δt)k	4	2

i. Select the letter that represent a weak acid. Explain. {2 marks}
ii. Write a chemical equation for the reaction between Sodium hydroxide solution and aqueous ethanoic acid. {1 mark}

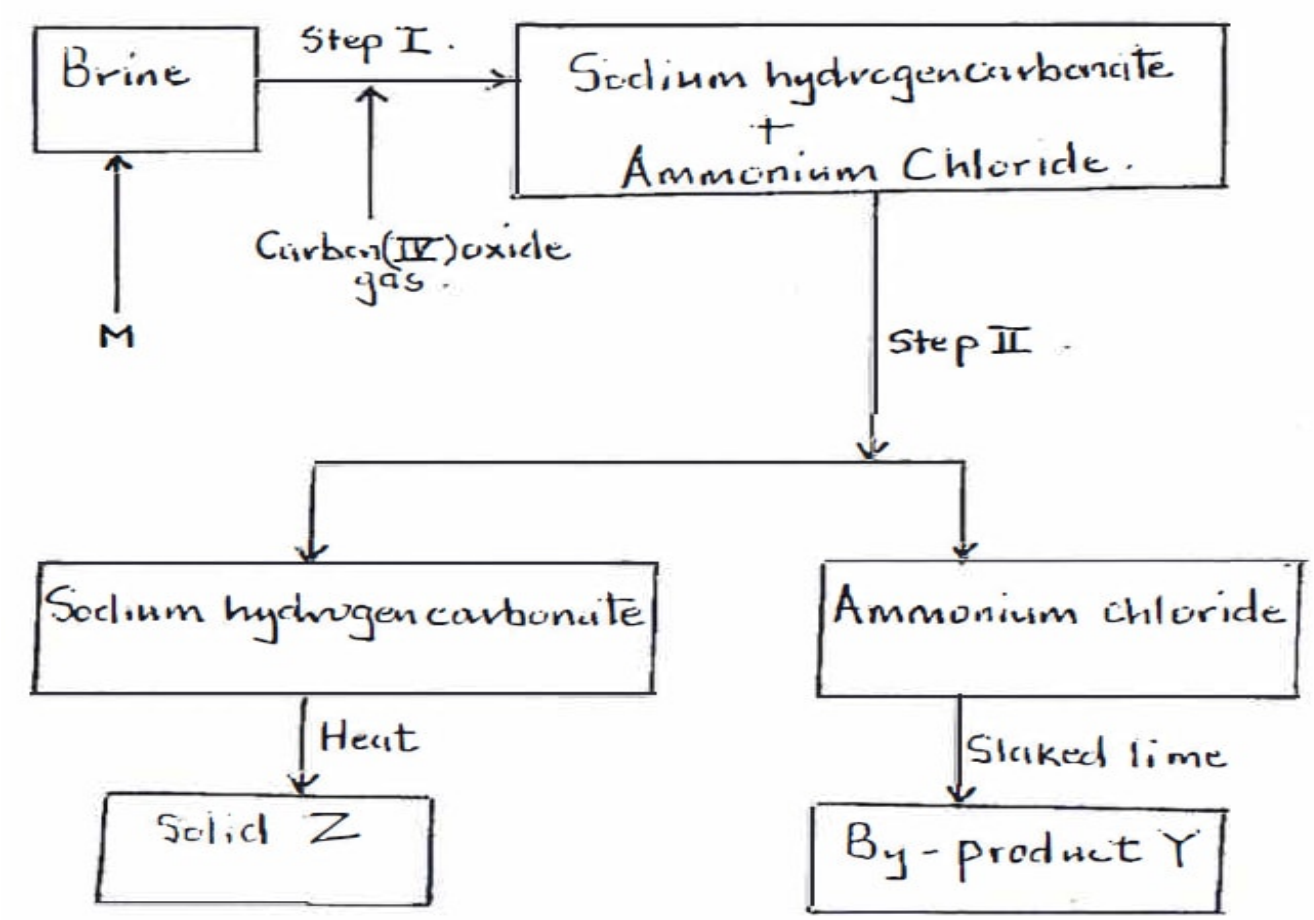
b.

i. What is molar heat of vaporization? {1 mark}
ii. The formation of Hydrogen peroxide under standard conditions is represented by the following thermochemical equations:
$H_{2(g)} + O_{2(g)} \rightarrow H_20_{2(g)}\ \Delta H^{\theta}_f = -133$ kJ/mol
$H_{2(g)} + O_{2(g)} \rightarrow H_20_{2(l)}\ \Delta H^{\theta}_f = -188$ kJ/mol
Draw an energy cycle diagram that links the above two thermochemical equations. {3 marks}
iii. Calculate the molar heat of vaporization of hydrogen peroxide. {1 mark}
iv. Write the thermochemical equation for the molar heat of vaporization of Hydrogen peroxide. {1 mark}

c.

i. What is a fuel? {1 mark}
ii. Natural gas, coal and oil are known as fossil fuels. They are major sources of energy.
Hydrogen gas is also a source of energy.
I. State and explain two reasons why Hydrogen is a very attractive fuel compared to fossils. {2 marks}
II. State one disadvantage of using Hydrogen fuel instead of fossil fuels.{1 mark}

3. The flow chart below is a simplified version of the steps in the manufacture of Sodium carbonate.



a. Name the process illustrated by the flow chart above. {1 mark}
b. Name three main raw materials of the above process. {3 marks}

c. Name substance M. {1 mark}
d. Name the process taking place in step II. {1 mark}
e. Identify by-product Y and write a balanced chemical equation to show how it is formed. {2 marks}
f. 98.123 Kg of Sodium hydrogen carbonate was manufactured in this process.
   i. What is solid Z. {1 mark}
   ii. Write a chemical equation for the formation of solid Z. {1 mark}
   iii. Determine in Kilograms, how much of solid Z was produced in this process. (Na = 23, H = 1, 0 = 16, C = 12) {3 marks}

4.

a. Study the standard reduction potentials for elements R, T, U, V and W given below and answer the questions that follow. (The letters are not the actual symbols of the elements).

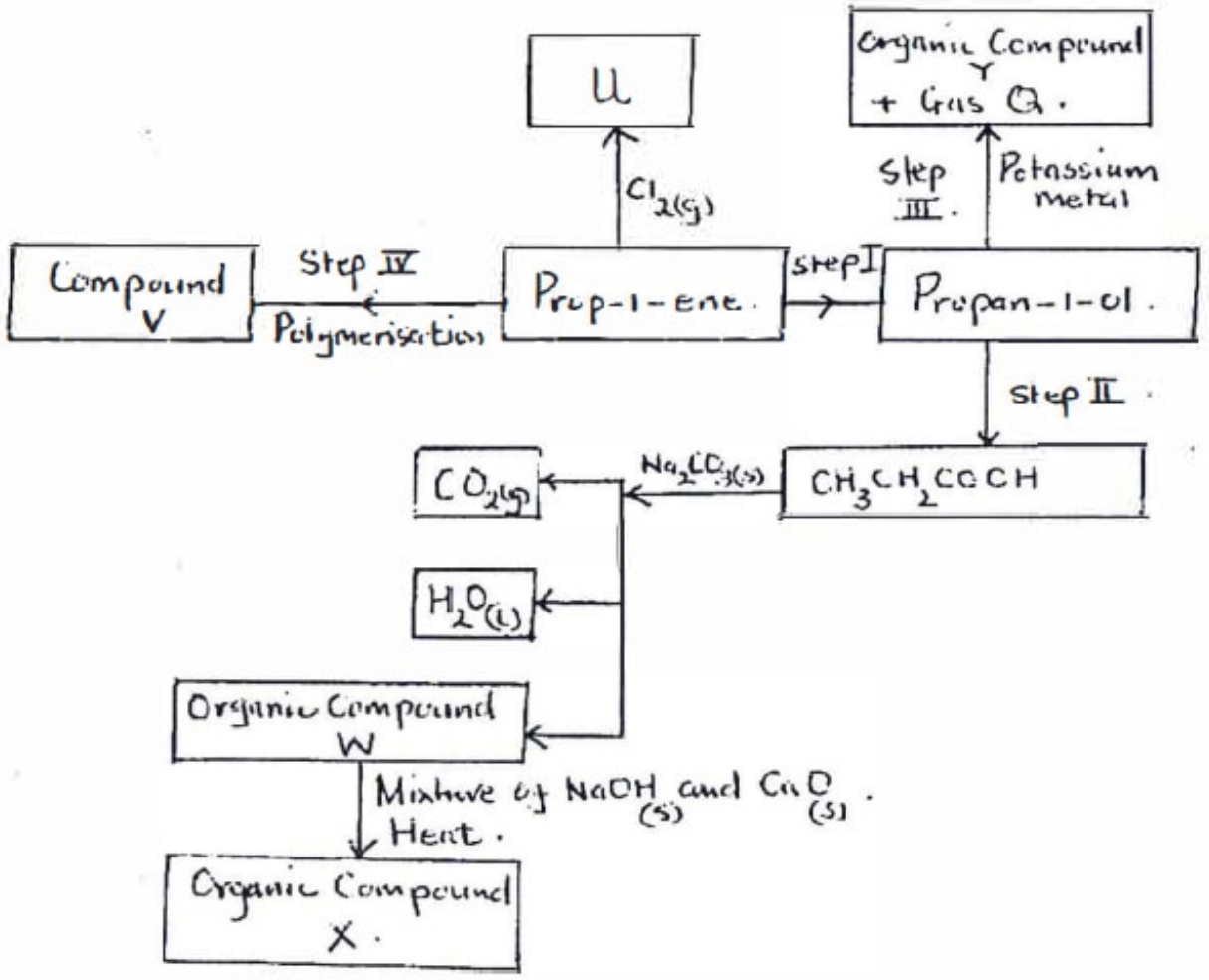
	E^{o} (volts)
$\frac{1}{2}R_{2(g)} + e^{-} \rightleftharpoons R^{-}_{(aq)}$	+ 2.87
$T^{2+}_{(aq)} + 2e^{-} \rightleftharpoons T^{-}_{(s)}$	+ 0.34
$U^{+}_{(aq)} + 2e^{-} \rightleftharpoons \frac{1}{2}U_{2(g)}$	0.00
$V^{2+}_{(aq)} + 2e^{-} \rightleftharpoons V_{(s)}$	-2.38
$W^{2+}_{(aq)} + 2e^{-} \rightleftharpoons W_{(s)}$	-2.90

   i. What is the E0 value of the strongest reducing agent? {1 mark}
   ii. Which element is likely to be Hydrogen? Give a reason for your answer. {2 marks}
   iii. Draw in the space provided below, a labelled diagram of the electrochemical cell that would be obtained when half-cells of elements T and V are combined. {3 marks}
   iv. On the diagram (iii) above:
      I. draw an arrow showing direction of flow of electrons. {1 mark}
      II. Label by naming the anode and cathode of the electrochemical cell.{1 mark}
   v. Determine the E0 value of the electrochemical cell constructed in (iii) above.{2 marks}

b. 1.48 g of Copper metal were deposited when current was passed through aqueous Copper (II) Sulphate for 2 hours 30 minutes during purification of Copper in electrolysis. Determine the amount of current used. (Cu= 63.5, IF= 96500 C) {3 marks}

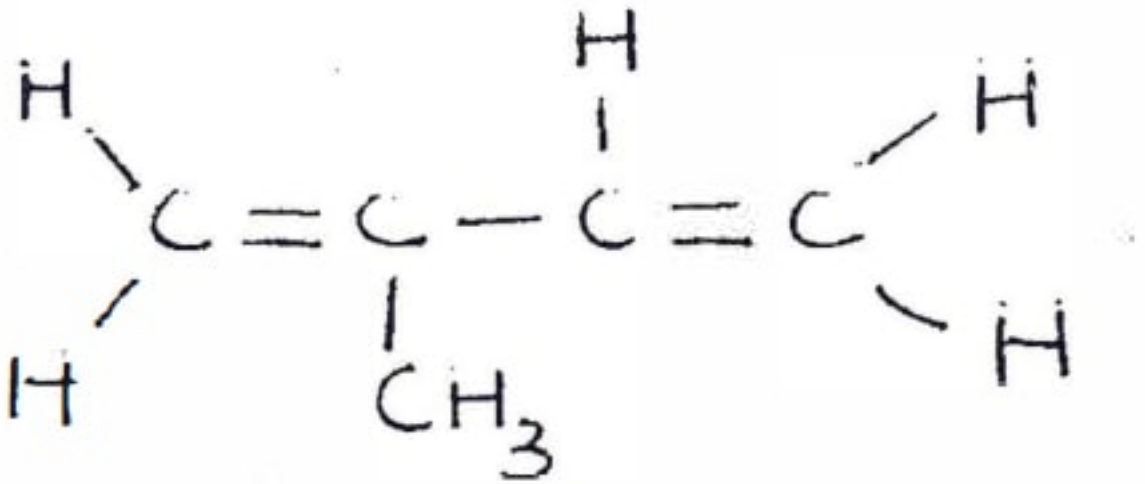
5.

a. The following scheme represents various reactions starting with pro-1-ene. Use it to answer the questions that follow.



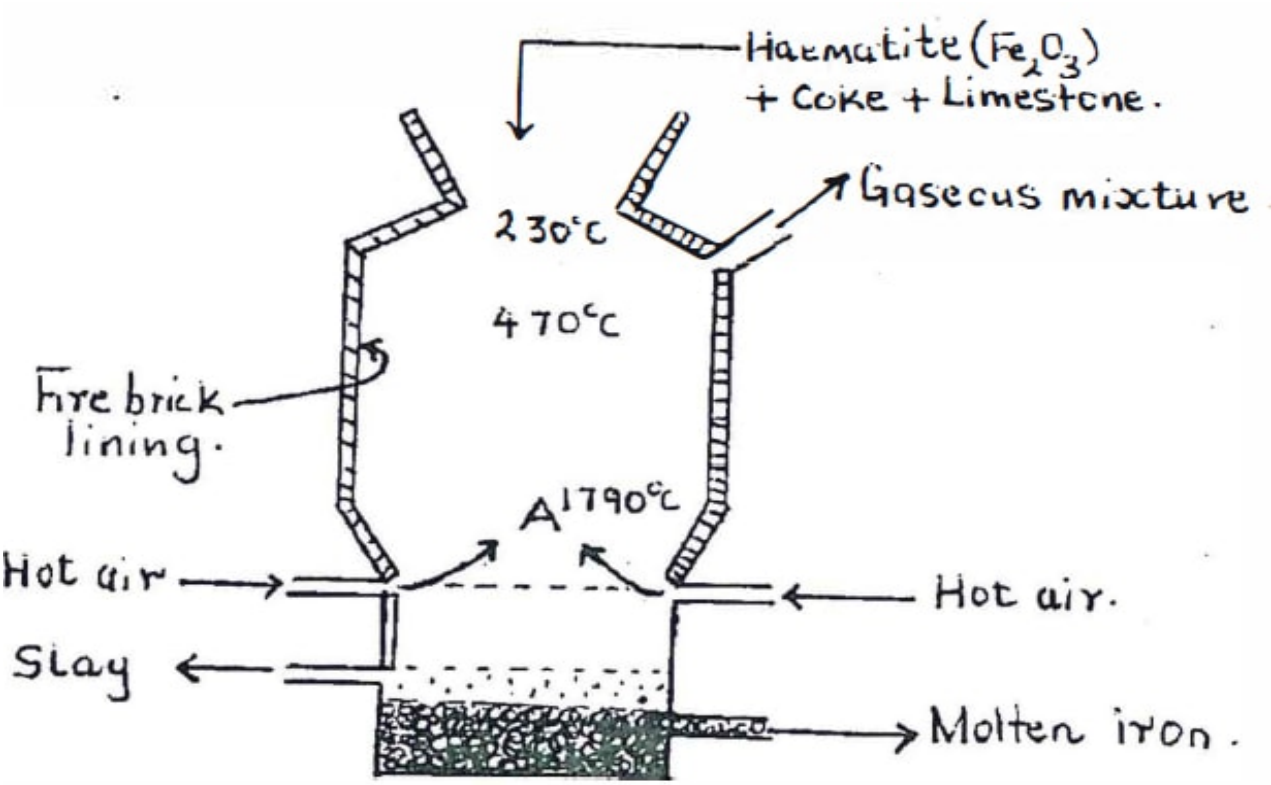
i. Write the chemical name of Organic compound X. {1 mark}
ii. Write the formula of organic compound Y. {1 mark}
iii. State one reagent that can be used in:
    I. Step I {1 mark}
    II. Step II {1 mark}
iv. Name compound V and state one of its use. {1 mark}
v.
    I. Name gas Q. {1 mark}
    II. Write the equation of the reaction in step III {1 mark}
    III. Name organic compound Y. {1 mark}

b. The structure shown below represents the monomer of natural rubber.



Using two monomers of the above structure, show how the monomer polymerises. {1 mark}

6. Below is a simplified diagram of a blast furnace used in the extraction of iron from its ores. Study it and answer the questions that follow.



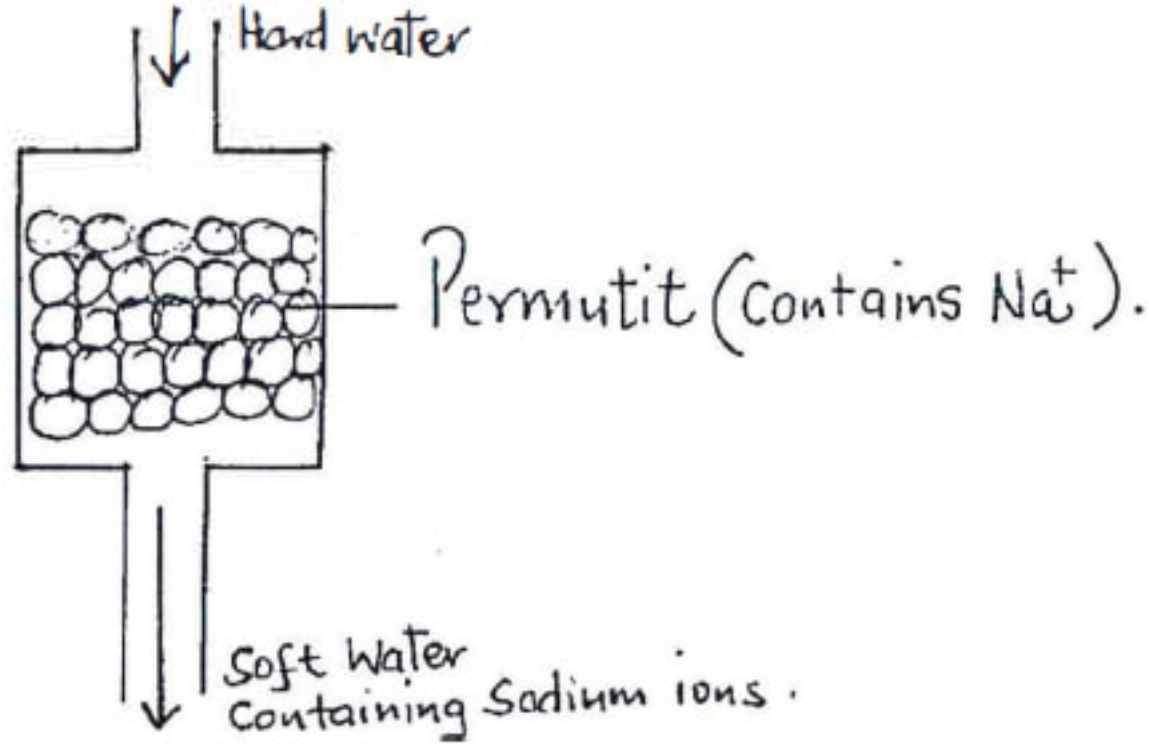
a. Name one other iron ore material that can be used in the blast furnace. {1 mark}
b. The iron obtained from the blast furnace has a melting point of 1200°C while that of pure iron is 1535°C. Explain. {1 mark}
c. What is the purpose of limestone in the blast furnace? {1 mark}
d. State one physical property of molten slag other than density that allows it to be separated from molten iron as shown in the diagram above. {1 mark}
e. State one use of fire-brick lining in the blast furnace. {1 mark}
f.
   i. Name one of the reducing agents used to reduce iron {III) oxide to iron metal in the blast furnace. {1 mark}
   ii. Using the named reducing agent in f(i) above and iron (III) oxide, write an equation involving this reaction. {1 mark}
g. Explain why the temperature in the region marked A is higher than that of the incoming hot air. {1 mark}
h.
   i. What name is given to the 90- 95% pure iron obtained from the blast furnace? {1 mark
   ii. Iron from the blast furnace contains about 5% carbon. State how the carbon content is reduced. {1 mark}

7.

a. A sample of water containing 0.001 moles of calcium hydrogencarbonate was added to 90 cm^3 of 0.01M calcium hydroxide.
   i. Write an equation for the reaction that took place. {1 mark}
   ii. Calculate the number of moles of calcium ions in 90 cm3 of 0.01M calcium hydroxide. {1 mark}

iii. What would be observed if soap solution was added dropwise to a sample of the water that had been added to calcium hydroxide. Give a reason. {2 marks}

b. The column below was used to soften hard water.



i. Explain how the hard water was softened as it passed through the column.{1 mark}

ii. After sometime the material in the column is not able to soften hard water. How can the material be regenerated?

iii. State one disadvantage of using hard water in boilers. {1 mark}

c. Identify the reagent that acts as a base in the equation below. Give a reason. {2 marks} {1 mark}

$$H_2O_{2(aq)} + H_2O_{(l)} \rightleftharpoons H_3O^+_{(aq)} + HO^-_{(2(aq)}$$

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CHEMISTRY PAPER 3 - 2019 K.C.SE Prediction Set 1

1. You are provided with:
   - Solution A, Dilute hydrochloric acid.
   - Solution B, made by dissolving 0.5g of sodium hydroxide in water and made to 250cm^3 of solution.
   - Solid C, Magnesium ribbon.
   - Phenolphthalein indicator.

   You are required to:
   i. Standardize solution A.
   ii. Determine the rate of reaction between solution A and magnesium.

   PROCEDURE I:
   i. Measure exactly 1 Ocm3 of solution A using a burette and transfer into a 250ml volumetric flask. Top up to the mark using distilled water and shake thoroughly. Label this solution D.
   ii. Drain the remaining solution A in the burette, rinse the burette thoroughly and fill the burette with solution D.
   iii. Pipette 25cm^3 of solution B into a conical flask. Add three drops of phenolphthalein indicator.
   iv. Titrate solution D with solution B. Record your results in the table below.
   Repeat procedures (i) to (iv) to complete the table.

	1	2	3
Final burette reading (cm^3)			
Initial burette reading (cm^3)			
Volume of solution D used (cm^3)			

   (3 marks)
      a. Calculate the average volume of solution D used.(show your working) (1 mark)
      b. Write an equation for the reaction that took place. (1 mark)
      c. Calculate the molarity of sodium hydroxide solution.(Na =23,0=16,H=l) (1 mark)
      d. Calculate the number of moles of sodium hydroxide reacted. (1 mark)
      e. Calculate the number of moles of hydrochloric acid in 250cm3 of solution D. (2marks).
      f. Calculate the m9larity of hydrochloric acid in solution A. (1 mark)

   PROCEDURE II:

   i. Cut solid C into equal pieces, each 2cm long.(I mark)
   ii. Using a burette, measure 12cm3 of solution A, into a clean boiling tube.
   iii. Drop one piece of solid C into the boiling tube containing solution A and start the stopwatch immediately. Stop the stopwatch when all solid C has just disappeared (dissolved).
   Record your results in the table below.
   iv. Repeat steps (ii) and (iii) above using 10.0cm^3, 8.0cm^3, 6.0cm^3 and 4.0cm^3 of solution A. Top up each with distilled water to make12.0cm3 of solution, using a 10.0cm^3 measuring cylinder and complete the table below. (4marks)

	Volume of Solution A (cm^3)	Volume of distilled water (cm^3)	Concentration of Solution A (moles/dm^3)	Time (s)	$^1/_t$ (S^{-1})
I	12	0			
II	10	2			
III	8	4			
IV	6	6			
V	4	8			

(4 marks)

a. Calculate the concentration of each of the solution and and complete the table. Show your working. (2marks)
b. Plot a graph of $^1/_t$ (y-axis) against the concentration of solution A. (3marks)
c. From the graph, determine the time taken for the reaction to reach completion when 1.5 moles of solution A are used. (2 marks)
d. Comment on the shape of the graph. (1 mark)

2. You have been provided with solid Q, Which is a mixture of two compounds.
You are required to carry out the test below and record your observations and inferences in the spaces provided below.

PROCEDURE

i. Put a spatulaful of mixture Q in a boiling tube.
ii. Add about $7cm^3$ of distilled water to the mixture and shake thoroughly. Filter the mixture.
iii. Wash the residue with distilled water and keep both the residue and the filtrate.

Observation	**Inference**
1 mark	1 mark

iv. Divide the filtrate into four portions

Observation	**Inference**
1 mark	1 mark

v. Add 5 drops of acidified 2M barium chloride to the first portion.

Observation	**Inference**
1 mark	1 mark

vi. Add 3 drops of 2M lead (II) nitrate solution to the second portion.

Observation	**Inference**
1 mark	1 mark

vii. Add 2M sodium hydroxide to the third portion dropwise until in excess.

Observation	**Inference**
1 mark	1 mark

viii. Add 2M ammonia solution to the fourth portion drop wise until in excess.

Observation	**Inference**
1 mark	1 mark

ix. Scrape the residue from the filter paper and transfer it into a boiling tube.
x. Add some dilute 2M Nitric (V) acid while shaking until all the solid dissolves.
xi. Divide the solution into three portions.
xii. To the first portion add 2M sodium hydroxide a few drops till in excess.

Observation	Inference
1 mark	1 mark

xiii. To the second portion add a few drops of 2M ammonia solution till in excess.

Observation	Inference
1 mark	1 mark

xiv. To the third portion add 5 drops of 2M hydrochloric acid and warm the mixture.

Observation	Inference
1 mark	1 mark

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AGRICULTURE PAPER 1 - 2019 K.C.SE Prediction Set 1

SECTION A (30 MARKS)

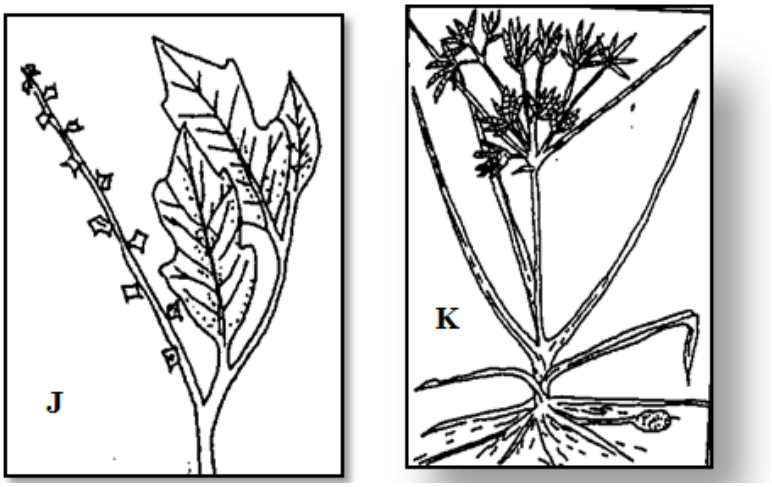
*Answer **ALL** questions in this section.*

1. Give **four** methods of applying fertilizers to crops. (2 marks)
2. State **four** beneficial biotic factors that influence agriculture. (2 marks)
3. Give **four** branches of Agriculture. (2 marks)
4. State **four** advantages of co-operative land tenure system. (2 marks)
5. State **four** benefits of organic mulch in crop production. (2 marks)
6. State **four** conditions under which shifting cultivation is practiced. (2 marks)
7. Give **four** effects of mass wasting. (2 marks)
8. Give **four** factors that affect the rooting of cuttings. (2 marks)
9. Name **four** details that are included in a farm marketing record. (2 marks)
10. Give **four** examples of product-product relationships in the management of agricultural enterprises. (2 marks)
11. State **three** entries that are made in a journal. (1½ marks)
12. Give **two** reasons for cutting back pyrethrum. (1 mark)
13. State **three** parameters used to indicate national development. (1½ mark)
14. State **four** symptoms of viral diseases in crops. (2 marks)
15. Give **four** reasons for draining land as part of land reclamation. (2 marks)
16. State **two** reasons for topping a pasture. (1 mark)
17. State **two** advantages of metal pipes over plastic pipes in piping water in the farm. (1 mark)

SECTION B (30 MARKS)

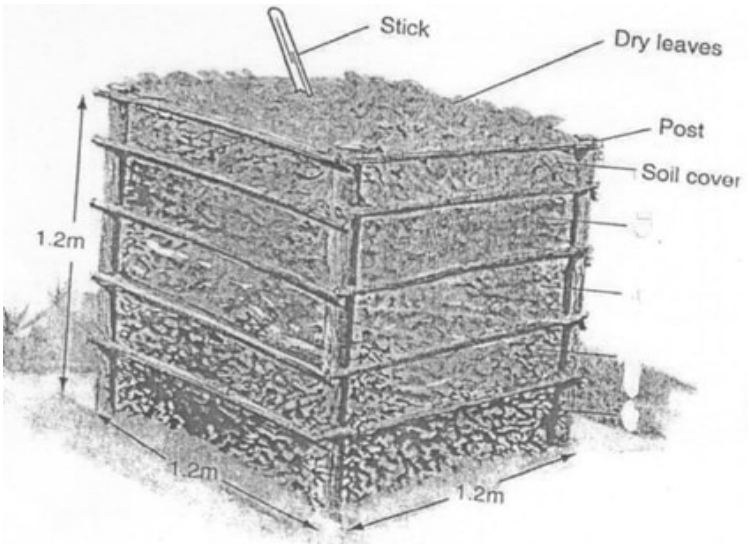
*Answer **ALL** questions in this section.*

18. Study the following weeds and answer questions that follow.



a. Give the identity of weeds J and K. (2 marks)
b. What makes weed K difficult to control? (1 mark
c. Give the economic importance of weed J. (1 mark)
d. State **one** reason that makes weeds excellently adapted to various environments. (1 mark)

19. Study the diagram below of a method of compost making and answer the questions that follow.



a. Identify the methods of compost making. (1 mark)
b. State **four** factors to consider when siting the structure. (2 marks
c. What is the function of the following materials in preparation of compost manure
   i. Top soil (1 mark)
   ii. Wood ash (1 mark)

20. Two maize pests are shown in the diagram below. Study them and answer questions that follow.



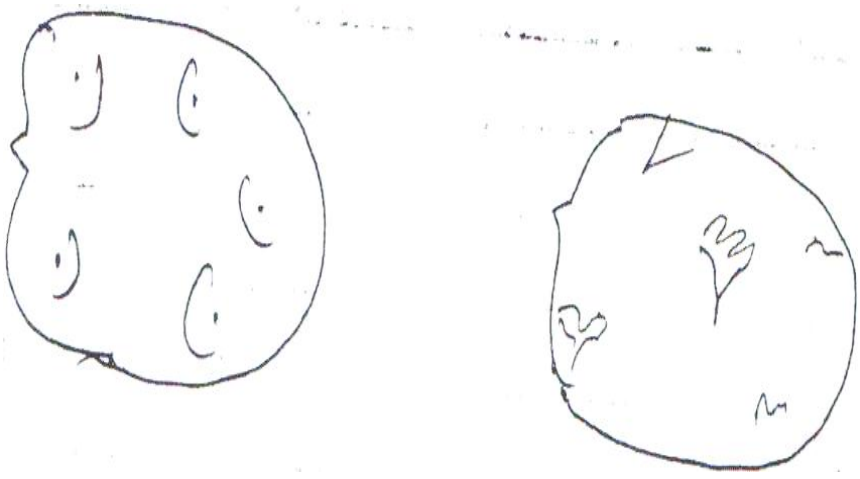
A



B

a. Identify the pests in the diagram labeled A and B. (1 mark)
b. At what stage of maize production does each pest damage the crop? (2 marks)
c. Give **one** way of controlling each of the pests in the field. (2 marks)

21. The diagram below represents a vegetative material used to prepare a certain crop. Study them and answer the questions that follow.



i. Give the name of the material illustrated above. (1 mark)
ii. Give the name of the preparation done on the material to make it ready for planting. (1 mark
iii. State **three** advantages of carrying out the practice in (ii) above before planting. (3 marks)

SECTION C (40 MARKS)

*Answer **ANY TWO** questions from this section in the spaces provided*

22.

a. Describe the growing of dry bean seeds under the following subheadings.
   - Selection and preparation of planting materials (3 marks)
   - Planting (4 marks)
   - Weeding (3 marks)

b. Describe the environmental conditions that may lead to low crop yields. (10 marks)

23.

a. Explain **six** factors considered in designing a crop rotation programme. (6 marks)
b. Explain the factors that influence the type of irrigation to be used in a farm. (8 marks)
c. Explain **six** post-harvest practiced carried out on production of maize. (6 marks)

24.

a. Explain **five** advantages of budgeting in farming. (10 marks)
b. Explain **five** various types of risks and uncertainties. (5 marks)
c. Describe the importance of pruning perennial crops. (5 marks)

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AGRICULTURE PAPER 2 - 2019 K.C.SE Prediction Set 1

SECTION A (30 MARKS)

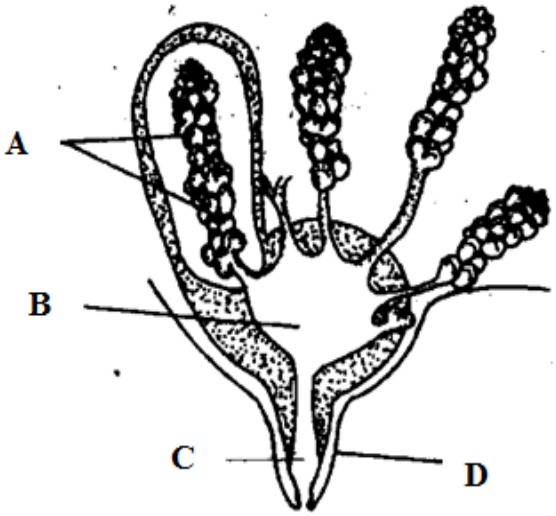
*Answer **all** the questions in this section in the spaces provided.*

1. Give **three** factors that affect the quality of honey. (1½ marks
2. State **three** conditions that make a cow to withhold milk during milking. (1½ marks)
3. State **four** signs of furrowing observed in pigs. (2 marks)
4. Give **three** factors that may make birds to lay eggs on the floor in a deep litter. (1½ marks)
5. Give **three** characteristics of clean and high quality milk. (1½ mark)
6. Outline **four** control measures of round worms. (2 marks)
7. State **four** signs of liver fluke infestation in cattle. (2 marks)
8. Give **four** reasons of breeding in cattle. (2 marks)
9. List **four** methods of preserving fish. (2 marks)
10. Name **two** classes of livestock feedstuffs. (1 mark)
11. Give **two** roles of ovaries in cows' reproductive system. (1 mark)
12. Give **two** reasons for flushing in sheep. (1 mark)
13. Give **four** reasons for treating timber used in construction of farm buildings. (2 marks)
14. State **four** factors that influence the daily water intake in an animal. (2 marks)
15. Name **two** functions of a clutch in the tractors transmission system. (1 mark)
16. Give **four** characteristics of a good calf pen. (2 marks)
17. State **four** factors that influence the choice of the poultry system of rearing to use. (2 marks)
18. State **four** routine management practices carried out on a replacement stock that is a heifer. (2 marks

SECTION B (20 MARKS**)**

*Answer **ALL** questions in this section in the spaces provided.*

19. The diagram below is a cross section of part of a cow's udder.



    a. Name the parts marked A, B, C and D. (2 marks)
    b. Name **two** hormones that control milk let down in a dairy cow. (2 marks
    c. What is a dry cow therapy? (1 mark)

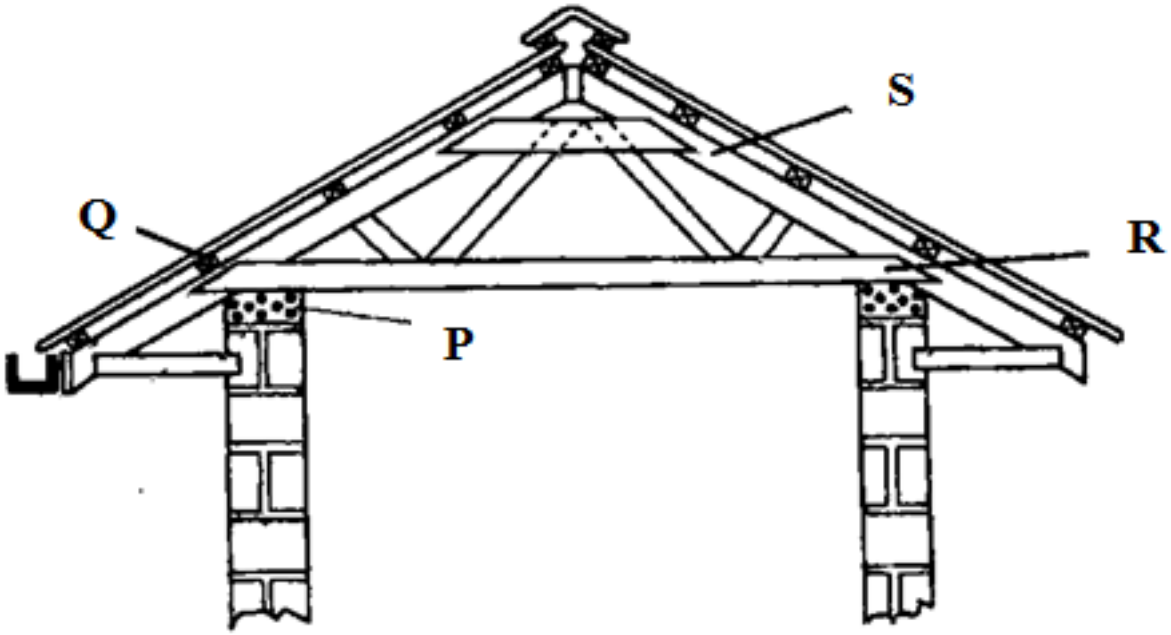
20. The diagram below shows the head of a chicken having symptoms of a poultry disease



Lessions

a. Identify the disease. (1 mark)
b. Give **two** reasons why the disease is of economic importance. (2 marks)
c. Outline **two** methods of controlling the above disease. (2 marks)

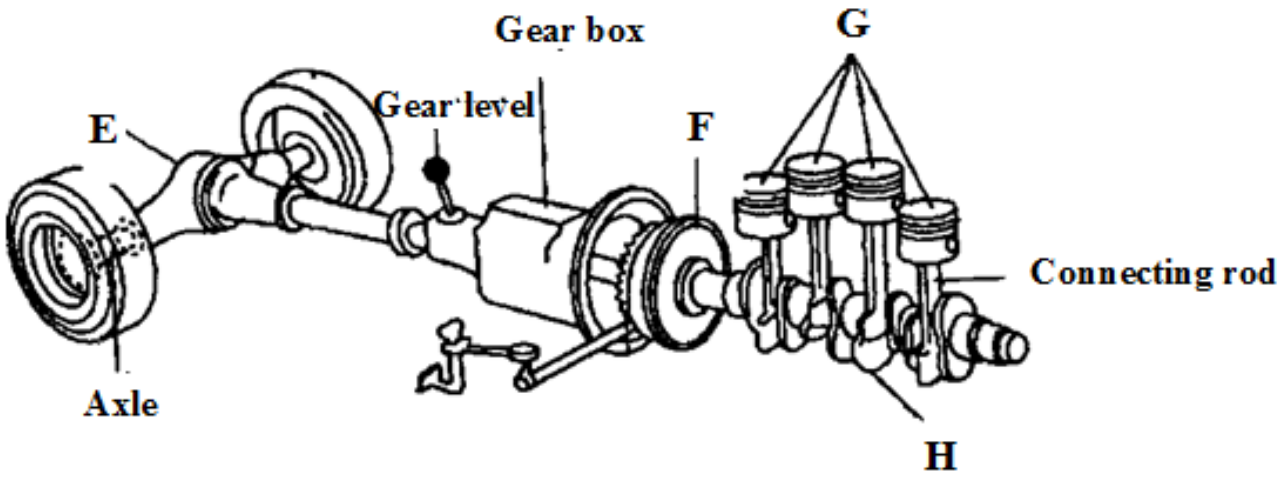
21. The following diagram shows parts of a roof. Study it carefully and answer the questions that follow.



a. Name the parts labeled P, Q, R and S. (2 marks)
b. State the functions of P and Q. (2 marks)
c. Give **two** chemical preservatives for treating timber before use in the construction of farm structures. (2 marks

22. Below is a diagram of power transmission system of tractor engine.
Study it and answer the question that follows.

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a. Name the parts labeled E, F, G and H. (2 marks)
b. State the functions of E and H. (2 marks)

SECTION C (40 MARKS)

*Answer **ANY TWO** questions from this section.*

23.

a. Describe **five** pre-disposing factors of livestock diseases. (5 marks)
b. Describe **six** mechanical methods of controlling ticks. (6 marks)
c. Describe the factors that affect milk composition of a cow. (9 marks)

24.

a. State **five** advantages of farm mechanization. (5 marks)
b. Explain **five** advantages of using a mould board plough in seed bed preparation. (5 marks)
c. Describe the use of various materials in construction of a Kenya Top bar hive. (5 marks)
d. Outline the care and maintenance of a tractor water cooling system. (5 marks)

25.

a. State **four** physical characteristics of a dairy cow. (4 marks)
b. State **nine** factors to consider when selecting livestock for breeding. (9 marks)
c. Describe milk fever in dairy cattle under the following sub-headings.
   i. The cause of the disease (1 mark)
   ii. Symptoms of the disease (4 marks)
   iii. Control measures (2 marks)

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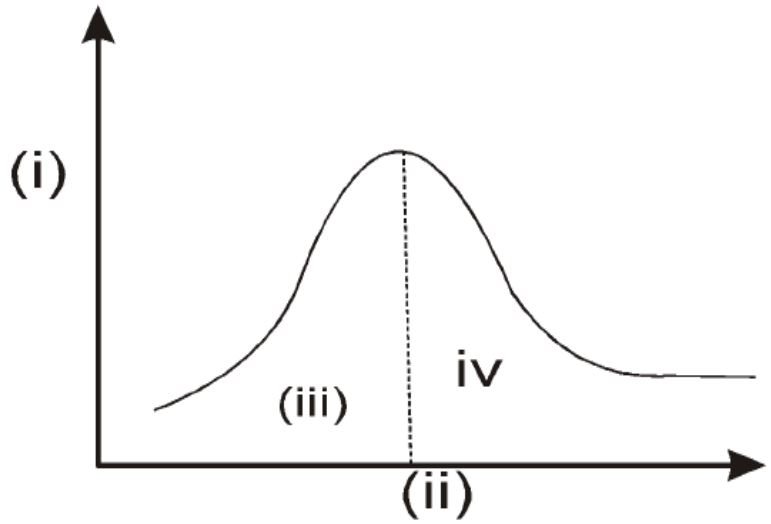
BUSINESS STUDIES PAPER 1 - 2019 K.C.SE Prediction Set 1

Answer all questions in the spaces provided

1. List **four** physical resources that a business can use to ehnace its operations (4 marks)
2. Outline **four** reasons that justify entrepreneurship in a country (4 marks)
3. Outline **four** attributes of an office secretary (4 marks)
4. Outline **four** circumstances under which a credit note can be issued (4 marks)
5. Highlight **four** challenges facing co-operative societes in Kenya (4 marks)
6. State **four** benefits a business may get by adopting containerisation (4 marks)
7. Outline **four** advantages of E-mail as means of communication (4 marks)
8. Outline **four** factors which may limit the effectivenes of a warehouse (4 marks)
9. Differentiate between a movement along a supply curve and shift of a supply curve
10. State **four** ways in which production in Kenya effects the environment (4 marks)
11. Distinguish between monopoly and monopolistic competition markets (4 marks)
12. Highlight **four** factors that may influence a producer in choosing a channel of distribution (4 marks)
13. Outline **four** limitations of using National income statistics to measure standards of living in acountry (4 marks)
14. State the efecct of each of the follwoing transactions on a balance sheet total. Use increase, decrease and No effect (4 marks)

Transaction	**Effect**
a. Brought in the business a personal car	
b. Took home some goods for family use	
c. Sold some old furniture for cash	
d. Paid a creditor by cheque	

15. The following information was extracted from Kariuki Enterprise for the month ended 31st Augsut 2015
    Gross profits 24000
    Total expenses 80000
    Total revenue income 10% of sales
    Mark up percentage 25%
    Prepare a profit and loss Account for the months (4 marks)
16. Outline **four** factors that influence the amount held in liquid form (4 marks)
17. Outline **four** features of economic resources (4 marks)
18. Outline **four** disadvantages of division of labor (4 marks)
19. Ouline **four** advantages of government involvement in business activities (4 marks)
20. State f**our** circumsatnces that may influence an Insurance company to re-insure itself (4 marks)
21. Explain the following terms as used in product promotion
    i. Competitive advertising (2marks)
    ii. Celebrity advertising (2 marks)
22. The diagram below shows the relationship between population trend and income per head



Name the labelled parts (4 marks)

23. Give in statement from the business transactions in the accounts below (4 marks)

Capital A/C	
	Jan 1 cash 100,000

Cash A/C	
Jan 1 Capital 100 000	Jan 2 Bank 50,000
	Jan & stationery 10,000

Bank A/C	
Jan 2 cash 50 000	Jan 10 Stationery 4000

Stationary A/C	
Jan 8 Cash 10,000	
Jan 10 Bank 4000	

24. In the spaces provided state the source document for each of the books of original entry (4 marks)

Book of original entry	**Source document**
i. Cash receipt Journal	
ii. Return inwards Journal	
ii. Purchases Journal	
iv. Sales Journal	

25. The cost of consumer goods and services for a representative basket of an average family is given below

Year	Prices	C.P.I
2000	1000	100
2001	1069	-
2002	1162	-
2003	1200	-
2004	1325	

Determine the consumer price indices using 2000 as base year (4 marks)

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BUSINESS STUDIES PAPER 2 - 2019 K.C.SE Prediction Set 1

1.
   a. Explain **five** importance of trade within a country (10 marks)
   b. With **five** features differenmtiate between a cooperative society and a public Limited Company (10 marks)

2.
   a. On 1st December 2015, Mumbi traders had shs. 125,000 in hand and a a bank overdraft of shs 97,000
   During the month, the following transactions took place
   Dec 2: Cash sale banked shs. 335,260
   3: Bought goods in cash shs. 10,500
   9: Paid Njeru a creditor shs. 190,000 by cheque in full settlement of his account after deducting 5% cash discount
   13: Received a cheque for sh. 158,400 from Maro after allowing her a cash discount of shs. 1,600
   16: Paid salaries shs. 36,000 in cash
   24: Withdrew shs. 100,000 from bank for office use
   29: Nyangau, a debtor paid her account of 175,000 by cheque less 10% cash discount
   31: Deposited all the cash into bank except shs. 33,490
   Required: Prepare a three column cash book and balance it off (10 marks)
   b. Explain **five** purpose of public finance

3.
   a. Explain **four** reasons why entrepreneurs observe ethics in their business (10 marks)
   b. Explain **five** factors that contribute to income disparity in Kenya (10 marks)

4.
   a. Explain **five** circumstance under which a manufacturer wpould prefet to sell his products direct to consumers instead of selling through middlemen
   b. Explain **five** importances of development planning

5.
   a. Explain **five** advantages of free trade (10 marks)
   b. Explain **five** reasons why the government protect consumers (10 marks)

6.
   a. The following information ws extracted from the books of Sahara traders fro the year ended 30th April, 2013

	Shs.
Sales	480000
Opening stock 1/5/2012	80,000
Closing stock 30/4/2012	120,000
Gross profit margin	25%

   Prepare
      i. Trading account for the period ended 30th April 2013 (6 marks)
      ii. Calculate rate of stock turnover (4 marks)
   b. The size of population of a country A has been declining. Explain five possible causes that may have contributed to the decline (10 marks)

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HISTORY PAPER 1 - 2019 K.C.SE Prediction Set 1

INSTRUCTIONS

*ANSWER **ALL** QUESTIONS IN SECTION A, **THREE** QUESTIONS IN SECTION B AND **TWO** QUESTIONS IN SECTION C.*

SECTION A (25 MARKS)

Answer all questions in this section

1. Name the **branch** of history that deals with traditions, values and cultural practices of people. (1 mk)
2. Name the **only** southern Cushites group remaining in Kenya. (1 mk)
3. Give **two** age sets among the Nandi in the pre-colonial period (2 mks)
4. Apart from Vasco de gamma, name **two** other Portuguese generals who conquered the East African Coast. (2 mks)
5. State the **main** way through which one qualifies to be a Kenyan citizen by their birth. (1 mk)
6. Give **one** economic factor that promotes national unity in Kenya. (1 mk)
7. State **two** functions of a constitution. (2 mks)
8. What is direct or pure democracy? (1 mk)
9. Apart from the Nandi, which other **two** communities resisted British invasion in Kenya. (2 mks)
10. Who introduced settler farming in Kenya. (1 mk)
11. Name **two** nationalists outside central Kenya who were detained at Kapenguria in 1952. (2 mks)
12. Give the **main** political challenge that faced Mzee Jomo Kenyatta immediately after independence. (1 mk)
13. State **two** electoral offences that are applicable to a voter. (2 mks)
14. Mention the **document** in which African socialism as a national philosophy was expounded. (1 mk)
15. State **two** ways through which the government has encouraged the preservation of African culture since independence. (2 mks)
16. Name **two** members of the county executive committee. (2 mks)
17. Give the **main** function of the commission on revenue allocation in Kenya. (1 mk)

SECTION B(45 MARKS)

Answer three questions only from this section.

