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MATHEMATICS PAPER 1 - 2019 K.C.S.E Prediction Set 2

SECTION I (50 MARKS)

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

1. Evaluate (4 marks)

$$\frac{\frac{1}{2} of \left(\frac{2}{5} - \frac{1}{6}\right)}{\frac{1}{2}\left(\frac{3}{5} + \frac{1}{4}\left(\frac{7}{3} - \frac{3}{7}\right) of 1\frac{1}{2} \div 5\right)} \\ 0.1\dot{6}$$

2. Without using logarithm tables or calculators, solve for x in the equation $12^{2x+1} = 4^{2x+1}$ (3 marks)
3. Use square, reciprocal and square root tables to evaluate, correct to 4 s.f the expression below (3 marks)

$$\frac{2}{\sqrt{1.256 \times 10^{-1}}} + (0.3894)^{2/3}$$

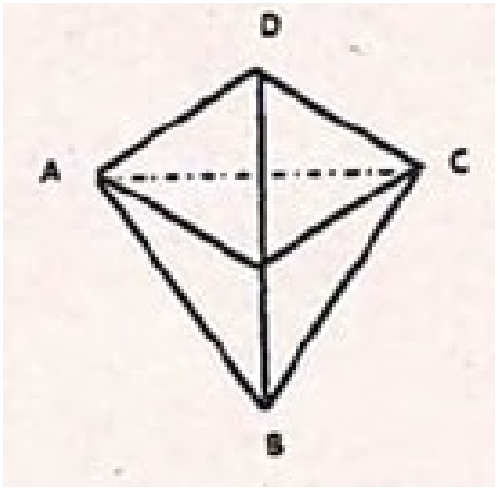
4. The line L_1 with equation 2x + 3y = 4 is reflected along the line y=0. Find the equation L_2. Give your answer in the form, ax + by − c = 0 (3 marks)
5. A tour company in Kenya received US dollar 100,00. The money was converted into sterling pounds in a bank whose exchange rate is given below

F

	Buying (Kshs)	Selling (Kshs)
1 US Dollar	100.20	100.98
1 Sterling Pound	131.13	132.11

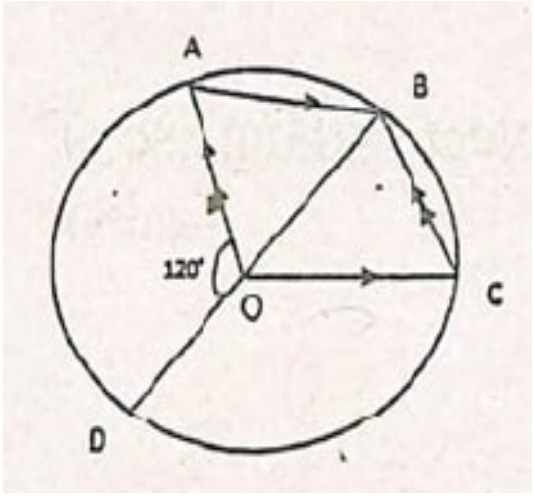
If the money was erroneously converted back to kshs, find the percentage loss made. Give your answer correct to 3 d.p. (3 marks)

6. The figure below shows a solid made by pasting twp equal regular tetrahedron



   a. Draw a net of the solid (2 marks)
   b. If each face is an equilateral triangle of sides 5 cm, find the surface area of the solid (2 marks)

7. The straight line whose equation is 5y − 7x + 35 = 0 passes through points P, R and Q. If point Q is on the X axis, point P on the Y axis and point R is such that 2PR = 3RQ, find the equation of line AR in double intercept form given point A (3, −3) (3 marks)
8. In the figure below O is the center of the circle and DOB is the diameter. Find the value of Y if angle AOD = 120°. (2 marks)



9. Solve the inequality and state the integral values that satisfies it (3 marks)

$$\frac{2}{2x+1} \leq x < \frac{3}{x-1}$$

10. Without using mathematical tables or calculators simplify the expression (3 marks)

$$\text{Tan}45^\circ - \frac{\sin 60^\circ \tan 30^\circ \cos 30}{\tan^2 60 + \sin 60^\circ}$$