18.
    a. State **five** results of the settlement of Luo during pre-colonial period. (5 mks)
    b. Describe the **social** organization of the Maasai in the 19th (10 mks)
19.
    a. State **five** reasons why the Portuguese built Fort Jesus in 1593. (5 mks)
    b. Explain **five** results of the coming of Christian missionaries to Kenya. (10 mks)
20.
    a. State **three** roles of Mekatilili wa Menza in the Agiriama resistance against the British. (3 mks)
    b. Explain **six** effects of the Wanga collaboration against invasion in western Kenya. (12 mks)
21.
    a. State **five** factors that prompted the colonial government to construct the Kenya –Uganda railway. (5 mks)
    b. Explain **five** factors that intensified African Nationalism in Kenya after 1945. (10 mks)

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SECTION C (30MKS)

Answer two questions only from this section.

22.
   a. Give **three** ways in which education promotes national unity in Kenya. (3 mks)
   b. Explain **six** factors that undermine National unity in Kenya. (12 mks)

23.
   a. State **five** characteristics of a good constitution (5 mks)
   b. Explain **five** reasons why human rights are important in Kenya. (10 mks)

24.
   a. State **three** ways in which the High court supervises the work of the subordinate courts. (3 mks)
   b. Explain **six** functions of the cabinet in Kenya. (12 mks)

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HISTORY PAPER 2 - 2019 K.C.SE Prediction Set 1

INSTRUCTIONS

- ANSWER *ALL* QUESTIONS IN SECTION A
- ANSWER *THREE* QUESTIONS IN SECTION B
- ANSWER *TWO* QUESTIONS IN SECTION C.

SECTION A (25 MARKS)

Answer all questions from this section.

1. Give **two** disadvantages of using electronic sources to study history and government. (2 mks)
2. Who was the **architect** of the theory of Evolution? (1 mk)
3. Mention **one** river associated with early agriculture in Mesopotamia. (1 mk)
4. Give **two** roles of the takshifs during the Trans-Saharan trade. (2 mks)
5. What is the **main** limitation of use of airships in transport? (1 mk)
6. Give **two** disadvantages of use of radio. (2mks)
7. State **two** political effects of industrial revolution in Europe. (2 mks)
8. Identify the **main** factor that contributed to the growth of Athens in ancient Greece. (1 mk)
9. Name the **main** symbol of unity among the shona in the 19th Century. (1 mk)
10. State **two** ways in which the partition of Africa affected Europeans. (2 mks)
11. What was the **name** of the company that administered Zimbabwe on behalf of Britain? (1 mk)
12. Apart from Nelson Mandela, mention **any other** Nationalist in South Africa. (1 mk)
13. Identify **two** reasons why United States of America was reluctant to join the First World War on the side of Allies. (2 mks)
14. Give **two** specialized agencies of the United Nations which deals with provision of loans to member countries. (2 mks)
15. Identify **two** organs of economic community of west African States (ECOWAS) (2 mks)
16. Identify the **main** principle of the Arusha declaration of 1967. (1 mk)
17. Give **one** major political party in India. (1 mk)

SECTION B (45 MARKS)

Answer any three questions only from this section.

18.
    a. What **three** challenges did the early man face as he lived in caves. (3 mks)
    b. Explain **six** effects of development of early agriculture in Egypt. (12 mks)
19.
    a. State **three** factors that facilitated the acquisition of slaves during the Trans- Saharan trade. (3 mks)
    b. Explain **six** factors that led to the decline of Trans-Saharan trade. (12 mks)
20.
    a. What **five** factors characterized industrialization in Britain. (5 mks)
    b. Explain the **problems** facing industrialization in South Africa. (10 mks)
21.
    a. Identify **five** factors that enabled Europeans to easily conquer Africa during the scramble for Africa. (5 mks)
    b. Explain **five** reasons why assimilation failed in Senegal. (10 mks)

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SECTION C (30 MARKS)

Answer any two questions from this section.

22.
   a. State **five** peace treaties signed between Allies and the central powers to bring peace in Europe. (5 mks)
   b. Explain **five** social effects of World War II. (10 mks)

23.
   a. State f**ive** reasons why Pan Africanism became more active in Africa after 1945. (5 mks)
   b. Explain **five** functions of the United Nations Security Council. (10 mks)

24.
   a. Mention **three** ways of becoming a member of parliament in Britain. (3 mks)
   b. Explain **six** functions of the president in USA. (12 mks)

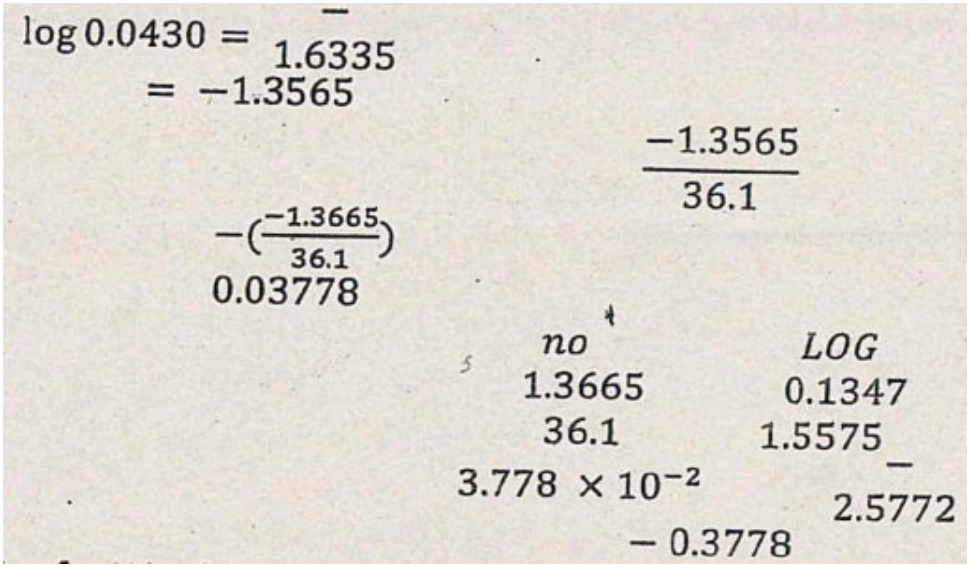
MATHEMATICS PAPER 1 Marking Scheme - 2019 K.C.SE Prediction Set 1

SECTION I (50 marks)

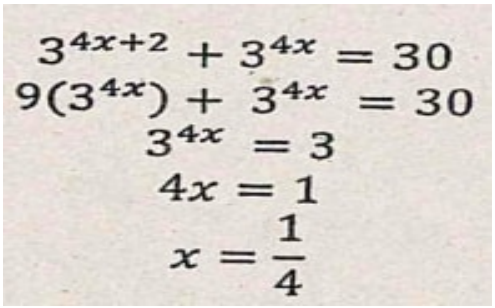
*Answer **all** the questions in this section*

1. Use logarithms to evaluate (4 marks)

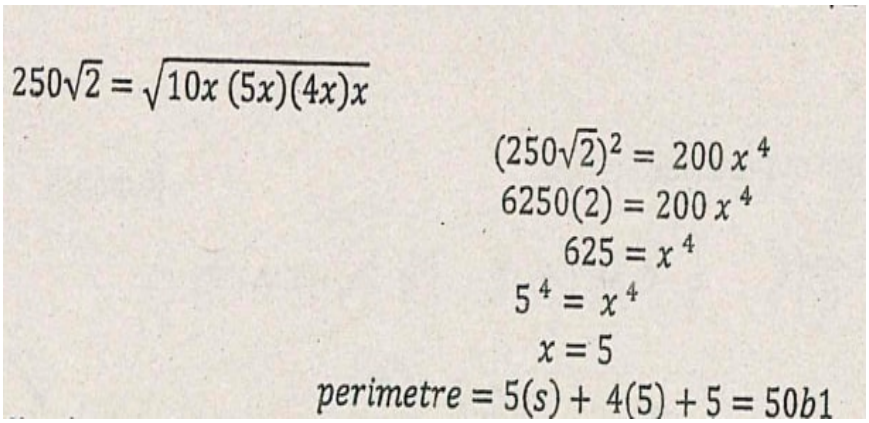
$$\frac{log 0.0430}{22.43+13.67}$$



2. Solve for x in the equation given below (3 marks)
$9^{2x+1} = 30 - 34^{4x}$



3. The lengths of a triangle are in the ratio 5:6:9. if its area is 250√2, calculate its perimeter (4 marks)



4. Simplify completely without using mathematical tables or calculator (3 marks)

$$\frac{cos120°sin300°}{\cos(-390°)}$$

$$\frac{\frac{\cos 120° 300°}{\cos(-390°)}}{\frac{(-\cos 60°)(\sin 60°)}{\cos 30°}}$$
$$\frac{(-\cos 60°)(\sin 60°)}{\cos 60°}$$
$$-\cos 60° = \frac{1}{2} = 0.5$$

5. Four metal rods of length $15x^3h^2y$, $3x^2yh^5$ and $9x^4y^2h$ are to be cut into smaller pieces of the same length such that there is no metal left. What is the maximum length of one of the pieces (1 mark)

$$3 \times 5 \times x^3h^2y, 3x^2yh^5, 3 \times 3 \times x^4y^2h$$
$$GCD = 3x^2yh$$

6. Given that the log 2 = 0.30103 and log 7 = 0.84510, find without using mathematical tables or calculator, log 9.8 (3 marks)

$$\log 9.8 = \log\frac{98}{10} = \log\frac{7^2}{20}$$
$$log\,(7^2 \div 2 \div 10)$$
$$2\log 7 - \log 2 - \log 10$$
$$2(0.84510) - (0.30103) - 1$$
$$= 1.69020 - 0.30103 = 1.$$

7. Given that $3x - y = 17$, find the value of $y^2 + 9x^2 - 6xy - 9$ (2 marks)

$$y^2 + 9x^2 - 6xy - 9$$
$$= (3x - y)^2 - 9$$
$$= (17^2) - 9$$
$$= 289 - 9 = 280$$

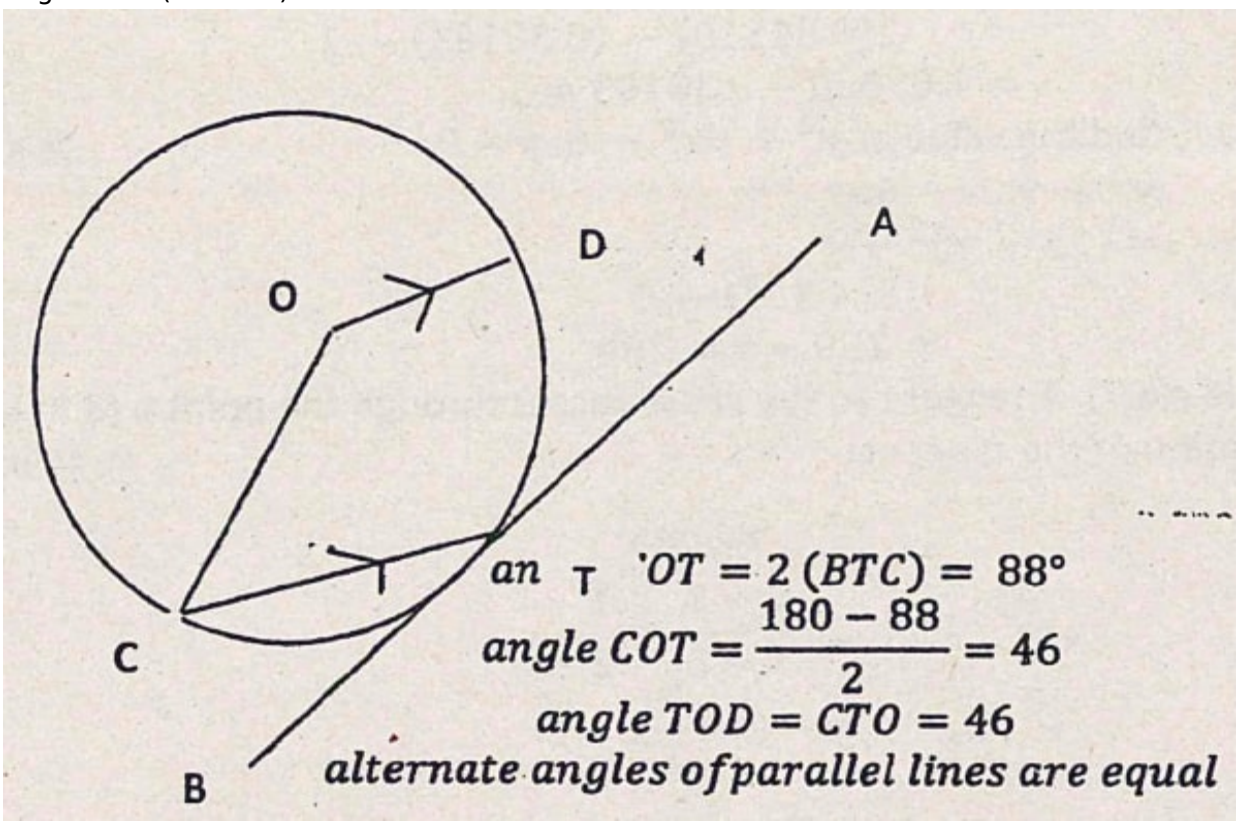
8. The center of a circle is C (6,7). A tangent to the circle passes through the point P (8,3) lying on the circle. Find the eqaution of the tangent (4 marks)

$$m_2 = \frac{1}{2}$$
$$\frac{y-7}{x-6} = \frac{1}{2}$$
$$y - 7 = \frac{1}{2}x - 3$$
$$y = \frac{1}{2}x + 4$$

9. Coffee grade 1 at sh 30 per 50 g is blended with coffe grade 2 at sh 20 per 25g and the mixture is sold at sh 96 per 100g at a profit of 22%. Calculate the ratio in which the two brands of coffee were mixed. (4 marks)

$$sh = 96 = 12\%$$
$$\frac{96}{1.22} = 100\%$$
$$100\% = \frac{4800}{61}$$
let the ratio be $x:y$
$$\frac{30x + 20y}{\frac{1}{100}(50x + 25y)} = \frac{4800}{61}$$
$$\frac{30x + 20y}{50x + 25y} = \frac{48}{61}$$
$$180\ 30x + 1220y = 2400x + 1200y$$
$$20y = 570x$$
$$y : x = 570:20$$
$$= 57:2$$

10. In the figure below, O is the centre of the circle which passes through thepoints C, T and D. CT is parallel to OD and line ATB is tangent to the circle at T. If the angle BTC is 44^{o}, find the size of angle TOD. (3 marks)



11. Two similar solids have masses of 1000g and 1728g. if it costs Ksh 1080 to paint the outside of the larger solid, how much will it cost to paint the outside of the smaller solid (3 marks)

$$vsf = \frac{1000}{1728}$$

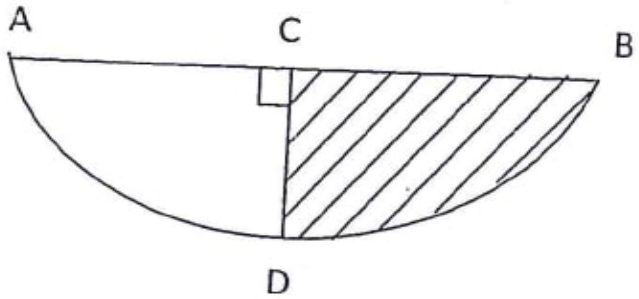
$$lsf = 3\sqrt{\frac{1000}{1728}} = \frac{10}{12}$$

$$asf = \frac{100}{144}$$

$$\frac{100}{144} = \frac{a}{1080}$$

$$1080 \times \frac{10}{144} = sh\,750$$

12. The figure below shows part of a circle. AB = 12 cm and CD= 6 cm. AC = CB. Calculate the shaded area. (4 marks)



$$\theta = \cos -1\left(\frac{12}{8}\right) = 36.87°$$

$$shaded\ area = \frac{36.87}{360} \times \pi \times 15^2 - \frac{1}{2}(6) \times 9 = 45°$$

$$12 \times 12 = 6 \times h$$

$$h = \frac{144}{6} = 24$$

$$r = \frac{24 + 6}{2} = 15$$

13. Three interior angles of a polygon are 155°, 153° and 160°. Each of the other interior angles is 148o. How many sides does the polygon have (3 marks)

$$corresponding\ exteriror\ angles\ are\ 25°, 27°, 20°\ each\ 32°$$

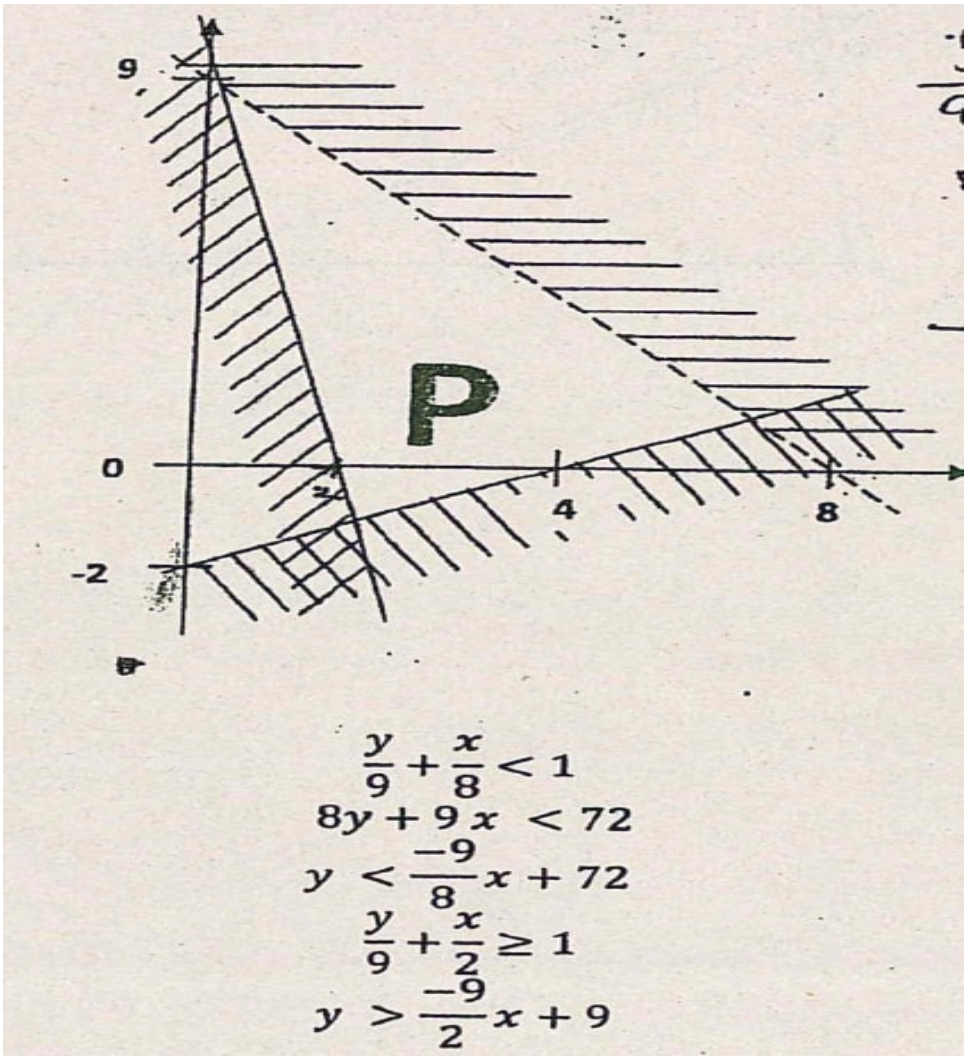
$$25 + 27 + 20 + n\,(32) = 360°$$

$$288 = 32n$$

$$9 = n$$

$$number\ of\ sides = 9 + 3 = 12$$

14. Write down the inequalities that describe the set of points in the unshaded region P. (3 marks)



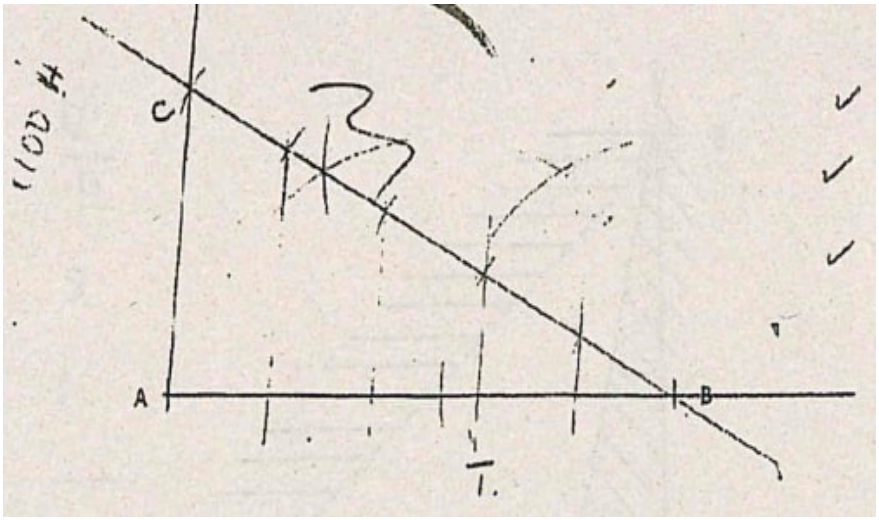
$$\frac{y}{9}+\frac{x}{8}<1$$
$$8y+9x<72$$
$$y<\frac{-9}{8}x+72$$
$$\frac{y}{9}+\frac{x}{2}\geq 1$$
$$y>\frac{-9}{2}x+9$$

$$\frac{y}{2}+\frac{x}{4}\leq 1$$
$$y<\frac{x}{2}-2$$

15. The position vectors $\overrightarrow{OA}$ and $\overrightarrow{OB}$ are $4\underset{\sim}{i}-\underset{\sim}{j}+4\underset{\sim}{k}$ and $-5\underset{\sim}{i}-b\underset{\sim}{j}$ respectively. Given that the length of AB is $7\sqrt{2}$, find the value of b. (3 marks)

$$\begin{pmatrix}-5\\B\\0\end{pmatrix}-\begin{pmatrix}4\\-1\\4\end{pmatrix}$$
$$=\begin{pmatrix}-9\\-b+10\\-4\end{pmatrix}$$
$$(7\sqrt{2})^2=\sqrt{(-9)^2+(-b+1)^2+(-4)^2}$$
$$98=81+b^2-2b+1+16$$
$$b^2=2b$$
$$b=2 \text{ or } 0$$

16. A line segment AB is shown below. Construct a triangle CBA = 30°. Hence use the constructed line AC to find a point T such that B divides At in the ratio 5: −2 (3 marks)



SECTION II (50 Marks)

*Answer **Five** questions only from this section*

17. A cylindrical tank is to be constructed. A model of the tank is made such that it is similar to the actual tank. The curved surface area of the model is 2160 cm^2 and that of the proposed tank is 135m^2

    a. Given that the length of the model is 6cm, calculate the height of the tank in metres. (3 marks)

$$ASF = 135000 : 2160$$
$$B2.5 : 1$$
$$LSF\ 25:1$$
$$\frac{25}{1} = \frac{X}{6}$$
$$X = 25X6 = 150 = 1.5\ M$$

    b. Caculate the volume of the model given that the diameter of the actual tank is 14 m. (3 marks)

$$\frac{25}{1} = \frac{14}{x}$$
$$x = \frac{14}{25} = 0.56\ cm$$
$$v = \pi r^2 h$$
$$= \frac{22}{7} \times 0.28^2 \times 6 = 1.4784\ cm^3$$

    c. Determine the volume of the actual tank in m^3 (2 marks)

$$VSF = (25)^3 : 1^3$$
$$\frac{15625}{1} = \frac{V}{1.4784}$$
$$V = 231000CM3$$
$$= 0.0231$$

    d. The actual tank is used to store some liquids whose density is 0.82 g/cm^3. If the tank is half full, determine the mass of the liquid in kg. (2 marks)

$$m = dxv$$
$$= 0.82 \times 11550$$
$$= 94.71\ grams$$
$$= 9.471\ kg$$

18.

a. A bus travelling at 99km/hr passes a check point at 10.00 a.m and a matatu travelling at 132 km/h in the same direction passes through the check point at 10:15 a.m. If the bus and the matatu continue at their uniform speeds, find the time the matatu will overtake the bus. (6 marks)

$$time\ difference = 15\ \text{min}$$
$$99 \times \frac{15}{60} = 24.75\ km$$
$$rs = 132 - 99 = 33km/h$$
$$time = \frac{24.75}{35} = 0.75hrs$$
$$= 45\ mins$$
$$10.15 + 0.45 = 11.00\ am$$

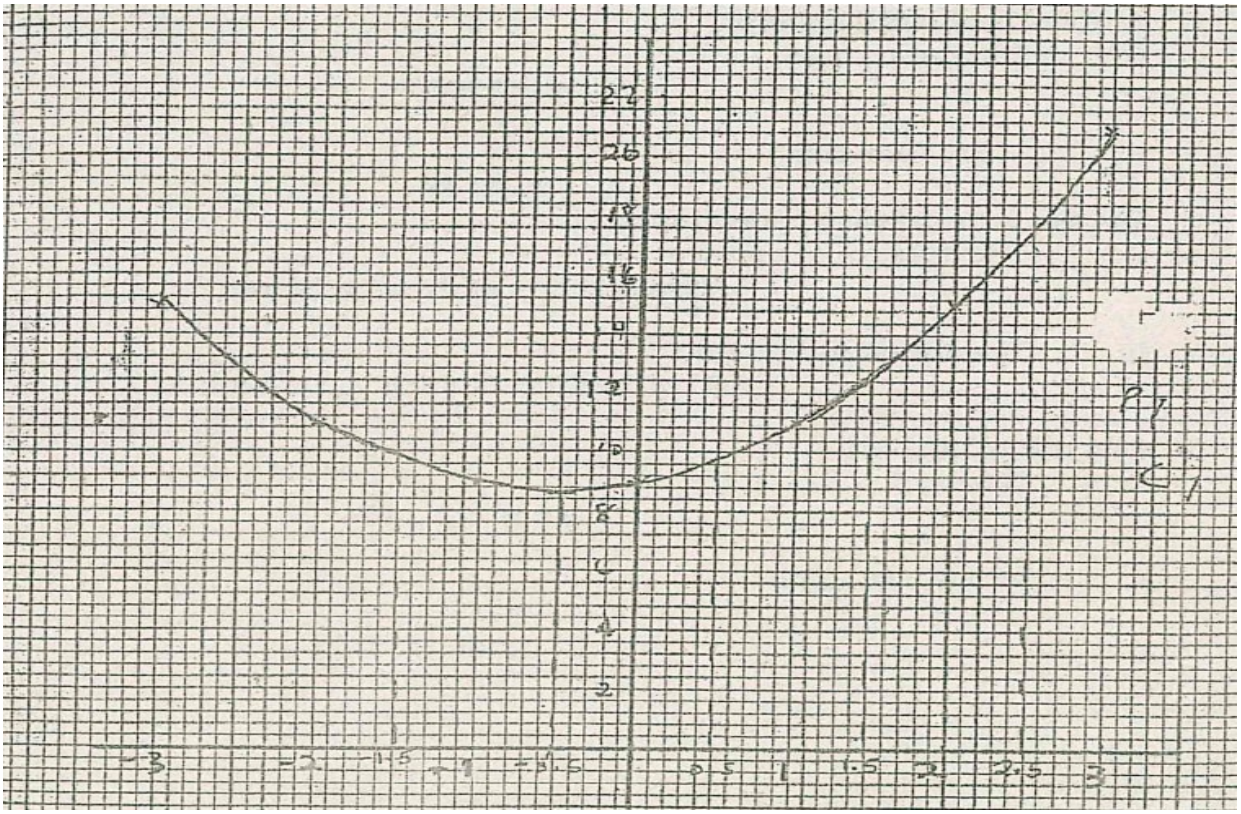
b. Two passenger trains A and B which are 240 m apart and travelling in opposite directiosn at 164 km/h and 88km/h respectively approach one another on a straight railway line. Train A is 150 metres long and train B is 100 metres long. Determine time in seconds that elapses before the two trains completely pass each other. (4 marks)

$$rs = 164 + 88 = 252\ km/h$$
$$distance = 240 + 150 + 100 = 490\ m$$
$$speed = 252 \times \frac{1000}{3600} = 70\ m/s$$
$$t = \frac{490}{70} = 7sec$$

19.

a. On the grid provided, draw the garph of the function $y = x^2 + x + 9$ for $-3 \leq x \leq 3$

X	−3	−2	−1	0	1	2	3
Y	15	11	9	9	11	15	21



b. Calculate the mid-ordinate for 5 strips between x = −2 and x = 3 and hence use the mid-ordinate rule to aapproximate the area under the curve between x = −2, x = 3 and the x - axis

$$a = h(y_1 + y_3 + y_4 + y_5)$$
$$= 1(9.75 + 8.75 + 9.75 + 12.75 + 17.75) = 58.75 \text{ square units}$$

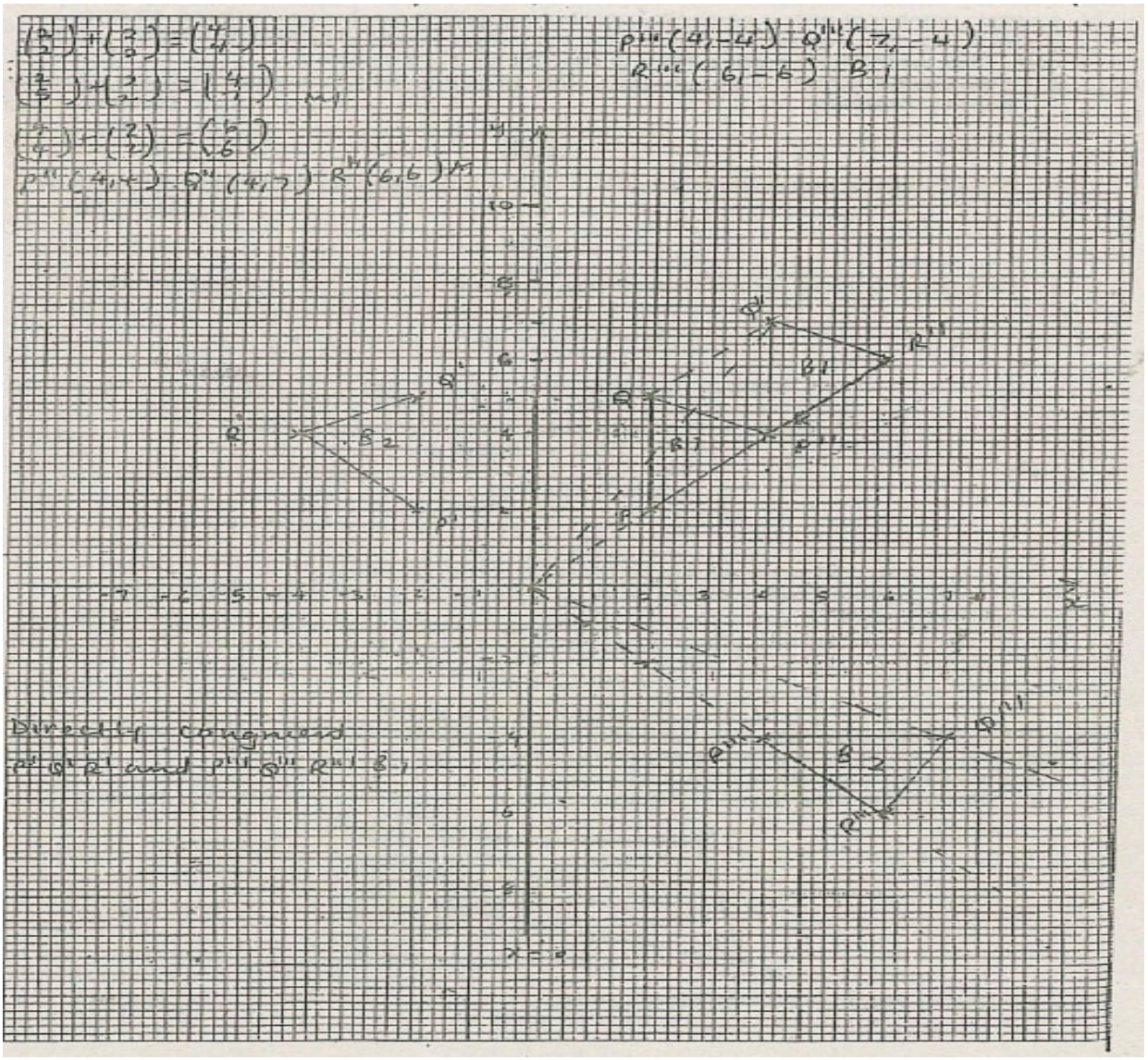
X	−1.5	−0.5	0.5	1.5	2.5
Y	9.75	8.75	9.75	12.75	17.5

c. Assuming that the area determined by inetgration to be the actual area, caluate the percentage error in using the mid-ordinate rule. (2 marks)

$$\int_{-2}^{0}(x^2 + x + 9)dx + \int_{0}^{3}(x^2x + 9)dx$$
$$\frac{x^3}{3} + \frac{x^2}{2} + 9x\int_{-2}^{0} + \frac{x^3}{3} + \frac{x^2}{2} + 9x\int_{0}^{-} = \frac{0.42}{59.7} \times 100 = 0.7034\%$$
$$(0.18.67) + (40.5 - 0)$$
$$18.67 + 40.5 = 59.17 \text{ square units}$$

20. On the graph paper provided plots the points P (2,2) Q (2,5) and R(4,4).

a. Join them to form a triangle PQR (1 mark)



b. Reflect the triangle PQR in the line X = 0 and label the image P'Q'R'. (2 marks)

c. Triangle PQR is given a translation by vector T($^{2}_{2}$) to P"Q"R". Plot the triangle P"Q"R". (3 marks)

d. Rotate triangle P"Q"R" about the origin through -90^{o}. State the coordinates of P'''Q'''R'''. (3 marks)

e. Identify two pair of triangles that are direct congruence (1 mark)

21. Three warshisps P,Q,R are at sea such that ship Q is 400 km on a bearing of 030^{o} from ship P. Ship R is 750 km from ship Q and on a bearing of S60^{o}E from ship Q. Ship Q is 100km and to the north of an emeny warship S.

a. Taking a scale of 1 cm to represent 100 km, locate the position of ships P,Q,R and S. (4 marks)

b. Find the compass bearing of:

i. Ship P from ship S (1 mark)

- N15^{o}W

ii. Ship S from ship R (1 mark)

- S45^{o}W

c. Use the scale drawing to determine

i. The distance of S from P (1 mark)

- 6.8 cm × 100 = 680 km ± 10 km

ii. The distance of R from S (1 mark)

- 8.8 cm × 100 = 880 km ± 10 km

d. Find the bearing of

i. Q from R (1 mark)

- $N60^oW$ or 300^o

ii. P from R (1 mark)

- 270^o

22. A certain number of people agreed to contribute equally to buy books worths shs. 1200 for a school library. Five people pulled out and so the others agreed to contribute an extra sh. 40 each. Their contribution enabled them to raise the sh. 1200 expected

a. If the original number of people was x, write an expression of how much each was originally going to contribute (1 mark)

- $^{1200}/_{x}$

b. Write down the expression of how much each contributed after the five people pulled out. (1 mark)

- $^{1200}/_{x-5}$

c. Calculate how many people made the contributions (5 marks)

$$\frac{1200}{x-5} - \frac{1200}{x} = 40 -$$

$$1200x - 1200\,(x -) = 40\,(x^2 - 5x)$$

$$1200x - 1200xx + 6000 = 40x^2 - 200x$$
$$40x^2 - 200x - 6000 = 0$$
$$x^2 - 5x - 150 = 0$$
$$x^2 + 10x - 15x - 150 = 0$$
$$x(xx + 10) - 15(x + 10) = 0$$
$$(x - 15)(x + 10) = 0$$
$$x = 15 \text{ or } x = -10$$

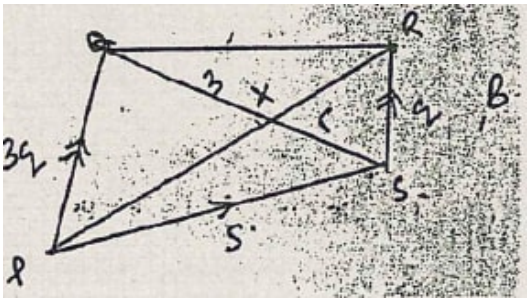
number who contribute $15 - 5 = 10$ *people*

d. If the prices of books before buying went up in the ratio 5:4, how much extra did each contributor give. (3 marks)

$$\text{cost per books} = \frac{1200}{10} = shs.\,120$$
$$\frac{5}{4} \times 120 = sh\,150$$
$$\text{extra cost} = 150 - 120 = sh\,30$$

23. PQRS is a trapezium where PQ is parallel to SR. PR and SQ intersect at X, so that SX = KSQ and PX = hPR wher k and h are constants. Vectors PQ = 3q and PS = s,SR = q

a. Show this information on a diagram (1 mark)



b. Express vector SQ in terms of s and q (1 mark)

- SQ = SP + PQ

$= -S + 3Q$

$= 3Q - S$

c. Express SX in terms of k, q and s (1 mark)

- SX = KSQ

  =K(3Q − S)

d. Express SX in terms of h, q and s (1 mark)

- S = spp + px

  $= -s + hpr$

  $= -s + h(s+q)$

e. Obtain h and k (4 marks)

$$k(3q - s) = -s + hs + hq$$
$$3kq - ks = (h - 1) + hq$$
$$3k = h - - - - -$$
$$-k = h - 1$$
$$-k = 3k - 1$$
$$-4k = -1$$
$$k = \frac{1}{4}$$
$$h = 3\left(\frac{1}{4}\right)$$
$$= \frac{3}{4}$$

f. In what ratio does X divide SQ? (2 marks)

$$SX : XQ$$
$$SX = \frac{1}{4}SQ$$
$$THEREFORE\ SX : XQ$$
$$\frac{1}{4} : \frac{3}{4}$$
$$1 : 3$$

24. A solid cylinder has a radius of 21cm and a height of 18 cm. A conical hole of radius r is drilled in the cylinder on one of the end faces. The conical hole is 12 cm deep. If the material removed from the hole is $2^2/_3$% of the volume of the cylinder, find: (Use π = $^{22}/_7$)

a. The surface area of the hole(5 marks)

$$\frac{1}{3} \times \frac{22}{7} \times r^2 \times 12 = 665.28$$
$$r^2 = \frac{3 \times 665.28 \times 7}{264} = 52.92$$
$$r^2 = 7.275\ cm$$
$$surface\ area\ of\ cone\ \pi r^2 + \pi rl$$
$$= \frac{22}{7} \times 7.275^2 + \frac{22}{7} \times 7.275 \times 14.036 = 166.34 + 320.8 = 487.12\ cm^3$$
$$volume\ of\ the\ cylinder = \pi r^2 h.$$
$$= \frac{22}{7} \times 21^2 \times 18 = 24948\ cm3$$
$$volume\ of\ conical\ shape = 2\frac{2}{3}\% = \frac{8}{300} \times 24948 = 665.28\ cm3$$
$$volume\ of\ small\ cone = \frac{1}{3}\pi r^2 h$$

b. The radius of a spherical ball made out of the material (3 marks)

volume = $^4/_3\pi r^3$

c. The surface area of the spherical ball (2 marks)

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MATHEMATICS PAPER 2 Marking Scheme - 2019 K.C.SE Prediction Set 1

SECTION I (50 Marks)

*Answer **all** questions in this section*

1. When asked to find $^{7}/_{18}$ of a certain number, Juma found by mistake $^{7}/_{8}$ of it. Hence the answer was too large by 105. Find the number. (3 marks)

$$\frac{7}{8}x - \frac{7}{18}x = 105$$

$$63x - 28x = 7560$$

$$35x = 7560$$

$$x = 216$$

2. Simplify leaving the answer in the form of a√2 + b√5 where a and b are constants. (3 marks)

$$\frac{5}{2\sqrt{2} - \sqrt{5}} - \frac{2}{2\sqrt{2} + \sqrt{5}}$$

$$\frac{5}{\sqrt[2]{2} - \sqrt{5}} - \frac{2}{\sqrt[2]{2} + \sqrt{5}}$$

$$\frac{5(2\sqrt{2} + \sqrt{5}}{8} - \frac{2(2\sqrt{2} - \sqrt{5}}{5}$$

$$\frac{10\sqrt{2} + 5\sqrt{5}}{3} - \frac{4\sqrt{2} - 2\sqrt{5}}{3}$$

$$\frac{6\sqrt{2}}{3} - \frac{7\sqrt{5}}{3}$$

$$\sqrt[2]{2} + \frac{7}{3}\sqrt{5}$$

3.

a. Expand completely $(x-0.2)^5$ (1 mark)

$$x^5 - 5x^4(0.2) + 10x^3(0.2)^2 - 10x^2(0.2)^3 + 5x(0.2)^4 - (0.2)^5$$

$$x^5 - x^4 + 0.4x^3 - 0.08x^2 + 0.008x - 0.00032$$

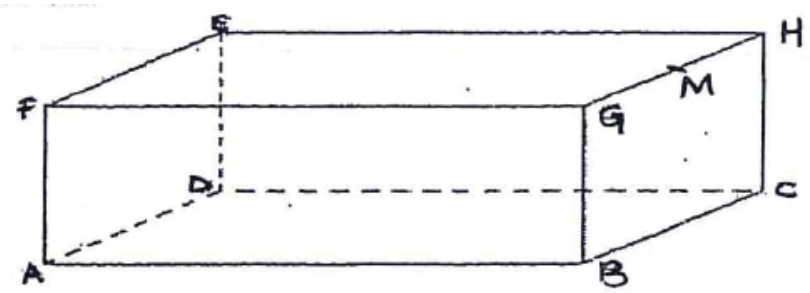
b. Hence use your expansion to find the exact value of $(9.8)^5$ (2 marks)

$$10^5 - 10^4 + 0.4(10)^3 - 0.08(10)^2 + 0.008(10) - 0.00032$$

$$10^5 - 10^4 + 400 - 8 + 0.08 - 000032$$

$$90{,}392.07968$$

4. The figure below represents a solid cuboid ABCDEFGH with a rectangular base. AB = 12 cm, BC = 10 cm and CH = 5 cm. M is the midpoint of GH



Calculate the anle between BM and CE (3 marks)

$$BM = \sqrt{5^2 + 5^2} = \sqrt{50}$$

$$BF = \sqrt{12^2 + 5^2} = 13$$

$$FM = \sqrt{12^2 + 5^2} = 13$$

$$COS\theta = \frac{2.5\sqrt{2}}{13}$$

$$\theta = 74.22°$$

5. A ball allowed to drop from a height of 16 cm on to a flor rebounds to $^3/_4$ of its previous height. Find the total distance the ball wil have travelled when it hits the ground for the tenth time correct to four significant figures. (2 marks)

$$\frac{16(1 - 0.75^{10})}{1 - 0.075} = 60.40m$$

6. Calculate the standard deviation for the distribution below (4 marks)

No. of children	0	1	2	3	4	5	6
No. of families	4	2	4	7	8	3	2
Fx	0	2	8	21	32	15	12
Fx^2	0	2	16	63	128	75	72

$$s.d = \sqrt{\frac{356}{30} - \left(\frac{90}{30}\right)2} = 1.693$$

7. Make x the subject of the formula (3 marks)

$$Y = \frac{MX}{X^2 + F}$$

$$Y^2 + YF - MX = 0$$

$$X = M \pm \frac{4Y^2F}{2Y}$$

8. A triangle whose area is 7.2 cm^2 is mapped onto a triangle whose area is 3.6cm^2 by the matrix given below. Find the two possible values of x. (3 marks)

$\begin{pmatrix} x+4 & 6 \\ 5 & x \end{pmatrix}$

$c.s.f = \frac{7.2}{3.6} = 2$

$x(x+4) - 30 = 2$

$x^2 + 4x - 32 = 0$

$(x-4)x+8) = 0$

$x = 4 \text{ or } -8$

9. Simplify completely the expression (3 marks)

$$\frac{-2ax-3by+2ay+3bx}{3b-2a}$$

$2ay - 2ax - 3by + 3bx$

$2a(y-x) - 3b(y-x)$

$y - x$

$x - y$

10. Find the amount after 3.25 years if Kshs 234,000 is invested at 10% p.a compunded semi annually. (3 marks)

$234000\left(1+\frac{5}{100}\right)6$

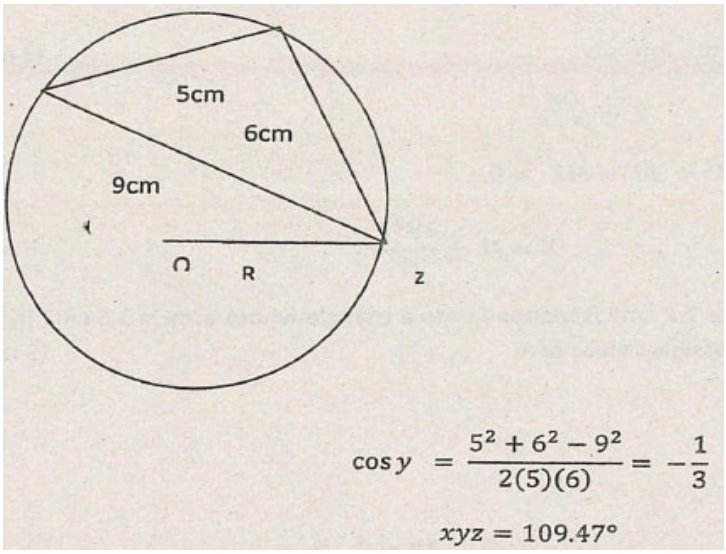
$234000(1.05)6 = 313582.38$

$313582.38 \times \frac{5}{10} \times \frac{1}{2} = 7839.56$

$a = 321{,}421.94$

11. In the figure below XY and YZ are chords of the circle centre O. XY = 6 cm and XZ = 9 cm. Find

a. The value of angle XYZ



$\cos y = \frac{5^2 + 6^2 - 9^2}{2(5)(6)} = -\frac{1}{3}$

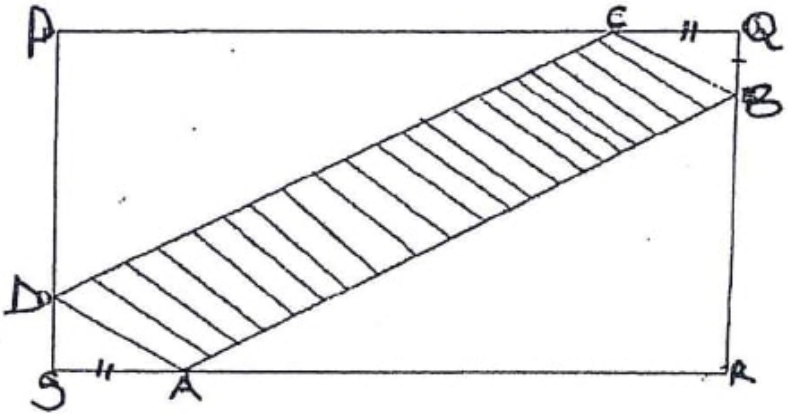
$xyz = 109.47°$

b. The length of OZ

$$2r = \frac{9}{\sin 109.47°}$$

$$oz = r = 4.773\ cm$$

12. In the figure below PQRS is a rectangle. PQ = 30cm and PS = 10 cm
The unshaded portions are cut off leaving a parallelogram ABCD



Given that line BQ = DS = x cm and line CQ = SA = 3x cm. Find the value of x when the area of the parallelogram ABCD is maximum (4 marks)

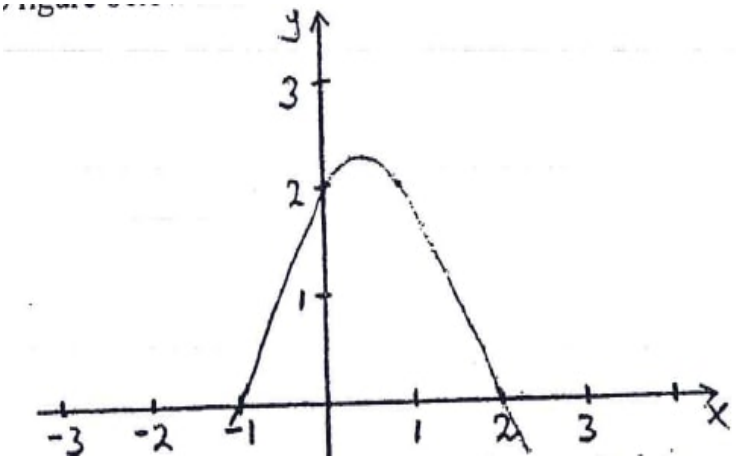
$$(30 - X)(10 - X) + 3X(X) = 6X^2 - 60X + 300$$

$$A = 300 - (6X^2 - 60X + 300) = 60X - 6X^2$$

$$\frac{DA}{DX} = 60 - 12X = 0$$

$$X = 5\ CM$$

13. The figure below is a sketch of the graph of the quadratic function D = k(x-2) (x+1). Find the value of k. (3 marks)



$$x = 0, \quad y = 2$$

$$2 = k(-2)(1)$$

$$k - 1$$

14. Evaluate without using mathematical tables or calculator (2 marks)

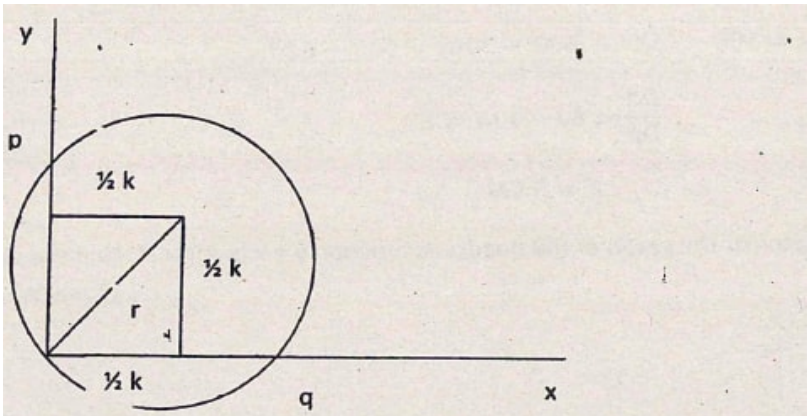
$$\frac{450\times\sqrt{0.36}}{27^{1/3}\div 81^{3/4}}$$

$$\frac{450\times\sqrt{0.36}}{27^{\frac{2}{3}}\div 81^{\frac{3}{4}}}$$

$$\frac{450\times 0.6\times(34)^{3/4}}{(3^3)^{\frac{2}{3}}}$$

$$\frac{450\times6\times3}{10}=810$$

15. The figure below shows a circle passing through the origin cutting through P (K,0) and Q (0,K). If its radius is 3√2, find the equation of the circle in the form of x2 + y2 +ax + by + c = 0 (4 marks)



$$(\tfrac{1}{2}k)^2+(\tfrac{1}{2}k)^2=(3\sqrt{2})^2$$

$$k^2=36$$

$$k=6$$

$$centre=(3,3)$$

$$r^2=3^2+3^2=18$$

$$(x-3)^2+(y-3)^2=18$$

$$x^2-6x+9+y^2-6y+9=18$$

$$x^2+y^2-6x-6y=0+$$

16. A quantity Q varies jointly as the square root of X and inversely as Y. Given that when Y is reduced by 20% and X increased by A%, Q increased by 37.55 %, find the value of A. (3 marks)

$$Q = \frac{K\sqrt{X}}{Y}$$

$$Q^1 = \frac{K\sqrt{\frac{(100+A)X}{100}}}{0.8Y}$$

$$Q^1 = \frac{\sqrt{\frac{(100+A)}{100}}}{0.8}Q$$

$$\frac{\sqrt{\frac{(100+A)}{100}}}{0.8} = \frac{137.55}{100}$$

$$\sqrt{\frac{100+A}{100}} = \frac{110.04}{1000}$$

$$A = 100 \times \left(\frac{2108.8016}{10000}\right) - 100$$

$$A = 121.088 - 100$$

$$= 21.088\%$$

SECTION II (50 Marks)

*Answer **any Five** Questions from this Section*

17. The table below shows income tax rate for the year 2014

Income in Kshs per month	**Rate %**
1 - 9680	10%
9681 - 18800	15%
18801 - 27920	20%
27921 - 37920	25%
Over 37920	30%

a. In the tax year of 2014 the tax of Kamau's monthly income was Ksh 10,880. If he is entitled to a tax relief of Ksh 1156. Find

i. Gross tax of Kamau (1 mark)

10880 + 1156 = 12036

ii. Taxable income per month in shillings (5 marks)

- 9680 × 0.1 = 968
  9120 × 0.15 = 1368
  9120 × 0.2 = 1824
  1000 × 0.25 = 2500
  17920 × 0.3 = 5376

Taxable = 55840

$^{5376}/_{0.3}$ = 17920

b. Apart from basic salary, Mr. Kamau also earns a house allowance of Ksh 12, 000, a medicall allowance of Ksh 3,060 and a hardship allowance of Ksh 4,635. Find the his basic salary per month (2 marks)

- 55840 − (12,000 + 3060 + 4635) = 36145

c. Other deductions for Kamau include; SACCO loan kshs. 3000, SACCO contributions Ksh. 6,000 and hire purchase repayment Kshs. 2,000. Calculate Kamau's net pay per month (2 marks)

- 55840 − (10880 + 3000 + 6000+ 2000) = 33960

18. Water flows through a cylindrical pipe of diameter 8.4 cm at a speed of 50m/minute.

a. Calculate the volume of water delivered by the pipe per minute in litres. ($\pi = {}^{22}/_{7}$) (3 marks)

$$volume = \frac{22}{7} \times \left(\frac{4.2}{100}\right)^2 \times 50 \; or \; 4.2^2 \times \frac{22}{7} \times 5000$$

$$= 0.2772 \times 1000$$

$$277.2\, l$$

b. A cylindrical storage tank of radius 105 cm is filled by water from this pipe at the same rate of flow. Water begins flowing into the empty storage tank at 9.30 a.m and is full at 2.00 pm. Calculate the height of the tank in metres. (4 marks)

$$277.2 \times 4.5 \times 60 = 74.844m^3 \; or \; 74844$$

$$\frac{22}{7} \times 1.05^2 \times h = 74.844 \; or \; \frac{22}{7} \times 105^2 \times h$$

$$h = \frac{74.844 \times 7}{1.05^2 \times 22} = 21.6$$

c. A family consumes the capacity of this tank in one month. The cost of water is sh 50 per thousand litres and fixed basic charge of Ksh 1650 per month. Calculate the cost of this family's water bill for a year. (3 mks)

$$\frac{74844}{1000} \times 50 = 3742.2$$

$$(1650 + 3742.2)12 = 64706.40$$

19. The position of two towns A and b on earth's surface are (60oN, 36oE) and (60°N, 144°W) respectively. Taking the radius of the earth as 6370 km and $\pi = {}^{22}/_{7}$

a. Calculate the shortest distance between A and B in km to 1 dp. (2 marks)

- $^{60}/_{360} \times {}^{22}/_{7} \times 6370 = 3336.7$ km

b. Calculate the distance between A and B along the parallel of latitudes in km (2 marks)

- $^{1}/_{2} \times {}^{22}/_{7} \times 6370 \cos 60 = 5005$ km

c. Another town C is 840 km east of twon B and on the same latitude as town A and B. Find the position of town C. (3 marks)

$$\frac{\theta}{360} \times \frac{22}{7} \times 6370 \cos 60 = 840$$

$$\theta = \frac{840 \times 360 \times 7}{22 \times 6370 \cos 60} = 30.21°$$

$$c\ (60° N, 113.79°)$$

d. If an aircraft leaves town A at 8.30 am at a speed of 720 km/h to K (60°N,50°W). At what local time is it expected at K to the nearest minute? (3 marks)

$$70 + 50 = 120°$$

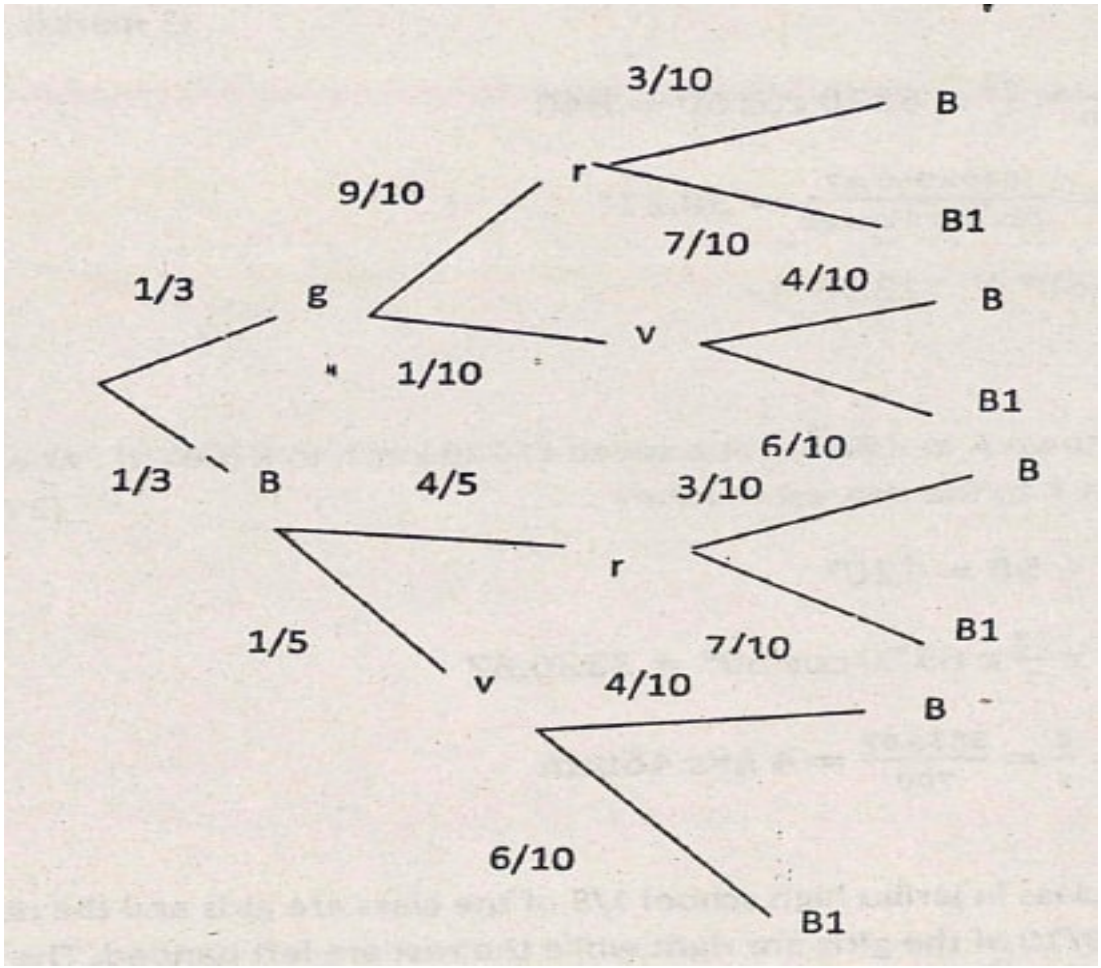
$$\frac{120}{360} x \frac{22}{7} x\ 6370 \cos 60° = 3336.67$$

$$t = \frac{d}{s} = \frac{3336.67}{700} = 4\ hrs\ 46min$$

20.

a. In a chemistry form 4 class in Jaribu high school $^1/_3$ of the class are girls and the rest are boys. $^4/_5$ of the boys and $^9/_{10}$ of the girls are right handed while the rest are left handed. The probability that a right handed student breaks a conical flask in any practical session is $^3/_{10}$ and the corresponding probability for a left handed student is $^4/_{10}$.

i. Represnt the above infomation on a tree diagram (2 marks)



ii. Determine the probability that a student chosen at random from the class is left handed and does not break a conical flask in its simplest form (2 marks)

$$\frac{1}{3}\times\frac{1}{10}\times\frac{3}{10}+\frac{2}{3}\times\frac{1}{5}\times\frac{6}{10}$$

$$\frac{1}{300}+\frac{12}{150}=\frac{25}{300}=\frac{1}{12}$$

iii. Determine the probability that the flask is broken in any practical session in simplest form (2 marks)

$$\frac{1}{3}\times\frac{9}{10}\times\frac{3}{10}+\frac{1}{3}\times\frac{1}{10}\times\frac{4}{10}+\frac{2}{3}\times\frac{4}{5}\times\frac{3}{10}+\frac{2}{3}\times\frac{1}{5}\times\frac{4}{10}$$

$$\frac{27}{300}+\frac{4}{300}+\frac{24}{150}+\frac{8}{150}=\frac{95}{300}=\frac{19}{60}$$

b. The probability of Peter scoring grade A in his exam is 0.6 while the probability of Ali scoring the same grade is 0.7.
Determine the probability that,
Both will score grade A (1 mark)

- $0.6 \times 0.7 = 0.42$

None of them will score grade A (1 mark)

- $0.4 \times 0.3 = 0.12$

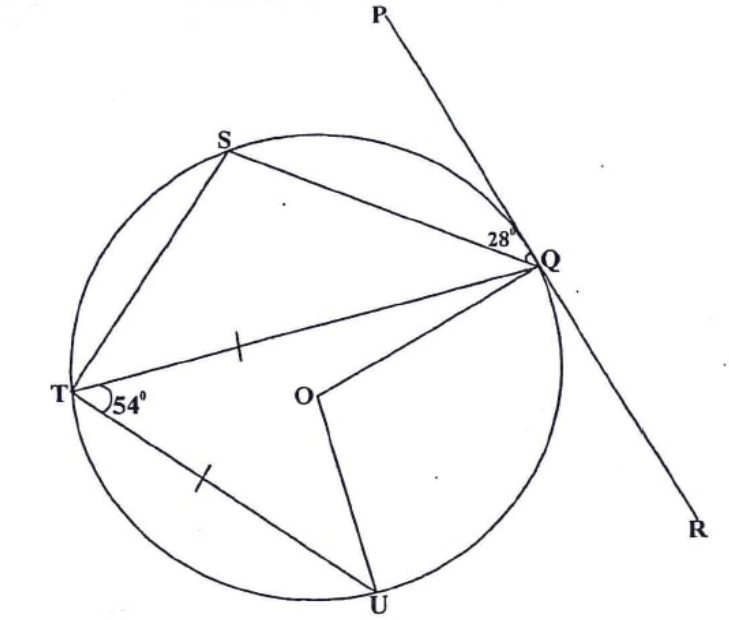
Only one of them will score grade A (1 mark)

- $0.6 \times 0.3 + 0.4 \times 0.7 = 0.46$

At least one of them will score grade A (1 mark)

- $1p(\text{none}) = 1 - 0.12 = 0.88$

21. In the figfure below, O is the centre of the cricle. PQR is a tangent to the circle at Q. Angle PQS = 28^o, angle UTQ = 54^o and UT = TQ



Giving reasons, detrmine the size of

a. Angle STQ (2 marks)

- 28^o Angles in alternate segments

b. Angle TQU (2 marks)

- $^{(180-54)}/_{2} = 65^o$ Base angles of an isosceles triangle

c. Angle TQS (2 marks)

$< UOQ = 108° <$

$< OQU = \frac{180-108}{2} = 36°$

$< tqo = 63 - 36° = 27°$

$TQS = 90 - 27 = 35°$

Radius is staright to the targent

d. Reflex angle UOQ (2 marks)

- $360 - 108 = 282^{o}$ angles at a point

e. Angle TQR (2 marks)

$qr < TQR = -180 - (35 + 28) = 117°$

$< on\ a\ straight\ line$

22.

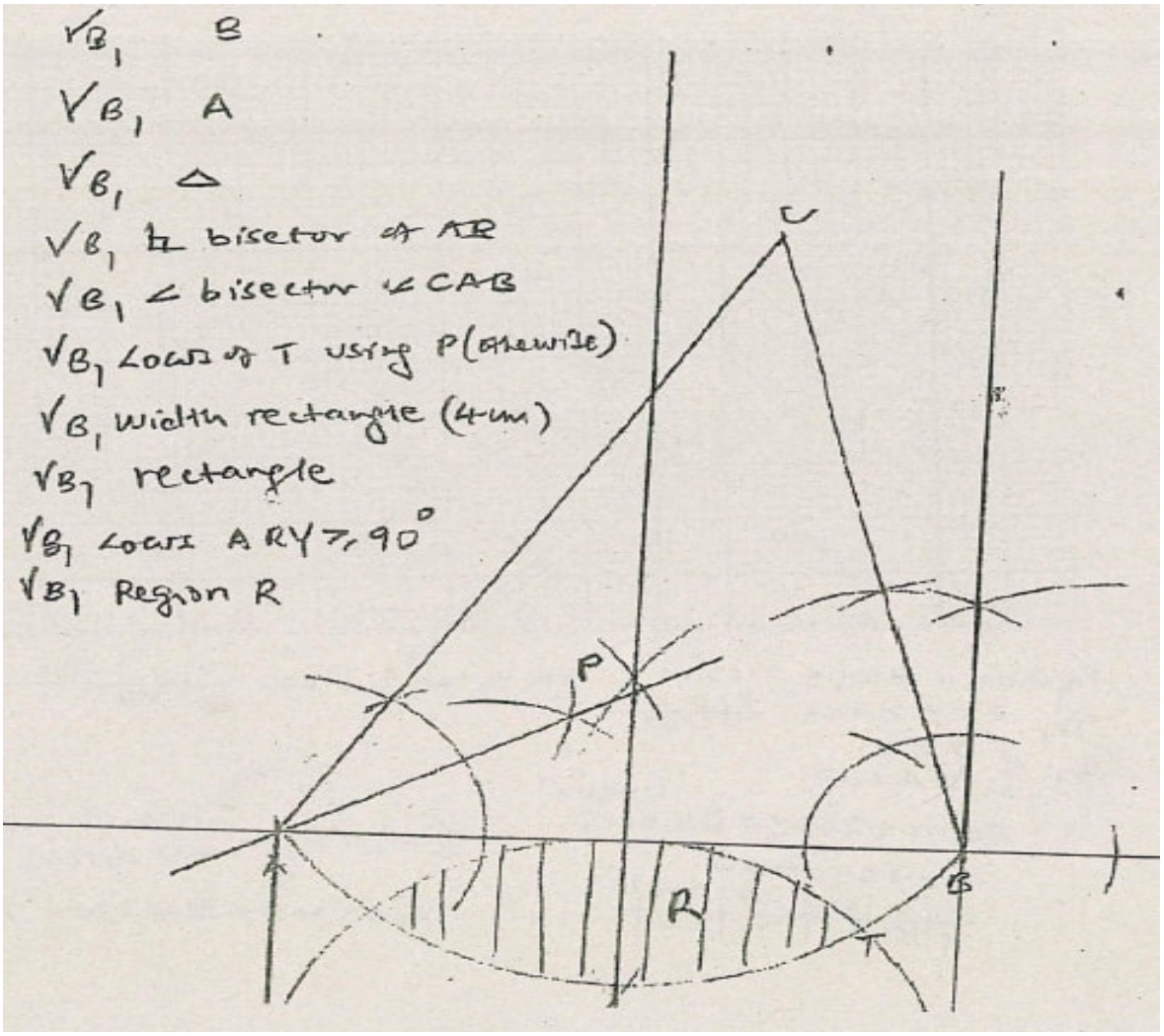
a. Using a ruler and pair of compasses only, construct a triangle ABC such that AB = 8 cm and angle ABC = 75^{o} and angle BCA = 45^{o}. Let AB be on the line drawn below(3 marks)

b. On the upper side of line AB, Locate the locus of p such that AP = PB and P is equidistant from AC and AB. (2 marks)

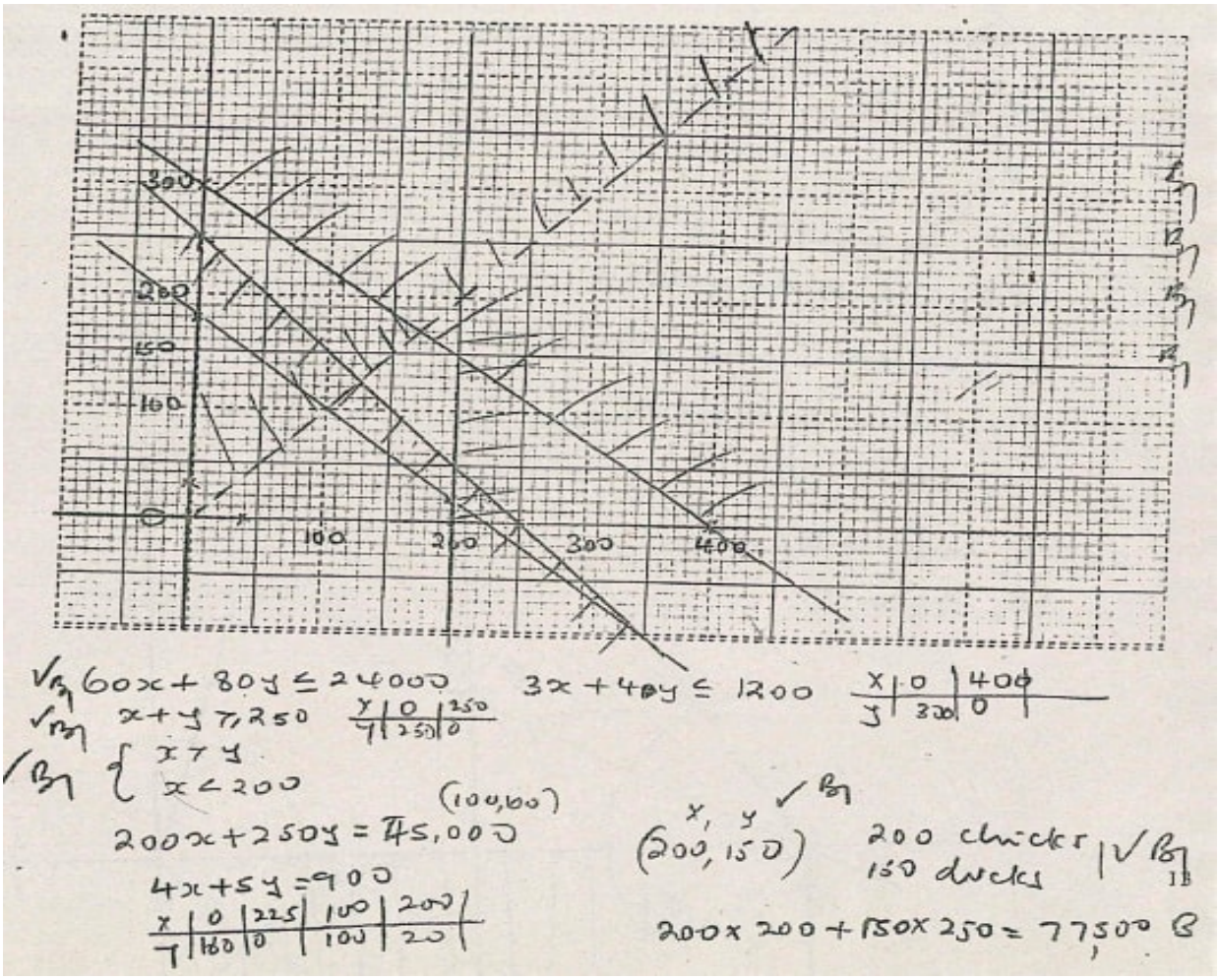
c. Construct the locus of a point T such that angle ATB = 120^{o} (2 marks)

d. Construct a rectanbgle ABXY on the lower side of AB such that its area is 32 cm^{2} (2 marks)

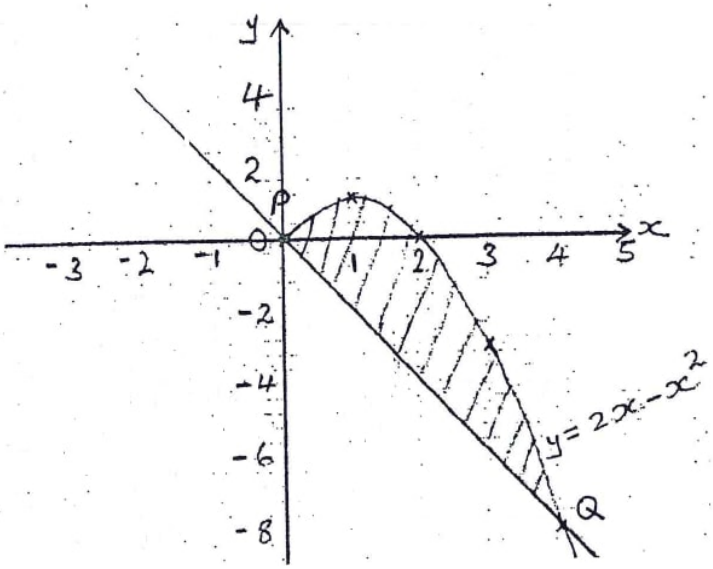
e. Shade the region R inside the rectangle suchthat XRY≥90^{o} and angle ATB≥120^{o} (1 mark)



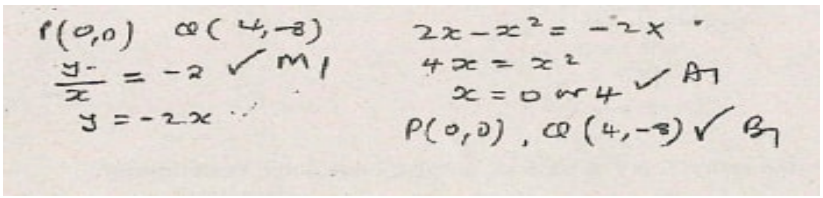
23. A farmer wishes to keep some chicks and ducks. Chicks cost Kshs. 60 each while ducks costs Kshs. 80 each. She cannot afford to spend more than Ksh 24,000. She finds it uneconomical to keep less than 250 birds. She also wishes to keep more chicks than ducks but chicks must be less than 200.
    a. Taking x and y to be the number of chicks and ducks resectively, write down all the inequalities that satisfy the above conditions (3 marks)
    b. Represent the inequalities graphically using a sclae of 1 cm represents 50 birds on both axis (4 marks)
    c. If the farmer sells a mature chick at Kshs. 200 and a duck at Kshs 250, find the number of chicks and ducks she must keep in order to maximize her revenue. State the maximum revenue (3 marks)



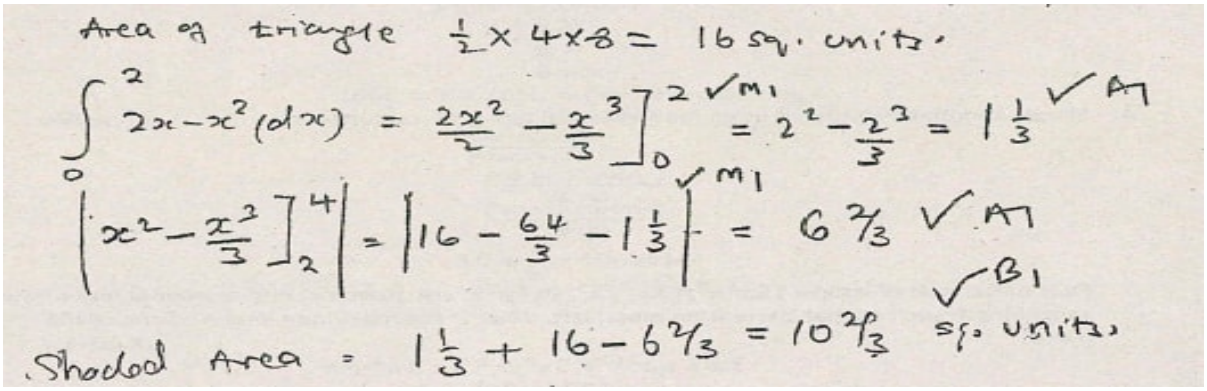
24. The diagram below shows a line PQ and the curve $y = 2x - x^2$ intesrecting at point P and Q



a. Find the coordinates of P and Q



b. Calculate the area of the shaded region



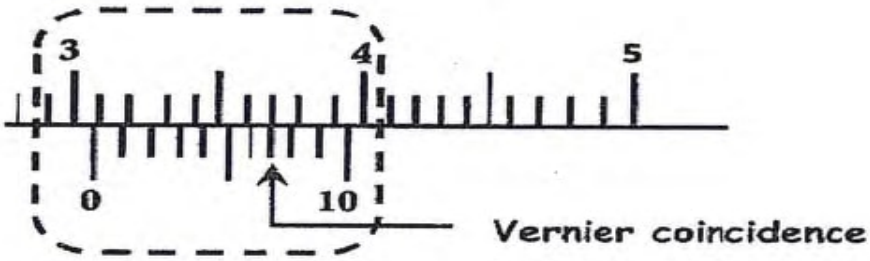
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PHYSICS PAPER 1 Marking Scheme - 2019 K.C.SE Prediction Set 1

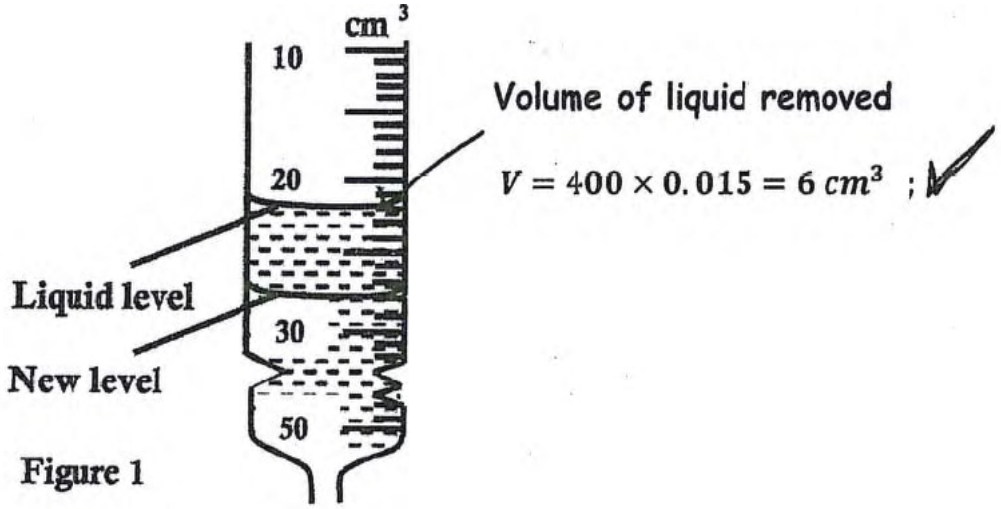
SECTION A (25 Marks)

*Answer **all** the questions in this section*

1. Draw a section of the main scale and full Vernier scale that would give a reading of 3.07 cm (1 mark)



2. **Figure 1** shows a burette partly filled with a liquid. The liquid was initially at the level shown. If the 400 drops of the liquid each volume 0.015cm^3 was removed from the burette, mark the new level of liquid in the burette (1 mark)



3. A block of metal of mass 150g at 100^{o}C is dropped into a lagged calorimeter of heat capacity 45 JK^{-1} containing 100g of water at 25^{o}C. The temperature of the resulting mixture is 34^{o}C. Determine the specific heat capacity of the metal block. (Take the specific heat capacity of water as 4,200 J/kgK) (3 marks)

$$\text{Heat lost by metal block} = \text{Heat gained by (water + calorimeter)} \ ; \ \checkmark$$
$$m_m c_m \Delta\theta = m_w c_w \Delta\theta + C\Delta\theta$$
$$0.15 \times c_m \times (100 - 34) = 0.1 \times 4200 \times (34 - 25) + 45 \times (34 - 25) \ ; \ \checkmark$$
$$9.9 \times c_m = 3780 + 405 = 4185$$
$$c_m = 422.73\ J/kgK \ ; \ \checkmark$$

4. An object is placed on water and it floats. Write an equation connecting all the forces acting on the body. (1 mark)
   - ***Weight of object = Upthrust of the object***
5. **Figure 2** shows a 150 g mass tied on a string and whirled in a vertical circle of radius 30 cm with a uniform speed. At the lowest position of the circle the tension is 9.5 N. Calculate the speed ***v*** of the mass(3 marks)

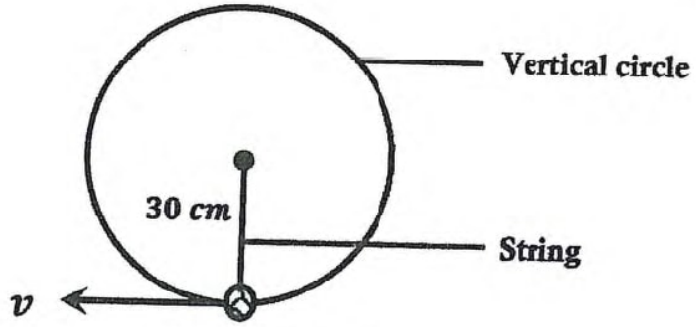


Figure 2

Maximum Tension, $T = \frac{mv^2}{r} + mg$; ✓

$9.5 = \frac{0.15 \times v^2}{0.3} + 0.15 \times 10$; ✓

$9.5 - 1.5 = \frac{0.5}{0.15} \times v^2$ $v = \sqrt{\frac{8}{0.15}} = 7.303\ m/s$; ✓ $= 4 m/s$.

6. **Figure 3** shows two systems of spring arragements A and B. The springs are identical and have a spring constant K

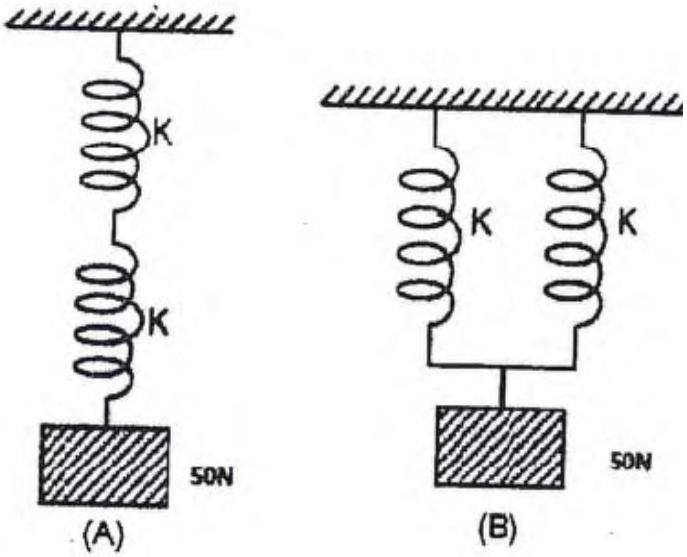
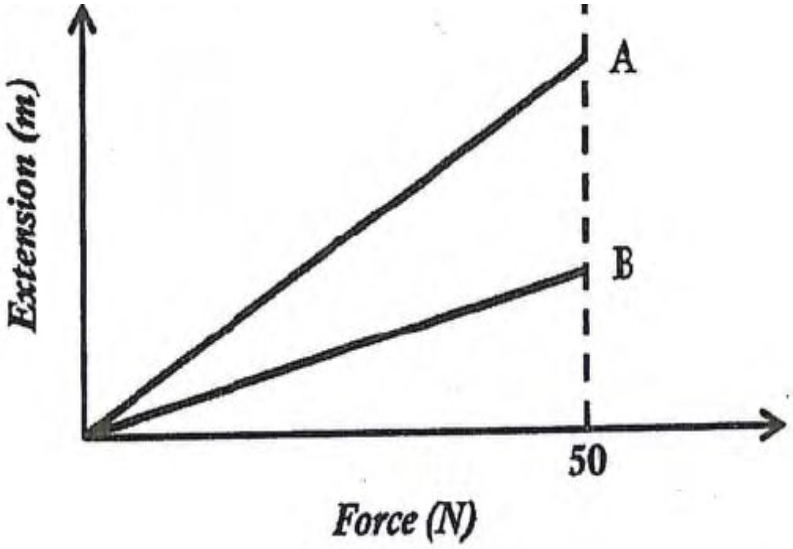


Figure 3

a. State with a reason which system of springs is stiffer (2 marks)
   - ***System B is stiffer***
   - ***System B has a higher spring constant***

b. On the axes provided, sketch the graphs of systems A and B assuming that the springs obey Hooke's law



c. Determine the value K if the extension in system B was 25 cm (2 marks)

$e_T = {}^{f}/_{2K}$

$2.5 = {}^{50}/_{2K}$

K = 10 N/cm or 1,000 N/m

7. A piece of paper is wrapped round the joint of a rod partly made of iron and partly wood so that some of the paper is over the iron rod and the other part over the wooden rod as shown in **Figure 4**

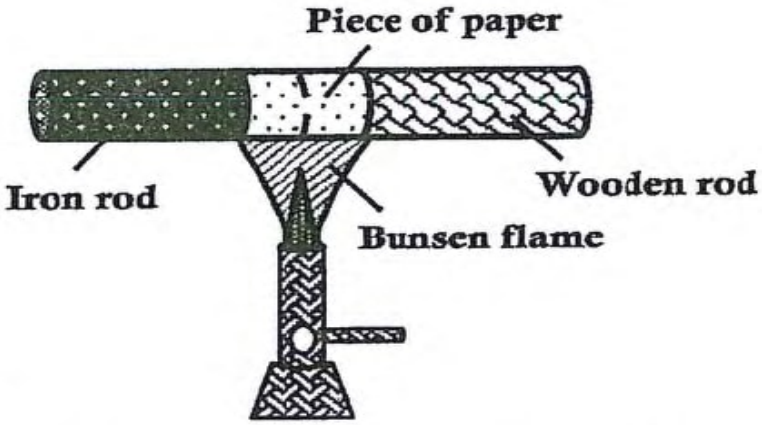
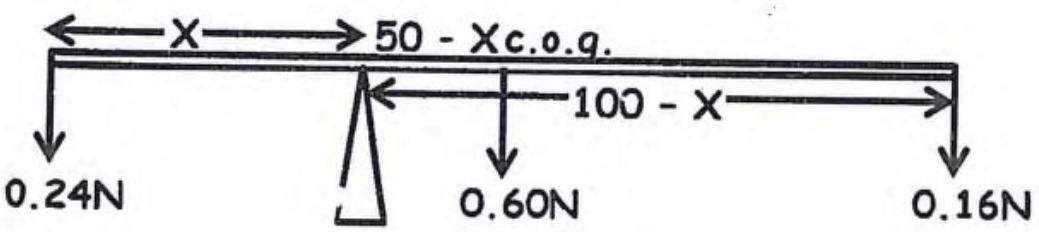


Figure 4

When a bunsen flame is passed over the paper several times it is observed that the paper gets charred or blacked on the region covering the wooden rod while the one covering the iron does not. Explain this observation made (2 marks)

- ***Iron rod is a better thermal conductor than woodenn rod; hence wood does not conduct heat rapidly away from the flame as iron making the paper covering wood to reach ignition temperature or point***

8. A meter rule of mass 50 g is balanced by masses 35 g and 15 g suspened from its ends. Find the position of its pivot from 25g mass (3 marks)



$$0.25\,X = 0.50(50 - X) + 0.15(100 - X)\ ;\quad \checkmark$$

$$X = 44.44cm\ from\ 25g\ mass\ ;\quad \checkmark$$

Figure 5 shows a bunsen burner which is used for heating substances in a laboratory. Use the information given to answer Questions 9 and 10 below

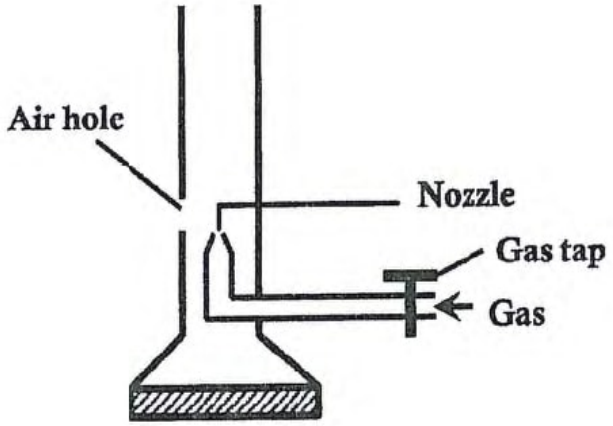


Figure 5

9. Explain the principle of worklikng of a bunsnen burner (2 marks)
    - ***Gas exits out of the nozzle at high velocity causes a low pressure region above the nozzle***
    - ***Atmosperic pressure outside is now higher hence the pressure difference draws air into the (low pressure region) Bunsen burner through the air hole***
10. Give a reason why the Bunsen burner in the **Figure 5** has a wide base (1 mark)
    - ***Wide base creates a large angle of tilt before toppling hence increasing the stability of the burner***
11. Water rises up in capillary tubes but mercury which is also liquid, falls in capillary tubes to a level below the outside surafce as shown in **Figure 6**. Explain this observation. (2 marks)

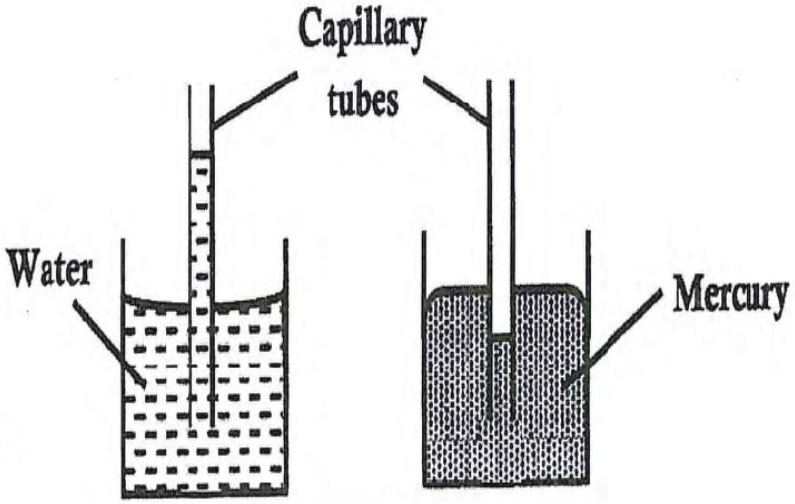


Figure 6

- ***Water has weaker cohesive forces between its molecules than adhesive forces between water and glass molecules while mercury has stronger cohesive forces between mercury molecules than adhesive forces between mercury and glass molecules***

12. State the molecular difference between a real gas and an ideal gas (1 mark)
    - ***Real gas has molecules with definite volume and intermolecular forces present while ideal gas has molecules with no definite volume and zero intermolecular forces***

SECTION B (55 Marks)

Answer **all** the questions in this section

13.

a. **Figure 7** shows a car braking system. The brake fluid is an oily liquid

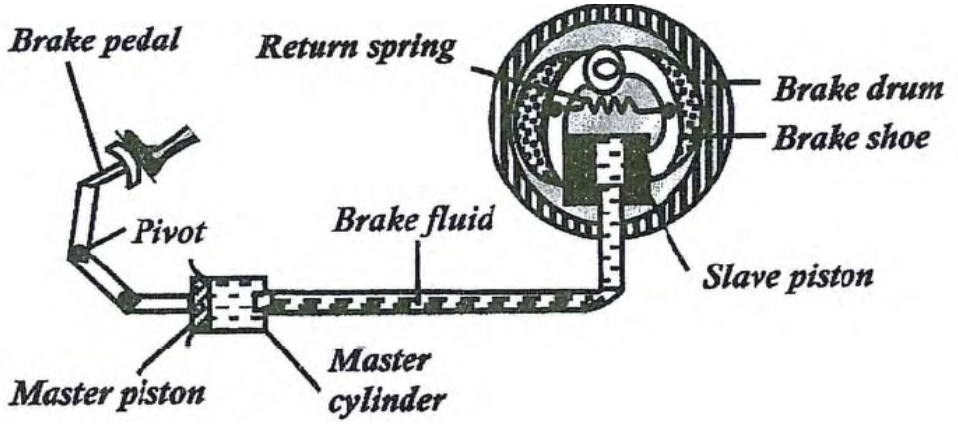


Figure 7

i. State the principle by which a car braking system works (1 mark)
   - ***Pascal's principle which states that pressure exerted at one part of an enclosed liquid(incompressible fluid) is transmitted equally to all the parts***

ii. State one property of the brake fluid used in this system (1 mark)
   - ***Should be incompressible***
   - ***Should be non-corrosive***
   - ***Should have very low freezing point and a high boiling point***

iii. The cross-sectioanl area of the master piston is 5.0cm^2. A force of 1540 N is applied to the master psiton. Calculate the force exerted on each slave piston by the brake fluid given that the cross-sectional area of each slave psiton is 7.2 cm^2 (3 marks)

$F_1/A1 = F_2/A2$

$1540/5 = F_2/7.2$

$F_2 = 2217.6\ N$

b. A diver is 15 m below the surface of water in a dam as shown in **Figure 8**

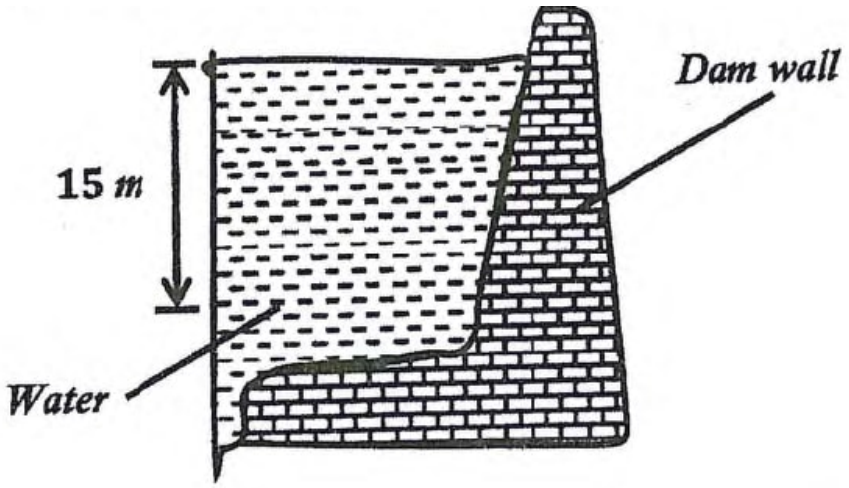


Figure 8

If the density of water is 1000 kg/m^3 and gravity is 10N/kg, determine

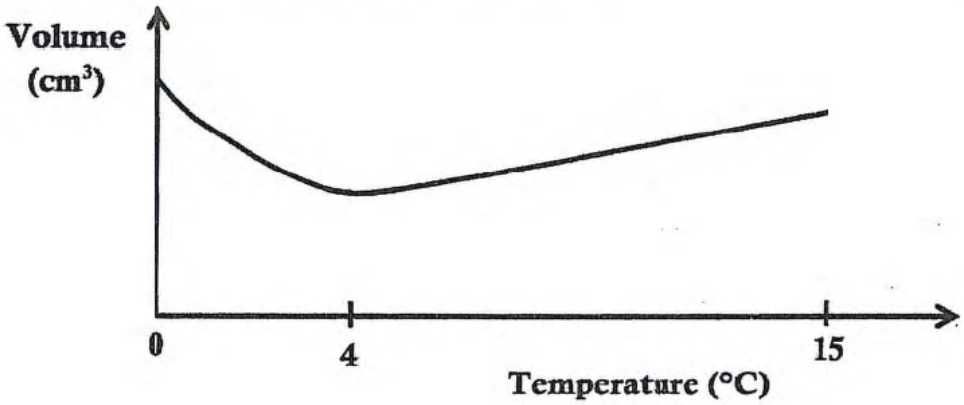
i. The total pressure acting on the diver given that the atmospheric pressure at this place is 1.0×10^5 N/m^2 (3 marks)

$$P_T = P_a + P_h \ ; \checkmark$$
$$= 100,000 + 15 \times 1000 \times 10 \ ; \checkmark$$
$$= 100,000 + 150,000 = 250,000 \ N/m^2 \ ; \checkmark$$

ii. Dam walls are made wider at the bottom than at the top. Explain (1 mark)

- ***In order to withstand higher pressure at the bottom; since pressure increases with depth***

c. Water in a measuring cylinder is placed in a refrigerator and allowed to cool from about 15^{o}C to 0^{o}C. Assuming the water does not freeze, sketch on the axes provided the graph of Volume of water against temperature (1 mark)



d. **Figure 9** shows a column of air trapped by mercury thread 5 cm long. If the atmospheric pressure is 750 mmHg, determine the length of the air column when the tube is horizontal (3 marks)