11. Without using a calculator or mathematical tables, evaluate (3 marks)

$$\frac{-2(5+3)-9 \div 3+5}{-3x-5+-2 \times 4 \div 2+3}$$

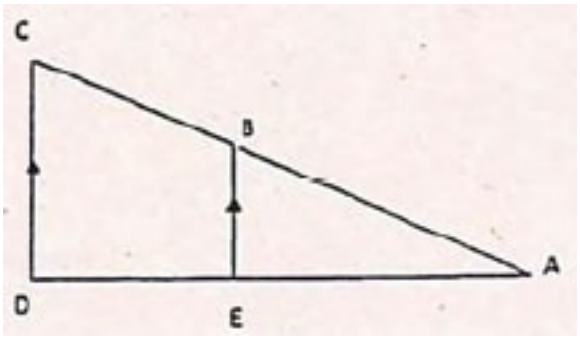
12. Evaluate (3 marks)

$$\int_{-2}^{2} (4x^3 - 3x^2 + 2x - 8)\,dx$$

13. Use logarithms tables only to find the value of (4 marks)

$$\left(\frac{7.34 + 6.26\cos 56^\circ}{0.4575 \sin 65^\circ}\right)^{-2/3}$$

14. The image of triangle PQR after a rotation of 180° about (2,3) is P'Q'R. If P'Q'R is given a translation (½) the final image is P''(4, 6), Q''(3,7), and R'(3,5). Find the coordinates of the object without the use of a Cartesian plane (3 marks)
15. A bird flew from a point P(3, −4) to a point Q(−6, 10) and then to a point R (−24, 38)
    a. Write the two vectors representing the birds movement in terms of the unit vectors (2 marks)
    b. Show that points P,Q and R are collinear (1 mark)
16. In the figure below BE//DC, AD = 8 cm, AB = √41 and AE = 5 cm

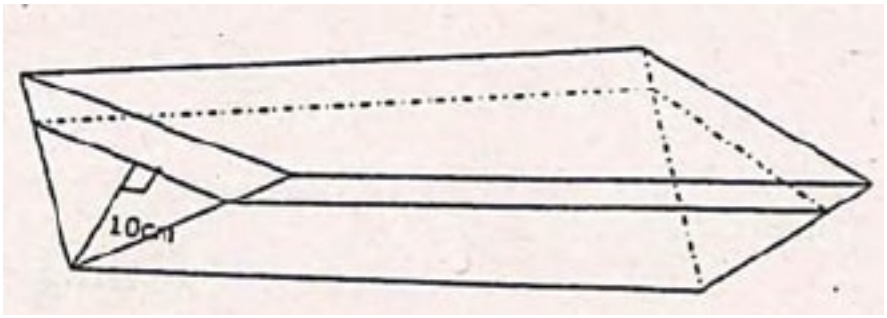


Find the area of the quadrilateral DEBC (3 marks)

SECTION II (50 MARKS)

*Answer **any** five questions from this section*

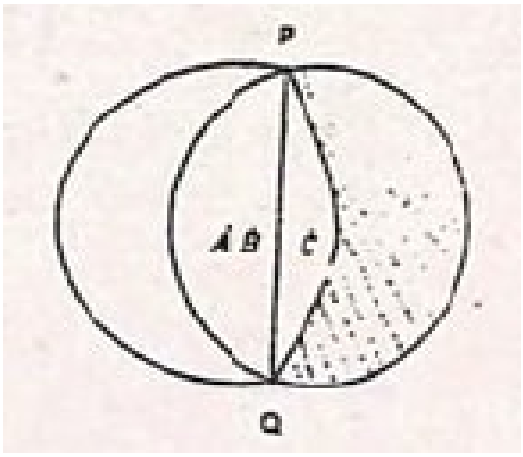
17. The figure below shows a trough whose cross-section is a triangle of equal lengths. The trough which is 8 meters long initially contains water to a depth of 10 cm and water flows into the trough at the rate of 20 litres per minute. If the length of each side of the larger triangle is four times the previous depth of water in the trough, calculate to the nearest minute the time it takes to fill the trough (10 marks)