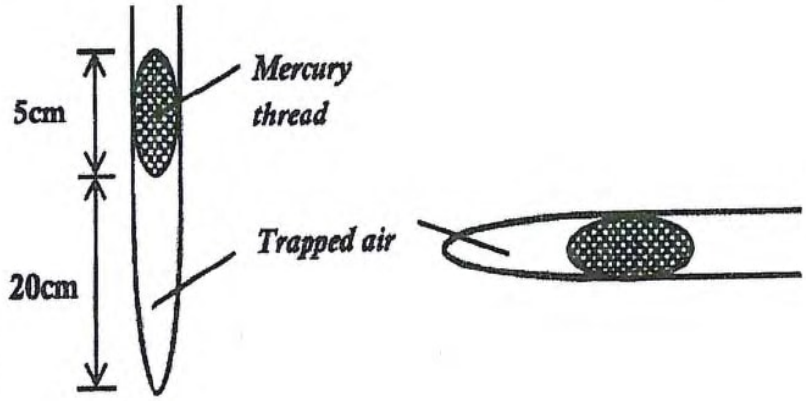


Figure 9

Pressure of trapped air in the first tube, $P_1 = (750 + 50) = 800\ cmHg$
Volume of trapped air in the first tube, $V_1 = 20A\ cm^3$
Pressure of trapped air in second tube, $P_2 = 750\ cmHg$
Volume of trapped air in second tube, $V_2 = LA\ cm^3$
$P_1V_1 = P_2V_2$; $800 \times 20A = 750 \times LA$; $L = 21.33\ cm$;

14.

a. Figure 10 shows a car of mass m moving along a curved part of the road with a constant speed

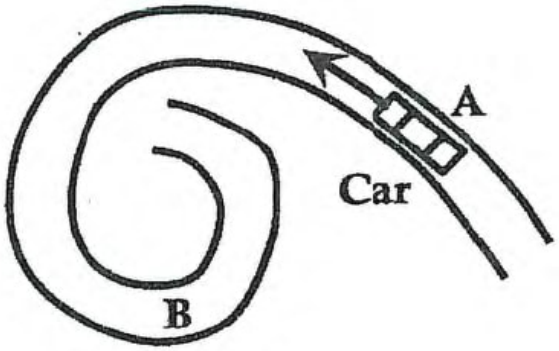


Figure 10

Explain why the car is more likely to skid at point B of the road if the speed is not changed (2 marks)

- ***Radius at B is shorter than A hence greater centripetal force is needed at B; but frictional force between the tyres and road is constant hence cannot provide sufficient centripetal force needed***

b. A particle P tied to a string is moving in a horizontal circle about O as shown in **Figure 11**. Particle P moves with a constant speed ***v***

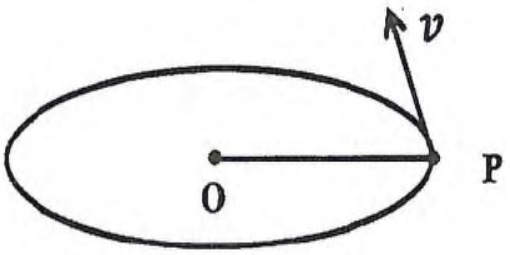


Figure 11

i. State what provides the centripetal force. (1 mark)

- ***Tension in the string***

ii. Use an arrow to indicate the direction in which the net force F acting on P will act (1 mark)

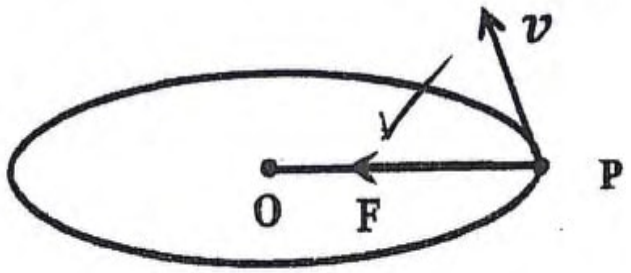


Figure 11

iii. Give a reason why particle P above experiences centripetal acceleration even thopugh it is moving with a constant speed ***v*** (1 mark)

- ***<u>The direction of the body changes every time as it rotates</u>; meaning velocity changes even though its magnitude (speed) remains constant and the body accelerates***

c. **Figure 12** shows two masses 0.2 kg and 0.4 kg connected by a string through a hole on a smooth horizontal surface

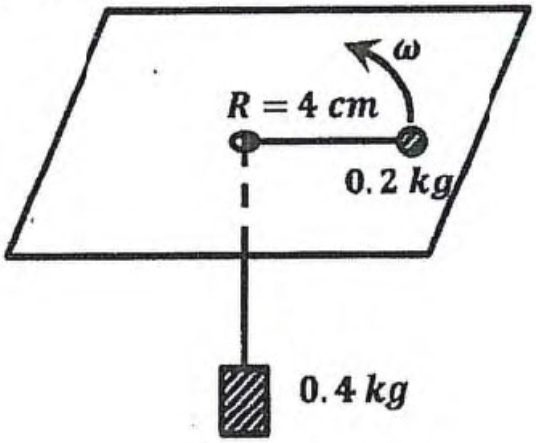


Figure 12

The 0.2 kg mass rotates in a horizontal circle of radius 4 cm. Calculate the angular velocity of the mass when the system is in equilibrium. Take acceleration due to gravity, g= 10 m/s^2 (3 marks)

$$F_c = mr\omega^2 \; ; \checkmark$$

$$4 = 0.2 \times 0.04 \times \omega^2 \; ; \checkmark$$

$$\omega = 22.36\, rad/s^2 \; ; \checkmark$$

d. A jet starts from rest with a uniform acceleration of 500 m/s^2. how long does it take to cover a distance of 40 km? (3 marks)

s = ut + ½gt^2 or s = ½gt since u = 0

40,000 = ½ × 500 × t^2

<u>40,000</u> = t^2

250

t = 12.649 s

15.

a. A horizontal force of 50 N is applied on a wooden block of mass 2.5 kg placed on a horizontal surface. Given that the coefficient of kinetic friction between the surface and the block is 0.5, determine the acceleration of the block (3 marks)

$F_r = \mu mg = 0.5 \times 2.5 \times 10 = 12.5\,N$; ✓

$F = ma \quad or \quad a = \frac{F_a - F_r}{m}$

$a = \frac{50-12.5}{2.5}$; ✓ $\qquad a = 15\,m/s^2$; ✓

b. **Figure 13** shows a graph of velocity aginst time for a ball bearing released at the surface of a viscous liquid

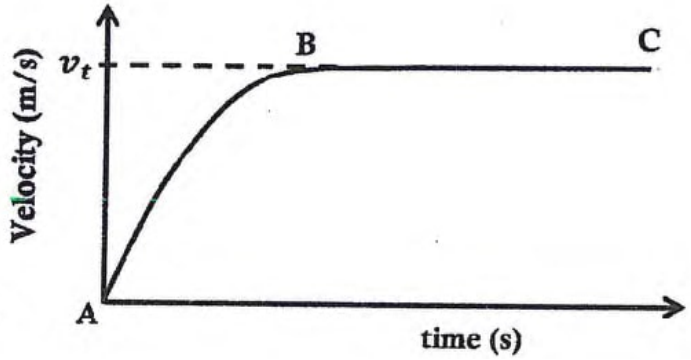


Figure 13

i. Write an expression/equation connecting all the forces acting on the ball bearing parts

I. AB (1 mark)

- ***Weight > (Upthrust + Viscous drag)***

II. BC (1 mark)

- ***Weight = (Upthrust + Viscous drag)***

ii. Indicate on the graph the terminal velcoty $\mathbf{V_t}$ of the ball bearing (1 mark)

c. **Figure 14** shows a pulley system being used to lift a load of 150 N by applying an effort of 60N

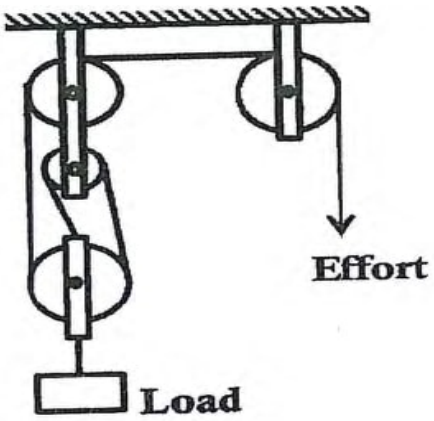


Figure 14

i. State the velocity ratio of the pulley system (1 mark)

V.R = 3

ii. Calculate the efficiency of the pulley system (4 marks)

$$M.A = \frac{Load}{Effort} = \frac{150}{60} = 2.5 \quad ; \checkmark$$

$$Efficiency, \eta = \frac{M.A}{V.R} \times 100\% \quad ; \checkmark$$

$$\eta = \frac{2.5}{3} \times 100\% \quad ; \checkmark$$

$$\eta = 83.33\% \quad ; \checkmark$$

d. Show that the velocity ratio of a wheel and axle machine whose cross-section is shown in **Figure 15** is given by **V.R.** $= {}^{R}/_{r}$ where R is the radius of the wheel while r is the radius of the axle (2 marks)

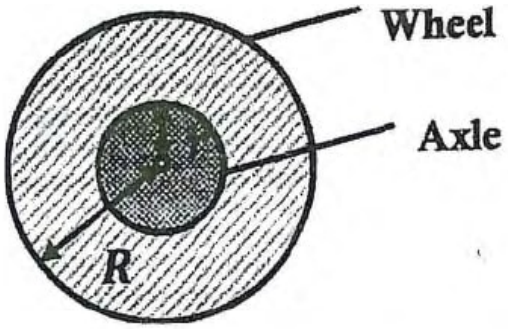


Figure 15

- ***In one complete rotation the wheel effort moves a distance of one circumference (2πR) while load moves a distance of (2πr)***
- ***VR= Effort Distance/ Load Distance***
- ***VR*** $= {}^{2\pi R}/_{2\pi r}$ ***hence VR*** $= {}^{R}/_{r}$

16.

a. Define the term "***specific latent heat of fusion***" of a material (1 mark)

- The amount of heat required to convert a unit mass of a solid to liquid without change in temperature

b. A metal bar of mass 30 g and specific heat capacity 880 J/kgK is placed in a small furnace. **Figure 16** shows how the temperature of the metal bar varies with time t in seconds

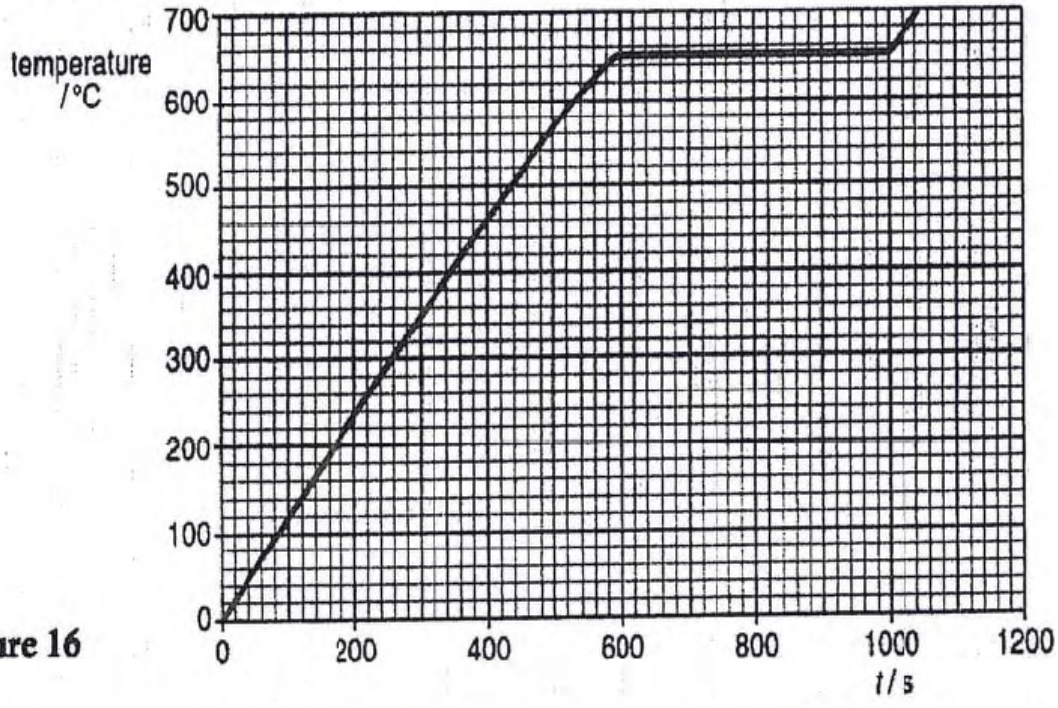


Figure 16

i. State what happens to the bar between t = 600s and 1000s (1 mark)

- ***Metal bar melts (Metal bar changes from solid to liquid)***

ii. Calculate the energy supplied to the bar between t = 0s and 600s (3 marks)

Q = mcΔθ

Q = 0.03 × 880 × 650

Q = 17, 160 J

iii. Between t = 600s and 1000s the furnace supplies 30 joules of energy per secodn to the bar. Calculate the specific latent heat of fusion oof the metal bar (3 marks)

$P_t = mL_f$

$30 \times 400 = 0.03L_f$

$Lf = 400{,}000\ J/kg$

17.

a. State ***Archimedes' principle*** (1 mark)

- ***A body totally(fully/completely/wholly) or partially imersed in a fluid experiences upthrust which is equal to the weight of fluid displaced***

b. The system in figure 17 below is in equilibrium

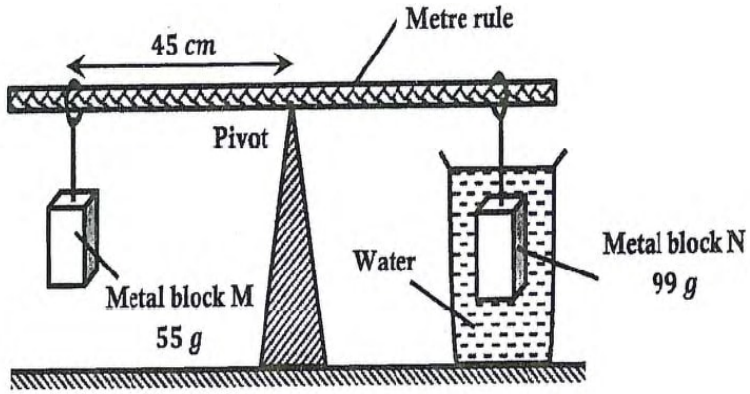


Figure 17

i. When the temperature of the water is raised the system is observed to tilt to the right, state the reason for this observation (2 marks)

- ***Increase in temperature casues water to expand reducing its density and hence the upthrust on block N reduces; Apparent weight of block N increases hence increasing the clockwise moment on the system***

ii. Calculate the apparent loss of weight of the metal block N given the dimensions of the block are 2cm × 2cm × 6cm (3 marks)

Apparent loss of weight = upthrust = weight of water displaced by block N

U = pvg

U = 1000 × (0.02 × 0.02 × 0.06) × 10

U = 0.24 N

iii. Determine the apparent weight of the metal block N (2 marks)

Apparent weight of block N

$W_w = W_a - U = 0.99 - 0.24$

$W_w = 0.75\ N$

iv. How far is the metal block N from the pivot? (2 marks)

From the principle of moments

0.55 × 0.45 = 0.75 × d

d = 0.33 m

PHYSICS PAPER 2 Marking Scheme - 2019 K.C.SE Prediction Set 1

SECTION A (25 Marks)

*Answer **all** the questions in this section*

1. **Figure 1** shows a plane mirror, a point object (P) and the position of the observer's eye. Show whether the observer will see the image of the object point P or not. (1 mark)

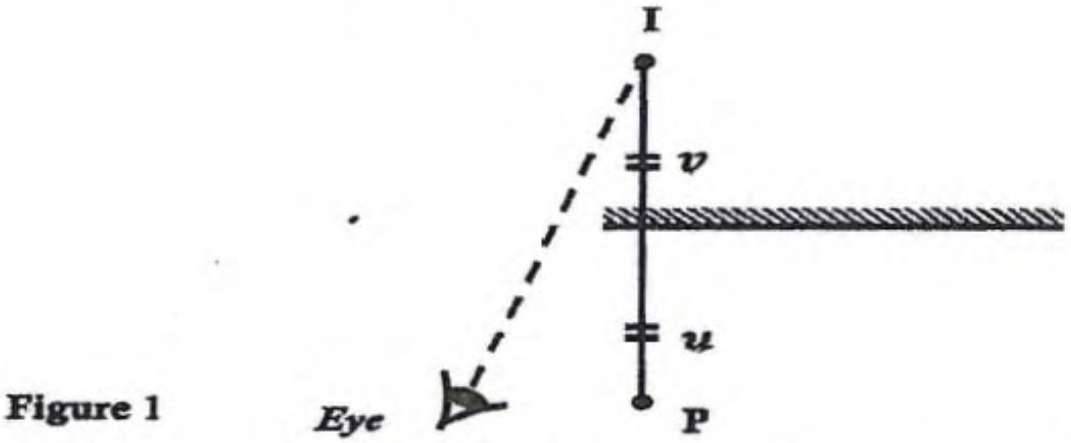


Figure 1

Observer cannot see the image of the object : ✓

2. State one difference between a lead-acid battery cell and a Leclanche' cell (1 mark)

Lead acid battery	**Leclanche' cell**
Can be recharged after use	*Cannot be recharged after use*
Polarization and local action are not defects	*Polarization and local action are defects*
Produces more current since it has low internal resistance	*Produces less current since it has higher internal resistance*

3. A form one student at Elimu Girls' High School connected a simple electric circuit as shown in **Figure 2** below.

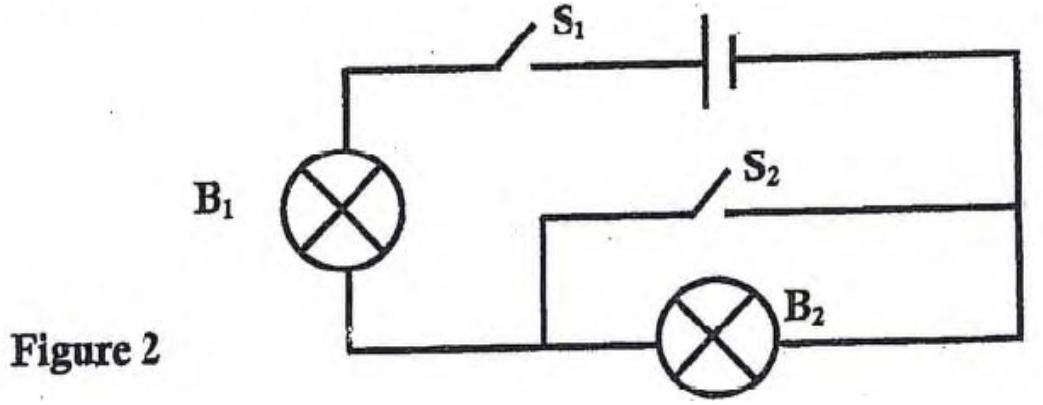


Figure 2

State and explain the observation made on bulbs B_1 and B_2 when switches S_1 and S_2 are both closed (2 marks)

Bulb B_1 lights while B_2 does not; current flows through B_1 since it is in a closed circuit while B_2 does not light since it is short circuited

Figure 3 shows an X- ray tube used to produce X - rays. Use it to answer questions 4 and 5

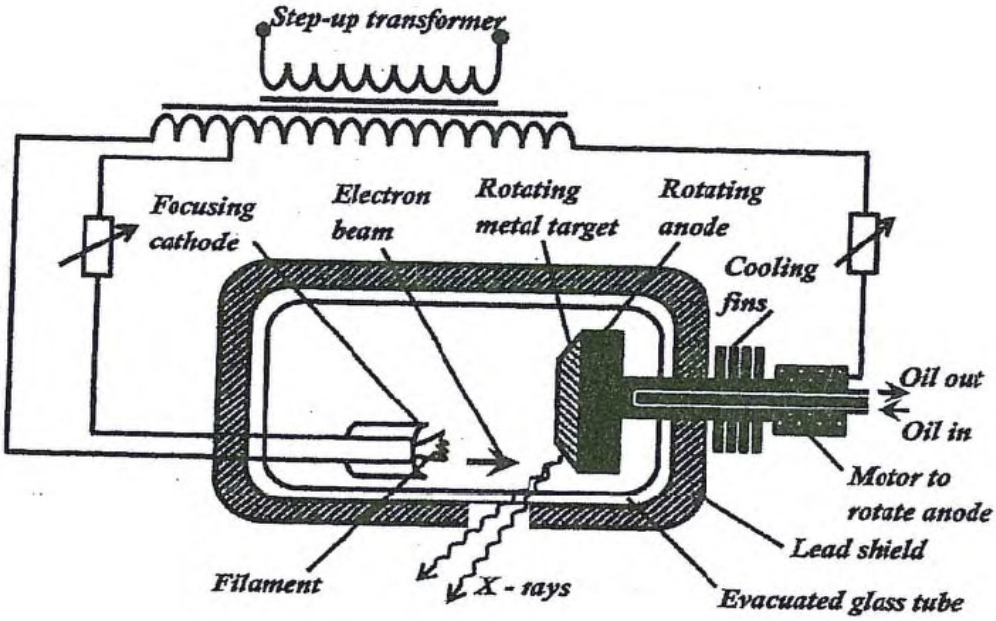


Figure 3

4. Give a reason why;
   a. The metal target is made to rotate (1 mark)
      The metal target rotates during operation to change the point of impact, thereby reducing the wear and tear on it.
   b. Lead metal is used to shield the X-ray tube (1 mark)
      Lead is a metal of very high density hence absorbs all the stray X-ray radiation
5. The X-ray tube in **Figure 3** produces elctrons which are accelerated by a p.d of 12kV. Assuming all the enrgy goes to produce X - rays, determine the maximum frequency of the X-rays produced. (Planck's constant $h = 6.62 \times 10^{-34}$ *Js*) and charge on an electron, $e = 1.6 \times 10^{-19}$ *C*) (3 marks)

$$hf_{max} = eV \quad or \quad f_{max} = \frac{eV}{h} \; : \checkmark$$

$$f_{max} = \frac{1.6\times10^{-19}\times12{,}000}{6.62\times10^{-34}} \; : \checkmark$$

$$f_{max} = 2.9 \times 10^{18}\ Hz \; : \checkmark$$

6. **Figure 4** (not drawn to scale) shows a bright electric bulb placed behind a screen which has a hole with an object cross-wire. A concave mirror of focal length 30 cm is placed in front of the screen. The position of the mirror is adjusted until a sharp image of the cross-wire is formed on the screen Determine the distance between the mirror and the screen (1 mark)

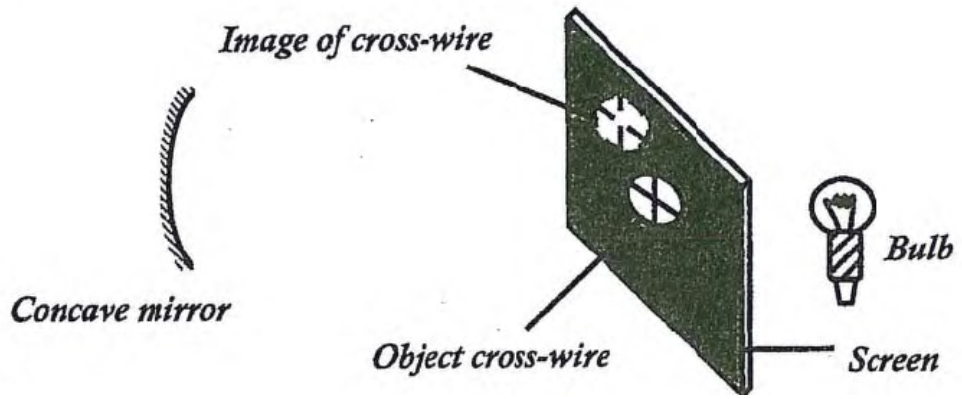


Figure 4

Radius of curvature, r = 2f = 2 × 30 =60cm

7. In a house, there is a cooker rated 6 kW. The mains potential is 240 V and the fuses available are 35A, 30 A, 15 A and 13 A. Determine the fuse that would be suitable for the cooker (3 marks)
   Operating current $I = {}^{P}/_{V} = {}^{6000}/_{240}$

=25 A

Suitable fuse : 30 A fuse

8. When X- rays are passed above the cap of a positively charged electroscope it is observed that the leaf divergence decreases. Explain this observation (2 marks)

   X-rays ionize the air above the cap; Electrons are attracted towards the cap hence neutralizing the positively charged electroscope

9. Several 200 Ω carbon resistors are to be connected in a circuit so that a current of 2A flows from a 50 V source. Determine how many resistors are required. (3 marks)

$$Total\ resistance, R_T = \frac{V}{I} = \frac{50}{2} = 25\,\Omega \quad ; \checkmark$$

Combination of 200 Ω resistors to give 25 Ω must be in parallel

$$\frac{1}{R_T} = n\left(\frac{1}{R}\right) \rightarrow \frac{1}{25} = n\left(\frac{1}{200}\right) \quad ; \checkmark \qquad n = 8\ resistors \quad ; \checkmark$$

10. **Figure 5** shows part of a wiring circuit for a house

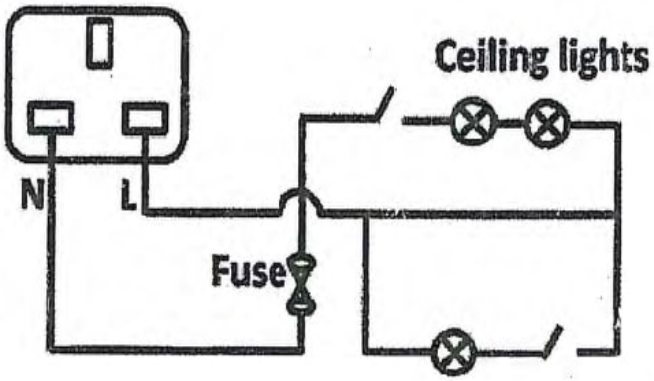


Figure 5

Correct two faults made in the wiring (2 marks)

- ***Fuse should be connected to the live wire anad not the neutral wire***
- ***Ceiling lights should be connected in parallel and not in series***
- ***Switch operating the ceiling lights should be connected to live wire and not neutral wire***
- ***The lower bulb should not be short circuited***

11. The current of electrons hitting the screen of a C.R.O is 15 mA. Given that the charge of one elctron is 1.6×10^{-19} C, determine the number of electrons that hit the screen per second (2 marks)

$$Charge\ flowing\ per\ second,\ Q = ne \rightarrow Q = It = I \times 1 = I$$

$$I = ne \rightarrow n = \frac{I}{e} \qquad n = \frac{0.015}{1.6\times10^{-19}} \quad ; \checkmark$$

$$n = 9.375 \times 10^{16}\ electrons \quad ; \checkmark$$

12. **Figure 6** shows an electromagnetic spectrum in the increasing order of wavelength from X to Y

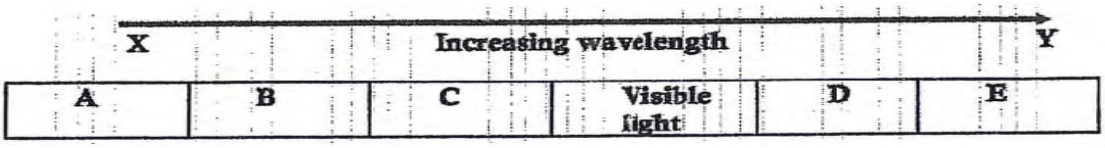


Figure 6

a. Identify the region of the spectrum labeled C (1 mark)

   C - ultraviolet rays rej. UV

b. Give one similarity between the spectrum labeled B and the visible light (1 mark)

Any of the properties of elctromagnetic waves e.g. they travel in straight line at the speed of light (3× 10^8 m/s); Can be detected by photocells

13. Give a reason why electrical power is transmitted over long distances at high voltage (1 mark)
High Voltage transmission ensures that small amount of current flows in the transmission line which reduces heating effect of an elctric current hence <u>minimizing power loss</u> due to transmission

SECTION B (55 Marks)

Answer **all** the questions in this section

14.

a. State what is meant by thermionic emission (1 mark)
It is the production of electrons from a metal surface by heating the metal

b. **Figure 7** shows a beam of cathode rays entering the space between two charged metal plates. Continue the dotted line to show the path of the cathode rays as they travel between the plates and into the space beyond the plates

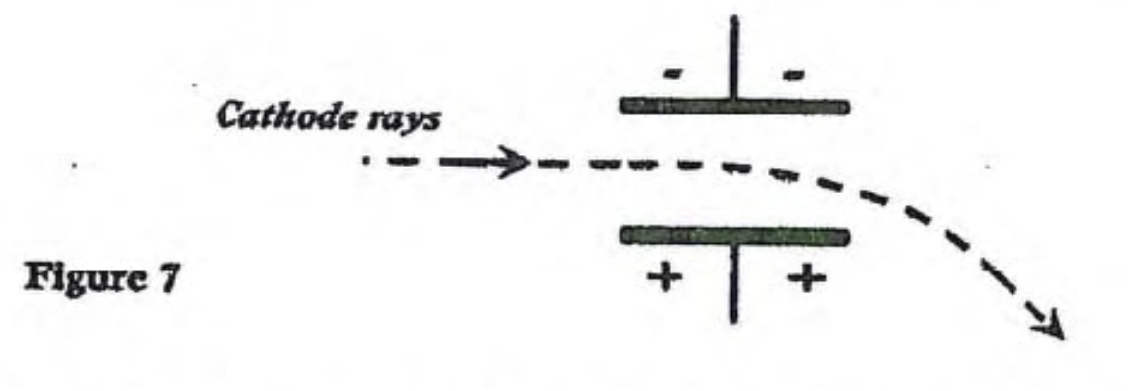


Figure 7

c. **Figure 8** shows a cathode ray tube of cathode ray oscilloscope (C.R.O)

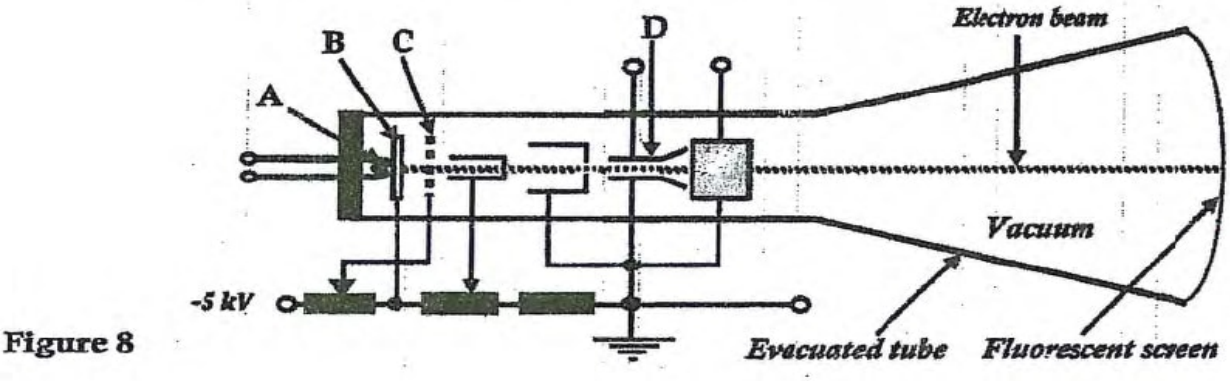


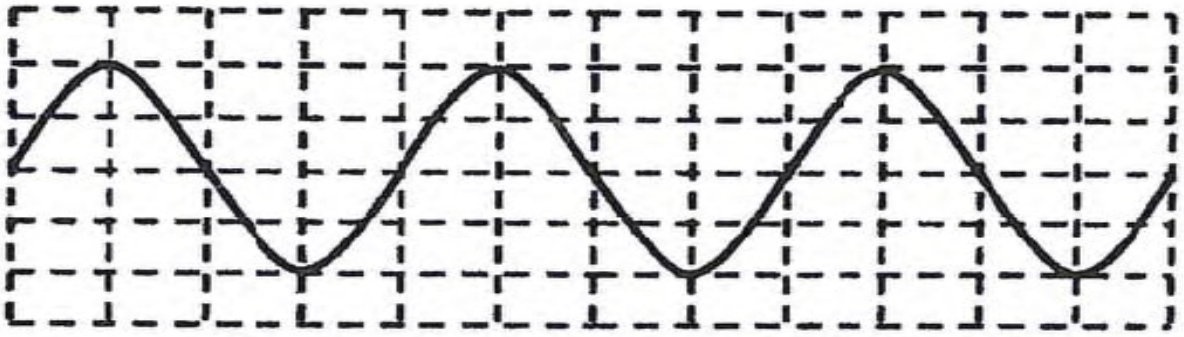
Figure 8

i. Name the parts labeled A and D (2 marks)
A- Hot filament D-Y plates or Y deflection plates

ii. What property does the part labeled B have for its efficient functioning (1 mark)
B is made of a metal of low work function

iii. State the function of the part labeled C (1 mark)
Controls the intensity of the elctron beam (or brightness of the spot) on the screen

d. The figure below shows the trace on the screen of an ac signal connected to the Y plates of a CRO with time base on
Given that the time base control is 50 ms/div, detrmine the frequency of the a.c signal (3 marks)



$f = {}^{1}/_{T}$

$f = {}^{1}/_{(4\times 0.05)}$

$f = 5\ Hz$

15.

a. A piece of light object (cork floats on the surface of water as shown in **Figure 9 below**. A straight edge vibrator placed at point A of the ripple tank generates water waves which travel towards point B

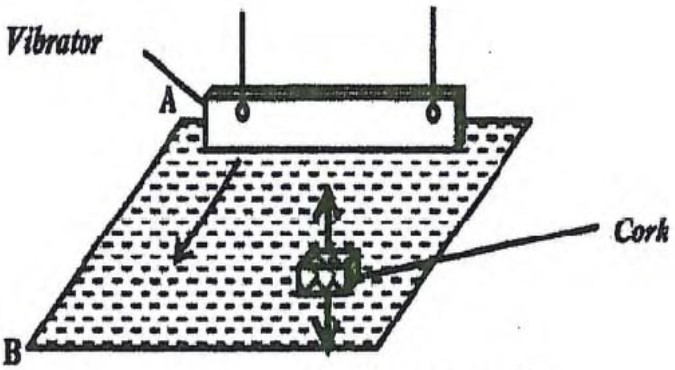


Figure 9

Oscillates up and down ; ✓

i. Successive waves pass the cork every 0.4 seconds and the speed of the wave is 0.5 m/s. Determine the wavelength of the waves (2 marks)

$$f = \frac{1}{T} = \frac{1}{0.4} = 2.5\ Hz \qquad v = f\lambda$$

$$0.5 = 2.5 \times \lambda\ ;\ \checkmark \qquad \lambda = 0.2\ m\ ;\ \checkmark$$

$$\text{Or} \quad \lambda = vT = 0.5 \times 0.4\ ;\ \checkmark \qquad \lambda = 0.2\ m\ ;\ \checkmark$$

ii. Indicate on the diagram the direction in which the card moves as the waves pass on it (1 mark)

b. **Figure 10** shows a ray of light travelling from water towards its interface with air. The critical angle, C of water is 49^{o}

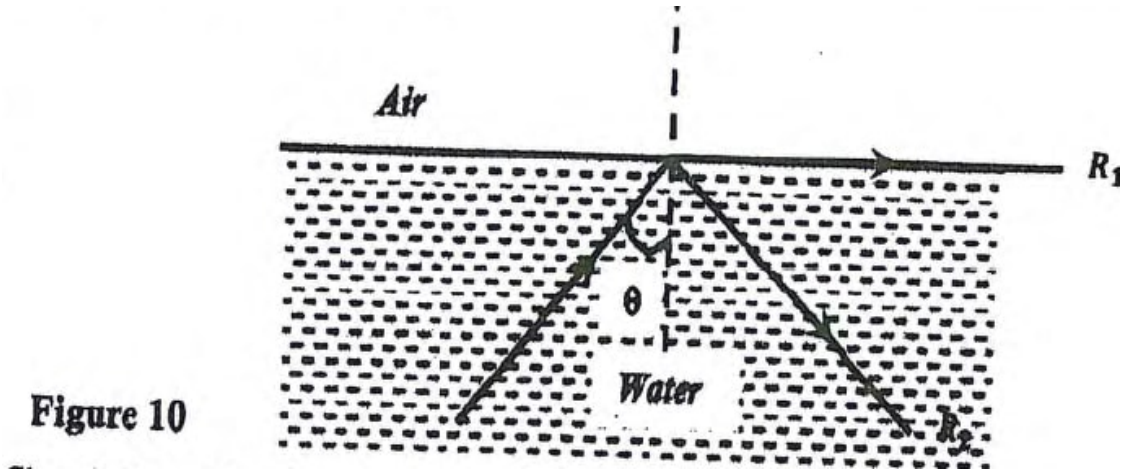


Figure 10

i. Skecth the path of the ray on the diagram above after striking the interface at
   I. An angle if incidence, **θ = C**. Label the ray as $\mathbf{R_1}$ (1 mark)
   II. An angle of incidence **θ >C**. Label the ray as $\mathbf{R_2}$ (1 mark)

ii. Calculate the absolute refractive index, n, of water (3 marks)

$n = {}^{1}/_{\sin C}$

$n = {}^{1}/_{\sin 49^{o}}$

$n = 1.325$

c. A student struck the prongs of a tuning fork agaisnt a hard surface in the laboratory. The prongs vibrate producing a longitudinal wave passing through air as shown in the **Figure 11**

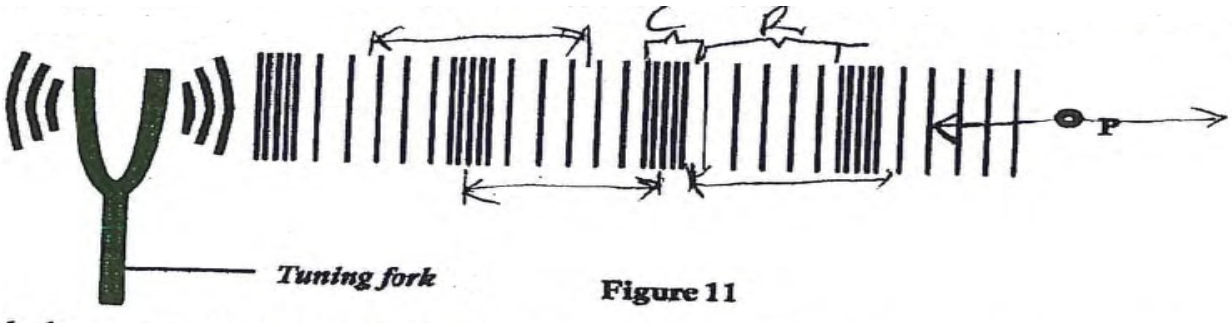


Figure 11

i. Label the compression and rarefaction regions in the longitudional wave. (1 mark)

ii. Using a lline with a double arrow, indicate on the diagram a distance d equal to one wavelength of the wave (1 mark)

iii. On the diagram, show with an arrow the direction of motion of the air particle P as the waves pass (1 mark)

d. State one advantage of optical fibre cable over conventional copper cables as used in telecommunication (1 mark)

- ***Have higher carrying capacity***
- ***They are thinner and lighter than copper cables hence easier to install***
- ***They are secure since the information on transit cannot be tapped***
- ***Free from interference from electromagnetcic waves***

16.

a. **Figure 12** shows ammeters and resistors connected to a battery of em.f. 15.0 V and negligible internal resistance

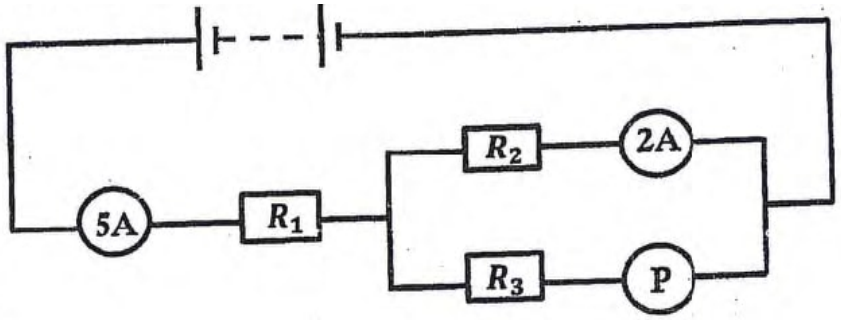


Figure 12

i. Find the reading of the meter P

P = 5 − 2 = 3 A

ii. If the resistance R_1 is 1.2 Ω , determine as shown in figure 1 the values of R_2

b. **Figure 13** shows two charged plates P and Q one is earthed and the other is connected using a copper wire to the cap of an elctroscope which was initially unchanged.

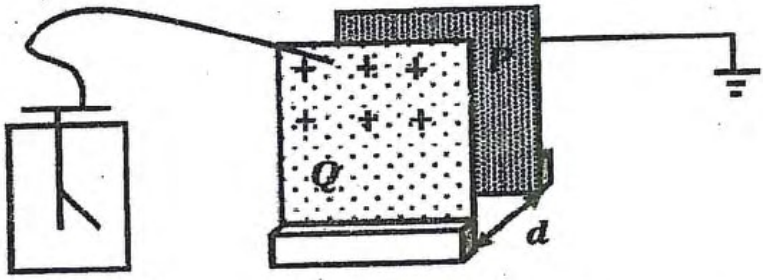


Figure 13

State what happens to the leaf of the eletrocope when plate P is moved sideways while keeping plate Q and distance of separation constant. (1 mark)

Leaf divergence increases

c. **Figure 14** shows a circuit where a battery of emf 4.5 V, switches A and B, two capacitors C_1 = 0.4 µF and C_2 = 0.6 µF and a voltmeter are connected.