18. Machana starts walking towards the next village 24 km away at noon. He walks for half an hour at an average speed of 8 km/hr before his friend catches up with him and offers him a lift on his bicycle which moves at an average speed of 25km/hr. It takes him 2.5 minutes to board the stationary bicycle.
    a. Determine how far he walks before he is given the lift (2 marks)
    b. At what time did his friend start if the two are neighbors (3 marks)
    c. How much longer would he take to complete the journey if he head not been given the lift (5 marks)
19. The table below shows the masses (measured to the nearest kg) of 200 people

Mass (kg)	40-49	50-59	60-69	70-79	80-89	90-99	100-109
No. of people	9	27	70	50	26	12	6

    a. Draw and ogive for the above data (4 marks)
    b. Use your graph to estimate
        i. The median mass (1 mark)
        ii. The number of people whose mass lies between 70.5 kg and 75.5 kg (1 mark)
    c. From your graph, find
        i. The lower quartile (1 mark)
        ii. The upper quartile (1 mark)
        iii. The inter-quartile range (2 marks)
20. The figure below shows two intersecting circles with their centres A and B on same side of the chord PQ. Given that AP = 4 cm, radius BP=3 cm the chord PQ = 5.1 cm and the joining A to B is perpendicular to PQ.



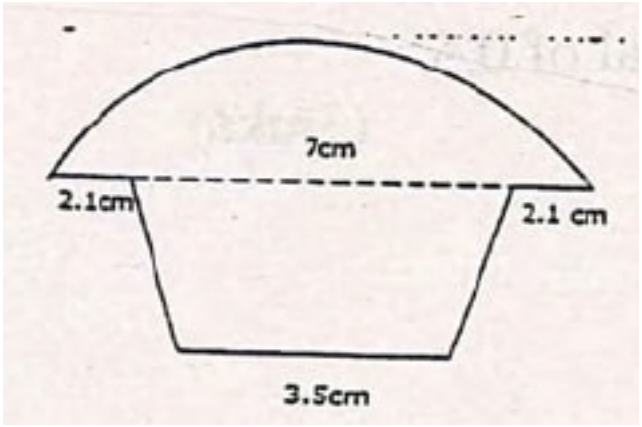
Determine

a. The length AB (3 marks)
b. The shaded area (7 marks)

21.

a. Draw the graph of $y=\frac{1}{2}x^2(4-x)$ fro $-1 \leq x \leq 4$ using an interval of 0.5.
b. Use your graph tp solve the equation $\frac{1}{2}x^2(4-x) - \frac{1}{2}(x + 3) = 0$ (3 marks)
c. What is the equation in x whose solutions are the values of x in (b) above (1 marks)
d. For what ranges of values of x is $x^2(4-x)$ greater than x+3 (2 marks)

22. Five towns A,B,C,D and E are situated such that A is 200km from B on a bearing of N50°E. C is 300 km from B on a bearing of 150°. D is 350km on a bearing of s60°W from C. E is 200 km from D and the bearing of D from E is S80°E, using a scale of 1 cm to represent 50 km
    a. Draw the diagram representing the positions of the towns (6 marks)
    b. From the diagram determine,
        i. The distance and bearing of A from E in compass bearing (2 marks)
        ii. The compass bearing of D from B (2 marks)
23. The figure below is a cross-section of a 3 dimensional representation of a company logo. It is in the shape of a hemisphere and a conical frustum with dimensions given for the cross section. The height of the frustum is 5 cm



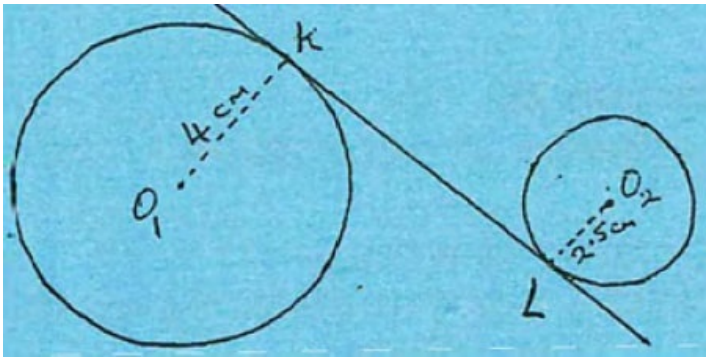
    a. Calculate the surface are of the solid (6 marks)
    b. calculate the volume of the metal used to make the logo (4 marks)
24. The new Nairobi cinema hall has a maximum sitting capacity of 468 people with 3 long special benches and 2 short ones. The long benches take two more people than the shorter ones. The new management finds this arrangement crowded and decides that by having one more person on each long bench, he can take out some rows and still retain the same number of people. If one row of benches was taken out, Find the original number of people per row (10 marks)

MATHEMATICS PAPER 2 - 2019 K.C.S.E Prediction Set 2

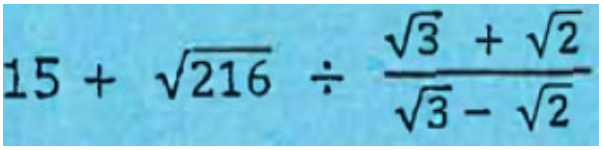
SECTION A:50 MARKS

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

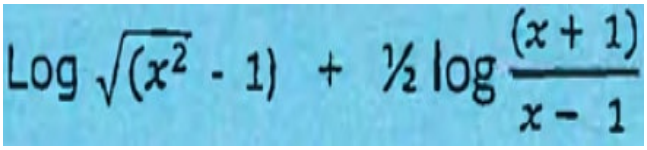
1. Make q the subject of the formula. (3 mks)
   $r=pq + {}^{1}/_{2}tq^{2}$
2. Solve for x in
   $4\cos^{2}x = 3\sin x + 3$ for $0 \leq x^{o} \leq 180^{o}$ (3 mks)
3. The figure below shows two circles centre O_1 and O_2 which are 7.5cm apart and of radii 4cm and 2.5cm respectively.



   Calculate the value of KL to 2 decimal places. (3 mks)
4. Without using tables or calculators simplify (3mks)



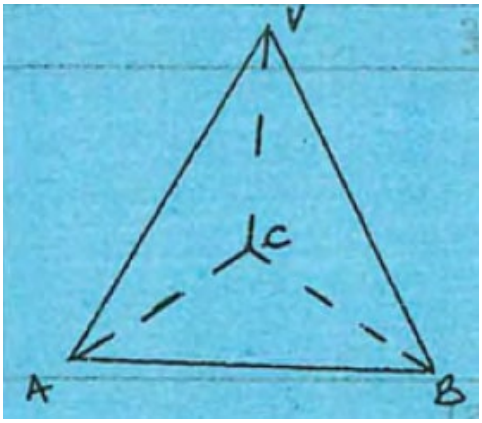
5. Express as a single logarithm. (3mks)



6. The mass of some rabbits in a certain agriculture class were recorded as follows.

Mass	1.0-1.9	2.0-2.9	3.0-3.9	4.0-4.9	5.0-5.9	6.0-6.9
No. of rabbit	7	16	14	8	13	2

   Calculate the quartile deviation of the data to 3 s.f (3 mks)
7. Given triangle AOB, O(0,0) A(2,0), B(0,4) and its image O'($^{\sqrt{3}}/_{2}$,0) A'(√3,1), B'(-2,2√3). Find the matrix that maps OAB into O'A'B and describe the transformation represented by this matrix fully. (3mks)
8. Ketepa tea worth Ksh.40 per kg is mixed with Sasini tea worth Ksh. 60 per kg in the ration 3:1 in what ratio should this mixture be mixed with Kericho tea worth Ksh. 50 per kg to produce a mixture worth Ksh. 47 per kg. (3mks)
9. Calculate the area enclosed by the curve $y = (x-1)^{2} + 4$ and the line $y = -x + 7$ (3 mks)
10. Expand in ascending process of x upto and including the term in x^{3} (3 mks)
    $(3 - x - x^{2})^{4}$
11. In the triangular based pyramid shown below, find the angle between planes VAC and VCB to 1 decimal place if the base is an equilateral triangle of side 10cm and edges VA = VB = VC = 16cm each. (4mks)