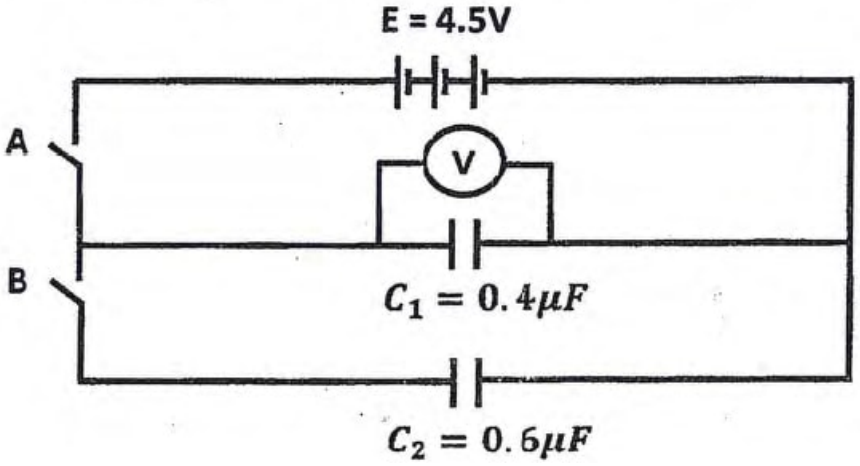


Figure 14

Determine the voltmeter reading when

i. Switch A is closed and switch B is open (1 mark)

V= 4.5 V

ii. Switch A is closed and opened, and then B is closed (3 marks)

Total charge, $Q = C_1V = 0.4 \times 4.5 = 1.8\,\mu C$; ✓

$Q = Q_1 + Q_2 = C_1V + C_2V = (C_1 + C_2)V$

$V = \frac{Q}{C_1+C_2} = \frac{1.8}{0.4+0.6}$; ✓ $V = \frac{1.8}{1} = 1.8\,V$; ✓

d. **Figure 15** shows a conductor C placed on a negatively charged polythene rod. Identify the charges on conducto C and sphere S when C is connected to S using a wire

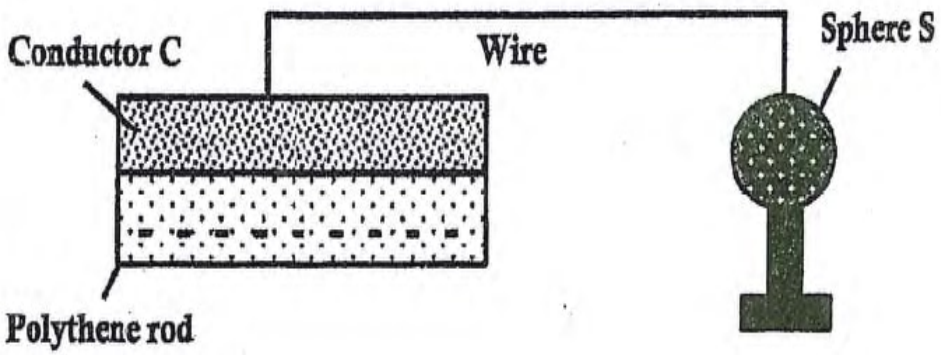


Figure 15

Conductor C ***Positive charge*** (1 mark)
Sphere S ***Negative charge***(1 mark)

17.

a. Figure 16 below shows a steel bolt being magnetized

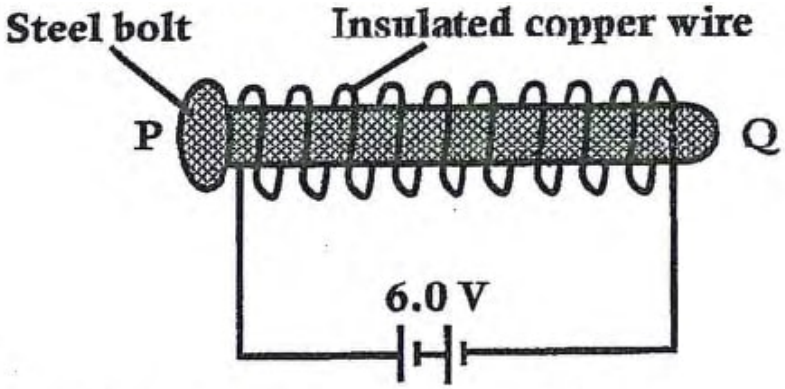


Figure 16

Identify the pole P and Q of the resulting magnet
P- South pole
Q - North pole (both correct one mark)

b. **Figure 17** shows an electric device running on a battery

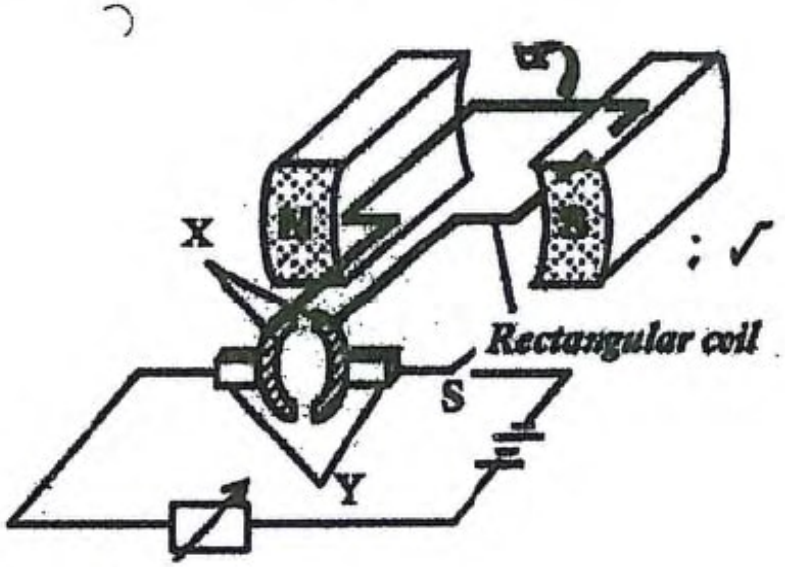
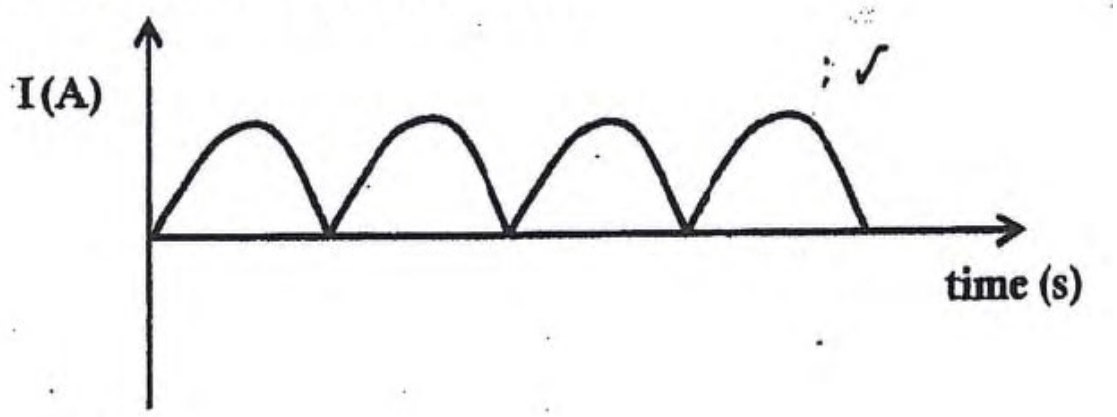


Figure 17

i. Name the parts labelled X and Y (2 marks)
X- Split ring or commutator
Y - Carbon brushes

ii. Given the direction of rotation of the coil is as shown in the diragram, indicate the poles of the magnet on the diagram

iii. If the battery was replaced with a copper wire, sketch on the axes below a graph of induced current against time flowing through the variable resitors if the coil is made to rotate as it is in the figure above (1 mark)



; ✓

iv. Suggest an improvement that can be made to increase the magbitude of induced current in (iii) above

- ***Increasing the amount of current through the coil***
- ***Using stronger magnets***
- ***Winding the rectangular coil on a laminated soft iron core***
- ***Increasing the number of turns***

c. The input voltage of a transformer is 220 V and its output voltage is 12 V. When a 60 W bulb is connectd across the secondary coil, the current in the primary coil is 0.32 A. Determine the efficiency of the transformer (3 marks)

$$\text{Efficiency, } \eta = \frac{I_S V_S}{I_P V_P} \times 100\% \quad ; \checkmark$$

$$\eta = \frac{60}{0.32 \times 220} \times 100\% \quad ; \checkmark$$

$$\eta = 85.23\% \quad ; \checkmark$$

d. One of the causes of energy loss in a tranformer is through fromation of eddy currents. State one way in which eddy currents lead to energy loss in a transformer (1 mark)

- ***Eddy currents produce magnetic flux that opposes the change causing it (according to Lenz's law)***
- ***Eddy currents produce heating effect of an electric current as they flow through the tranformer core***

e. **Figure 18** shows a connection to a three pin plug

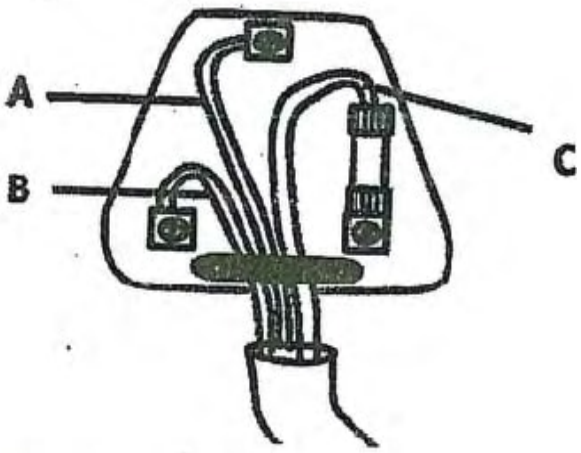


Figure 18

i. Identify the leads labelled B and C (2 marks)
B- Neutral wire/cable
C - Live lead/cable

ii. Give a reason why the pin onto which lead A is connected is normally longer than the other two pins (1 mark)
Earth pin is longer since it is the first one to enter hence opens the socket pushing the shutter/ bliner for the other two pins to enter

18.

a. **Figure 19** shows a human eye with a defect

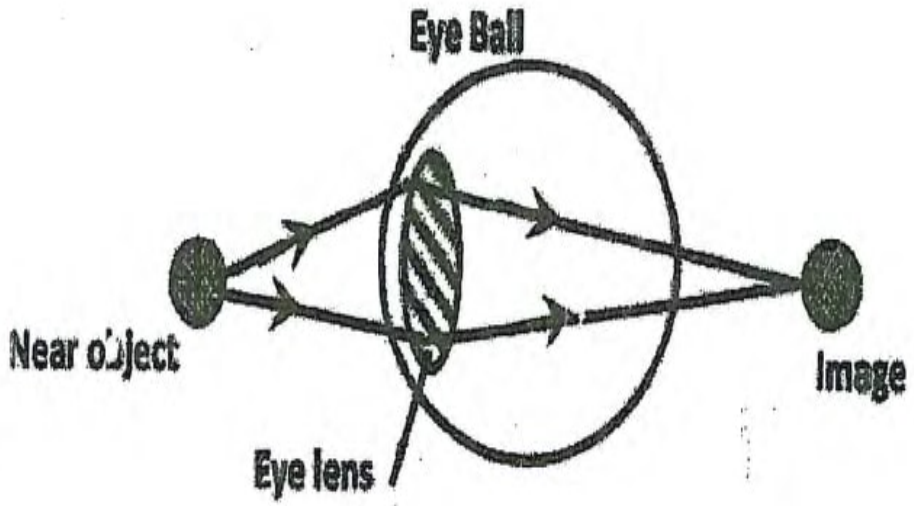


Figure 19

i. Name the defect (1 mark)
Long sight/Long sightedness/Hypermertropia

ii. State one possible cause of this defect (1 mark)

- ***Too short eye ball***
- ***Eye lens having very long focal length***

b. A lens forms an image that is four times the size of the object on a screen. If the distance between the object and the screen is 150 cm, determine;

i. State with reasons what type of lens was used (2 marks)
Convex/converging lens
Because it forms a real image on the screen

ii. The focal length of the lens (3 marks)

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$$m = \frac{v}{u} \rightarrow 4 = \frac{v}{u} \rightarrow v = 4u$$

$$u + v = 150 \rightarrow u + 4u = 150 \rightarrow 5u = 150 \rightarrow u = 30\ cm$$

$$v = 120\ cm; \checkmark$$

$$f = \frac{uv}{u+v} = \frac{30 \times 120}{30+120} \quad ; \checkmark$$

$$f = 24\ cm \quad ; \checkmark$$

c. A barber holds a concave mirror a short distance from his client's face. Given that the described arrangement is as shown on **Figure 20** and the radius of curvature is 40 cm

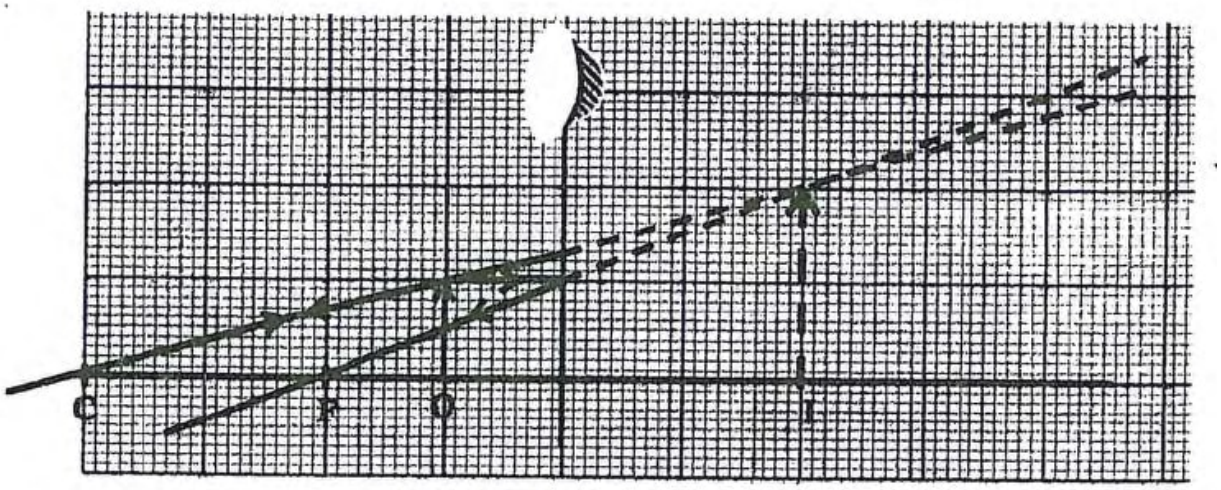


Figure 20

i. Draw on the same figure, a ray diagram to show the position of the image of the client's face (2 mark)

ii. Use the ray diagram to determine the magnification of the image (1 mark)
m $= {}^{v}/_{u} = {}^{20}/10 = 2 \pm 0.2$

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PHYSICS PAPER 3 Marking Scheme - 2019 K.C.SE Prediction Set 1

Question 1

You are provided with the following apparatus

- Micrometer screw gauge
- A plastic drinking straw
- A white label with a horizontal line across the centre
- Some plasticine mass 5.0 g
- Half a meter rule
- A 200 ml beaker
- A 100 ml measuring cylinder
- Two rubber bands
- Seven shoe tacks
- Electronic beam balance
- Jockey

Proceed as follows

a. Place the seven shoe tacks on the eletronic beam balance and record the mass M. **1.7g**
M=(1.5 to 2.0) × 10^{-3}kg or **0.0017 kg** or **0.002kg (3 d.p or 4 d.p) (1mk)**

b. Given that W = 1.429 M, where W is the weight of one tack, determine the value of W
W= 1.429 × 0.0017 (½ mk) = 0.0024293 N(½mk)
(0.0021435 to 0.002858)

c.

i. Fix the half meter rule vertically agaisnt the measuring cyliner using rubber band with the zero mark of the half meter rule at the bottom of the measuring cylinder

ii. Measure 150ml of water using the beaker and pour it into the measuring cylinder.

iii. Roll the plasticine into a spherical ball and push one ened of the straw into the plasticine to block one end

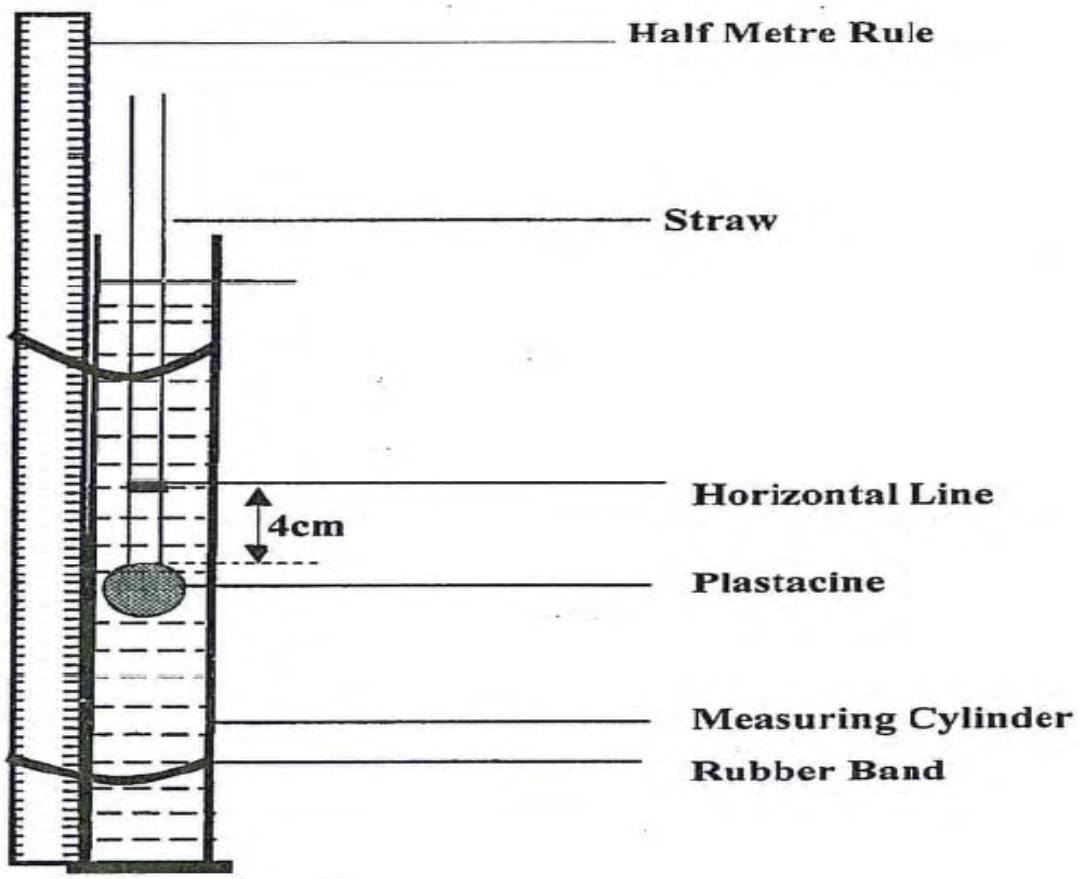
iv. Insert the drinking straw with the plasticine into the mesuring cylinder such that it floast vertically

v. Remove the straw and fix the white label at 4 cm above the plasticine so that the line at the centre runs horizontally. Ensure the line is submerged under the water as shown below

Record the position of the horizontal line as indicated on the half meter rule
L_o = 17.2 cm (16.5 — 17.5) cm (1mk)

vi.

vii. Also record this value in the table as L when there is no shoe tack in the straw. Insert one shoe tack into the straw and record the new level L of the horizontal line in the table. Repeat the procedure for each number of shoe tacks indicated while recording the level each time.

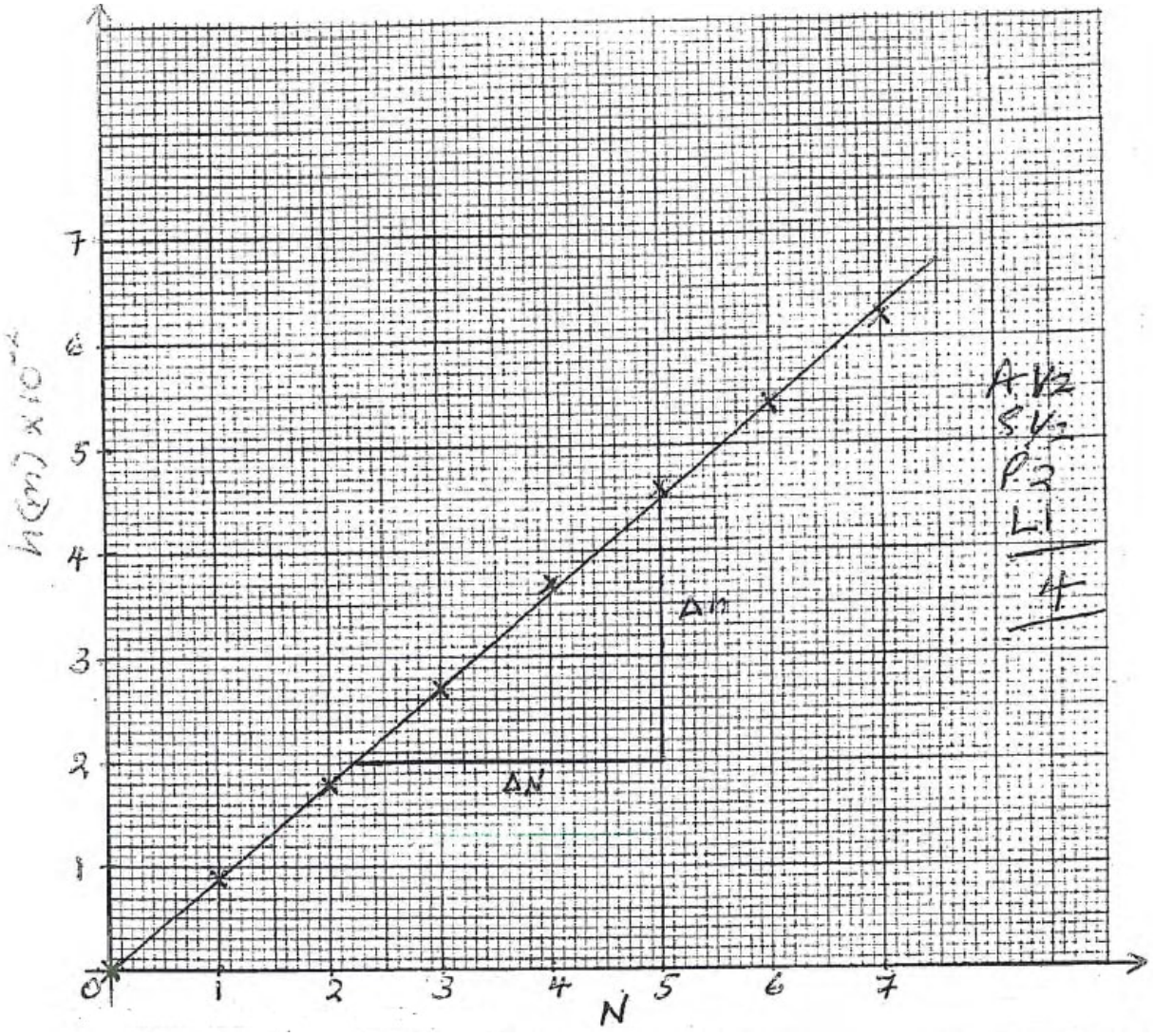


Complete the values of L with number of stacks on the table below (6 marks)

No of shoe tacks N	0	1	2	3	4	5	6	7	
Level L (cm)	**17.2**	**16.3**	**15.4**	**14.5**	**13.5**	**12.6**	**11.8**	**11.0**	(± 1 cm)
h = L_o - L (m) × 10^{-2}	**0.0**	**0.9**	**1.8**	**2.7**	**3.7**	**4.6**	**5.4**	**6.2**	

No of shoe tacks N	0	1	2	3	4	5	6	7	
Level L (cm)	**13.0**	**12.0**	**11.1**	**10.3**	**9.4**	**8.5**	**7.6**	**6.5**	(± 1 cm)
h = L_o - L (m) × 10^{-2}	**0.0**	**0.9**	**1.8**	**2.6**	**3.5**	**4.4**	**5.3**	**6.4**	

d. On the grid provided plot a graph of h against N (4 marks)



e. Determine the slope S of the graph

$S = \frac{\Delta h}{\Delta N} = \frac{(4.5 - 2.0) \times 10^{-2}}{5 - 2.2}$ ✓ 1 ✓ 1

$= 8.929 \times 10^{-3}$ m ✓ ½ ½

f. Given the upthrust U of one shoe tack is given as $U = {}^{4\pi S}/_{10000}$, determine the value of U (2 marks)

$U = \frac{4\pi \times 8.929 \times 10^{-3}}{10000}$ ✓ 1

$= 1.122 \times 10^{-5}$ N ✓ ½ ½

g. Determine the apparent weight of one shoe tack (2 marks)

$W_L = W_a - U$

= 0.0024293 − 0.00001122 (1mk)

=0.002418 N (½mk ½mk)

Question 2

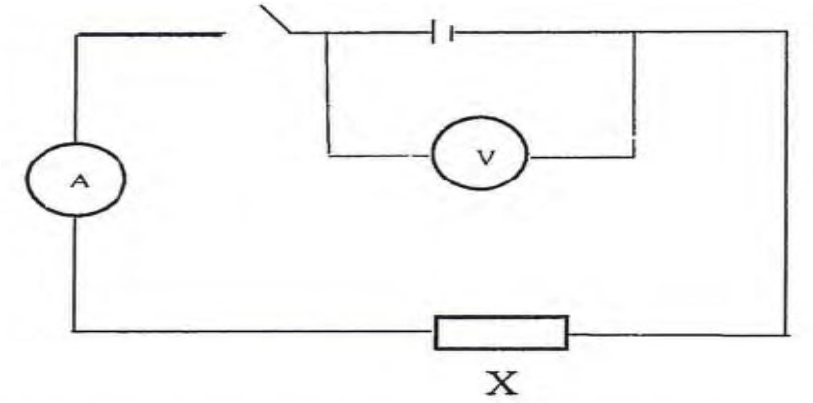
You are provided with the follwoing

- A carbon resisitor marked X

- Resistance wire marked R
- Micrometer screw gauge (to be shared)
- Voltmeter
- Ammeter
- Resistance wire mounted on a wire labelled L
- A cell, Cell holder
- Centre-zero Galvanometer
- 8 connecting wires
- jockey

a. Using the micrometer screw gauge, measure and record the diameter D of the resistance wire R provided
0.40—0.50mm
D= 0.00040 — 0.00050 m (1 mk)
0.00043 m

b. Set up the following circuit



i. Record the voltmeter reading when the switch is open
E= 1.65 (1.5—1.7) V Accept 1 dp and 2 dp (1 mk)

ii. Close the switch and record the voltmeter and ameter readings V and I
V= 1.5 (1.4 — 1.6)V (1 mk)
I= 0.12 (0.10—0.14)A (1 mk)

iii. Now connect the voltmeter across the carbon resistor X and record voltmeter reading V_1
V_1 = 1.4 ± 0.2 V (1 mark)

iv. Compare the values of V and V_1 giving a reason why they are different (2 marks)
V_1<V or V>V_1
There is voltage drop across ammeter and connecting wires

v. Calculate X_1 given that $X_1 = {}^{V_1}/_{I}$
X_1= $^{1.4}/_{0.12}$ (½ mk)
= 11.67 Ω (½ mk (+ unit) (10—16Ω)
Min X_1 = $^{1.4}/_{0.14}$ = 10Ω
Max X_1=$^{1.6}/_{0.10}$=16Ω

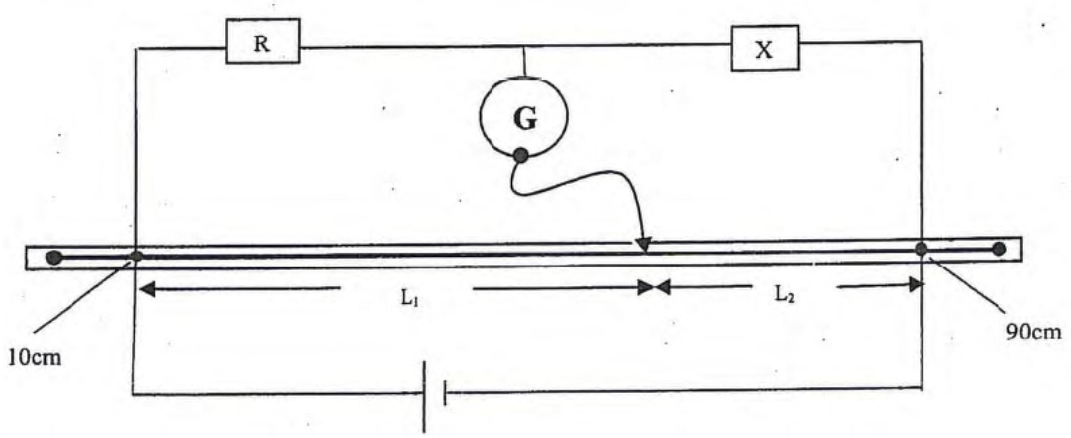
vi. Calculate the internal resistance r of the cell given that $r = {}^{(E-V)}/_{I}$ (2 marks)
r = $^{(1.65\ -\ 1.5)}/_{0.12}$ (1 mk)
=1.252 Ω (½ mk ½ mk)

vii. Calculate X_2, given that $E = I(X_2+r)$
X_2= $^{E}/_{I}$ − r = $^{1.65}/_{0.12}$ − 1.25 (½mk)
=12.5 Ω (½mk) (ignore missing unit)

viii. Calculate X the average values of X_2 and X_1

$X_2 = {}^{(X_1+X_2)}/_2 = {}^{(11.67 + 12.5)}/_2$ (½mk) = 12.085 Ω (½mk) Ignore missing unit

c. Connect anothe circuit as shown below



i. Move the sliding pointer along the resistance wire until the galvanometer reading comes to zero. Record L_1 and L_2

L_1=21.2 cm (½mk ½mk) L_2 = 58.8 cm(½mk ½mk) (L_1+L_2 = 80)

ii. Obtain the value of the unknown resistance R given that ${}^{R}/_{X} = {}^{L_1}/_{L2}$

R= ${}^{L1}/_{L2}$ X = ${}^{(21.2 \times 12.085)}/_{58.8}$ (½mk)

=4.357 Ω (½mk) (ignore missing unit) (5 ± 1 Ω)

Interchange the positions of R and X and repeat the procedure in i above and acalculate the value of R using similar argument

L_1=57.9 cm (½mk ½mk) L_2 = 22.1 cm(½mk ½mk)

${}^{X}/_{R} = {}^{L_1}/_{L2}$

R= ${}^{L2}/_{L1}$ X = ${}^{(12.085\times\ 22.1)}/_{57.9}$ (½mk)

=4.613 Ω (½mk)

d.

i. Calculate the average values of R (1 mark)

R= ${}^{4.357 + 4.613}/_2$ (½mk)

= 4.485 Ω (½mk) (ignore missing unit) (5 ± 1 Ω)

ii. Given that, R= ${}^{35S}/_{100\pi D^2}$ (2 marks)

$S = \frac{100\pi D^2 R}{35} = \frac{100\pi \times (0.00043)^2 \times 4.485}{35}$ ✓

$= 7.443 \times 10^{-6}$ ✓ Ωm² (ignore missing unit)

Accept Ωm

Wrong unit! aepy.

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ENGLISH PAPER 1 Marking Scheme - 2019 K.C.SE Prediction Set 1

1. **REPORT WRITING**
   FORMAT (8MKS)

   - Title (1mk) (Report on the poor hygiene….etc)
   - Introduction (1mk)
   - Method (1mk)
   - Findings (1mk)
   - Summary and conclusion (1mk)
   - Recommendations (1mk)
   - Report complied by /etc (1mk)
   - Date (1mk)

   CONTENT (8MKS)

   - Who commissioned the report/why? (1mk)
   - Constitution of investigating committee (1mk)
   - Methods of gathering data (1mk)
   - Findings – at least two well presented (2mks)
   - Summary and conclusion (1mk)
   - Recommendations – 2- to findings (2mks)
   - (Must offer logical solutions to findings)
   - Language (4mks) (tied to performance in the body and format)
2. **CLOSE TEST**

   1. Shown
   2. regularly
   3. Revelation
   4. Is
   5. from
   6. Negative
   7. their
   8. relative
   9. them
   10. lack
3. **ORAL SKILLS**
   a. aabbccddeeff – The poem has a regular rhyme scheme.
   b. **Repetition**
   – Make…make
   I….I
   I could not rest if…
   Alliteration
   – make me ….(No mark without the underline)
   Assonance – Rise Like…
   Consonance - …not rest…
   c. – Nodding their heads
   -Clapping
   -Laughing or expressing sadness where necessary
   -Stamping their feet
   -Maintaining eye contact with the recitor (Any 2 x 1mk)

d. – I would use a falling intonation.
-I would stress the words rise, curse, trembling and air since they carry the meaning of the line. (Any 1 x 2mks)
(The answer should begin with: I would….)

e.
i. Falling
ii. Falling
iii. Falling
iv. Rising

f. Corps – p, s
Parliament – i
Leopard – 0
Fracas - s

g.
i. Berry
ii. Clause
iii. Guessed
iv. Mail

h.
i. It was the lady and not any other person.
ii. The dress was not of any other colour other than red.
iii. It was a purse and not any other thing.

i.
i. Gate
ii. Shepherd

j.
i. James is not a keen listener
ii. James does not respond to Muthomi's concerns. James is unconcerned with the dialogue.

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ENGLISH PAPER 2 Marking Scheme - 2019 K.C.SE Prediction Set 1

1. **COMPREHENSION**
   a. Dealing with social rejection in the process of developing social skills among children (2mks)
   b. The number one need of any human being is the need to be liked by other humans (1mk)
   c. The inability to read non-verbal cues; understanding their social meaning and coming up with options for resolving a social conflict (2mks)
   d. Social rejection is likely to lead to: (2mks)
      - Children getting poor grades
      - Dropping out of school
      - Developing substance abuse problems
      - Problems in relating with others.
   e. Children who are shunned by others have few opportunities to practice social skills while those that are popular have more than enough opportunities to perfect theirs.
   f. Present it as learning opportunity rather than a punish parents should teach social skills just like they teach numeracy skills (2mks)
   g. He/she asked me/him/her how I/he/she would feel if Emma was hogging the tyre swing.(1mk)
   h. -Ask the child what happened and listen without judgment.
   -Ask the child to identify their mistake.
   -Help the child identify the cue they missed or mistake they made.
   -Create an imaginary but similar scenario where the child can make the right choice.
   -Give the child “social homework” by asking him to practice this new skill.
   If not in note form penalize by half the total mark
   i.
      - Authority figure- parent/teacher/growth up
      - Shunned – avoided
      - Jump on board – eagerly follow the lesson on social skills

2. **A DOLL’S HOUSE**

   a.
      - Krogstad tells Nora that Torvald should be approachable when it comes to his request.
      - Nora threatens to turn Krogstad out of the house.
      - She say she is no longer afraid of Krogstad.

      - Desperation – When Krogstad fights to retain his job at the bank. Nora is equally desperate to continue concealing her secret while Krogstad threatens to divulge everything.
      - Deception – To those they interact with, Krogstad and Nora portray a completely different character and conceal their true identities.
   c. Points to consider
      - He has been guilty of an indiscretion
      - He was never taken to court but all ways were closed to him after that.
      - He, however, must cut himself free from that.
      - He must win back as much respect as possible for the sake of his sons.
      - The post in the bank is the first step up for him

- Torvald is threatening to kick him out but he vows to resist.

d.

i. Krogstand: Resilient and adamant – He would not give up his quest to retain his job.
Firm and decisive - He insists that Nora must plead his case with her husband.

ii. Nora:Fearful of Krogstad revealing her secret to her husband, what she calls a horrible, disagreeable position
Nora: Defiant: She tells Krogstad that he can go ahead and let out her secret because it will be worse on him.
Optimistic/hopeful: She says her husband will pay off Krogstad.

e. Simile – Krogstad says he will fight for his. “small post at the bank as if he were fighting for my life”
Metaphor. “…and now your husband is going to kick me downstairs against into the mud”.

f. Compel –force
Blackguard – Immoral man

g. – Nora borrowed two hundred and fifty pounds when her husband was ill.
-He gave her conditions which included drawing a bond as security.
-Her father was to sign as security for the amount.
-He left the date blank and the father was to insert it.
-Unfortunately, the date inserted appears to be days after her father’s death that is, 2nd October yet he died on 29th September.

3. **ORAL NARRATIVE**

a. Trickster narrative: Hare tricks the Hyena into killing his mother (2mks)

b. Opening formula: once upon a time.
Closing formula: And that is the end of my story to you.
Timelessness – Refers to no particular time in history –once upon a time.
Dialogue – Conversation between Hare and Hyena
Fantasy – Hare and Hyena talking
Mark 3 well illustrated points

c. **Hare**
Clever/wise/intelligent – hides his mother instead of killing
Cunning – Tricks the Hyena into killing his mother
Loving – hides his mother-and does not kill her as they agreed with the Hyena.
Hyena
Gullible/foolish –Foolishly kills his mother and believes that the Hare killed his mother too.
Cruel – Kills his mother
Accept any well illustrated trait.

d. We should love and respect our parents whatever the circumstances. Because have loved the mother he was always well fed during the great famine.
Friendship ought to be genuine –The friendship between Hare and Hyena was not genuine, the Hyena killed Hares mother after have tricked him to kill his mother.

e. **Economic**
Cattle keeping: Hare took all the cows …in other part of the country.
Banana farming – Hare hid his mother in the garden in bushy banana plants (1mk)

Social

Food sharing. The two friends decided that each was to look for food on alternate days sharing equal basis what was available. (1mk)

f. Observation (1mk)
Participation (1mk)
Language barrier – look for an interpreter. (1mk)
Hostile respondent – pre-visit the area seek permission from local administration (1mk)

g. He wondered how his friend remained fat and he did not eat anything and decided that he would find out. (1mk)\

h. It is ironical for the narrator to say there was great famine in the land yet Hare went and hid his mother in a banana plantation and his mother used to give him bananas. (2mks)

4. **GRAMMAR**

a.
   i. He will not be given a driving license unless he passes the road test. / Unless he passes the road yest, he will not be given a driving license.
   ii. Leaving the child with a neighbor, the woman went to the market.
   iii. In the field

   i. In
   ii. among
   iii. within

c.
   i. Insensibility
   ii. acquisition
   iii. irregardless

d.
   i. Practice
   ii. prophesy
   iii. insured
   iv. hung

e. Ken said that those were juicy mangoes.

f. You do not require to cheat to pass, do you? (Award no mark for wrong punctuation)

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ENGLISH PAPER 3 Marking Scheme - 2019 K.C.SE Prediction Set 1

1. **IMAGINATIVE COMPOSITION**

This question is intended to test the candidate's ability to communicate in writing. Communication is established at different levels of intelligibility, correctness, accuracy, fluency, pleasantness and originality within the constraints set by each question. It is the linguistic competence shown by the candidate that should carry most of the marks.

Examiners should not hesitate to use the full range of marks for each essay. It is important to determine first how each essay communicates and in which category A, B, C or D it fits.

D CLASS
The candidate does not communicate at all 01-05 or his language ability is so minimal that the examiner practically has to guess what the candidates want to say. The candidate fails to fit the English words he knows into meaningful sentences. The subject is glanced at or distorted. Practically no valid punctuation. All kind of errors "Broken English"

D-(01-02)
Chaotic, little meaning whatsoever. Question paper or some words from it simply copied.

D(03)
Flow of thought almost impossible to follow the errors are continuous

D+(04-05)
Although the English is then broken and the essay is full of errors of all types we can at least guess what the candidate wants to say.

C CLASS (06-07)
The candidate communicates understandably but only more or less clearly. He is not confident with his language. The subject is often undeveloped. There may be some digression. Unnecessary repetitions are frequent. The arrangement is week and the flow jerky. There is no economy of language mother tongue influence is felt. Watch for repetition for emphasis.

C – (06-07)
The candidate obviously finds it difficult to communicate his ideas. He is seriously ham petered by his very limited knowledge of structure and vocabulary. This results in many gross errors of agreement and sentence construction.

C 08
The candidate communicates but not with consistent clarity. His linguistic abilities being very limited, he cannot avoid frequent errors in sentence structure. There is little variety or originality. Very bookish English links are week, incorrect, repeated at times.

C+(09-10)
The candidates communicates clearly but in flat and uncertain manner. Simple concepts sentence forms ate often strained. There may be an overuse of clichés unsuitable idioms, proverbs are misquoted or misinterpreted. The flow is still jerky. There are some errors of agreement, tenses and spelling can have some merit ticks.

B CLASS (11-15)
This class is characterized by greater fluency and ease of expression. The candidate demonstrates that he can use English or normal ay of expressing himself. Sentences are varied and usually well constructed. Some candidates become illogicality ambitious and even over ambitious. There may be items of merit of one word or one expression type. Many essays in this category may be just and clean an unassuming but they still show that the candidate is at ease with the language. There may be a tendency to under mark such essays. Give credit for tone.

B-(11-12)
The candidates communicates fairly and with some fluency. There may be little variety in sentence structure. Gross errors are still found occasionally, but this must not be over punished by t examiner.

B13
The sentence are varied but rather simple and straight forward. The candidate does not himself in an effort impress. There is a fair range of vocabulary and idiom. Natural and effortless. Some items of merit, economy of language.

B+(14-15)
The candidate communicates his ideas pleasantly and without strain. There are errors and slips. Tenses, spelling and punctuation are quite good. A number of items of merit of the “whole sentence” or the “whole expression” type meritticks phrasal verbs, inversions, idioms etc variety of sentences, correct vocabulary.

A CLASS
The candidate communicates not only fluently but attractively, with originality and efficiency. He has the ability to make us share his deep feelings, emotions, enthusiasms. He expresses himself freely and without any visible constraint. The script gives evidence of maturity, good planning and often humour. Many items of merit which indicate that the candidate has complete command of the language. There is no strain, just pleasantness, clever arrangement, felicity of expression. Contrast, irony.

A-(16-17)
The candidate shows competence and fluency in using the language. He may lack imagination or originality which usually provides the “spark” in such essay. Vocabulary, idioms, sentence structure links variety are impressive. Gross errors are very rare.

A 18
Positive ability. A few errors that are felt to the slips. The story or argument has a definite impact. No grammar – problem variety of structures. A definite spark many margin ticks.

A+(19-20)
The candidate communicates not only information and meaning, but also and especially the candidate’s whole self, his feelings, tastes, points of view, youth, culture.
This ability to communicate is deep self may express itself in many ways wide range of effective vocabulary, original approach, vivid and sustained account in the case of a debate or discussion. Errors and slips should not deprive the candidate of the full marks he deserves. A very definite spark.

2. **Introduction – (2mks)**
   Body: Points of interpretation;

- The kind of parenting by Mama Milanoi and her husband does not herald peace and trust in their family.
- The girls desire to join the university does not receive any attention from the parents. The girls get emotionally affected as a result.
- Ole Kaelo's acerbic/stinging tongue is a source of discomfort to his daughters. They enjoy hi absence from the house.
- The parents secretly conspire to marry off Resian to Oloisudori, which leads to her escape from home and her misery. This betrays her trust.
- Resian is fully aware that the father loves Taiyo and hates her.
- Reasian is always on the receiving end, being cajoled and criticized for this or for that by the father. She knows no peace in the family.

(Any 4 well explained points x 3)
Conclusion – 2mks
Language A-4
B – 3
C – 2
D – 1 (20mks)

3.

a. Inheriting a top seat without merit only invites ridicule from subjects.

Introduction:

- In the Inheritance, Mulwa exposes the vices in Kutula colony by Lacuna and his government in a rather exaggerated manner as discussed below. King Lacuna abuses power and takes advantages of his position to exploit and oppress his subjects. He orders the killing of anyone who opposes his leadership. He askedJuda Zen Melo to kill his brother Bengo who is an activist and a threat to his leadership.When he refuses, he faces the consequences by being sacked and evicted from the government house and his car is taken away. He is also forced to sell his farm to Lacuna's Cronies for peanuts and the wife is forced to work in the same farm to make ends meet.
- His leadership is also satirized when he uses money meant for the country's economic grown for his own selfish gains. He buys an aircraft and deposits the rest in his own account in the same banks that lend the money.
- His greed for power is highly satirized. It is ridiculous that he takes his father's life so that he can get to power. He colludes with the imperialiststo poison his father so that he is installed the new king.
- The imperialists are also satirized. Their despising and demeaning attitude towards the blacks is highly criticized.
- It is laughable that the financiers justify such conditions in the name of helping the people. It is expected that financiers would be sensitive and practical in their demands.
- Others satirized include kings cronies like chiparde and government officials who worship him, and are ready to do anything to please him.

Conclusion

From the above discussion, it is quite clear that the author has satirized the poor leadership and the resulting predicaments.

Mark Introduction 2
Conclusion 2
Body 12
Language 4
Total 20

Any 4 well illustrated points. (3:3:3:3) = 12

b. Memories we lost

Introduction

Every writer sets out to pass a certain message or communicate a particular issue to the audience through their work. Benjamin highlights a few concepts in the story “window seat”

a. Lawlessness our roads, vehicles should always follow traffic rules on the roads for safety in this story law and order on roads is not followed as it should be.e.g public transport vehicles are overloaded. The narrator says a min-van meant for ten passengers now carry twenty four of them. It is even worse in the rush hour.
b. Bribery and corruption-drivers bribe policemen in order to get away with crime. Even when things seem to be okay with the vehicle the policemen solicit for bribes is an extent of removing the car keys from ignition. The bribe is a very powerful voice that the police use to silence the adamant drivers.
c. Suffering a passengers. The narrator says that one learns not to commit to a long road because of discomfort. However they don’t seem to care or they are used to it. They even smack their lip s loudly when the policemen take bribes but they don’t take any step. It is even because of overloading that makes it easy for Kenga to rob the narrator.
d. Poverty people at the bus stop are said to be in sandals and others are barefoot; this means they cannot affordbetter shoes. The passengers could be suffering in silence. In the overloaded daladala because of poverty. This is because they pay less money for fare.The narrator describes Kenga that she has a trim figure probably caused by a lifetime of hardwork and deprivation of luxuries. It also possible that she stole from the narrator because she is poor.
e. The word Mzungu means a white men. The Africans call them this to mean he is from the white race. The Africans see the narrator as more superior than them and use even a spectacle that he is using the public. When the guard greets him at the city Chui, everybody turns to see him Africans perceive the white men as rich and wealthy that’s why Kanga robs him in the vehicle. The narrator chooses to date Monique a French girl because she is from their race. He says “I should be with the France girl la fille because French woman are absolutely like American men.

Conclusion

Major issues that can be related to our day today life’s are highlighted in the story. Such issues such as poverty, lawlessness on our roads and poverty need to be dealt with for better life.

Mark 4 well illustrated points
Introduction 2mks
Content 12mks
Conclusion 2mks
Language mark 4mks

c. **The Pearl by John Steinback**

Sample introduction

Greed is evident throughout the text as exhibited from the actions of various characters in the text. Kino, a pearl fisherman finds superb pearl. News of this great discovery spread to admiration and greed for the pearl in equal measure.

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Points to consider

The priest on hearing about the finding of the pearl starts to think of the need for church repairs. He wonders whether Kino and Juana have been properly married (in church) and whether Coyotito has been baptized. As a result, he makes a trip toKon's village driven by greed to lay his,hand on the newly found fortune. His was an indirect approach.

After Kino finds the pearl, the doctor, who had a first refused to treat Coyotito, takes upon himself to deliver the medicine to 'cure'Coyotito. He injects Coyotito with a drug to ensure he is sick so as to later 'cure' him. While in the homestead, his darting eyes are focused on Kino to get a clue on where the pearl might be hidden. This shows his greedy nature.

The pearl buyers had opened different offices in town with a sole aim of exploiting the pearl fishermen. They had collaborated with an aim of buying the pearl at the cheapest price and when Kino fails to fall for their trap they dismiss his pearl of being of poor quality. This portrays their greed.

The pearl exposes Kino's family to so much danger. There are a number of attempts to end his life. Those responsible were driven by greed. they wanted to own the pearl due to its fortune. At the same time, Kino killed in self defense. His hut is burnt down and his boat is knocked. All this shows the greedy nature of the thieves who want to own the pearl.

Greed is also noted among the beggars who pinched camp outside the church. They also hope to benefit from pearl for they know there is no alms giver like a poor man who suddenly becomes rich. They believe that when Kino sells the pearl they will benefit.

The villagers followed every detail concerning Kino's pearl through Kino's brother Juan Toma. This shows some element of greed.

Conclusion

It is evident that greed for material wealth is inherent even in some cases where individual effort has not been raised.
Introduction 2mks
Body 3:3:3:3 12mks
Conclusion 2mks
Language 4mks
Total 20mks

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KISWAHILI KARATASI YA 2 Marking Scheme - 2019 K.C.SE Prediction Set 1

1. UFAHAMU
    a. Taja kichwa mwafaka cha makal haya
        - Chanzo na madhara ya ufisadi (1×2 = 2)
    b. Eleza kiini cha zimwi linalozungmziwa katika makala haya
        - Ubepari - watu kumiliki kila kitu
        - Wafanyakazi kutolipwa vizuri hivyo kutafuta njia mbadala ya kutosheleza mahitaji yao
        - Serikali kutovalia njuga swala hili
        - Watu kuongozwa na tamaa (4×1 = 4)
    c. Thibitisha kwamba ufisadi ni 'kidonda ndugu'
        - Kulemaza utoaji wa huduma za serikali kwa wananchi
        - Usalama kudorora kwa sababu polisi wanashirikiana na wahalifu
        - Wanachi wengine kutoajiriwa kwa kutoa hongo
        - Kukosa wawekezaji hivyo uchumi kuathirika (4×1 = 4)
    d. Eleza namna uchumi umelemazwa kwakuwepo ufisadi
        - Serikali kukosa ushuru
        - Wawekezaji kutofika/kukwepa nchi (2×1 = 2)
    e. Toa maana ya
        i. Utashi - tamaa/hiari ya kutendo/hamu ya kutaka/shauku
        ii. Kadhongo - hongo/mlungula
        iii. Kutovalia njuga - kupuuza/kutofuatilia jambo kwa makini (3×1 = 3)
2. UFUPISHO
    a.
        - Watoto wa maskini hushinda njaa shuleni
        - Walimu wao hwana ari ya kufunza kutokana na mazingira mabovu ya kufanya kazi
        - Watoto hawa huvaa matambara yenye viraka
        - Tatizo hili limetokana na utandawazi na mfumo wa soko huru unaoruhusu shule za kibinafsi kuendeshwa kibiashara
        - Shule za kibinafsi zina mazingira na vifaa vya kutosha
        - Asilimia kubwa ya wanafunzi wanaojiunga na shule za upili hutoka shule za kibinafsi ambazo huendeshwa kibiashara
        - Juhudi za wizara ya elemiu hazijafua dafu/matajiri wajanaj husajili watoto wao katika shule za mashambani
        - Shule za kibinafsi huwa na idadi ndogo ya wanafunzi/makundi madogo madogo ya wanafunzi
        - Nafasi zote katika shule za upili za kitaifa na vyuo huchukuliwa na watoto wa matajiri.
        - Nafasi ya mtoto maskini inazidi kudidimia (7×1 = 7)
    b.
        - Mikakati ya kimakusudi inahitajika kabla ya balaa kuzuka
        - Ujenzi wa shule vielelezo unahitajika katika kila wilaya/gatuzi
        - Shule za umma ziwe na mpango wa lishe bora
        - Utu unahitahika katika uteuzi wa wanafunzi katika ngazi mbalimbali
        - Shule za umma zinahitaji walimu na madarasa ya kutosha
        - Kuanzishwa kwa mpango lazima wa elimu bila malipo katika shule za msingi
        - Sera kuhusu shule za chekechea lazima izinduliwe kitaifa
        - Shule za malezi ziwe za viwango sawa ili kila mtoto awe na msingi bora wa

elimu/maandalizi sawa
- Mitaala yetu ilenge kuzalisha binadamu ambaye atajinufaisha yeye kibinafsi na taifa kwa jumla (6×1 = 6)

3. MATUMIZI YA LUGHA

a. Nyumba yake **haina** milango mikubwa **wala** mapambo mengi (2×1 = 2)

b.
- Mtoto wa mrejelewa ndiye mnunuzi wa ng'ombe/badala/niaba yake
- Alinunua ng'ombe na ndama
- Alinunuliwa n'ombe na mtoto wa mrejelewa (mtoto wa mtu)
- Alinunuliwa ng'ombe kwa gharama ya ng'ombe na mtoto wake
- Yeye na mtoto wake walinunuliwa ng'ombe

c. S → KN + KT
KN → N + S
N → Wanafunzi
S → Wasiofuata maagizo
KT → T + KN
T → Watapata
KN → N+ S
N → alama
S → ambazo zitawaudhi

d.
i. Ni maneno ya kuliwaza; pole
ii. Mtu anayekabiliwa na tatizo au kasoro fulani na hana nia ya kujinasua kwayo au mtu anapewa uwezo/talanta asiyohitaji

e.
i. Kirai ni fungu la maneno ambalo hudokeza maana lakini maana hiyo si kamili au fungu la maneno lisilo na uhusiano wa kiima na kiarifu
Au
Fungu la amaneno ambalo haunishwa kwa kuzingatia neno lake kuu. K.m. Kivumishi ndilo neno kuu katika kirai kivumishi
ii. Wale wasichan watundu - kirai nomino
chini ya - kirai kihusishi

f.
- Sentensi amrishi/agizi/sharuti
- Sentensi za rai/ombi
- Senetensi za sharuti/masharti
- Sentensi hisishi (atoe mfano wa sentensi - aina ½ mfano ½)

g.
i. "Mtakaporudi nyumbani ogeni(muoge), mle halafu muanze kusoma punde tu badala ya kupoteza wakati wenu kwa kutazama vipindi vya runinga." Mwalimu aliwaambia wanafunzi wake. "Tena wanaofanya maonyesho kwenye runinga tayarai wamefuzu vyuoni na wameajiriwa kazi." ($^1/_3$ ×12 = 4)
ii. Mwalimu aliwaambia wanafunzi wake, "Mtakaporudi nyumbani, mwoge, mle halafu muanze kusoma punde tu badala ya kupoteza wakati wenu kwa kutazama runinga. Tena wanofanya maonyesho kwenye runinga tayari wamefuzu vyuoni na kuuajiriwa kazi" ($^1/_3$ ×12 = 4)

h. Tulipokiona kilikuwa kikisoma kitabu (½ × 4 = 2)

i. Kiambishi -KI
- Kunuesha udogo kwa mfano;- kijitu
- Ngeli ya KI-VI (KI-umoja VI - wingi)

- Kiambishi cha mfananisho kwa mfano: Anakula kifisi
- Kuonyesha kitendwa kwa mfano: Alikitoa
- Ukanushi kwa mfano: hakuendeki
- Vitendo viwili wakati mmoja kwa mfano : Alikuwa akipika, yeye akiosha nguo (½ × 2= 1)

j. Kiambishi - KU-
- Kitenzi nomino/ngeli kucheza
- Upatanisho wa kisarufi - kulitufurahisha
- KU - mahali kusikodhihirika - huku
- Ukanusho wa wakti uliopita - hakufurahi (½ × 4= 2)

k. Kishazi tegemezi ni kishazi ambacho hakiwezi kutoa maana iliyokusudiwa kikiwa peke yake. Hutegemea vishazi vingine ili kuleta maana. Kwa mfano, Kazi ilipofanywa, alifurahi

l. Mgeni anatuandalia chakula sasa hivi (2× 1 = 2)

m. Mshazari/mkwaju
- Katika uandishi wa kumbukumbu - kumb 2/7/17
- Kuonyesha visawe - aila/familia
- Kaudnika tarehe - 28/02/1992
- Kuonyesha au/ama - kisu/kijiko (2× 1 = 2)

n.
i. Mofimu ni kipashio kidogo zaidi cha lugha chenye uamilifu wa kisarufi (1× 1 = 1)
ii. A-li-kimbi-li-a
li-wakati uliopita
li- kauli ya kutendea

o.
i. Shadda ni mkazo unaotiliwa kwenye silabi ya neno ili kuleta maana fulani au nguvu inayotumika katika utamkaji was silabi
ii. Kata'kata - kuwa vipande vipande
iii. 'Katakata - kabisa kabisa (nahau)

p. Vitate
i. Vuka - toka upande mmoja hadi upande wa pili; kiuka
ii. fuka - toa moshi; uji mwepesi unaopewa mwanamke aliyejifungua.
kwa mfano , Alivuka mto ili kuelekea ng'ambo alipoona nyumba yake inafuka moshi (2× 1 = 2)

q. Shirika
Kwa mfano, wafanyikazi wa **shirika(N)** hili hufanya kazi **kwa ushirika (E)** ili wafanikiwe (2× 1 = 2)

r. nomino dhahania
-cha: uchaji

s. /ch/ - kipasuo-kikwamizo/kizuio-kwamizo
-hafifu/sighuna
-kaakaa gumu (2× ½ = 1)

4. ISIMU JAMII

a. Kiswahili ni kibantu
- Kiswahili kina irabu tano kama zilivyo lugha zingine za kibantu
- Muundo wa msamiati wa Kiswahili huchukua mtindo wa: Konsonanti Irabu (KI)
- Mpangilio wake wa nomino hukitokeza katika lugha nyingine za kibantu
- Wageni waliita upwa wa Afrika Mashariki sahili - wingi wake siwahili
- Ushahidi wa kihistoria unaonyesha kuwa wasafiri wa kale kama Ibn Batuta wamnukuliwa kutaja majiana ya Kiswahili kama 'Mkono wa tembo', kisukari, majina haya hata sasa yanatumika

- Kutokana na maoni ya fasihi simulizi, asili ya Kiswahili ni Kiongozi. Mashairi ya Hamziya yaliyoandikwa katika karne ya 18 yaliandikwa kwa kingozi
- Jamii nyingi za waafrika zina koo zao. Halikadhalika Waswahili wana jamii zao ambazo huunda jamii kubwa ya Waswahili. Kwa mfano, wabarawa, Wasiu, Wangazija na Wajomvi (4× 1 = 1)

b. Istilahi katika Isimu Jamii

i. **Uwili lugha na ujozi lugha**
Uwili lugha ni uwezo wa kujua na kutumia lugha mbili
Ujozi lugha - Uwezo wa kujua na kutumia lugha mbili sawia. Umilisi wa lugha mbili katika viwango sawa

ii. **Lafudhi na Lahaja**
Lafudhi ni upekee wa matumizi ya lugha ya mtu binafsi
Lahaja ni vijilugha mbali mbali vya lugha moja

iii. **Sajili na msimbo**
Sajili ni matumizi ya lusha katika mazingira/miktadha maalum
Msimbo ni utaratibu wa kutoa mawasiliano (2× 3 = 6)

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KISWAHILI KARATASI YA 3 Marking Scheme - 2019 K.C.SE Prediction Set 1

1.

a.

i. Semi ni kauli fupi za kisanaa ambazo hubeba ujumbe au mafunzo yaliyofichika. (1x1=1)

ii. Sifa nne za misimu

- Misimu ni semi ambazo huibuka na kutumiwa na kundi la wanajamii kwa kipindi kifupi kisha hutoweka.
- Misimu ni semi au msamiati ambao huibuka kisha hutoweka
- Misimu hutumika na kundi ndogo la wanajamii kuwasiliana
- Misimu huwa na maana fiche.
- Baadhi ya misimu huja kukubalika kama msamiati sanifu.
- Misimu huundwa kwa mbinu mbalimbali kama vile utohozi, au kugeuza mpangilio wa neno.
- Maana ya misimu hutokana na watumiaji, mahali na wakati. (za kwanza 4x= 4)

b.

i. Nyiso (1x1= 1)

ii.