12. Calculate the area bounded by the curve $y=x^2 + 5$ and lines $y = 0$ and $x-3 = 0$. Using mid-ordinate rule with 6 strips giving your answer to 4 decimal place. (4 mks)
13. The matrix M is $\begin{pmatrix} 4 & 3 \\ 1 & 2 \end{pmatrix}$. Find the image of line $y=2x + 1$ under M. (3mks)
14. From a metal rod of length 2.00m, 15 students each cut a piece 5cm long. If all the students had an error of ± 0.2cm in their cuts, determine the minimum and maximum length of the rod that remained. (3 mks)
15. Given that where k is a constant and t is increased by 44% and b reduced by 88%, find the ratio by which x is changed. (3mks)
16. The numbers 2, x and y form a geometric sequence. The numbers x, 30 and y form an arithmetic sequence. Find the possible value of x and y. (3mks)

SECTION B (50 MARKS)

*Answer **any five** questions from this section*

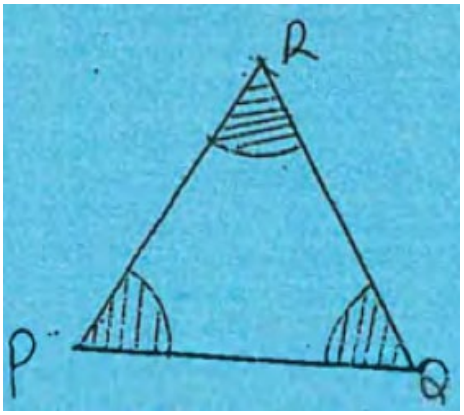
17. A youth fund employee in Kiambu county lives in government premise in Thika. He pays a normal rent of sh. 1066 and is entitled to tax relief of sh. 1056 p.m. He also has an insurance scheme for which he pays sh. 5,300 pm and claims relief at 18% of the premium to a maximum of sh. 2000. His medical allowance is sh. 3855 p.m and his P.A.Y.E is sh. 5244.70pm. Use the tax table below to calculate the questions that follow.

Income K£ p.a	Rate (%) per K£
1 - 5808	10%
5808 - 11280	15%
11281 - 16752	20%
16753 - 22224	25%
22225 and above	30%

    a. His income in K£ p.a (4 mks)
    b. His basic pay in Ksh p.m to the nearest Ksh. (3 mks)
    c. If other deductions added upto sh. 3850 p.m, find his net pay p.m (3mks)

18.

    a. A box contains n beads of which k are white and the rest are green. What is the probability of obtaining one of each colour in two successive drawing from the box.
        i. With replacement. (3mks)
        ii. Without replacement. (3 mks)
    b. The figure below shows an equilateral triangle PQR of side 4cm. The shaded areas are sectors of circle centres P, Q and R with radii 1cm. If a point is selected at random from the triangle, find the probability that it lies in the unshaded region. (giving your answers in terms of pie and surd form) (4 mks)

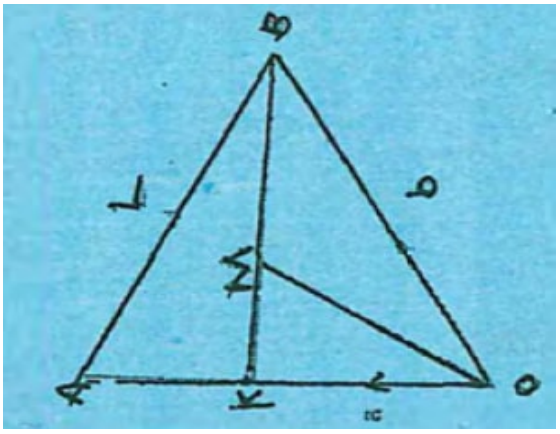


19.
   a. Sketch the curve
      y = x(x+1)(x-2) (5 mks)
   b. A carpenter cuts a rectangular sheet of cardboard such that the sum of the length and width is 6m. Find the maximum area of the cardboard he cuts. (5mks)