- Nyiso huhimiza ujasiri na kudharau woga.
- Nyiso huwaandaa kihisia wanaotahiriwa kwa kuwapa .....ya kukabiliana na kisu.
- Nyiso huwafahamisha wanaotahiriwa kuhusu majukumu yao mapya katika jamii.
- Nyiso huhimiza uzalendo wa ufahari wa utamaduni husika.
- Nyiso huwaburudisha waliohudhuria.
- Nyiso huongeza furaha ya wavulana kuvuka kutoka utotoni hadi utu uzima.
- Nyiso hutoa ushaurikwa vijana. (za kwanza 4x1= 4)

i. Mivigha ni sherehe za kitamaduni ambazo hufanywa na jamii katika kipindi maalum cha mwaka. (1x2= 2)

ii.

- Mivigha hufanywa kwa sababu maalum.
- Mivigha huongozwa na mtu au watu maalum.
- Mivigha huandamana na matendo Fulani k.v kupiga magoti. kunyolewa n.k
- Baadhi ya mivigha huandamana na maleba maalum.
- Mivigha hufanyiwa mahali maalum.
- Sherehe za mivigha huandamana na utoaji mawaidha kupitia hotuba, nyimbo au maigizo (za kwanza 4x1= 4)

d.

i. Fasihi simulizi hukumbwa na ushindani kutoka kwa fasihi andishi.

ii. Fasihi simulizi huathiliwa na ukosefu wa utafiti wa kutosha.

iii. Watu huwa na mielekeo hasi kuhusiana na fasihi simulizi.

iv. Kuna uhaba wa walaalamu wa fasihi simulizi.

v. Kusahaulika kwa baadhi ya vipera.

vi. Wakati mwingine fasihi simulizi huhusishwa na ushirikina au kutostaarabika. (za kwanza 4x1= 4)

2.

a.

i. Ni maneno yake mwangeka
ii. Anamwambia Ridhaa
iii. Wamo katika uwanja wa Kimataifa wa Ndege wa Rubia.
iv. Ni baada ya kuyakumbuka maneno ya Tila kuwa haifai kucheza na uwezo wa vijana katika jamii (4x1=4)

i. Tashibihi – wao ni kama nanga.
ii. Jazanda –merikebu inasimamia taifa la wahafidhina.
iii. Taswira – Picha ya merikebu inayozamishwa. (2x2=4)

c. Jinsi vijana walizamisha merikebu ya wahafidhina

i. Genge la wavulana watano linawabaka lime na mwanaheri kwa kukisia kwamba wazazi wao hawakumpagia kwa mwanzi.
ii. Wanazorotesha usalama kwa kumvamia Subira na kumkata kwa sime kwa kumdhania kuwa hakumpigia kura Mwanzi.
iii. Vijana wanawavamia abiria barabarani wakiongozwa na kijana aliyekuwa amevaa shati lenye maandishi “Hitman” na kuwachomea ndani ya magari.
iv. Wanayachoma magari barabarani.
v. Sauna awaiba watoto wake Lunga-Dick na Mwaliko na kuwatenga na dada yao Umu.
vi. Pete anameza vidonge ili kuavya kitoto chake cha pili ila hakufanikiwa.
vii. Zohali anajiingiza katika mapenzi na kupata mimba akiwa kidato cha pili.
viii. Wanawe Kiriri wanakataa kurudi nyumbani. Kutoka ughaibuni walikoenda kusoma.
ix. Vijana wanamdhalilisha Mwekevu baada ya kuibuka mshindi katika uchaguzi.
x. Kipanga anaachia masomo kidato cha pili na kuanza kunywa kangara –ananusurika kifo.
xi. Wanafunzi shukeni –anakomesea Ridhaa, wanaendeleza ukabila dhidi ya wanafunzi walowezi.
xii. Vijana wanapokea hongo kutoka kwa wanasiasa kama papa iti wawachague, hivyo kuimarisha uongozi mbaya.
xiii. Vijana wasichana wanajifungua watoto na kuwatupa kwenye majaa ya taka kama Yule aliyeokolewa na Neema.
xiv. Wanavunja sheria kwa kuandamana huku wamebeba picha za Mwanzi na kumhimiza atawale ingawa alikuwa ameshindwa n.k (6x2=12)

3. Baada ya dhiki faraja. Onyesha vile ukweli wa methali hii unavyodhihirika kwenye riwaya

i. Ridhaa anapata uchungu baada ya mali yake kuteketezwa, na kuwa mkimbizi. Anarejea hali ya kawaida baadaye anapojenga kituo cha afya cha mwanzo mpya.
ii. Ndugu Kaizari anapitia adha mbalimbali na kuishia katika kambi ya wakimbizi. Baadaye anaajiriwa na Ridhaa katika kituo cha afya kama Afiza wa matibabu.
iii. Salome anafurushwa kwa mumewe kwa sababu ya ukabila na kuwa mkimbizi. Mwishowe anajiunga na kitui cha afya cha mwanzo mpya kama muuguzi.
iv. Zohali anaringwa akiwa kidato cha pili na kusimangwa na wazazi wake. Baadaye anajifungua salama na kurejea shuleni.
v. Mwangeka anasononeka kwa kumpoteza mkewe Lily na mwanaye Becky. Baadaye

anamwoa Apondi na kuishi kwa raha.

vi. Apondi anaishi kwa woga wa kuhusiana na mwanamume wingine kwa miaka sita lakini baadaye anakutana na mwangeka na kufunga nikaha.

vii. Pete anakataliwa na babake, kuozwa kwa lazima, kujaribu kuavya na kujitia kitanzi. Baadaye anawaza jinsi ya kuboresha maisha yake bila kujjidhalilisha.

viii. Maisha ya Umu yamejaa mateso-kuachwa na mama, kufa kwa babake na kutoroshwa kwa ndugu zake, Dick na Mwaliko. Baadaye anaishi kwa raha nyumbani mwa Mwangeka, kusoma na muhitimu kama mtaalamu wa Zaraa.

ix. Dick anaingizwa katika ulanguzi wa dawa za kulevya. Hatimaye anaanza biashara yake mwenyewe –kuuza vifaa vya umeme.

x. Mwaliko anaibwa na sauna na kuishia mikononi kwa Bi. Kangara. Baadaye anaokolewa na polisi na kupelekwa kwa kituo cha watoto ambako anapangwa na Mwangemi.

xi. Mwangemi na Neema wanaishi bila mtoto baada ya kifo cha Bahati. Hata hivyo wanafaulu kumpanga mtoto mvulana, Mwaliko.

xii. Chandachema anaishia kuchuna majani katika shirika la chai la Tengenea baada ya kumpoteza nyanyake. Baadaye anaokolewa na kupelekwa katika makao ya watoto mayatima anakoendeleza masomo. n.k (10x2=20)

4.

a.

i. Msemaji ni Majoka

ii. Anamwambia Kingi

iii. Wako mkutanoni nje ya soko la Chapakazi.

iv. Majoka mlinzi wake Kingi na mshauri Kenga wameuvamia mkutano uliokuwa ameandaliwa na Tunu ili kuendeleza harakati za kupinga uongozo wa Majoka (4x1=4)

b. Fafanua kwa hoja nane kuwa msemaji wa maneno haya anafaa kuaibishwa.

i. Majoka analifunga soko la chapakazi kwa mwezi mmoja kwa madai ya kusherehekea uhuru…ilikuwa tegemeo.

ii. Chini ya utawala wake soko linachafuka huku taka na kemikali zikitapakaa kote.

iii. Anabinafsisha raslimali za umma na kuwaachia wanasagamoyo masalio-keki ya uhuru inaliwa na wachache.

iv. Anakopa mikopo kutoka nje na kuviachia vizazi vya usoni mzigo wa kulipa.

v. Anaingilia ndoa za wanajamii. Anamtaka Ashua kimapenzi japo anajua ni mkewe Sudi.

vi. Anatumia raslimali za umma kuwahonga wachonga vinyago vya mashujaa ambao anatambua.

vii. Anatumia vyombo vya usalama kuwakandamiza waandamanaji ambao wanajaribu kudai haki zao.

viii. Anakiuka haki za wafanyakazi kwa kuwapa mishahara duni huku akiwatoza kodi.

ix. Majoka anaruhusu ukataji miti hali inayosababisha ukame na ukosefu wa chakula.

x. Majoka anawatumia vijana vibaya ili kukidhi mahiataji yake ya kisiasa –wanatumika kama wahuni kuwashambulia wapinzani wake.

xi. Majoka anaruhusu biashara ya upishi wa pombe haramu licha ya kuwa kinyume cha sheria. nk. (8x2=16)

5.

a. Jadili jinsi kumi ambazo kwazo maudhui ya ukatili yanajitokeza katika tamthilia ya Kigogo.

i. Majoka analifunga soko la chapakazi ambalo ni tegemeo la raia wa Sagamoyo.

ii. Majoka anawaita viongozi wa vyama pinzani ambao wanaupinga uongozi wake.

iii. Majoka anawaua wahuni ili wamshambulie Tunu.

iv. Majoka anamweka korokoroni Ashua kwa kuwa alikataa vishawishi vyake vya

kimapenzi.

v. Kuruhusu upikaji pombe haramu kwa mamapima pasipokuhofu madhara yake.
vi. Kuwaingiza vijana katika matumizi ya mihadarati katika Majoka na Majoka Academy.
vii. Kuwatishia kifo wanaokiuka amri na njama zake mbovu k.v Chopi.
viii. Kuamrisha waandamanaji wapigwe risasi na askari.
ix. Kuwatisha kumfuta kazi Kingi kwa kukosa kutekeliza amri yake.
x. Kukataa kutoa msaada wa chakula kwa watoto wa Ashua.
xi. Kujaribu kumshawishi Ashua ashiriki naye mapenzi naye kama kisasi.
xii. Kumwinjikia kisasi Sudi alipokataa kuchonga kinyago cha Morara (za kwanza 10x1=10)

b. Mifano ya matumizi ya kinaya katika tamthilia ya Kigogo

i. Ni kinaya kwa Majoka kusema anampenda Ashua ilhali anakataa kumsaidia kwa chakula.
ii. Ni kinaya kwa Kenga kufika katika karakana na kuwaeleza akina Sudi kuwa alikuwa ametembea kwa manufaa yao.
iii. Ni kinaya kwamba Majoka alimwoa Husda bila kumpenda.
iv. Majoka hakuhuzunishwa wala kushughulikia mazishi ya Ngurumo ilhali alikuwa rafiki na mafuasi wake Sugu.
v. Kenga anabadilika mwishoni na kuanza kumpinga Majoka ilhali hapo awali alikuwa mfuasi wake.
vi. Ni kinaya kuwaona askari wakiwapiga waandamanaji badala ya kulinda usalama wao.
vii. Ashua anasema kwamba anampenda Sudi lakini anapokuwa korokoroni anasema kuwa ataomba talaka . Kadiria (5x2=10)

6.

a. Mapenzi ya kifaurongo

i. Vijana ni wasomi -Dennis na Penina Chuoni.
ii. Vijana ni wategemezi – Penina kwa wazazi /Dennis kwa Penina
iii. Vijana ni wabadhirifu –Penina anatumia pesa nyingi kila wiki (5,000/=)
iv. Vijana ni wenye mapenzi – Dennis kwa Penina.
v. Vijana ni wenye usasa na anasa – wanachuo wanashiriki raha huku wakitumia vifaa vya kisasa kama Ipad.
vi. Vijana ni waathiriwa wakuu wa uhaba wa kazi –Dennis (5x1=5)

b. Shogake Dada ana Ndevu

i. Vijana ni wasomi –Safia
ii. Vijana ni waongo –Safi
iii. Vijana ni wanafiki –Safia na kimwana wanajifanya wacha Mungu kwa kujifunika.
iv. Vijana ni wazinzi – Safia na Kimwana
v. Vijana ni wajanja – Safia na Kimwana
vi. Vijana wamechorwa kama wakatili –Safia anaavya mimba.
vii. Vijana wamechorwa kama wasiri-Safia (5x1=5)

c. Mame Bakari

i. Vijana ni wasomi –Sara anabakwa akitoka masomo ya ziada.
ii. Vijana wamesawiriwa kama wenye visasi –Sara anafikiria jinsi angemwadhibu mbakaji wake.
iii. Vijana ni wabakaji – Sara anabakwa na janadume.

iv. Vijana ni wenye siri –Sara na Sawira wanaficha siri ya ujauzito wa Sara.
v. Vijana ni wafanya kazi –Beluwa ni daktari wa uzazi.
vi. Vijana ni wasaliti – Beluwa alivunja ahadi ya kujicha siri ya ujauzito wa Sara. (5x2=10)

a. Muktadha wa dondoo hili
   i. Msemaji ni Mashaka
   ii. Anarejelea hali yake ya maisha ya kimaskini katika mtaa wa Tandale.
   iii. Maisha yake ni yenye shida kuanzia kuzaliwa, kuelewa, ndoa .
   iv. Ameachwa na mkewe na amefika mwisho wa subira na kilichobaki ni kufa –hajui mwisho wa mateso yake. (4x1=4)
b. Mbinu mbili za lugha zilizotumika.
   i. Swali la balagha – Hadi lini haya mashaka ya kutengenezwa?
   ii. Nidaa- hisia za ndani za mashaka zinadhihirika anaposema “Mashaka ya Mashaka!” (2x2=4)
c. Mambo yanayomfanya mrejelewa ajaribu kufa.

   i. Maisha ya Mashaka yametawaliwa na mateso na maonevu.
   ii. Mashaka anatoroshwa na mkewe waridi kwasababu ya umaskini.
   iii. Anaishi katika kibanda duni – Mtaa wa Tandale.
   iv. Ameajiriwa na Kampuni ya ulinzi ya ZWS kwa mshahara duni.
   v. Mashaka amefikia kiwango cha kujichukia kwa sababu ya nafasi yake katika jamii.
   vi. Mamake aliaga dunia kabla ya kumtia machoni
   vii. Anampoteza babake kutokana na ukiwa.
   viii. Anasoma kwa dhiki.
   ix. Analazimishwa kufunga ndoa na mzee Rubeya bila mpango wowote.
   x. Anaishi maisha ya dhiki mikononi B. Kedebe ambapo analazimika kufanya vibaswa.(za kwanza 6x2=12)

8.

a. Ni shairi huru/guni. Hii ni kwasababu halijafuata kanuni za utunzi wa mashairi. (1x2=2)
b. Toni ni ya matumaini/himizo (1x2=2)
c.
   i. Tashihisi/huhuishaji –azma yanisukuma
   ii. Kinaya –Unyoofu ambao unatisha zaidi
   iii. Mbinu rejeshi –jambo moja nakumbuka, kama niendelee kumwomba Mungu.
   iv. Tanakali za sauti – nimechoka tiki.
   v. Nidaa –nashangaa tena! (za kwanza 3x1=3)
d.
   i. Inkisari –anasema naona badala ya ninaona/yaingia n.k
   ii. Kuboronga sarufi –Ikiwa wangu mwisho badala ya ikiwa mwisho wangu (2x2=4)
e. Dhamira ya mtunzi ni kuwapa /kuwahimiza wanaopitia matatizo maishani wasife moyo bali waendelee kujikaza na baadaye watafanikiwa. (1x2=2)
f. Mimi ninaamini kwamba ni lazima niendelee kutia bidii katika kila jambo ninalofanya. Nifanye juhudi kuifuata barabara ingawa ina matatizo mengi. Iwapo nitaingia kwenye shida nitafanya bidii ili nijitoe humo. Nina imani kwamba nitafanikiwa kama sitafariki mapema. (4x1=4)

   i. Siha –afya
   ii. Machweo –Jioni
   iii. Kujinasua –Kujiondoa/kujitoa (3x1=3)

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BIOLOGY PAPER 1 Marking Scheme - 2019 K.C.SE Prediction Set 1

1.
   a. iodine solution;
   b. Benedicts solution;
   c. DCPIP;

2.
   a. photosynthesis;
   b. Respiration;
   c. Protein synthesis;

3. Total mg = eye piece magnification X objective lens magnification;
   400 = 40 × x;
   $^{400}/_{40}$ = x;
   10 = x
   Eye magnification is ×10;

4.
   a. Prevents collapsing of trachea;
   b. Traps dust / bacteria;
   c. Propels solid particles/dust towards pharynx;

5.
   a. Using an organism to control other organisms;
   b. Because energy is lost between trophic levels; due to respiration; /excretion/urination; and defaecation;
   c. Some remains locked up indead bodies;

6.
   - Cohesion and adhesion;
   - Transpiration pull;
   - Capillarity;
   - Root pressure;

   Rej cohesion, adhesion alone any 3x1 = 3 marks

7.
   a. Oxyhaemoglobin;
   b. (Weak) carbonic acid/carbaminohaemoglobin/hydrosa carbonate; ***acc*** bicarbonate ions HCO^-_3
   c. Carboxyhaemoglobin.

8.
   a. bacteria;
   b.
      - transmits diseases;
      - used in fermentation of milk;
      - add nitrogen to the soil through nitrogen fixation; e.g. Rhizobium
      - Help in decay hence circulate nutrients;

      Mark first three 3 x1 = 3 marks
   c. Nucleus /organelles are not membrane bound;

9.
- Lignified walls to prevent it from collapsing;
- Narrow to facilitate upward movement of water by capillary action;
- No cross walls to facilitate formation of continuous water column;
- Have bordered pits for lateral movements of water;

Mark first three 3x1= 3 marks

10. To increase oxygen supply; to tissues which oxidizes lactic acid; (Lactic acid is poisonous and must be removed)

11.
a.
- Maintaining proper personal hygiene
- Boiling /treating water;
- Depositing stools in deep latrine;
- Treating sewage; ***mark any 2***

b. Clearing bushes; sleeping under mosquito nets; draining stagnant water; rearing fish in fish ponds; use of mosquito repellant jells/mosquito coil/insecticides; ***mark any 2***

12.
- (Chitinous) exoskeleton;
- segmented bodies;
- jointed appendages ***mark first three***

13.
a. Glucose; ***Starch1 mark***

b. Traps light; used in photolysis/to break water into oxygen gas and hydrogen ions; (***2 marks)***

14.
a. Protandry; OWTTE

b.
i. Protogyny;
ii. Heterostyly ***mark first 3***

15.
- manufacture of alcohol/wines/beer;
- baking;
- Fermentation of milk;
- Manufacture of Ethanoic acid/vinegar;
- Treatment of sewage; ***mark fist three***

16. To increase surface area; for attachment of respiratory enzymes;

17. For storage of carbohydrates/glycogen;***Rej glucose,*** detoxification; Deamination of excess amino acids;

18.
a. Glucose
b. Gland - Pancrease;
Hormone – Insulin;
c. Diabetes mellitus; ***Rej diabetes inspidus and diabetes alone***

19. Procreation; Improves the quality of a species;

20.
    i. Desert /semi - desert/arid areas /semi arid areas;
    ii. Fresh water;
    iii. Marine /salty water;

21.
    a. Have cusps; are ridged with flat surface; increased surface area; for chewing food; ***mark any two***
    b. Dental carries; gingivitis; pyorrhea; ***mark first two***

22.
- has a long tail that aids in locomotion;
- Middle piece has many mitochondria to generate energy (for locomotion)
- Acrosome has lytic enzymes to dissolve ovum wall for penetration of sperm;
- Large nucleus preserves genetic material; ***mark any three***

23.
    a. K is smooth while L is rough;
    b. K – wind; L – Insect;

24. Water vapour accumulates in the depression of stomata; lowering water vapour concentration gradient ;(leading to reduced rate of transpiration)

25.
    a. Mammalia; *Rej mammal*
    b. Insecta; *Rej insect/ insector*
    c. Arachnida; *Rej arachnid* ***Rej wrong spelling for all***

26.
    a. synapsis /pairing of homologous chromosomes;
    b. crossing over ;hence variation in offspring;

27. Salt exerts osmotic pressure on the cells of grass; Water is drawn from the cells by osmosis; the cells loose turgidity/become flaccid; further water loss dehydrates cells ;(hence kills the plant) 4 marks max 3 marks.

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BIOLOGY PAPER 2 Marking Scheme - 2019 K.C.SE Prediction Set 1

1.

a.

i. Protandry: condition in which stamen/anthers of a flower mature before the carpels/pistils/stigma;***(1 mark***

ii. Self sterility; pollen grains from anthers of a flower fail to germinate on the stigma of the same flower ; ***(1 mark)***

b.

i. Q- Antipodal cells/embryo sac wall;
R - Polar nucleus/nuclei;
S - Egg call/ovum ***3 marks***

ii.

- Secrete enzymes that digest the stigma/style/ovary tissue;
- Offer passage for male nuclei to the ovum; ***2 marks***

c. Award if correctly shown in the diagram; ***1 mark***

2.

a. Excess amino acids are deaminated/amino group is removed/amino group is converted in to ammonia; ammonia combines with carbon(iv) oxide(in the ornithine cycle) to form urea; carbohydrate group is converted into glucose for respiration/glycogen for storage;
$2NH_3+CO \rightarrow CO(NH_3)_2 + H_2O$ ***3 marks***

b. Glomerulus; Bowman's capsule; proximal convoluted tubule; distal convoluted tubule; 3 ***marks***

c.

i. Production of large amounts of dilute urine/diuresis; ***1mark***

ii. Diabetes inspidus; ***1mark***

3.

a.

i. Using a living organism to regulate/control/reduce/check the population of another organism; ***1 mark***

ii.

- Cats controlling mice;
- beetles controlling water hyacinth;
- fish in ponds controlling mosquito larvae;
- Majimoto ants controlling scales;
- goats controlling weeds in plantations; ***any 1 (1mark)***

b.

i. eutrophication is enrichment of water bodies with nitrates/phosphates/ammonium ions/sulphates/nutrients; due to discharge of sewage/domestic effluents/kitchen wastes containing detergents/run off water containing fertilizers; leading to rapid growth of surface plants/algae bloom/aquatic plants/phyloplanktons;
Acc symbols for ions (aq) must be present.
Rej kitchen wastes alone
Rej domestic wastes ***3 marks***

ii. (Proliferation of plants) block light from reaching plants underneath which will not photosynthesise; the plant die and decompose leading to depletion of oxygen/lack of oxygen ;(as a result) animals also die/suffocate (to death); Reg *organisms die* ***3 marks***

c. Nitrogen (IV) oxide; sulphur (IV) oxide;

Acc Nitrogen Dioxide and sulphur dioxide
Rej oxides of sulphur and nitrogen

4.

a.

- Broad and flat to absorb maximum light;
- Have chloroplasts which contain chlorophyll for trapping light;
- Transparent cuticle to allow light to pass through;
- Palisade cells are near the upper surface for optimum absorption of light; ***2 marks***

b. X - Carbon (IV) oxide;
Y – Oxygen;

c.

i. Xylem
ii. Phloem;

d. Starch is insoluble in water; hence osmotically inactive; this reduces the effect on absorption of water

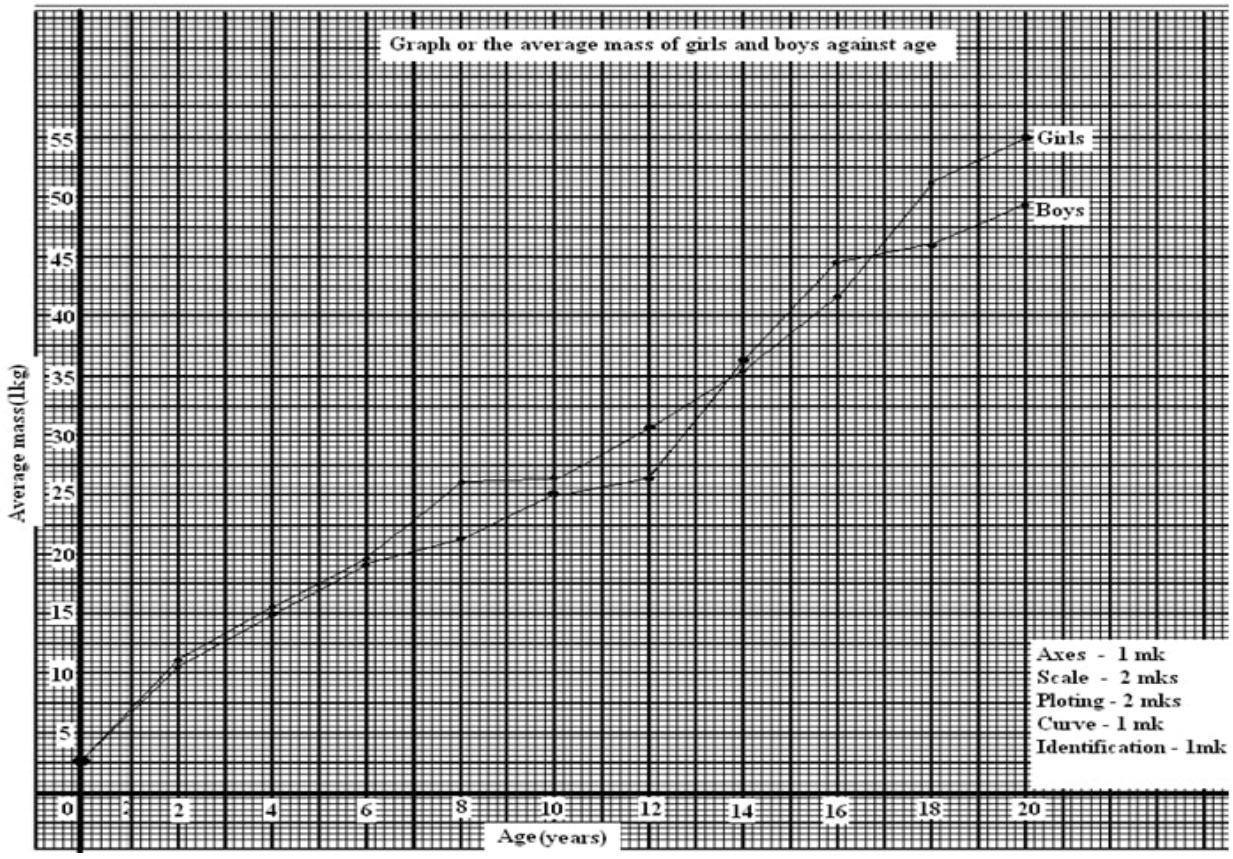
5.

a. Iodine solution was poured on the agar; ***1 mark***
b. Millet seeds produced amylase; that converts starch to maltose***2 marks***
c. To activate the enzymes; ***1 mark***
d. To increase surface area for exposure of enzymes; ***1 mark***
e. Starch would not be digested since the enzymes would be denatured by boiling;
f. Placing millet seeds that have not been soaked; in water on the agar/boiled millet seeds on the agar;

2 marks

6.

a.



b.
   i. 26 kgs± 0.5;
   ii. Girls 15 yrs − Girls 13 yrs = 39 − 33 = 6
   6 ÷ 2; = 3.0 kg/year;

c. Girls at adolescence grow faster; there is an increase in the size of hips and breasts;
d. Girls generally grow faster than boys /boys grow slowly compared to girls; but later after puberty they grow more steadily.
e. Girls above ten years begin the menstruation cycle; they need more iron to replace the blood lost during menstruation;
f. Height of the body; volume of the body;

7. Mouth;

- With teeth for chewing to increase the surface area for digestion and easy swallowing
- Has salivary gland which secrete saliva to soften and lubricate food for easy swallowing
- Has muscular tongue to turn food sideways for proper mixing with saliva and chewing
- Rolls food in to boluses and pushes them down the gullet
- Saliva has saliva amylase to initiate digestion of starch;

Oesophagus;

- Has circular and longitudinal muscles to propel food in to the stomach by peristalsis

Stomach;

- Has circular and longitudinal muscles to propel food in to the stomach by peristalsis
- Has cardiac sphincter muscles to allow/regulate food into the stomach
- Pyloric sphincter to retain food for digestion in the stomach
- With gastric glands that secrete mucus to protect wall of the stomach from digestive enzymes; enzymes pepsin and rennin to digest proteins;hydrochloric acid to kill bacteria in food;and provide optmum PH for protein digestion,activation of pepsnogen
- With muscular walls whose contaction churn/mix chyne with digestive enzymes.

Duodenum

- With brunners glands in its walls to produce alkaline fluid and mucus
- Has crypts of lieberkuhnwhose cells produce digestive enzymes
- Is connected to the pancrease and the liver which supply pancreatic juice and bile respectively
- Bile emulsifies fats and neutralizes the acid from the stomach. Pancreatic juice contains digestive enzymes/pancreatic lipase, pancreatic amylase and Trypsin that acts on lipids, starch/amylase and proteins respectively.

Ileum

- Long to allow complete digestion and absorption of food
- With villi and microvilli to increase surface area for digestion and absorption
- Folded to increase surface area for digestion and absorption
- Narrow to keep digested food in contact with epithelium to reduce distance over which food diffuses
- With moist inner surface to enhance absorption of nutrients
- With epithelical cells continuously replaced
- Has lacteals for fat transportation
- Has muscular walls for peristaltic movement of food

Colon

- Folded to increase surface area for absorption of water and mineral salts
- With muscular walls for peristaltic movement of undigested food

Rectum;

- Secretes large amounts of mucus for lubrication to aid defecation

Anus

- With muscular sphincter to control defecation

8. Causes of air pollution

- Sulphur and nitrogen dioxide ;; from industries
- Carbon (iv) oxide (from combustion of fuels in industries and motor vehicles);
- Dust and smoke (from quarries and factories)
- Radio active radiations(from atomic and nuclear plants)
- Agricultural chemicals used as sprays;
- Noise from factories and vehicles; ***mark any five***

Effects on organisms

- Sulphur dioxide/nitrogen dioxide/dust/smoke/carbon iv oxide and agricultural sprays cause respiratory diseases; and irritate respiratory systems;
- Nitrogen dioxide /sulphur dioxide combine with atmospheric moisture to form acidic rainfall which is corrosive; poisonsplants; lower metabolic activities/photosynthesis; acidic soils destroy vegetation.
- Dust/ smoke reduce amount of light reaching on the plant lowering photosynthesis;
- Carbon II oxide is a respiratory poison/combine with haemoglobin reducing oxygen carrying capacity of red blood cells;
- Carbon iv oxide causes green house effect by forming a layer around the earth's atmosphere/insulate the earth causing global warming/ change of climatic patterns;
- Radioactive radiation causes mutation and cancer;

Control methods

- Erect factories and power generating station from residential areas;
- Build factories with chimneys to discharge waste gases up the ground;
- Educate people on dangers of air pollution;
- Filtration of waste gases to remove poisonous pollutants before being discharged into the air;
- Use of alternative less polluting fuels like hydroelectric power/lead free fuels;
- Use smokeless fuels in houses and factories;
- Banning manufacture and use of chemical weapons;
- Impose heavy fines on air pollutors; (like factories)

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BIOLOGY PAPER 3 Marking Scheme - 2019 K.C.SE Prediction Set 1

1.

a.

FOOD COMPOUND	PROCEDURE	OBSERVATION	CONCLUSION
Starch	To $2cm^3$ of solution L add drops of iodine 1mk	Colour turns brown /yellow ½ mk	Starch absent ½ mk
Reducing sugar	To $2cm^3$ of solution L ,add benedicts solution and boil 1 mark	Colour changes from blue to green to yellow/orange ½ mk	Reducing sugars present ½ mk
proteins	To $2cm^3$ of solution L add 3 drops of NaOH followed by drops of $CuSO_4$ and shake 1mk	solution remains blue ½ mk	Protein absent ½ mk
Ascorbic acid (vitamin c)	To 2cm3 of solution DCPIP add solution L dropwise shaking till in excess 1mk	DCPIP decolourised ½ mk	Vitamin C /Ascorbic acid present ½ mk

b.

i. solution in the visking tubing increases in volume

ii. Water moves by osmosis; in the visking tubing due to the high osmotic pressure of the solution in the visking tubing

c. Cell membrane/plasma membrane/plasmalema

2.

a.

i. A – Endosperm
B – Radicle
C – Plumule
D – Plumule sheath/coleoptile

ii. A – stores food for the embryo;
D – protects the delicate plumule from mechanical damage;

b.

i. hypogeal;

ii. Kingdom – Plantae; Rej plant
Division – spermatophyte
Class –Monocotyledonae; rej monocot/monocotyledon

iii.

- Fibrousroots
- Parallel venation;
- Floral parts occur in three /multiples of three;
- Sheath like petiole; ***Mark first three***

c. Has two scars;

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3.

a.

Specimen	steps	identity
A	1b,3a;	Arachnida
B	1a,2a,4a;	Pisces
C	1b,2b,5b,6b;	Chilopoda
D	1a,2a,4b,7b,8a	Reptilia
E	1a,2a,4b,7a;	Aves
F	1b,3b,5a;	Insecta

b. Magnification = $^{\text{Diagram length}}/_{\text{Actual length}} = {}^{50mm}/_{100mm}$;
= ×½ or ×0.5;

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GEOGRAPHY PAPER 1 Marking Scheme - 2019 K.C.SE Prediction Set 1

1.

a. **Three ways how air pressure influences weather**

- Low air pressure areas usually experience convergence of winds e.g. at the equator the S.W winds meet the N.E winds (Trade) to form the I.T.C.Z resulting into rainfall
- High pressure areas usually get winds moving away (diverging) and this leads to dry conditions without rainfall
- Lower atmospheric pressure increases the amount of water vapour (humidity) into the atmosphere and the higher the atmospheric pressure the lower the humidity (3 marks)

b. **Two Global winds**

- Trade winds
- Westerlies
- Polar winds (Any 2 x 1 = 2 marks)

2.

a. **Chemically formed sedimentary rocks**

- Travertine / Dolomite / Rock salt
- Gypsum / Haematite / Trona

b. **Conditions necessary for formation of coral**

- Warm water whose temperature is between 20 to 30 degrees Celsius
- Shallow water with the depth of less than 60 m
- Saline ocean water / salty water
- Clear and well oxygenated water free from silt / mud
- Submerged conditions even at low tides (Any 3 x 1 =3 marks)

3.

a. **Two theories that explain the origin of the earth**

- Passing star theory
- Nebula cloud theory

b. **Three proofs that the earth is oblate spheroid**

- It is possible to circumnavigate the earth as was done by Magellan in 1519
- The fact that there is a difference of 1 hour between fifteen degree meridians apart show the sun is first seen in eastern part of the world then the western side
- The shape of the shadow cast on the moon during the eclipse of the moon is spherical
- The horizon of the earth viewed form above in the atmosphere is spherical
- An approaching show will show the smoke first and the a gradual appearance
- Through a telescope other planets have shown a spherical shape and the earth being one of the planets should be spherical (Any 3 x 1 = 3 marks)

4.

a. **Categories of lakes formed by earth movement**

- Down warped lakes – Lake Victoria, Lake Kyoga
- Rift valley lakes – Lake Nakuru, Lake Baringo, Lake Bogoria (2 marks

b. **Examples from East Africa**

- Down warped lakes – Lake Victoria, Lake Kyog
- Rift valley lakes – Lake Nakuru, Lake Baringo, Lake Bogoria (Any 2 x ½ = 1 mark)

5.

a. **Definition of hydrological cycle**

- It is the interchange of water between land, sea and air through the process of evaporation, precipitation and percolation of water into the ground and the surface run-off (2 marks

b. **Factors that determine the amount of water that sinks into the ground or flows on the surface**

- The prevailing climate conditions
- The type of soil
- The nature of the landscape
- The underlying geological structure (4 marks)

6.

a.

i. **Identify two human made features found at the grid square 2320**

- Bridge / mc call's bridge
- All weather road loose surface (2 marks)

ii. **What is the altitude of the highest point in the area covered by the map?**

- 2362 metres a.s.l (2 marks)

iii. **Three types of vegetation found in the area east of easting 40 and north of northing 27**

- Forest
- Scrub
- Woodland
- Scattered trees
- Thicket (Any 3 x 1 = 3 marks)

b.

i. **Bearing of air photo principle point at grid square 2931 form the air photo principle point at grid square 3426**

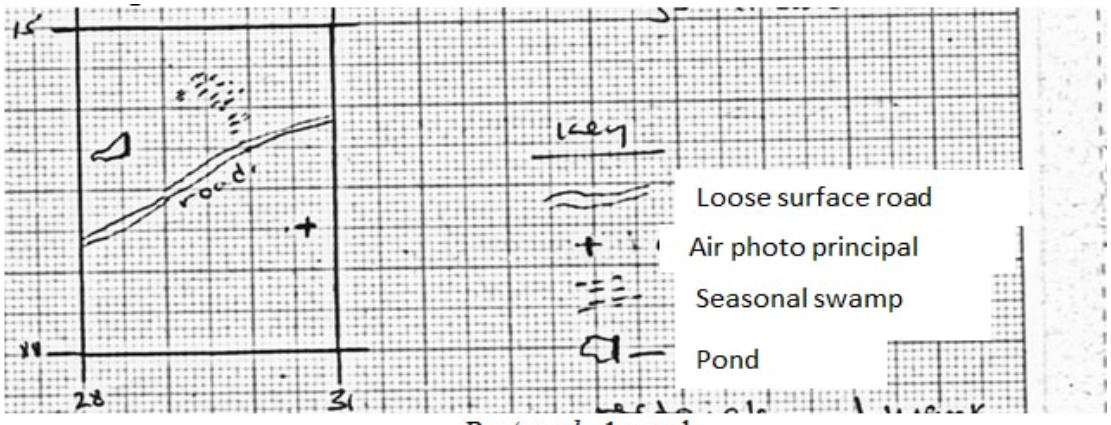
- - 318 ± 1 (317^{o} – 319^{o}) (2 marks)

ii. **Measure the distance of the dry weather road (C640) form the junction at point M(345142) to the junction at N(416200)give your answer in kilometres**

- - 1 km ± 0.1 (12.0 – 12.2 km) (2 marks)

c.

i. **Draw a rectangle measuring 3 cm by 4 cm to represent area bounded by easting's 28 and 31 and northing's 11 and 15**



Rectangle 1 mark
Every feature 1 mark x 4 = 4 marks)

ii. **On the rectangle draw, mark and name the following;**
- Loose surface road
- Air photo principle point
- Swamp
- Pond (4 marks)

d.

i. **Identify four social services offered in Kitale Municipality**
- Educational services – school at grid square 2614
- Transportation – roads e.g. C638
- Commercial service / Trading – e.g. presence of shops
- Religious services – churches
- Health services – hospital grid square 2312 (Any 4 x 1 = 4 marks

ii. **Describe the drainages of the area covered by the map**
- The main drainage feature is rivers
- The main river is river Koitobos
- Most of the rivers are permanent
- The main river flows from North West towards south eas
- There are numerous seasonal swamps towards the western part of the map
- Many tributaries join the main river forming dendritic pattern e.g. grid square 2419
- There are many dams in the area covered by the map e.g. grid square 3910
- Many rivers disappear into the swamps e.g. grid square 2520

7.

a.

i. Polar / cold climate (1 mark)

ii. **Ocean currents marked R and S**
R – Canary ocean current
S – Gulf stream (2 marks)

b. **Characteristics of the climate marked T**
- Temperatures are high throughout the year at about 27^{o}C (5^{o}C)
- Experiences high rainfall of between 1500mm and 2000mm evenly distributed throughout the year
- Experiences a double maximum rainfall region / two rainy seasons caused by overhead sun twice a year
- The region also has high humidity due to heavy rainfall and high evaporation rates
- Major winds experienced at the south-east and north-east trade winds
- Experience low pressure all year round thus no distinct season
- Rainfall is mainly convectional type usually accompanied by thunderstorms; highlands experience relief / orographic rainfall (Any 4 x 2 = 8 marks)

c. **How the following factors influence climate**

i. **Altitude**
- This is the height above sea level
- Low lands are usually warmer than the highlands because the atmosphere becomes thinner as altitude decreases where the ground losses heat faster
- Atmospheric pressure decreases with increase in altitude. This is due to the weight of atmospheric air above highlands being less than in lowlands (4 marks

ii. **Distance from the sea**
- During hot seasons, coastal lands are relatively hotter than inland areas on

the same latitude due to the existing effects of the sea breezes. By the time the sea breezes reach inland areas, they have adopted to the temperature of the land over which they are passing
- Coastal land receives more rainfall than the interior of continents. This is due to the coats receiving moist winds from the sea but by the time the winds reach inland areas they are usually dry (4 marks)

d.

i. **Effects of climate change to the physical environment**
- High rainfall results to flood that will a proof vegetation
- High temperature results to drying of vegetation
- Ice will melt leaving the mountain tops bear (Any 2 x 2 = 4 marks)

ii. **Climatical conditions experienced in the Sahara desert**
- Low annual rainfall (less than 250mm) dry climate
- Occasional flash floods / sporadic rains
- Clear skies / clear sunny days / high terrestrial radiation
- High temperature during the day
- A large diurnal range
- Strong winds
- Develops low pressure in summer and high pressure in winter
- High mean annual temperature
- Large mean annual range of temperature
- Intense solar radiation
- Unreliable rainfall
- Low humidity
- High evaporation rate
- Sudden rainfall (Any 2 x 1 = 2 marks)

8.

a.

i. **Factors that influence glacial erosion**
- Nature of the rock
- Speed of glacier
- Thickness and weight of ice
- Availability of debris (Any 2 x 1 = 2 marks)

ii. **Parts labeled 1 to 6**
- 1 – Cirque
- 2 – Rock step
- 3 – Rock Basin Lake
- 4 – Moraine dammed lake
- 5 – Terminal moraine lake
- 6 – Fluvial glacial deposits (6 marks)

b. **Ways in which tills are formed at the coast**
- Ablation till is formed when ice melts
- Lodgement till is formed when till is deposited when the ice at the top of glacier reaches its melting point when the ice is still moving
- Basal till is formed when the lower debris rich layers are slowed down by an obstacle
- A flow till is when the debris found at the top of the glacier flow into the depressions that are within the ice
- A till plain is formed when the till covers the ground forming irregular landscapes with small hills and depressions (Any 4 x 2 = 8 marks

c.

i. **What is erratic?**
- It is a large boulder of rock layer which has been transported by a glacier and hence rests on a country rock that is very different form its own origin

ii. **Examples of erratic's**
- Lower slope of Mt. Kenya at Teleki valley side
- Kimberly district in South Africa
- South eastern Ireland
- Northern Germany (Any 3 x 1 = 3 marks)

d.

i. **Types of interviews**
- Oral
- Question based (2 marks

ii. **Problems the researcher would have experienced**
- Windstorms and related diseases
- Blowing sand that reduce visibility
- Sand blown by the wind would also reduce smooth running of the researcher (Any 2 x 1 =2 marks)

9.

a. **What is natural vegetation?**
- Is the plant cover that exists on its own in an area without the interference of external modifying influences like people and animals (Any 1 x 2 = 2 marks)

b.

i. **Types of vegetation found in the following countries**
- **New Zealand** – Downs
- **Argentina** – Pampas
- **South Africa** – Veld (3 marks)

ii. **State two factors why mountain tops have no vegetation**
- Temperature ids too low / too cold to support plant growth
- There is no soil to support plant growth / bare rock
- Precipitation / water is in the frozen state (Any 2 x 1 = 2 marks)

c.

i. **Explain four ways in which coniferous forest is adapted to the climate conditions**
- Trees have needle-like leaves which helps to reduce water loss during winter
- Trees have waxy skin which protects them from cold winters
- Trees have conical shape which allows snow to slide off easily and therefore minimum demand to trees
- Trees are evergreen which enable them to maximize utilization of sunlight during short summers
- Tress trunks are flexible enabling them to sway / bend without breaking when there is presence of winds
- Trees have shallow roots which are widely spread to enable them to utilize moisture form the top soil because sub-soil is mostly frozen
- Trees have thick barks with a slot of resin which protects them from frost (Any 4 x 2 = 8 marks)

ii. **Explain how two following factors influence the distribution of vegetation; Altitude**
- At high altitudes where temperature is very low vegetation cover is low

- At low altitudes where temperature is very high there is dense vegetation (2 marks)

Human beings

- Human beings influence vegetation positively through afforestation and negatively through felling of trees and burning of charcoal (2 marks)

d.

i. **State four reasons why it is necessary to have a route map**

- Identifying the direction to take
- Estimating the distance to be covered
- Estimating the time likely to take
- Planning schedule of activities
- Identifying the location of different tree types (Any 4 x 1 = 4 marks)

ii. **Give two reasons you need a tape measure**

- To measure the height of trees
- To measure the width and length of identified area of the forest/area of the section identified (2 marks)

10.

a.

i. **What is soil?**

- Soil is the uppermost surface layer of loose or unconsolidated material which overlies the crucial rocks and on which plants grow (2 marks)

ii. **Three components of soils**

- Air / gases
- Water / moisture
- Organic matter / humus inorganic matter / minerals (Any 3 x 1 = 3 marks)

b.

i. **Soil layers marked B, C, and D**

- **B** – Subsoil
- **C** – Weathered parent materials
- **D** – Bedrock (3 marks

ii. **Two main processes of formation of soil in horizon A**

- Elluviation
- Leaching (2 marks)

iii. **Characteristics of soil in horizon B**

- Consists of mainly silicate clays
- Made up of hard pan (laterite)
- Soils are prismatic (columnar)
- It is a zone of illuviation / enrichment
- Soil is generally dark in colour
- Calcium carbonate / gypsum is present (Any 4 x 1 = 4 marks)

c. **Explain how the following helps in the maintenance of soil fertility and quality**

◦ **Crop rotation**

- Growing of different types of crops on the same piece of land prevents soil exhaustion since different crops require different nutrients form the soil hence soil fertility in improved (2 marks)

◦ **Mixed farming**

- Keeping of animals and growing of crops in the same piece of land improves the fertility of the soil. This is because manure form the animals is used to enrich the soil with minerals (2 marks)

- **Bush fallowing**
  - When land is cultivated for some time and left to rest for a given period it improves the quality of soil in that the land regains its fertility during the period of rest (2 marks)

d. **State five uses of soils to human activities**

- Soils are used in building and construction
- Some soil types are used as raw material for pottery / ceramics / bricks / tiles
- Soils are used for agriculture
- Some soil types are sources of valuable minerals
- Some soils are mixed with herbs and sold for medicinal purposes
- Some soils are directly used as food (Any 5 x 1 = 5 marks)

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GEOGRAPHY PAPER 2 Marking Scheme - 2019 K.C.SE Prediction Set 1

1.

a. **Two underground mining methods**
- Drift/adit mining
- Slope mining
- Shaft mining
- Solution mining
- Drilling mining (Any 2 x 1 = 2 marks

b. **Negative effects of mining on the environment**
- Leads to land dereliction
- Leads to loss of biodiversit
- Leads to pollution of environment
- Lead to soil degradation
- Encourages mass wasting
- Pits left after mining are filled with water that form breeding ground for mosquitoes
- Leads to disruption of water table (Any 3 x 1 = 3 marks)

2.

a. **List down three human factors that favour wildlife conservation**
- Establishment of game reserve / national parks / game sanctuaries
- Translocation of animals where they are in excess
- Ban on game huntin
- Creation of ant-poaching units
- Protection of endangered species e.g. rhinos
- Non-governmental initiatives like WWF
- Establishment of KWS (Any 3 x 1 = 3 marks)

b. **State two advantages of domestic tourism**
- Promote national unity as Kenyans of diverse origins meet in parks
- It is a source of government revenue / additional of revenue
- Utilization of tourist's facilities during off-peak seasons
- Kenyans are able to learn more about natural gifts of nature
- Creates to the citizens a sense of responsibility to conservation (Any 2 x 1 = 2 marks)

3.

a. **What is floods?**
- Floods are unusual covering of an area by water through a temporary rise of the level of a river lake or sea (Any 1 x 2 = 2 marks)

b. **Three rivers that cause large scale flood in Kenya**
- River Tana
- River Yala
- River Ewaso Nyiro
- River Nyando
- River Kuja (Any 3 x 1 = 3 marks)

4.

a. **Define the following terms**

i. **Fertility rate**
- It is the total number of children / births that a woman would have between

the ages of 15 – 49 years (1 x 1 = 1 mark)

ii. **Mortality rate**

- This is the average number of deaths per 1000 in a given population (1 x 1 = 1 mark)

b. **Types of information that may be derived from an age sex pyramid**

- Sex ratio
- Dependency ratio
- Age
- Life expectancy (Any 3 x 1 = 3 marks)

5.

a. **Towns marked**

- P – Tanga
- Q – Arusha
- R – Dodoma (3 x 1 = 3 marks)

b. **Two major functions of the town marked S**

- Mainly an agricultural collection centre
- Industrial centre with too many light industries
- Administrative centre (Any 2 x 1 = 2 marks)

SECTION B

Answer question 6 and any other two questions from this section

6.

a.

i.

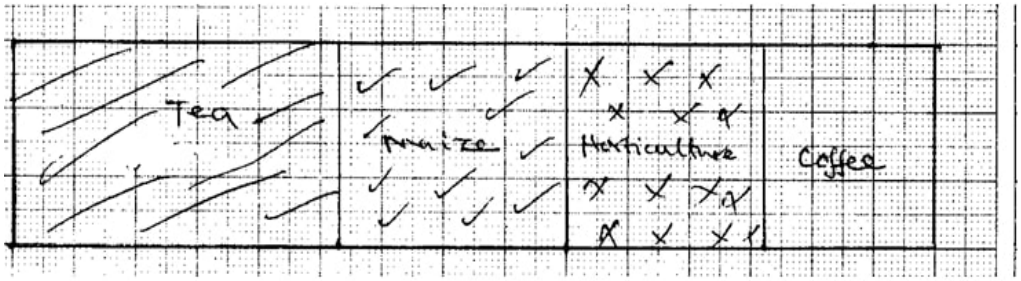
$$\text{Maize} = \frac{224{,}000{,}000}{902{,}000{,}000} \times 15 = 3.7 \text{ cm}$$

$$\text{Coffee} = \frac{168{,}000{,}000}{902{,}000{,}000} \times 15 = 2.8 \text{ cm}$$

$$\text{Tea} = \frac{320{,}000{,}000}{902{,}000{,}000} \times 15 = 5.3 \text{ cm}$$

$$\text{Horticulture} = \frac{190{,}000{,}000}{902{,}000{,}000} \times 15 = 3.2 \text{ cm}$$

A DIVIDED RECTANGLE SHOWING VALUE OF EXPORT CROPS FROM KENYA IN 1995



Calculations	1 mark x 4 = 4 marks
Title	1 mark
Segments	1 mark x 4 = 4 marks
Total	= 9 marks

ii. **State three advantages of divided rectangles**

- It is easy to draw or construct
- It is easy to compare the component
- It gives a clear visual impression
- Each component proportional to the total can easily be such at a

glance (Any 3 x 1 = 3 marks)

b. **State four physical conditions that favour coffee growing in Kenya highlands**
- Cool temperature ranging between 14°C – 26°C
- High rainfall well distributed throughout the year between 1000 – 2030 mm p.a
- Gently sloping landscapes
- Deep, well drained volcanic soils
- High altitude of about 1000 – 2300 a.s.l
- Well sheltered against strong sunlight (Any 4 x 1 = 4 marks)

c. **Processing of coffee form harvesting to marketing**
- Ripe berries are picked by hands
- Berries are transported to the factories
- Berries are sorted out and weighed
- Berries are squeezed to remove the outer cover and graded
- They are put in troughs to ferment and are washed
- They are put on trays for drying in the sun and turned frequently and unwanted particles are removed / sorted out
- The dry beans are weighed
- Dry beans are put in bags and transported to the coffees mills
- Dry beans are put in machines where the inner husks are removed / peeled off
- Dry beans are winnowed and graded
- The dry beans are then forwarded to coffee board for marketing *NB: Sequence must be followed* (6 x 1 = 6 marks)

d. **List three ways in which planted coffee is taken care by farmers**
- Watering of young plants
- Mulching to reduce water loss
- Constant weeding
- Manure to maintain soil fertility
- Spraying with herbicides
- Pruning to regulate quality (Any 3 x 1 = 3 marks)

7.

a.

i. **Identify the irrigation schemes marked X, Y and Z and in each case the main crop grown**
- **X** – Bunyala – Rice
- **Y** – Perkerra – Onions
- **Z** – Mwea Tebere – Rice *Irrigation schemes* 3 x 1 = 3 marks *Crops* 3 x 1 = 3 marks

ii. **Explain four factors that have led to the location of irrigation scheme Y**
- To control the seasonal floods of rivers perkerra this was used to devastate the area
- The fertile loamy soils, most of which are deposited by floods, reduces use of fertilizers
- Presence of flat and gentle sloping terrain which enable easy flow of water by gravity, which made it cheap to start the project because expensive pumping was not required
- The dry / high temperature of the area necessitated use of irrigation as the only way to make food production possible / multiple cropping
- The area was sparsely populated hence reduced expenses of resettlement of people (Any 4 x 2 = 8 marks)

iii. **State four problems experienced in the irrigation project marked Z**
- Siltation of the canals which interfere with the flow of water
- Quelea Quelea birds destroys the crop
- Presence of water borne diseases
- Shortage of water during dry seasons
- Inadequate labour during planting
- Clogging of the canals by water weeds (Any 4 x 1 = 4 marks)

b. **What is a polder?**
- It is a reclaimed piece of land form the sea in the Netherlands
(1 x 2 = 2 marks)

c. **Give five benefits of the Zuyder Zee project**
- Lake Yssel provide fresh water for irrigation / domestic / industrial purposes
- Risk of flooding was reduced through the use of dykes
- Reclaimed land has increased arable land for crop cultivation
- The construction of roads connecting north Holland and Friesland province has shortened distance
- Degrees of soil salinity has reduced / lowered form Lake Yssel
- Reclaimed areas are used for settlement, recreation and construction of industries (Any 5 x 1 = 5 marks)

8.

a.

i. **The two types of fishing grounds in Kenya**
- Marine / salty water fishing grounds
- Inland / fresh water fishing grounds (2 x 1 = 2 marks)

ii. **Give two types of fishing methods**
- Pelagic fishing
- Demersal fishing
- Inshore fishing
- Freshwater fishing (Any 2 x 1 = 2 marks)

iii. **Four reasons why marine fishing industry is not well developed in east Africa**
- The warm tropical waters do not favour large scale breeding of fish species
- The narrow continental shelf limits widespread growth of planktons for fish
- There is a limited market at the coast due to low purchasing power
- Inadequacy of capital and poor technology hamper the development of the industry
- There is steep competition from industrialized nations which have better equipment
- Rough sea wave limiting deep sea fishing (Any 4 x 1 = 4 marks)

b. **Explain four ways in which marine fisheries are being conserved in Kenya**
- To increase fish number or restock overfished areas there is breeding of fingerlings in fish farms and then release them into the sea
- Restricting disposal of untreated waste the sea to ensure the water remains clean for survival of fish
- Standardizing the size of fish nets used in fishing to ensure that only the mature fish are caught
- Enforcing the international conventions in order to protect the endangered fish species
- Licensing fishermen to control their number and ensure that there is no overfishing
- Restricting fishing to specific season to allow for breeding and maturing of fishing /

ensuring natural regeneration of fish (Any 4 x 2 = 8 marks)

c.

i. **Methods of fishing used in the shaded area**
- Purse seining
- Drifting
- Trawling
- Lining / hook and line
- Trap method (Any 1 x 1 =1 mark)

ii. **Name ocean currents marked Q and R**
- **Q** – Warm Gulf Stream
- **R** – Cold Labrador (Any 2 x 1 = 2 marks)

d. **Explain why major fishing grounds of the world are located in the temperate latitudes of the northern hemisphere**
- The areas have cool waters that have abundant supply of Plankton which is the main food for fish
- The areas have extensive / wide continental shelves which allow light to penetrate to the sea bed hence encouraging the growth of micro-organisms used as food for fish
- The cool waters experienced in most of the coastal areas in these latitudes encourage thriving of numerous fish species
- The areas experience convergence of cold and warm currents that results in upwelling of ocean waters which bring planktons form the sea bed to the surface
- The cool to cold climate in these latitude help in the preservation of fish
- Most of the coastal areas have numerous sheltered bays which provide secure breeding grounds for fish
- The sheltered bays found in some coastal areas provide suitable sites a for building fishing ports / fishing-landing sites
- The land-derived minerals nourish the planktons which are food for fish
- The large population in these areas provide a ready market for fish hence promoting the fishing industry (Any 3 x 2 = 6 marks)

9.

a. **Distinguish between manufacturing and tertiary industries**
- Manufacturing industries change raw materials into semi-finished / processed products while tertiary industries provide services (1 x 2 = 2 marks)

b.

i. **Name four agricultural food processing industries in Kenya**
- Milk processing
- Fruit processing
- Coffee processing
- Sugar processing
- Cooking oil
- Grain milling
- Meat processing / canning (Any 4 x 1 = 4 marks)

ii. **Explain four factors that influenced the location of the iron and steel industries in the Ruhr region of Germany**
- Availability of iron ore / coal / limestone form the Rhine valley provided raw materials needed in the industrie
- Availability of water form rivers Rhine / Ruhr / Lippe / Wupper / Emscher for cooling machines / industrial use
- Navigable rivers e.g. Rhine / Ruhr canals e.g. Dortmund – Ems / Rhein –

Herne provided cheap transport for bulky raw materials and finished products
- Coal from the Ruhr region / imported provided power required in the industry
- Rich merchants / families e.g. Krupp family and Ruhr Kohle provided capital for the industry
- Availability of local skilled labour formed foundation of iron and steel industry
- Dense population of central Europe / Germany provided ready market for iron and steel (Any 4 x 2 = 8 marks)

c. **Give five reasons why the government of Kenya encourages the development of Jua Kali industries**
- It creates employment for the growing labour force
- It requires less capital to establish since it's made up of small units
- Produces relatively cheap products that are affordable to many people
- They require simple machinery to start
- Some of the products are exported thus earning foreign exchange
- They save the country's foreign exchange
- Facilitates decentralization of industries hence reducing rural-urban migration
- Uses locally available raw materials hence conserving the environment
- It operates at grassroots level these use locally available skills (Any 5 x 1 = 5 marks)

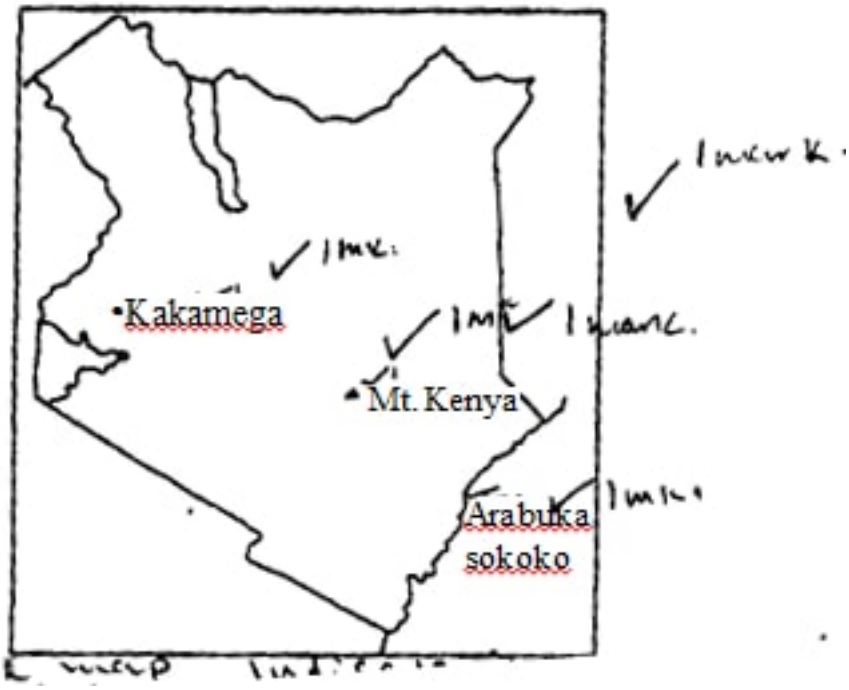
d. **Field study in a coffee factory near your school**

i. **State three reasons why you would visit the area of study in advance**
- To be able to formulate appropriate objectives for the study
- To help in identifying methods of data collection
- To help estimate the cost of the study
- To seek permission
- To determine the appropriate routes
- To help in preparing the working schedule
- To identify problems likely to be encountered
- To estimate the time required for study
- To determine the suitability of the area of study
- To determine appropriate tools for the study (Any 3 x 1 = 3 marks)

ii. **You have prepared a work schedule for the study, state three items you would include in your schedule**
- The time for departure
- Time to spend in the study
- Time for lunch
- Time for end of the study (Any 3 x 1 = 3 marks)

10.

a. **Draw an outline map of Kenya**



b. On the map indicate

i. Kakamega forest
ii. Mt. Kenya forest
iii. Arabuka sokoko forest

c.

i. **Natural causes of forest depletion**
- Climatic hazard such as drought
- Pests and diseases
- Over population of wildlife leading to destruction (3 x 1 = 3 marks)

ii. **Describe four problems facing forests in Kenya**
- Forest fires caused by hunters destroy large section s of forests
- Pests and diseases destroy trees and lower their quality
- Excessive logging which in most cases is illegal
- Human encroachment resulting from high population growth
- Adverse climatic conditions such as drought or floods destroy sections of the forests (Any 4 x 2 = 8 marks

d.

i. **State three factors favouring production of soft wood forests in Canada**
- High precipitation that favours tree growth
- Rugged relief discourages any form of agriculture
- Many waterfalls used to generate H.E.P for use in paper mills
- Presence of many rivers providing transport for the logs and also providing water for use in pulp industry
- Valley bottoms provide suitable sites for paper mills (Any 3 x 1 = 3 marks)

ii. **Explain three reasons why the Kenyan government should conserve her forests**
- Provide utility products e.g. timber which is used in construction
- Forests are habitat for a wide range of animals and micro-organism hence helps in conserving and maintaining bio-diversity
- Forests are rich reservoirs of research materials e.g. scientist carry research studies on medicinal plants which help cure certain diseases
- Forests create micro-climate hence regulate climate of the surrounding

areas

- Forests support agriculture and H.E.P production by being water catchment areas and preventing soil erosion
- Forests regulate carbon dioxide hence helps reduce global warming
- Presence of forests and forest activities has led to development of infrastructure which opens up remote areas
- Forestry as an industry provides more employment opportunities e.g. as forest guards and carpenters, this raises the standards of living
- Flora and fauna of the forests have an aesthetic appeal hence attracts tourists who bring foreign exchange
- Forests and its products have medicinal value which helps treat a variety of diseases (Any 2 x 2 = 6 marks)

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CHRISTIAN RELIGIOUS EDUCATION (C.R.E) PAPER 1 Marking Scheme - 2019 K.C.SE Prediction Set 1

1.

a. Outline **seven** importance of CRE to a secondary school student in Kenya. (7mks)

- It equips the learner with an understanding of God / spiritual growth.
- The learner acquires life skills to handle challenges in life.
- It helps one to respect his/her own and other people's religious beliefs.
- It helps one to acquire basic principles for Christian living / moral values.
- It enables one to understand how to relate with other people.
- It gives answers to questions / mysteries of life.
- It explains the origin / purpose of human beings on earth.
- It leads to employment / careers. **7 x 1 = 7 marks**

b. Describe the second account of creation in Genesis 2:4b-25. (7mks)

- The earth is described as being dry, uninhabited and plant less.
- God formed man out of dust and breathed the breath of life into his nostrils, and man became a living being.
- God planted a garden in the east, the Garden of Eden, and placed every tree in it.
- In the middle were the tree of life and the tree of knowledge of good and evil.
- Four rivers flowed to water the garden.
- Man was commanded to till and conserve the garden.
- He was to eat from all trees apart from the tree of knowledge of good and evil, otherwise he would die.
- God then formed other creatures, birds and animals and thus commanded man to name them.
- God saw that Adam was lonely and needed a companion.
- He made Him fall asleep, removed one his ribs and formed the woman out of it. He brought her to man, who called her woman, because she was made from man.
- They were naked but were not ashamed. **7 x 1 = 7 marks**

c. Give **six** traditional African views of creation. (6mks)

- All African communities believe that God existed from the very beginning of time.
- The names used to describe God in African communities refer to Him as the creator, master of the universe, moulder and even porter.
- Africans also believe that human beings were created to live for ever in harmony with God.
- Death comes to the world as God's punishment for disobedience or other causes.
- God the provider continues providing human beings with the basic needs of life.
- Many creation stories in African societies agree that human beings were initially in a state of happiness, child-like ignorance and immortality, and with the ability to rise again after death.
- Human beings were provided with the necessities of life and were very close to God.
- After creating God also established laws of nature and human customs, to be followed.
- God's creation included the ordering of the destiny of human beings.
- Africans do not agree on any clear-cut sequence of events at creation. Some communities agree that God started by creating the universe and ended by creation of human beings.
- African communities agree that God continues to create through humankind, and childbearing is regarded as a blessing from God. **6 x 1 = 6 marks**

2.

a. Describe the call of Moses in Exodus 3:1-22. (8 marks)

- Moses was looking after the flock of his father-in-law, Jethro, in the Midian.
- The angel of the Lord appeared to him in a burning bush on Mt. Sinai.
- There was fire but the bush was not being consumed.
- Moses became curious and moved closer to see what was happening.
- When the Lord saw him coming closer, he called out Moses by his name.
- When Moses answered, God commanded him not to come near any further.
- God told him to remove his shoes because he was standing on holy ground
- God revealed Himself as the God of Moses' ancestors, Abraham, Isaac and Jacob.
- Moses was filled with fear and hid his face.
- God told him that he had heard the cries of his people in Egypt and had come down to save them through Moses.
- Moses was initially reluctant to go but God assured him of protection.
- God revealed his name to Moses as "I am who I am".
- God foretold the hardness of Pharaoh to release the Hebrews unless forced by a mighty hand.
- God promised to give favour to the Hebrews and would obtain jewelry, Gold and clothing. **8 x 1 = 8 marks**

b. Give reasons why Moses was reluctant to go back to Egypt. (6 marks)

- He was afraid to face pharaoh who wanted to kill him.
- He had killed an Egyptian.
- He was not sure whether the Hebrews would accept him as their leader.
- He was a stammerer/ not fluent in speech.
- He lacked adequate knowledge on the identity of God who was calling him.
- He lacked self-confidence.
- He may have been worried about the family he had established in the Midian. **6 x 1 = 6 marks**

c. What do Christians learn about God from the call of Moses? (6 marks)

- God hears and responds to the cry of his people.
- God uses events to reveal himself to people.
- God is holy.
- God chooses people to perform certain tasks.
- God does not give people impossible tasks
- God protects his people.
- God is powerful
- God is just/punishes the enemies of his people.
- God is beyond human understanding.
- God is omnipresent.
- God demands obedience from the people he calls.
- God fulfils his promise
- God is all knowing. **6 x 1 = 6 marks**

3.

a. Outline seven ways in which King Jeroboam promoted the spread of idolatry in Israel.

- He made two golden calves and placed one at Bethel and another at Dan to represent Yahweh.
- He set up two rival places of worship and ignored Jerusalem.
- He made the Israelites to offer sacrifice to the golden calves.
- He chose priests from ordinary families to serve at worship centres.

- He built other places of worship / shrines on hill tops.
- He burnt incense on altars of the idols / made sacrifices to idols.
- He instituted religious festivals in the month of his choice. **7 x 1 = 7 mks**

b. Give seven reasons why Elijah was uncompromising in his attitude to the worship of Baal.

- He believed that only Yahweh was the Israelite God.
- By worshipping Baal, people had broken the covenant law.
- The worship of Baal led to the killing of Yahweh's prophets.
- Elijah had strong faith in God.
- By condemning Baal worship, Elijah knew that he could put away the foreign ideology that Ahab was trying to bring into Israel.
- As the people worshipped Baal they failed to recognize Yahweh as God and the Lord of everything.
- Elijah believed that the people might turn to the covenant of faith.
- Being a prophet, Elijah was against baalism because his vocation was o turn people back to the covenant way. **Any 7 x 1 = 7 mks**

c. State six reasons why Christians should fight against the spread of devil worship in the society. (6 mks)

- Devil worship is against God's commandments.
- It advocates for human destruction.
- It advocates for materialism as the guiding factor of man's success
- Leads to lack of faith / depending on God
- Rituals involved in devil worshipping are dehumanizing.
- Christians fight devil worship to warn people of God's judgement.
- It instills fear on God's people. **Any 6 x 1 = 6 mks**

4.

a. State **six** titles given to prophets in the Old Testament. (6mks)

- Man of God.
- A seer.
- Nabii.
- Servant of Yahweh.
- Interpreter of God's word.
- A watchman of God's word.
- Messenger of God.
- God's spokesman.
- A man of spirit. **6 x 1 = 6 marks**

b. Explain the evils committed by **four** nations that were to be punished by God according to Prophet Amos. (8mks)

- Syria/Damascus – the people of Syria had threshed the people of Gilead with threshing sledges of iron during their war with Israel. God will destroy them with divine fire.
- Philistia and Gaza – they had sold their fellow citizens as slaves to Edom to work in their copper industry. God will destroy them with divine fire.
- Tyre/Phoenicia – the King of Tyre sold Israelites to Edom as slaves, breaking the covenant of brotherhood between Hiram and Solomon. God will destroy them with divine fire.
- Edom – they had plundered Jerusalem, killed its citizens and carried some to slavery, yet these were their brothers. God will destroy them with divine fire.
- Ammon – they had been cruel to the pregnant women of Gilead during their war with Israel. They will be sent to exile and God will destroy them with divine fire.

- Moab – they raided the royal graves of Edom and burnt the bones of the dead kings, thus a rebellion against God's image in human beings. God will destroy them with divine fire. **4 x 2 = 8 marks**

c. Mention **six** ways how Christians can avoid God's punishment today. (6mks)

- By repenting their sins.
- By obeying God's word/ living exemplary lives/ living holy lives.
- By praying and fasting.
- By preaching/ evangelizing.
- By having absolute faith in God.
- By thanking/ praising God.
- By doing works of charity/ helping the needy.
- By condemning evils/ injustices in the society.
- By reading/ studying/ meditating on God's word.
- By giving their tithes and offerings faithfully.
- By going through baptism and other sacraments.
- By fellowshipping with other Christians/ going to church. **6 x 1 = 6 marks**

5.

a. Describe how the people of Judah renewed their covenant with God under the leadership of Ezra. (8 marks)

- The entire Jewish community gathered in the public square in Jerusalem.
- Ezra was asked to read the law to the people.
- The people performed ritual gestures raising and lowering their heads and bodies as a sign of repentance.
- They re-enacted the feast of booths/shelters and dwelt in the makeshift huts.
- They had a national day of confession in which they fasted and put on sack cloths as a sign of penitence.
- They separated themselves from foreigners.
- Ezra led the people in a prayer of confession in which he recounted God's love and faithfulness to his promises
- The covenant was sealed through signing of the agreement by the leaders who included Nehemiah, the princes, the priests and Levites
- The people promised to live in accordance with the Mosaic law and carry out its precepts.
- Nehemiah re-distributed the population of the Jews in Jerusalem and country side.
- Community leaders were settled in Jerusalem to safeguard it against external attacks.
- Nehemiah kept a record of the leaders who took residence in Jerusalem. **8 x 1 = 8 marks**

b. Give **five** reasons why Nehemiah carried out religious reforms in Judah. (5 marks)

- To protect "the people of God" who had renewed the Mosaic covenant.
- To ensure that those who were born Jews were loyal to the law and faithfully supported the Temple.
- To ensure the survival of the people of God as a pure nation free from foreign blood.
- To preserve the identity of the Jews.
- So as to build a pure post-exilic community not contaminated by foreign influences. 5x1=5marks

c. In what ways do Christians renew their covenant faith with God? (7 marks)

- Partaking in the sacraments.
- Confessing sins
- Making public testimonies about their commitment to God through Jesus Christ.
- Reading the Bible.
- Holding bible study groups.
- Attending Sunday church services.
- Going for retreats.
- Attending revival crusades/convention.
- Praying and fasting.
- Helping the needy and the poor **7 x 1 = 7 marks**

6.

a. Identify seven occasions when prayers were conducted in Traditional African societies.

- Daily at sunrise and at dusk.
- During the breaking of virgin land for cultivation
- At beginning of planting season.
- When there was a disaster or calamity
- During rites of passage like circumcision.
- When going to war or signing a pact to end war.
- During breaking of a curse.
- When setting off on a long journey.
- Whenever a taboo was broken.
- During installation of a leader. **Any 7 x 1 = 7 mks**

b. Outline seven roles of kinship system in traditional African society. (7 mks)

- The system united members of the family, clan and community by providing then with a sense of identity.
- Promoted harmonious relationships by defining expected behaviour between members of the community.
- Preserved cultural identity through rituals and beliefs.
- Enhanced a sense of security through strong bonds among members of the community.
- Outlined the procedure for community ceremonies
- Enforced responsibilities of the living towards the unborn and dead.
- Enabled community members to support each other during times of crisis.
- Created new relationships between families through marriage.
- Set out punishment for errant members of the community.
- Provided members with a sense of belonging to a single community. **Any 7 x 1 = 7 mks**

c. What changes have taken place in property ownership in Traditional African communities.

- Women / children can now own property.
- Wealth is no longer determined by number of wives or children
- Introduction of money economy has reduced value of land.
- Role of elders in sharing property has been eroded.
- Land is individually owned through issuance of title deed.
- People write wills to show / decide who should inherit their property.
- Property can be owned outside ones ancestral home. **Any 6 x 1 = 6 mks**
- Land can be sold / auctioned

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CHRISTIAN RELIGIOUS EDUCATION (C.R.E) PAPER 2 Marking Scheme - 2019 K.C.SE Prediction Set 1

1.

a. **What the Magnificat reveals about the nature of God.**

- God is a savior because he remembers the lowly.
- God is mighty for he scatters the proud/does great things
- God is merciful to those who fear him.
- God is caring/protecting because he exalts the humble.
- He is a provider/sustainer because he fills the hungry.
- He is faithful because he keeps his promises
- He is kind/helper to his servant Israel. 7×1

b. **Six activities that took place when Jesus was born**

- When Jesus was born his mother wrapped him in swaddling cloths.
- She placed him in a manger
- An angel appeared to the shepherds in the region to tell them of the birth of the savior.
- A great company of heavenly hosts/angels appeared singing.
- The shepherds decided to go to Bethlehem/hurried off the Bethlehem.
- The shepherds saw the baby.
- They spread the news about the baby to other people. 6×1

c. **Seven ways through which Christians in Kenya express their joy for the birth of Jesus.**

- They sing/listen to Christian songs.
- Partake of the Holy Communion/ Eucharist
- They exchange gifts/cards/messages
- They visit friends/relatives
- They decorate their homes/churches
- They buy and wear new clothes
- They prepare special meals/drinks 7×1

2.

a. **Giving examples state seven methods used by Jesus to spread the gospel.**

- Preaching the good news in the synagogue.
- He raised people back to life.
- Casting out evil spirits/exorcism
- Through miracles of nature i.e. calming the sea.
- Sermons i.e. sermon on the plain
- He used parables i.e. parable of the sower
- Setting a good example i.e. dying on the cross
- He used live example i.e. child, sower etc.
- Sent his disciples to go on a preaching mission
- Visited people in their homes. 7x1

b. **Reasons why Jesus chose the twelve disciples.**

- In order to teach them the secrets of his Kingdom.
- To have companions/personal assistants
- To form an inner group
- To be witnesses
- To reveal his person/ give a new understanding.
- To train/ prepare them for the mission.

- To lay a foundation for the establishment of the church.
- To continue with the biblical theme 6x1

c. **Identify problems faced by new converts in the church today**

- They are not accepted or they are discriminated.
- Lack of role models i.e. Other Christians.
- Not involving themselves in the activities of the church.
- They are tempted to backslide.
- They are expected to change faster.
- Some experience language barrier.
- They are not recognized.
- Financial demands of the church.
- Lack of concern when a member is in problem.
- They are given duties which they cannot manage. 7 × 1

3.

a. **With reference to the life and ministry of Jesus, show how he tried to promote social equality**

- He was the son of God but was born ordinary
- He was born in a manger
- He lived an ordinary Jewish child
- He was first revealed to the shepherds who were ordinary people
- He was not a sinner but he accepted baptism
- He called everybody to repentance
- He mixed with the rich and poor
- He restored the status of women. 7x1

b. **With the story of the sinful woman as a reference, explain Jesus teachings on forgiveness**

- God is merciful
- God forgives all types of sins
- We should not judge sinners
- Jesus loves even sinners
- Those whose sins are forgiven live a righteous life
- We should be tolerant to sinners 5x1

c. **Give ways in which Christians engage themselves in the healing ministry**

- Building churches
- Buying medicines for the sick
- Buying food for the needy.
- Pay medical bills for the sick
- Building rehabilitation Centre’s
- Praying for the sick.
- Guiding and counselling those who have despised in life
- Taking care of the sick 8x1

4.

a. **Give seven reasons why Jesus sent the Holy Spirit to his disciples after ascension**

- He was to counsel the disciples
- He would guide the disciples on what is right
- He was to convict people of their sins
- Remind the disciples on what Jesus taught
- He was to reveal the future
- He would enable the disciples to perform miracles

- He would replace the physical presence of Jesus
- He would enable the disciple to witness about Christ 7x1

b. **List seven fruits of the Holy Spirit**

- Love
- Joy
- Peace
- Patience
- Kindness
- Gentleness/humility
- Self-control
- Generosity
- Faithfulness 7x1

c. **How are the gifts of the Holy Spirit manifested in the church today?**

- Through prayers
- Through unity of believers
- Through wise decision made in the church
- There is faith healing in the church
- Preaching the word of God
- By Christian helping the needy/poor
- Through giving in tithes
- They speak in tongues
- By composing of songs 6×1

5.

a. **Outline eight Christians teaching on work**

- Work is ordained by God
- Man should work to subdue the earth
- Work is good
- Work is rewarded
- Man should work for basic needs
- Laziness is condemned
- Work become a curse in the garden of Eden
- Through work , man become a co-creator with God
- Those who do not work should not eat. 8×1

b. **Give six factors that causes increased unemployment in Kenya today**

- Employing foreigners
- How economic growth
- Choosing of work/preference to white collar jobs
- Insufficient funds to start busines
- Inadequate land for agriculture
- Corruption
- Poor job distribution 6×1

c. **How does the church help to reduce the rate of unemployment in Kenya**

- The church encourage people to start income generating projects/activities
- Church provides loan to the unemployed
- Church establishes projects
- Church teaches the youths about the dignity of manual work
- Church organized seminars for the youth
- Church condemned corrupt practices which interferes with recruitments
- Church trains the youths on vocational skills 6×1

6.

a. **Explain how unfair distribution of wealth can lead to social disorder in Kenya today.**

- Causes anger
- Encourage widening of gap
- Encourages grabbing of land
- Ethnic clashes because of inequitable distribution of landCreates discontentment among people
- Violence/murder occur
- Lead to strike
- Lead to strained relationship between government and people 6×1

b. **Give reasons why Christians should not involve themselves in gambling**

- One gets money without working for it
- Leads to person losing
- Creates bitterness in one who looses
- Bible condemn gambling
- No security on wealth
- It is addictive
- Interfere with family budget causing misunderstanding in the family
- Lead to violence
- Lead to stress
- Led to poverty 7×1

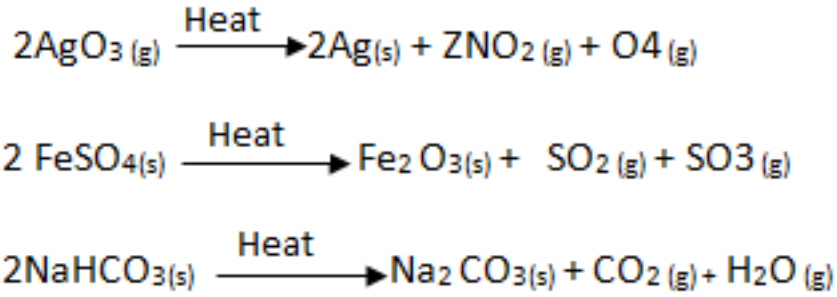
c. **How is corruption affecting the society in Kenya today?**

- There is increase in crime
- The public has lost trust in government
- There is increase in poverty
- There is high level of inflation
- Lack of quality services
- Has resulted to low morale of workers
- It gives a country a negative image globally. 7×1

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CHEMISTRY PAPER 1 Marking Scheme - 2019 K.C.SE Prediction Set 1

1.
   a. Oxygen
   b. Oxygen is only slightly soluble in water.
   c.
      - Used in welding and cutting metals (oxy-acelytene flame.
      - Used in Hospitals to ais patients with respiratory problems.
      - Metal extraction (To turn ore to oxide:
      - For fuels eg To burn hydrogen to provide energy for space rockets.

2.


3.
   i. Fermentation
   ii. Ethane is non - polar hence does not interact with polar water molecules unlike ethanol which is polar.

4.
   i. -1e
   ii. $\frac{N}{50} = \frac{50}{32} = 1.5625$
   Any other method.
   iii. Testing absorption of phosphorous from the fertilizer use radio active phosphorus - 31

5.
   a. Carbon (IV) Oxide and carbon (ii) oxide
   b. Carbon (IV) oxide
      - Fizzy drinks
      - Fire extinguisher
      - Freezing material
        carbon (II) oxide.
      - As fuel
      - In meta extraction

6.
   i. 0.5 x (32 x 60) + 10
   0.5 x 1930 = 965 C
   0.44 965C $\frac{88 \times 965}{0.44}$ = 193 000C
   88g
   Charge of X =
   $\frac{1930}{965}$
   = + 2
   ii. $P(OH)_2$

7.
   a.
      i. r – ethanol
      ii. S - chloro ethane
   b. T – Dehydration
8. 60 cm^3 = 50 sec
   80cm^3
   $(^{80 \times 50}/_{60}) = 66^2/_3$ seconds
9.
   i. Salt Y -1 .At 50^O c only 82g of the 120g salt dissolves.
   ii. 120 – 82
   = 38g
10.
   a. Moisture of water and oxygen/air
   b.
      - Tin coating is non –toxic
      - Tin coating is unreactive
      - Does not corrode easily
11.
   i. Add the colourless liquid to anhydrous copper (II) sulphate which colour changes from white to blue
   OR Anhydrous cobalt (II) Chloride which colour changes from blue to pink. (Any correct)
   ii. Determine its refractive index
   Determine its density which is 1g/cm^3
   Determine its boiling point as 100^o C or freezing point as O^o C
12.
   i. Copper pyrite ($CUFeS_2$)
   ii. $CUFES_{2\,(s)} + F_4O_{2\,(g)} \rightarrow CU_{5\,(s)} + 2FeO_{\,(s)} + 3SO_{3\,(g)}$
   iii. Pollute environment due to SO_2 gas which causes Acidic rain and can lead to leaching of soil/corrosion of house roof tops .
   iv.
      - Making cooking 1 utensils
      - Electrical wires.
      - Making roofing sheets
      - coms and ornaments
      - making alloys
13.
   a. Ca and Mg^{2+}
   b. When hardwater is passed through the resin, magnesium 1 or calcium are retained in the resin.
14.
   a. staff bridge
   b. Fce = $E_R - E_{2\,=}$ + 0.80 −(−0.13)
   = 0.93V

15. Conisation energy is the energy required to remove an electron from an atom in gases state while electron affinity is the energy released when an atom in gaseous state gains an electron. ½
16. $CuCO_3$ = $(^{64}/_{124}$ X 100)= 51.61% copper by mass
17. Alkaline earth metals

18.
   a. Magnesium metal conducts due to presence of delocalized elections
   b. Molten magnesium chloride conducts since it contains free ions.

19.
   i. X – Base ions
   ii. R
   iii. T

20.
   a. allotrope – Two or more forms of the same physical state of an element existing under standard conditions.
   b. Graphite atoms are bounded by covalent bonds to form layers which are held by weak van –derwaals forces making layers slides easily over each other. In Diamond there are only covalent bonds.

21.
   a. 100 – 25 = 75 cm^3
   b. $C_xH_y + O_{2\ +}\ H_2O$
      $15cm^3$ $75cm^3$; 45 = 1: 5: 3
      Hence $C_xH_y + 50_z \rightarrow 3CO_2 + 4H_2O$

22.
   a. Aluminium has more delocalized electrons than sodium making it have strong metallic bonds hence higher melting point.
   b. Chlorine molecule is smaller compared to that of sulphur. Thus the van-der-waats forces in chlorine are weaker

23.
   i. anhydrons calcium chloride
   ii. Cooper (II) Oxide turns from Black to brown
   iii. Hydrogen gas reduces copper (II) oxide to copper metal which is brown.

24.
   a. $NaCl_{(s)} + H_2SO_{4\ (aq)} \rightarrow NaHSO_{4\ (s)} + HCl_{(g)}$
   b.
      - React HCl gas with iron to form iron (II)Chloride and hydrogen gas
      - React HCl gas with ammonia gas to form white fumes of ammonium chloride .
   c.
      - Used in large scale manufacture of HCL acid
      - Used in manufacture of polymers such as PVC

25. The Red litmus paper remains red. This is because dry chlorine gas does not bleach.
26. By adding aqueous sodium chloride to separate solution of the ions. In case of lead ions (Pb^2) ions White precipitates will be observed while no precipitate form in case of calcium ions.
27.
   a. Phenol / phthalein indicator 1
   b.

Acid	Base	Neutral
Lemon juice	wood ash	Sodium chloride

28. RFM $Ca(NO_3)_2$ = 40 + 28 + 96 = 164
    Thus
    164 = 1 mole
    8.2 → ? $^{8.2\ X\ 1}/_{164}$ = 0.05 mole

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CHEMISTRY PAPER 2 Marking Scheme - 2019 K.C.SE Prediction Set 1

1.
   a.
      i.
         I. X because its boiling point is lower than that of room temperature and it is slightly
            soluble in water
         II. V
      ii. W
   b.
      i. Alkaline earth metals
      ii. G
      iii. Covalent bond
         Because the bond is formed by sharing of electrons since they are both non-metals elements
      iv. J_2O_3
      v. Tick
2.
   a.
      i. E
         Rise in temperature is lower, showing that the acid is partially ionized hence some energy is used to ionize its molecules fully
         $NaOH_{(aq)} + CH_3COOH_{(aq)} \rightarrow CH_3COO.Na(aq) + H_2O_{(l)}$
   b.
      I. Is the amount of heat energy required to convert one mole of a liquid substance at its boiling point to its gaseous state.
      II. .....
      III. ΔH_1= -133 kJ/mole
         ΔH_2= -188 kJ/mole
         ΔH_3= -133 +188 = +55 kJ
      IV. $H_2O_{(l)} \rightarrow H_2O_2$ ΔH_3= -133 +188 = +55 kJ
   c.
      I. Is a substance that provide useful energy when it undergoes a chemical or nuclearreaction
      II.
         a. Hydrogen gas burns to produce steam which is a non- pollutant to the environment
            Hydrogen gas has a high energy content hence very small amount produce a lot of heat energy
         b. Hydrogen gas can easily explode when burning since it is highly flammable unlike fossil fuels.
3.
   a. Solvay process
   b. Ammonia gas
      Limestone / calcium carbonate
      Brine / concentrated sodium chloride
   c. Ammonia gas
   d. Filtration

e. Calcium chloride
$2NH_4Cl_{(aq)} + Ca(OH)_{2(aq)} \rightarrow CaCl_{2(aq)} + 2H20_{(l)} + 2NH_{3(g)}$

f. Sodium carbonate
$2NaHClO_{3(s)} \rightarrow Na_2C0_{3(s)} + H_20_{(l)} + C0_{2(g)}$
From equation : 2 moles NaHC03 produces 1 mole Na2C03
R.M.M of $NaHC0_3$ is (1 x 23) + (1x1) + (1 x 12) + (3 x16) = 84
$(^{84g}/_{1000g}$ X 1) kg is 0.084 kg
2 mole $NaHC0_3$ is 0.084 x0.168 kg
R.M.M of Na_3C0_3 is (2 x 23) + (1x12) + (3 x16) = 106
$(^{106g}/_{100g}$ x 1 kg) is 0.106 kg
If, 0.168 kg $NaHC0_3$ produces 16 Kg
98.128 produces (98.128 x 0.106 Z

4.

i. -2.90 volts
ii. U
Hydrogen is used as the reference electrode hence its E O is 0.00 volts
iii. Drawing
iv. On the diagram
v. E^o cell = E^o reduced - E^o oxidized
= (+0.34)- (-2.38) = +2.72 V
vi. 2 moles of e - deposits 63.5g Cu
2 faradays deposits 63.5g
2 x 96 500 I 1 = 193 000 c
If, 63.5 g Cu is deposited by 193000 c
1.48 g is deposited by 1.48 x 193 000 x 63.5 = 4498.2677 c
Q = it
4498.2677 = I x (2 x 60 x 60) + 30 x 60 I = 4498.2677/9000 = I = 0.4998A

5.

a.
i. N/A
ii. $CH_3CH_2CH_20H$
iii. Concentrated sulphuric (VI) acid
Acidified potassium manganate (VII)
iv. Polypropene . used in manufacture of plastic crates, carpets, boxes
v. Hydrogen gas
$2CH_3CH_1CH_10H + 2K \rightarrow CH_3CH_2CH_2OK + H_{2(g)}$
Potassium propoxide

b. DRAWING

6.

a. Magnetite
b. This is because iron from the blast furnace is impure and presence of impurities lowers its melting point
c. To produce calcium oxide which reacts with silica for form slag
d. Slag is immiscible with molten iron
e. To conserve heat energy in order to maintain the optimum temperature needed for the reduction of the iron (III) Oxide
f. Carbon
$3C(s)+ 2Fe_2O_{3(aq)} \rightarrow 3C_4Fe_{(l)} + 3C0_{2(g)}$
g. Because the reaction between coke (or coal) and hot air at point A is highly exothermic.
h. Pig iron

H is reduced by blowing oxygen gas into molten iron which conve1is carbon into carbon (VI)oxide gas.

7.

a.

i. Ca(.HCO.J (aq)+ Ca(OH) z(c;.q) ? 2CaC03 (s) + 2H2 0(1)

ii. If, in 1000cm3 are 0.01 mole calcium hydroxide
In 90cm3 are 90 x0.01 / 1000 = 0.0009 mole of calcium hydrogen

iii. When soap solution is added, it initially will form scum because water will still be hard
Later lather will be produced because all calcium ions in the water will have been precipitated

b.

- The magnesium .and calcium ions in water are exchanged with sodium ions in the permutit
- By passing a solution of concentration sodium chloride through the column
- Leads to formation of boiler scales which acts as an insulating layer that leads to fuel wastage

c. For forward reaction: H2o is the base since accepts a proton

d. For backward reaction: H02 is the base since it accepts a proton.

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CHEMISTRY PAPER 3 Marking Scheme - 2019 K.C.SE Prediction Set 1

1.

a. $(11.4 \pm 0.2)cm^2$

b. $NaOH_{(aq)} + HCl_{(aq)} \rightarrow NaCl_{(aq)} + H_2O_{(l)}$

c. mole NaOH = 40g
=0.5g
$1 \times {}^{0.5}/_{40} = 0.125$ moles
= 0.125 moles
0.125 moles NaOH = 250 cm^3
?= 100 cm^3

d. $0.05 \times {}^{25}/_{100} = 1.25 \times 10^{-3}$ Moles
?= 25 cm^3

e. mole ratio of NaOH:Hcl
1 mole : 1 mole
1.25×10^{-3} :?
$1 \times {}^{1.25}/_{1} \times 10^{-3} = 1.25 \times 10^{-3}$ moles
$1.25x\ 10^{-3}$ moles = 11.4 cm^3
?= 250 cm^3
$1.25 \times 10^{-3} \times {}^{250}/_{11.4}$= 0.0274 moles

f. 0.02741 moles= $10cm^3$
? = $1000cm^3$
$0.02741 \times {}^{1000}/_{10}$ = 2.7412 moles

2.

	Volume of Solution A (cm^3)	Volume of distilled water (cm^3)	Concentration of Solution A ($moles/dm^3$)	Time (s)	${}^{I}/_{t}$ (S^{-1})
I	12	0	2.7412 M	17.75	0.05634
II	10	2	2.2843 M	25.18	0.03970
III	8	4	1.8275 M	36.90	0.02710
IV	6	6	1.3706 M	70.94	0.01410
V	4	8	0.9137 M	178.34	0.005607

a.

i. 2.7412 moles= $1000cm^3$
? = $10\ cm^3$
$2.7412 \times {}^{10}/_{1000}$ = 0.027412 moles
0.027412 moles = 12 cm^3
?= 1000 cm^3
$0.027412 \times {}^{1000}/_{12}$ = 2.2843 moles
2.712 moles = $1000cm^3$
? = $5\ cm^3$

ii. $2.7412 \times {}^{5}/_{1000}$ = 0.02193 moles 10QC,
0.02193 moles= $12cm^3$
? = $1000cm^3$

$0.02193 \times {}^{1000}/_{12}$ = 1.8275 M

2.7412 moles = 1000 cm^3

? = 6cm^3

$^{2.7412}/_{1000} \times 6 = 0.01645$

0.01645 = 12 cm^3

? = 1000cm^3

$^{0.01645}/_{12} \times 1000 = 1.3706$

iii. 2.741 moles= 1000cm^3

? = 4 cm3

iv. 2.7412 = 1000cm^3

? = 4

$^{2.7412}/_{100} \times 4 = 0.01096$ moles

0.01096 moles = 12 cm^3

? = 1000cm^3

0.01096 × $^{1000}/_{12} = 0.9137$ m

b. $^{1}/_{t} = 2.0 \times 10^{-3}$ sec

t = $^{1}/_{2.0 \times} 10^{-3}$

t = 50 sec

Rate of reaction increase with increase in concentration of the ac

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AGRICULTURE PAPER 1 Marking Scheme - 2019 K.C.SE Prediction Set 1

SECTION A

1.
- Broadcasting
- Placement method
- Side dressing / top dressing / band application / ring application;
- Foliar spraying
- Drip application in drip lines;
- Fertigation (4 x ½ = 2 marks)

2.
- Pollinators
- Decomposers;
- Friendly predators;
- Nitrogen fixing bacteria (½ x 4 = 2 marks)

3.
- Crop production;
- Livestock production;
- Soil science;
- Agricultural economic;
- Agricultural engineering; (½ x 4 = 2 marks)

4.
- Has no land disputes;
- Labour is well used;
- Profit accrued is well distributed among the members;
- Mechanization is well effected (½ x 4 = 2 marks)

5.
- Reduces soil erosion;
- Conserves water;
- Suppresses weeds growth;
- Improves soil structure upon decomposition;
- Adds fertility to the soil upon decomposition. (½ x 4 = 2 marks)

6.
- Where land is abundant;
- Where the population is sparse;
- Where the livestock per unit area is low;
- Where land is communally owned, (½ x 4 = 2 marks)

7.
- Loss of plant nutrients;
- Loss of soil microorganisms;
- Reduction of soil depth;
- Siltation of dams and rivers;
- Permanent scars on the landscape;
- Tourist attraction sites created (½ x 4 = 2 marks)

8.
- Warm temperature;
- High relative humidity;
- High light intensity for soft wood cuttings;
- Oxygen;
- Supply / aeration;
- Chemical treatment with rooting hormones IAA/IBA /NAA;
- More leaf area for soft wood cuttings; (½ x 4 = 2 marks)

9.
- Date;
- Amount sold;
- Price per unit;
- Total amount;
- Where sold; (½ x 4 = 2 marks)

10.
- Joint products;
- Competitive products;
- Supplementary products;
- Complementary products; (½ x 4 = 2 marks)

11.
- Date;
- Particulars;
- Folio;
- Credit;
- Debit; (½ x 4 = 2 marks)

12.
- Improves yield the following season
- Discourages bud disease occurring; (½ x 2 = 1 mark)

13.
- Gross Domestic Product (GDP)
- Gross National Income / Product (GNI/GNP)
- Per Capital Income (½ x 4 = 2 marks)

14.
- Leaf curling;
- Mosaic;
- Malformation / distortion / leaf chlorosis;
- Rosetting / short internodes (½ x 4 = 2 marks)

15.
- Improve soil aeration;
- Improve soil volume;
- Raise soil temperature;
- Increase Microorganisms population;
- Reduce soil erosion;
- Remove toxicity. (2 marks)

16.
- Remove unpalatable stemmy fibrous material;

- Stimulate fresh growth of pasture (½ x 4 = 2 marks)

17.

- Durable.
- High pressure tolerance
- Resistant to rodent damage (½ x 4 = 2 marks)

SECTION B

18.

a. **J** – Double thorn/Oxygonumsinuatum
K – Nut grass/sedge/Cyprus rotundas (½ x 4 = 2 marks)

b. Has underground nuts that are used for propagation (1 mark)

c.

- Reduces the efficiency of workers in the field due to the sharp thorns that inflict injuries.
- Competes for nutrients with the desired crops (1 mark)

d.

- Extensive rooting system;
- Survive where there are limited nutrients;
- Have short life cycles (1 mark)

19.

a. **Method of compost making**
- Indore method (1 mark)

b. **Factors to consider when siting the structure**
- Well drained place
- Direction of prevailing wind
- Size of the farm
- Accessibility
- Topography (4 x ½ =2 marks)

c. **Function of the following materials in preparation of compost manure**

i. **Top soil** (1 mark)
- Introduces microorganism necessary for decomposition of organic material.

ii. **Wood ash**
- Improve level of phosphorous and potassium in resulting manure

20.

a. **A** - Maize weevil
B - Squirrel (1 mark)

b. **A** - Dry grain in store/dry grains/stored grain
B - Seeding stage / grains at planting time (2 marks)

c.

A

- Timely harvesting
- Use of resistant varieties

B

- Trapping, killing, use of scare crows

- Rodenticide (2 marks)

21.

i. Stem tuber (1 mark)

ii. Chitting (1 mark)

iii.

- fast establishment
- True to type
- Cheap/faster (3 marks)

SECTION C

22.

a. **Selection and preparation of planting material (3marks)**

- Dry the seeds before planting
- Select the seeds discarding damaged and wrinkled one
- Dress with an appropriate pesticide to control soil borne pests.
- Inoculate the seeds with the right strain of rhizobium spps

Planting (4 marks)

- Done at the onset of the rains
- Plant 2-3 seeds per hole
- Space at 30 – 45 cm x 15 cm
- Use D.A .P 200 kgms per hectare on the furrows before planting
- Use a seed rate of 50 – 60 kgms per hectare

Weeding (3 marks)

- Done shallowly;
- Done before flowering to avoid knocking flowers;
- Done when the field is dry to avoid spreading diseases
- Done preferably by hand weeding,

b. **Environmental conditions that may lead to low crop yields (10 marks)**

- Less rainfall/unreliable/too much rainfall.
- Inappropriate temperature either too low or too high.
- Extreme humidity is bad;
- Topography/some altitudes may limit crop growth
- Extreme light intensity reduces photosynthesis.
- Hailstones damage crop leaves/cause defoliation.
- Poor weed control lowers crop yields.
- Poor soil fertility leads to poor yields.
- Excessive wind leads to soil erosion and Evapotranspiration.
- Water logging and leaching of nutrients leads to inappropriate soil pH
- Attack by crop pests lowers yields.
- Attack by crop diseases lowers yields

23.

a.

- Deep rooted crops alternative shallow rooted
- Nutrient requirement – heavy feeders should come first in a rotation
- Weed control – corps associated with certain weds should be alternated with those that are not
- Pests and diseases control – crops form the same family should not follow each other in a rotation since thy are attacked by same pests
- Soil fertility – a legume should be included in a rotation to improve soil fertility by

nitrogen fixation
- Soil structure – Grassley should be introduced in a rotation
- Crops easy to weed should be alternated by those difficult to weed (6 marks)

b. **Factors influencing the type of irrigation**
- Nature of land/topography
- Type of soil
- Availability/amount of water used
- Type of crop to be irrigated
- Distance of the water source form field
- Technology available
- Cost of the system to be sued
- Climate of the area
- Availability of skilled human power

c. **Post-harvesting practices in maize**
- Shelling – removing / threshing grains from the cobs
- Drying – to acquire right moisture content for shortage
- Winnowing – to remove chaff
- Dusting – applying chemical powder on seed to control storage pest
- Processing into final product for packaging
- Grading/sorting –separate bad ones form good seeds (6 x 1 = 6 marks)

24.

a. **Advantages of budgeting in farming**
- It helps the farmer indecision making
- It enables the farmer to protect future returns so as to plan ahea
- It helps the farmers to avoid incurring losses by investing in less profitable enterprises
- It enables farmer to secure loans form financial institution
- It ensures a periodic analysis of the farm business
- It acts as a record which can be used for future reference
- It pinpoints efficiency or weakness farm operations

b. **Types of risks and uncertainties**.
- Fluctuation of commodity prices.
- Physical yield uncertainty - dues not known how much to expect.
- Ownership uncertainty - The farmer loses part or whole of the produce through theft, fire or death.
- Outbreak of pests and diseases.
- Sickness and injury uncertainty.
- New production technique and uncertainty.
- Obsolescence - A farmer may invest in machinery which may become outdated (Any 5 x 1 = 5 marks)

c. **Importance of pruning perennial crops e.g. Tea, coffee**.
- To regulate quantity and quality of fruits or flowers
- In tea pruning is done to stop the upwards growth of the plant to allow the sideways growth hence making plucking of the leaves easy
- To remove all branches broken, dead or diseased.
- To permit air circulation and secure more light for most parts of crop.
- To remove branches and fruits that rub against each other.
- To make certain field operations easier and effective e.g. spraying (5 x 1 = 5 marks)

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AGRICULTURE PAPER 2 Marking Scheme - 2019 K.C.SE Prediction Set 1

SECTION A

1.
- Type of plants from which the nectar was collected
- Maturity stage of honey at the time of harvesting
- Method of harvesting
- Method of processing honey (3 x ½ = 1½ marks)

2.
- Washing a cow with hot water
- Beating the cow (mistreatment)
- Change of milkman
- Unfamiliar noise
- Absence of food during milking (4 x ½ = 4marks)

3.
- Sow becomes restless
- Vulva turns red and swells
- Udder becomes full with a milky fluid on teats
- The sow starts to build a nest by collecting some bedding at one corner of the pen. (3 x ½ = 1½ marks)

4.
- Inadequate nests
- Too high /too low laying nests.
- Nests are brightly lit.
- Too small laying nests that make the birds squeeze in them. (3 x ½ = 1½ marks)

5.
- Free from diseases causing organisms
- Has no hair, dirt or dust.
- It is of high keeping quality
- Has good flavour
- Its chemical composition is within the expected standards. (3 x ½ = 1½ marks)

6.
- Avoid contaminating livestock feeds with feaces
- Rotational grazing
- Improved sanitation by removal of dung
- Use appropriate anthelminthes
- Use latrines (4 x ½ = 2 marks)

7.
- Loss of weight and emaciation
- Pot-bellied/ watery swellings on the body of the affected animal
- Animal suffers from indigestion
- Liver is damaged / Hemorrhage due to movement of flukes in the liver.
- Anaemic condition
- Dullness and animal appear depressed.
- Swollen and painful abdomen

- Recumbency precedes death. (4 x ½ = 2 marks)

8.
- Increase level of production i.e. milk
- Improve quality of livestock products.
- To improve disease resistance in the animal
- To develop animals with a high growth rate.
- To develop animals with high heat tolerance.
- To develop animals that matures early. (4 x ½ = 2 marks)

9.
- Freezing
- Salting
- Sun-drying
- Smoking
- Canning (4 x ½ = 2 marks)

10.
- Roughage
- Concentrates (2 x ½ = 1 mark)

11.
- To produce female gametes
- Produce hormones that reduce oestrus cycle (2 x ½ = 1 mark)

12. **Reasons for flushing**
- Increase conception rate
- Facilitate implantation of the zygote
- Increase lambing percentage
- Increase twinning / multiple births. (2 x ½ = 1 mark)

13. **Reasons for treating timber**
- Prevent attack by fungi / rotting
- Control pest attack
- Make timber strong and resist weather conditions
- Prevent warping (4 x ½ = 2 marks)

14.
- Animals body size
- Physiological status of the animal
- Level of production
- Environmental temperature
- Age of animal (4 x ½ = 2 marks)

15.
- connection / disconnection of the drive shaft
- Take off smoothly without a jerk (2 x ½ = 1 mark)

16.
- Spacious / provide adequate space
- Well ventilated
- Easy to clean.
- Well lit

- Leak proof
- Allow single calf housing at a time.
- Well drained floor (4 x ½ = 2 marks)

17.

- Availability of land for rearing
- Topography of land to facilitate easy drainage.
- Availability of labour
- Availability of appropriate equipment
- Security
- Knowledge of the farm. (4 x ½ = 2 marks)

18.

- Control internal and external parasites
- Control diseases
- Effect identification
- Remove extra teats
- Effect dehorning (4 x ½ = 2 marks)

SECTION B

19.

a. A - Alveolus
   B - Gland cistern
   C - Teat cistern
   D - Teat (4 x ½ = 2 marks)

b. Oxytocin, Adrenalin (2 marks)

c. Injecting a cow with appropriate antibiotics through the teat canal when it is being dried off to protect the cow from getting mastitis, (1 mark)

20.

a. Fowl pox (1 mark

b.

- Cause death of the chicken
- Lowers egg production
- Increase cost of production (2 x 1 = 2 marks)

c.

- Kill all infected birds
- Vaccinate healthy birds
- Practice hygiene in poultry house (2 x 1 =2 marks)

21.

a. **P** - Wall plate
   Q - Purlin
   R - Tie beam/ Cross tie
   S - Rafter (4 x ½ = 2 marks

b. **P** - Hold the trusses securely (1 mark)
   Q - Hold the roofing materials (1 mark

c. Tar; Creasole; tanex; used engine oil; Copper sulphate solution (*Accept appropriate example*, (1 mark)

22.

a. **E** - Differential

F - Fly wheel
G - Piston
H - Crankshaft (4 x ½ = 2 marks)

b. **E** - Changes the direction of drive to right angles to power the wheels (1 mark)
H - Rotate and help the piston to move up and down. (1 mark)

SECTION C

23.

a.

- *The species of the animal* – Certain species of animals are affected by specific diseases like swine fever for pigs and new castle for poultry.
- *The breed of the animal* – Certain breeds of animals are affected by particular diseases like cancer of the eye for Helford and solar erythema for large whites.
- *The age of the animal* – Certain ages of animals are easily affected by certain diseases e.g. anemia for piglets and lamb dysentery for lambs.
- *Sex of the animal* – Certain diseases are associated to sex of the animal e.g. Orchitis for males and vaginitis for females
- *Color of the animal* – Black colored animals suffers from heat stress. (5 x 1 = 5 marks)

b.

- Burning of the infested pastures in order to kill all the stages of the lifecycle of ticks.
- Ploughing the pasture so that the stages of the lifecycle are exposed to sunlight for desiccation or killed by burying deeply.
- Top dressing the pasture with lime or acaridae is also effective in controlling larvae, nymphs and adults
- Fencing the pasture and farm to keep off intruding animals that could be carriers.
- Starving the ticks to death by enhancing rotational grazing which is effective in breaking lifecycles.
- Hand picking the tricks and killing them-deticking. (6 x 1 = 6 marks)

c.

- Age of the animal. Young animals produce higher butterfat content in milk.
- The middle stage of lactation of a cow has higher butterfat content.
- Condition of the animal. Emaciated sick and pregnant animals produce low butterfat content.
- The last drawn milk during milking has higher butterfat content.
- Time of milking. Evening milk has higher butterfat content than morning milk.
- Breed of the animal. Jerseys, Guernsey the Zebu cows have a higher butterfat content than other breeds.
- Season of the year. Cows produce milk with higher butterfat content during cold season than warm season.
- Cows that feed on roughage produce milk with higher butterfat content than other feeds
- Cows suffering from disease like mastitis produce milk with a low butterfat content and poorly contaminated.
- Cows under medication with antibiotics produce milk that is poorly constituted (9 x 1 = 9 marks)

24.

a.

- Makes operations timely and faster
- Makes work easier and enjoyable
- High quality job is done than human labour
- There is an increased efficiency
- Pests and diseases outbreak cam be controlled relatively in a short time
- Farmers benefits form economic of scale
- It is economical in times of labour demand
- High yields are achieved because farm operation s are carried out timely (5 x 1 =5 marks)

b.

- They have the ability to invert the furrow slice very well and as a result they can burry the vegetation ploughed
- They are easily kept at a constant depth during ploughing
- Better penetration in to the soil can be obtained
- If ploughing is done well, it is possible to prepare a seed -bed in one operation, i.e. it may not be unnecessary to harrow in order to break clods of soil
- Fewer secondary operations are needed. (5 x 1 = 5 marks)

c.

- Timber - Construction box and top bars
- Corrugated iron sheets - form lid to prevent leakage.
- Nails- for joining parts
- Wire - firming wire loop, for hanging
- Posts - for hanging
- Wood preservatives- coating on wood to preserve from attack by pests and weather conditions.
  (½ mark for mentioning the material, ½ mark for explaining – 5 marks)

d.

- The water pump should be lubricated regularly
- Clean water should be used in the radiator and trash removed from the fins
- All pipes ^should be fitted tightly to avoid leakage
- Fan belt tension should be checked regularly and if too tight or too loose should be adjusted
- The radiator should be filled with clean water before starting day's work. (5 x 1 = 5 marks)

25.

a.

- Wedge shaped
- Well set hind quarters
- Straight top line
- Milk veins are visible
- Big / large stomach to accommodate food
- Large udder
- Lean body with little flesh (4 x 1 = 4 marks)

b.

- Age of animal
- Level of performance / production
- Physical fitness
- Health – Animals selected must be health

- Body conformation – Animals for breeding should be selected according to their body conformation.
- Temperament or behavior – Some animals within a breed might have bad temperament or undesirable behaviors such as cannibalism and egg eating in the case of poultry.
- Quality of products – Select animals that give products of high quality
- Mothering ability – Animals selected should have a good mothering ability, which are animals with good natural instinct towards their young ones.
- Adaptability – Animals selected should be well adapted to the prevailing climatic conditions.
- Prolificacy – Select animals which are highly prolific, that is animals with an ability to give birth to many offsprings at a time. (9 x 1 = 9 marks)

c.

i. **Cause**
   - Low level of calcium in the blood of a cow. (1 mark)

ii. **Symptoms**
   - Staggering
   - Muscular twitching
   - Complete anorexia
   - Animal becomes unconscious
   - Animal lies on the sternum with neck twisted backwards.
   - Dullness
   - Caseation of body functions
   - General paralysis. (4 x 1 = 4 marks)

iii. **Control measures**
   - Practice partial milking in cows with a history of milk fever.
   - Feed animals with diet rich in calcium during pregnancy
   - Intravenous injection with calcium salts/calcium borogluconate in animals with milk (2 x 1 = 2 marks)

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BUSINESS STUDIES PAPER 1 Marking Scheme - 2019 K.C.SE Prediction Set 1

1. **Physical resources**
    - Buildings
    - Motor vehicles
    - Machines
    - Furnitures
    - Equipment
2. **Importance of entrepreneurship in a country**
    - Creates employment
    - Promotes innovation and creativity
    - Enhance utilisation of available resources
    - Generates personal/national income
    - Creation of a varirty of goods
    - promote new technology
    - Enhances development of enterprising culture in the country
    - Enables formation of capital/wealth
3. **Personal attributes of a secretary**
    - Good personal grooming
    - High standards of health
    - Should manintain an upright and energetic posture proper walking styles/sitting styles
    - Should be orderly in the he/she performs and organises his or her work
4. **Circumstances under which a credit note is issued**
    - When invoice is overcharged
    - When goods are returned due to damage
    - When goods not supplied are charged for
    - Where goods not ordered for are returned
    - Where the buyer returns empty packing containers for which he had charged
    - Where a deserving discount is not allowed in the invoice
5. **Challenges facing cooperative societies**
    - Withdrawal of members causing financial strains to the society
    - Smiall contribution by members leading to financial difficulties
    - Does not attract high quality staff because of low pay
    - Members are not well informed hence do not take part in the affairs of the society
    - Manangement committee ar en ot qualified
    - Suffer from unnecessary polituical interfererence
    - Slow decision making procvess
    - They are flexible
    - May suffer from mismanagement/embezzlement of funds
6. **Benefits of containeristaion**
    - Carry large quantities
    - Minimal damage to goods
    - Goods are safe from theft and pilferage
    - Low insurance premiums
    - Ease of loading and offloading due to use of handling equipment
    - Minimal handling cost due use of modern technology
    - Containers are fitted with appropriate handling services
    - Possible to transport speciliased goods using specially designed containers

7. **Advantages of E-mail**

    - Relatively cheap
    - Relatively fast
    - It is confidential
    - Instant feedback
    - User can access other information such as advertising
    - It is relatively easy to retrieve information
    - It is universal
    - Detailed information can be sent
    - The information can be used for futur reference

8. **Factors that may limit the effectiveness of a warehouse**
    - Inadequate premises to accommodate goods
    - Poor/ionadequate handling equipment/machines
    - Incovenient location to users
    - Lack of special facilities to cater for special goods
    - Unqualified and incompetent staff
    - Poor security
    - Non competitive with legal requiremnt
    - Poor inventory control

9. **Movement along a supply curve and shift of supply curve**

movement	**shift**
Only one supply curve involved	Involves two supply curves
Caused by change in the price of a commodty	Caused by other factors besides the prices
Is the quantity supplies that changes	It is the supply that changes
A different quantity is supplied only at a different price	A differnt quantity is supplied at the same price as before
Can be traced up and dpwn the smae curve	Cause the entire supply curve to move either to the left or to the right

10. **Effects of production activities on the envrionment**
    - Depletion of productive resources
    - Degradation of the environment
    - Pollution of air/water
    - Rise in crime and anti-social activities
    - Diverse effects on the ozone layer
    - Disease and poor health caused by hadnling of chemicals
    - Psychological diseases e.g. stress
    - Noise poluution causing hearing problems

11. **Monopoly vs monopolistic competition**

Monopoly	**Monopolistic**
Exists only one single seller	Exists more than one firm/seller
No close substitutes	Products are differentiated
Exercises full control of the market	No single firm controls a significant proportion of the total market
The firm is the price giver/setter	A firm must exercise some caution before changing the price
Demand curve steeply slopes from left to right	The demand curve slopes gently from left to right

12. **Factors that influences the choice of distribution channels**
    - Nature of the product
    - Location of the market
    - Cost of the channel
    - Governemet policy
    - The size of the market
    - Nature of competition
    - Need for after ssale service
    - Amount of capital/finances
    - Volume of goods produced
    - Financial ability of the consumers
13. **Limitations of using National income statistics to measure standard of living**
    - Data being used may not be accurate
    - National income figures does not reflect the distribution of income
    - Consumption patterns and lifestyles are not constant
    - It may not show the proportion of income spent on productive or on productive activities
    - A high income could be at the expenes of citizens social welfare
    - Figures may not reflect depreciation/appreciation assets
14.
    a. Increase
    b. Decrease
    c. No effect
    d. Decrease
15.

Kariuki Enterprises
Profit and loss account
for the year ended 31/12/15

Expenses	80,000	Gross profit	240,000
Net profit	280,000	Revenue income	120,000
	360,000		360,000

Mark up 25% = $^1/_4$ Margin = $^1/_5$ = 20%

$$\text{Margin} = \frac{\text{G profit}}{\text{sales}} \times 100\%$$

$$20\% = \frac{240{,}000}{\text{sales}}$$

$$\text{Sales} = 240{,}000 \times \frac{100}{20} = \text{Sh. } 1{,}200.000$$

16. **Factors of demand for money**
    - Level of individual income
    - Price level/inflation
    - Interest rate
    - Availability of credit facilities
    - Individual's style of life/spending habits

17. Features of economic resources
    - They are scarce/limited
    - Have monetary value
    - Unevenly distributed
    - Can be combined
    - Have utility/usefulness
    - Can be tranferred form one person to another
18. **Disadvantages of division of labor**
    - Lead to monotony resulting to boredom
    - Hinders creativity
    - Makes a worker dependant on one trade
    - Encourage the use of machines which may lead to unemployment
    - May make a country dependent on other countries
    - Bring people together and this lead to social problem
    - Lack of pride in the final product
    - If a few people stop working the whople production process stops
19. **Advantages of government involvement in business activities**
    - Provison of essential goos/services
    - Provison of large capital invetsment
    - Protection of citizens from exploitation
    - Stimulation of economic development
    - Create employment
    - To generate government reveneue
    - Stabilistaion of the ecnomy
    - Promotre equity in distribution of resources
    - Control use of resources
    - Maintenance of law and order
    - Promotion of best practices
    - Reduce foreign dominance
    - Promotion of entrepreneural culture
    - Promote investment in the country
20. **Re insurance circumstance**
    - When the value of the property it has insured is high
    - When the chance of the risk occuring is very high
    - When an insurance company has covered many risks
    - Incase there is need for insurance comapny to spread the risk
    - When the government policy makes it mandatory
21.
    i. Competitive advertising
        - Advertising which is aimed at convincing a customer to prefer a particular product

    ii. Celebrity Advertising
        - Advertising where a famous person is used to endorse a product by identifying with it e.g Nameless(muscles) yego etc
22.
    i. Income per head/per capita income
    ii. Optimum population
    iii. Under population
    iv. Over population
23. Jan 1: Business started with cash sh. 100000 as capital
    2: Deposited cash from cash till o to the business account sh. 50,000

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jan 8: Purchased stationery sh 10,000 and paid in cash

10: Purchased stationery worth shs. 4,000 and paid by cheque

24.

i. Cash receipt
ii. Outgoing credit note
iii. Incoming invoice/purchases invoice
iv. Outgoing invoice/sales invoice

25. 2001: $^{1069}/_{1000} \times 1000 = 106.9$

2002: $^{1162}/_{1000} \times 1000 = 116.2$

2003: $^{1200}/_{1000} \times 1000 = 120$

2004: $^{1325}/_{1000} \times 1000 = 132.5$

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BUSINESS PAPER 2 Marking Scheme - 2019 K.C.SE Prediction Set 1

1.

a. **Importance of trade within a country**

- Enables consumers to ge a wide varity range of goods and services to satisfy different tastes/preferences
- Creates a link between producers and consumers
- Promotes peace and harmony among trading partner thro' interaction among traders
- Provide employment thus raising citizens standards of living
- Encourages specialisation since producers sell what they produce and buy what they do not produce
- Facilitates tranfer of technology/skills which enhance wuality goods/services
- Encourage full utilization of available resources by provifing market/demand for raw materials
- Promotes entrepreneural culture where succesful entrepreneurs acts as role model
- Widens market for goods/services where surplus is sold

b. **Differences between a cooperative sociuety and a public company**

Cooperative society	**Public company**
Members welfare motivated	Profit motivated
Serves members only	Serves the general public
Minimum of 10 adults	Minimum of 7 shareholders
One man one vote	One share carries one vote
Co-operates with other cooperatives	Compete with other companies
Governed by cooperative act	Governed by company act
Has one class of shares	Has several types of shares
Share not freely transferable	Shares are freely transferable

2.

a.

MUMBI TRADERS THREE COLUMN CASH BOOK

D.r C.r

Date	Details	D.A.	Cash	Bank	Date	Details	D.r	Cash	Bank
2015					2015				
Dec 1	Bal b/d		125,000		Dec 1	Bal b/d			97,000
	2 Sales			335,260	3	Purchases		10,500	
13	Maro	1,600		158,400	9	Njeru	10,000		190,000
24	Bank c_1		100,000		16	Salaries		36,000	
29	Nyang'au	17,500		157,500	24	Cash c_1			100,00
31	Cash c_2			145,000	31	Bank c_2		145,010	
					31	Bal c/d		33,490	409,170
		19,100	225,000	796,170			10,000	225,000	796,170

b. **Purpose of public finance**

- To influence distribution of income in order to reduce regional imbalance in the country
- To stimulate economic development in the economy by intiating a major invetment/construcution of major development projects
- To regulate economic activities in the country by checking consumption of some goods/control monoply
- To raise public revenue levied through taxes to finace government expenditure
- Enhance good governmance/accountability/transparency
- To maintain economic stability in the country by checking inflation levels/unemployment/b.o.p deficits
- To control/regulate/encourage particular sectors of the strategic/social/economic e.g agriculture/health/education etc
- Market intervention so as to guide regulate and sometimes control the activities of the private sector
- Establish finanacial policies on subsidies ensure government security/law/order

3.

a. **Reasons for which business should observe ethics practices**

- To ensure fair competition - by ensuring fair play as business compte with each other/by not discrediting competitor product/damaging competition promotional materials
- To protect consumer from exploitation/overcharging/false advertising/poor quality of goods and services
- To protect the environment degradtation/pollutants
- To protect the rights if employees by paying them fairly/intervene/not violating their rights
- To promote social responsibility by enhancing a good relationship with the community/giving back to the socity
- To abide by the country's laws to avoid law suits/conflicts/friction with law enforcing agencies
- To mainatain suppliers - by paying them in time
- To promote positive culturall practices by not using offensive appeals that go against their cultural values
- To avoid discrimination in business by giving equal opportunities to all

b. **Factors that contribute to income disparity in Kenya**

- Corruption/outright stealing of country's resources
- Disparity in access to education
- Differences in individual/personal talent endowments
- Some people being politically advantaged over others
- Nepotism in securing good job opportunities
- Some people being involved in violent robbery
- Inheritance, some people had a lot to inheirt from their parents while others did not have anything
- The poor are always victims of the various cycle of poverty
- Disparity in natural resources endowmnet

4.

a. **Circumstances under which a manufacturer would prefer to sell his products direct to the consumer**

- If goods are highly perishable
- To enable him to provide after slaes services to buyers

- To maximise profit
- To ensure consumers get goods at the right price
- If he has his own retail outlet
- Incase of very sensitive items such as arms
- Incase of sale by tender
- Incase of small items e.g. small scale dairy farmer selling milk to neighbor

b. **Need for development planning**

- Ensure proper allocation of resources to avoid wastage/avoid duplication
- Act as a basis for attracting foreign aid and investment as it convinces them to finance/funding from donors
- To coordinating/controllling/communicating-used for structruing/implementatiin of the function
- To help in evaluating the performance to help make necessary adjustments/to determine whether the country is achievingg its goals/objectives
- It is a motivational tool, it inspires citizens to work hard/creates positive attitude towards work
- Framework/roadmap which give direction in decision making/assist in management
- Adoptability tool - give room for any changes/uncertainty

5.

a. **Explain five advantages of free trade**

- Enjoys quality of goods and services- due to increased competition
- Countries tend to specialise in what they can produce best
- Consumers are able to access a wide variety of goods/services to choose from
- Leads to creation of a wider market where countries can sell their surplus
- Free movement of factors of production from one country to another
- Creates investment opportunities in different countries
- Free flow of technology/skills/idea among different countries
- Enjoy cheaper goods/services due to competition
- Promotes peace/understanding among countries through interaction of their citizens

b. Need for consumer protection

- To protect tyhem against sale of poor quality goods and services
- To protect them against sale of goods and services under unhygienic conditons and environment
- To protect them against sale of harmful goods and services
- To protect them against breach of contract
- To protect them against over pricing of goods and services
- To protect them against hoarding of goods and services which may create artificial shortage
- Protect them against cheating through misleading or false advertisements
- Protect them against sale of underweight goods and inadequate services
- Protect them against sale of socially unacceptable goods and services
- Protect them against danger that arise due to contamination of the environment
- Protect them against sale of illegal goods and services
- Protect them from dangers that may arise from the use of unsafe buildings

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6.

a.

Sahara Traders
Trading Account
For the year ended 30th April 2013

Opening Stock	80,000	Sales	480,000
Add Purchases	400,000		
Cost of G.A.F.S	480,000		
Less closing stock	120,000		
Cost of sales	360,000		
Gross profit	120,000		
	480,000		480,000

(b) Rate of stock turn over = $\frac{\text{Cost of sales}}{\text{Average stock}}$

$= \frac{360,000}{100,000}$

$3.6 = 4$ times

b. **Cause of population decline**

- Government policy encouraging small families
- High costs of living
- High infant mortality
- Strict immigration rules
- Hunger/deteriorated diet
- Change of attitude favouring small families
- Calamities e.g wars/epidemics
- Poor health facilities
- Decrease in fertility rate/birth rate
- Adaptation of family planning programs
- Increase in employment for women leading to delayed marriage
- political instability

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HISTORY PAPER 1 Marking Scheme - 2019 K.C.SE Prediction Set 1

SECTION A (25 MARKS)

1. **Name the branch of history that deals with traditions, values and cultural practices of people.** 1mk
    - Social history
2. **Name the only southern Cushites group remaining in Kenya.** 1mk
    - Dahallo/senge
3. **Give two age sets among the Nandi in the pre-colonial period.** 2mks
    - Maina
    - Sawe
    - Chuma
    - Korongoro
    - Kipkoimet
    - Kiplelach
    - Kipnyige
    - Nyongi
4. **Apart from Vasco de gamma, name two other Portuguese generals who conquered the East African Coast.** 2mks
    - Tristao da cunha
    - Ruy Laurence Ravasco
    - Francisco d' Almeida
    - Padro Alveres Cabral.
5. **State the main way through which one qualifies to be a Kenyan citizen by their birth.**
    - If on the day of birth either the mother or the father of the person was or is a citizen.
6. **Give one economic factor that promotes national unity in Kenya. 1mk**
    - Equitable distribution of resources
    - Commercial interaction/ trade
    - Equal employment opportunities
    - Use of common currency
7. **State two functions of a constitution. 2mks**
    - Provides legal ground from which the laws of a country are made
    - Spells out the powers of the government and its relationship to the governed.
    - It spells out the rights and duties of all citizens.
8. **What is direct or pure democracy? 1mk**
    - People are involved directly in laws making
9. **Apart from the Nandi, which other two communities resisted British invasion in Kenya. 2mks**
    - Agiriama
    - Bukusu
    - Somali
10. **Who introduced settler farming in Kenya. 1mk**
    - Lord Delamere
11. **Name two nationalists outside central Kenya who were detained at Kapenguria in 1952. 2mks**
    - Paul Ngei
    - Achieng Oneko
12. **Give the main political challenge that faced Mzee Jomo Kenyatta immediately after independence. 1mk**

- Split within K.A.N.U. i.e. disagreed with Jaramogi Oginga Odinga
- Achieng Oneko and Bildada Kagia who broke from KANU and formed Kenya peoples union in 1966.

13. **State two electoral offences that are applicable to a voter. 2mks**
    - Voting more than once
    - Ceasing violence during campaigns
    - Double registration as a votes
14. **Mention the document in which African socialism as a national philosophy was expounded. 1mk**
    - Sessional paper number 10 of 1965
15. **State two ways through which the government has encouraged the preservation of African culture since independence. 2mks**
    - Creation of the ministry of culture and social services
    - The syllabus has been tailored to include cultural studies.
    - The government has encouraged music/drama festivals
    - Development of cultural heritage center at the bomas of Kenya by the government.
    - Allowing the media houses to play traditional music.
16. **Name two members of the county executive committee. 2mks**
    - County Governor
    - Deputy County Governor
    - Members appointed by the county governor with approval of the assembly who are not members of the assembly.
17. **Give the main function of the commission on revenue allocation in Kenya. 1mk**
    - To ensure equitable sharing of revenue between national and county government.

SECTION B(45 MARKS)

Answer three questions only from this section.

18.

a. **State five results of the settlement of Luo during pre-colonial period. 5mks**

- Displacement of the bantu speakers
- Absorption of some Bantus e.g. abasuba.
- Increase in population
- Intermarriages
- Increased trade
- Adoption of agriculture and iron work
- Increased conflicts
- Cultural exchange of initiation rites
- Development of language(borrowing of new words)
- Increased borrowing of political leadership e.g. chieftainship 5x1=5mks

b. **Describe the social organization of the Maasai in the 19th 10mks**
- The Maasai were divided into clans with each clan associated with a type of cattle
- Maasai boys and girls were initiated at puberty through circumcision
- All boys initiated together formed the warrior class called Morans
- They believed in a supernatural being referred to as Enkai/Engai
- They had religious leaders the chief among them being the Oloibon.
- They had rainmakers and diviners
- They had social ceremonies that accompanied the rites of passage.
- They Eunoto ceremony marked the graduation of junior elders. **5x2=10mks**

a. **State five reasons why the Portuguese built Fort Jesus in 1593. 5mks**
   - Hiding place/protection
   - To act as a watch tower
   - Store for food
   - Used as an armoury
   - Prison for war captives
   - Acted as administrative centre
   - Acted as a base for sending expeditions against opponents 5x1=5mks

b. **Explain five results of the coming of Christian missionaries to Kenya. 10mks**
   - They converted Africans to Christians
   - They built schools where Africans were taught how to read and write.
   - They built hospitals which helped to improve the health standards of the people
   - Introduced new cops and new farming methods.
   - Introduced new vocational skills e.g. carpentry and masonry.
   - Translated the Bible into local languages
   - Drew the map of the interior of the great lake region which inspired many explorers to come to Africa/ opened the interior of Kenya.
   - Undermined authority of African leaders
   - They wrote the first Kiswahili dictionary and grammar book
   - Established settlement for freed slaves
   - Helped to improve transport system-connection routes. 5x2=10mks

20.

a. **State three roles of Mekatilili wa Menza in the Agiriama resistance against the British. 3mks**
   - She encouraged the Agiriama to face the British by administering oaths.
   - She presented the grievances of the Agiriama to the British.
   - She rallied the people together against a common enemy.
   - Her leadership enlightened the roles of women in the struggle for independence. 3x1=3mks

b. **Explain six effects of the Wanga collaboration against invasion in western Kenya. 12mks**
   - Wanga kingdom expanded, she gained more kingdoms e.g. Samia, Bunyala etc
   - Mumia was declared a paramount in western Kenya.
   - Mumias headquarters Elureko became the seat of British administration in western Kenya.
   - Mumias warriors became agents of British colonization. They subdued other resisting communities e.g. the Luo of Ugenya and the Nandi.
   - Mumias princes became agents of British colonization his half brother Mulunga was appointed chief of Isukha and Idakho.
   - Mumia and his people gained material benefits of western education and religion.
   - Nabongo became an important ally of the British. He provided them with vital information ever appointment of chiefs.
   - Due to the Wanga collaboration there was intensified enemity and hospitality from other abaluty sections who viewed the Wanga as traitors. 6x2=12mks

21.

a. **State five factors that prompted the colonial government to construct the Kenya –Uganda railway. 5mks**

- To establish effective control over British East Africa
- To facilitate economic exploitation of the region.
- To facilitate movement of troops and British administrators.
- To stop slave trade and establish legitimate trade
- To link Uganda with the Coast and outside world for greater economic growth. 5x1=5mks

b. **Explain five factors that intensified African Nationalism in Kenya after 1945. 10mks**

- Acquisition of education by the African enabled them to articulate their grievances
- World war II –the ex soldiers made Africans to doubt the myth of British supremacy
- Granting of independence to India and Pakistan in 1947 made Africans in Kenya to clamor for their independence.
- Rise of Pan-Africanism contributed to new demands for political independence.
- Emergence of USA and USSR as super powers the two compiled the Britain to give independence to African countries.
- The signing of the Atlantic charter in 1941 stated that all subjects should enjoy the right to self determination.
- Formation of united nations-asked Europeans to decolonize.
- Change of government in Britain from conservative to labour. The labour government was willing to grant independence to African nations. 5x2=10mks

SECTION C (30MKS)

Answer two questions only from this section.

22.

a. **Give three ways in which education promotes national unity in Kenya. 3mks**

- Same curriculum is offered in the whole country
- In national schools, students from various parts of the country school together.
- Teachers and equipments are provided by the same government.
- Participation in games and sports by students from all over the country. 3x1=3mks

b. **Explain six factors that undermine National unity in Kenya. 12mks**

- Tribalism
- Nepotism
- Political wrangles
- Party membership
- Corruption
- Racism
- Religious conflicts
- Poverty
- Ignorance
- Unequal distribution of resources. 6x2=12mks

23.

a. **State five characteristics of a good constitution 5mks**

- Definite –Must define its contents clearly
- Comprehensive – Should be inclusive of all issues
- Durable and elastic- Neither two rigid to amend/change to flexible to encourage

interference.
- Should be able to protect the fundamental rights and freedom of the citizens.
- Amendment procedures should be clearly stated.
- It must be representative of the diversity of social and political spectrum of the people. 5x1=5mks

b. **Explain five reasons why human rights are important in Kenya. 10mks**
- Human rights are necessary for human beings to achieve a dignified life.
- Rights are inherent to human beings. One has rights purely because they are human.
- Rights e.g. rights to vote, information and expression ensure public access to necessary information.
- Rights empower citizens by giving them central on decision making organs of the government.
- They justify special treatment of the minorities and other disadvantaged groups.
- Provide guidance to organs of the state regarding exercise of state power.
- Respect for rights limits internal and external conflicts. 5x2=10mks

24.

a. **State three ways in which the High court supervises the work of the subordinate courts.3mks**
- Judges of the High court scrutinizes the monthly returns of cases in subordinate courts.
- Ensures justice is done through appeals, revision or confirmation of sentences/authority to call for records.
- It transfers or relocates sentences
- Supervises criminal and civil proceedings before subordinate court. 3x1=3mks

b. **Explain six functions of the cabinet in Kenya. 12mks**
- Assists the president in governing the country
- Discusses matters of national and international concerns with the president
- The cabinet formulates government policies and programmes
- Cabinet initiates new bills and tables government bills in parliament.
- A cabinet secretary for finance formulates and prepares national budget which he/she presents to the National Assembly.
- Cabinet secretaries on their individual capacity give direction to operations within their ministries. 6x2=12mks

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HISTORY PAPER 2 Marking Scheme - 2019 K.C.SE Prediction Set 1

SECTION A (25 MARKS)

Answer all questions from this section.

1. **Give two disadvantages of using electronic sources to study history and government. 2mks**
   - May be biased
   - May be inaccurate
   - Expensive
   - Some actual films maybe exaggerated
2. **Who was the architect of the theory of Evolution. 1mk**
   - Charles Darwin
3. **Mention one river associated with early agriculture in Mesopotamia. 1mk**
   - Euphrates
   - Tigris
4. **Give two roles of the takshifs during the Trans-Sharan trade. 2mks**
   - Protected the traders
   - Guarded the oasis
   - Guided the traders across the resort
5. **What is the main limitation of use of airships in transport. 1mk**
   - Can easily catch fire from the hydrogen bags that makes them airborne.
6. **Give two disadvantages of use of radio. 2mks**
   - If not properly controlled, radio volume can lead to noise pollution.
   - Radio has addiction effect on users
   - Some programmes promote immorality.
7. **State two political effects of industrial revolution in Europe. 2mks**
   - The scramble and partition of Africa was facilitated by industrial revolution.
   - The industrial revolution gave rise to maxim which condemned capitalism because of its exploitative effects.
8. **Identify the main factor that contributed to the growth of Athens in ancient Greece. 1mk**
   - Trade/commercial activities.
9. **Name the main symbol of unity among the shona in the 19th Century. 1mk**
   - Religion (Mwari cult).
10. **State two ways in which the partition of Africa affected Europeans. 2mks**
    - Europeans gained fame/ prestige/ recognition by having colonial possessions
    - Led to economic growth of European countries.
11. **What was the name of the company that administered Zimbambwe on behalf of Britain? 1mk**
    - British south African company (BSAC) ***Nb: Reject if abbreviated!***
12. **Apart from Nelson Mandela, mention any other Nationalist in South Africa. 1mk**
    - Robert Mangadisho Sobutwe
    - Albert Luthuli
13. **Identify two reasons why united states of America was reluctant to join the First World War on the side of Allies. 2mks**
    - USA favored an Isolationists policy in line with the Monroe Doctrine of 1823
    - She did not want to offend her citizens of German origin.
    - The war had not interfered with US interests up to 1916
    - She did not want the war to be fought on her soil.

14. **Give two specialized agencies of the United Nations which deals with provision of loans to member countries.** 2mks
    - The World Bank
    - The international monetary fund (IMF)
15. **Identify two organs of economic community of west African states (ECOWAS) 2mks**
    - Authority of heads of states/ government
    - Council of ministers
    - Executive secretarial
    - Tribunal
    - Specialized commissions.
16. **Identify the main principal of the Arusha declaration of 1967. 1mk**
    - Ujamaa (Socialism)
17. **Give one major political party in India. 1mk.**
    - Congress party
    - Bharatiya Janata Party

SECTION B (45 MARKS)

Answer any three questions only from this section.

18.
    a. **What three challenges did the early man face as he lived in caves. 3mks**
        - caves would collapse over them
        - dangerous animals could attack him
        - human enemies could attack him
        - caves were exposed to cold/winds/floods. 3x1=3mks
    b. **Explain six effects of development of early agriculture in Egypt. 12mks**
        - led to production of more food.
        - More food led to more mass of population
        - People settled down permanently
        - Led to development of town such as Memphis and Thebes
        - Led to specialization in crafts
        - Led to development of trade
        - Led to development of social classes 6x2=12mks
19.
    a. **State three factors that facilitated the acaulistion of slaves during the Trans-Saharan trade. 3mks**
        - The institution of slavery existed among many West African communities
        - Availability of fire arms
        - There existed well-developed routes leading to the interior slave markets
        - There was great demand for slaves in the new world. 3x1=3mks
    b. **Explain six factors that led to the decline of Trans-Saharan trade. 12mks**
        - The exhaustion of the main trading commodities such as salt and gold
        - Insecurity experienced in the region due to the collapse of Western Sudan Kingdom
        - The Ottoman Turks activities in North Africa.
        - Invasion of Moroccan ports along the Atlantic Ocean by the two Iberian countries-Portugal and Spain.
        - The Moroccan invasion of Western Sudan brought anarchy and disrupted trade.

- The growth of trans-Atlantic trade undermined Trans-Saharan trade- traders shifted their focus to the coast
- The Anti-slave trade crusaders led to abolition of slavery –slaves were one of the main commodities in items of trade
- Colonization of African continent- the resources in both North Sahara and Western parts came under European dominations.
- European penetration – impacted negatively on the role of middlemen in this trade.
- The establishment of commercial ports –traders now preferred to use water transport. 6X2=12mks

20.

a. **What five factors characterized industrialization in Britain. 5mks**

- Use of machines
- Construction of large scale factories
- New sources of energy e.g. electricity
- Manufacturing industry replaced agriculture as a source of wealth
- Urbanized industrial societies replaced traditional societies
- There was change in living styles
- Goods were produced in large-scale 5x1=5mks

b. **Explain the problems facing industrialization in South Africa.**

- Economic sanctions imposed by the UN during apartheid regime provided industrialization.
- Struggle to end apartheid was violent creating an atmosphere that was not conducive for investments
- High poverty levels hence low purchasing power
- High insecurity discourages investment
- HIV/AIDS has savaged the country's labour force.
- Competition from more developed countries who produced goods of high quality
- There were rampant industrial strikes in the country especially during the apartheid period. 5x2=10mks

21.

a. **Identify five factors that enabled Europeans to easily conquer Africa during the scramble. 5mks**

- They had sophisticated weapons e.g. the maxim guns
- Africans were divided
- African communities had been weakened by natural calamities e.g. drought and famine
- African military weakness favored European quest for colonies
- The discovering of quinine- it made it possible for European countries to penetrate Africa as they had discovered the cure for malaria.
- The invention of steamships made the Europeans access Africa easily. 5x1=5mks

b. **Explain five reasons why assimilation failed in Senegal. 10mks**

- Muslims resisted fiercely the attempt to convert them to Christianity
- Some Africans cultures were very intact- it was hard to assimilate them
- The traditional African chiefs did not want t lose their authority the assimiles
- Racial segregation – the French men never accepted assimilated Africans as equals
- The French men in France, opposed the policy as they did not want to be outnumbered in the French chamber of deputies
- A lot of expenses would be incurred in the process of assimilating Africans- e.g. building schools and health centers.
- There was fear among the French, that such assimilated Africans would become

serious economic rivals
- The policy of assimilation made it impossible to exploit Africans.
5x2=10mks

SECTION C (30 MARKS)

Answer any two questions from this section.

22.

a. **State five peace treaties signed between Allies and the central powers to bring peace in Europe. 5mks**
- The treaty of Versailles with Germany
- Treaty of St. German with Austria
- Treaty of nevilly with Bulgaria
- Treaty with Triarion with Hungary Treaty of serros with Turkey (treaty of Lausanne)
5x1=5mks

b. **Explain five social effects of World War II. 10mks**
- Led to bitter feelings and mistrust
- Change in the status of women
- Spread of diseases
- Widespread suffering
- Displacement of people
- Loss of lives 5x2=10mks

23.

a. **State five reasons why pan Africanism became more active in Africa after 1945. 5mks**
- World War II strengthened nationalism in Africa
- The 1945 Pan-African conference in Manchester brought many African elites together
- The attainment of independence in India and Pakistan in 1947 encouraged many nationalists in Africa.
- The attainment of independence in Ghana in 1957 encouraged many African nationalist
- The slowing down of Pan-African in America due to cold war attracted the same in Africa. 5x1=5mks

b. **Explain five functions of the United Nations Security Council. 10mks**
- Maintains international peace and security
- Investigates any dispute or any situation that might lead to international friction or council dispute.
- Calls upon states to settle their disputes peacefully
- Recommends to states appropriate procedures to be followed in settling disputes
- Determines whether any situation threatens peace and takes the necessary measures to maintain peace
- Admits, suspends and expels members from the UN
- Calls upon some or all members to provide or facilitate military action against aggressors 5x2=10mks

24.

a. **Mention three ways of becoming a member of parliament in Britain.** 3mks
- Elections
- Nominations
- Inheritance

- Virtue of office of members of the house of lords maintain their parliamentary seats through this way 3x1=3mks

b. **Explain six functions of the president in USA. 12mks**

- He is the head of state
- He is the chief executive
- He is the chief legislator
- He is the chief diplomat i.e keeps the congress, informed of the international developments.
- He is the head of the party
- He is the voice of the people and intervenes during disasters and other emergencies.
- Commander in chief of the armed forces 6x2=12mks