20. A certain uniform supplier is required to supply two types of shirts. One for girls labelled G and the other for boys labelled B. The total number of shirts must not be more than 400. He has to supply more of the type G that type B. However the number of type G shirts must not be more than 300 and the number of type B shirts must not be less than 80. By taking x to be the number of type G shirts, and y the number of type B shirts.
   a. Write down in terms of x and y all the inequalities representing the information above. (4mks)
   b. On the grid draw the inequalities and shade the unwanted regions. (3mks)
   c. Given that type G cost shs. 500 per shirt and type B costs sh. 300 per shirt.
      i. Use the graph (b) above to determine the number of shirts of each type that should be made to maximize the profit. (1 mk)
      ii. Calculate the maximum possible profit. (2mks)

21.
   a. Using a ruler and a pair of compasses only, construct a triangle ABC such that AB = 8cm, and angle ABC = CAB = 75^o. (2mks)
   b. Locate the locus of P such that angle APB = 52.5^o and area of triangle APB = $20cm^2$. Locate the two possible loci as P_1 and P_2. Measure the distance P_1 and P_2 (4mks)
   c. On the opposite side of AB construct a rectangle ABXY such that its area is $48cm^2$. Shade a point r inside the rectangle ABXY such that angle ARB > 9 and <XRY > 90^o. Locate and shade the region in which R lies. (4mks)

22.



In the triangle OAB above, **OA** = **a** and **OB** = **b**. Given that **OK** = **2KA** and M is the midpoint of **BK**.
   a. Find in terms of **a** and **b.**
      i. BA

ii. BK
iii. OM

b. Given further that OL = sOM and BL = pBA express OL in two ways hence or otherwise find the value of scalars S and P.
c. P shows that points O, M and L are collinear.

23. An aircraft leaves town p(30^oS, 17^oE) and moves directly northwards to Q(60^oN,17^oE). It then moved at an average speed of 300knots for 8 hours westwards to town R.
Determine
a. The distance PQ in nautical miles. (3 mks)
b. The position of town R. (3 mks)
c. The local time at R if local time at Q is 3:12pm (2mks)
d. The total distance moved from P to R in kilometers. (take 1nm = 1.853km) (2 mks)

24. The table below shows values obtained form an experiment.

x	1	2	3	4	5	6
y	2.70	5.70	11.15	22.62	45.2	90.51

It is thought that y and x are connected by the formula $y = A^{(b + x)}$
a. By drawing a suitable linear graph, find the values of the constants A and b.
b. From the graph, estimate
i. The value of x when y=24 (2mks)
ii. The value of y when x = 5.6 (1 mk)

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

INSTRUCTIONS

1. Answer all questions in section A and B
2. All working for numerical questions must be clearly shown;
3. Non programmable silent electronic calculators may be used
4. The paper is out of 80 marks;

CONSTANTS

You may use the following constants where necessary

a. Refractive index of water = $^4/_3$
b. Earth's gravitational strength = 10Nkg^{-1};
c. Density of water = 1,000kgm^{-3};
d. Atmospheric pressure = 76cmHg
e. Speed of Sound is 330ms^{-1}
f. Refractive index of glass = $^3/_2$
g. Density of mercury = 13,600kgm^{-3}

SECTION A (25 Marks)

Answer all the questions in this section in the spaces provided

1. **Figure 1(a)** below shows a micrometer screw gauge when closed and **Figure 1(b)** shows the same micrometer screw gauge measuring the thickness of a wire.
   Determine the thickness of the wire (2mks)

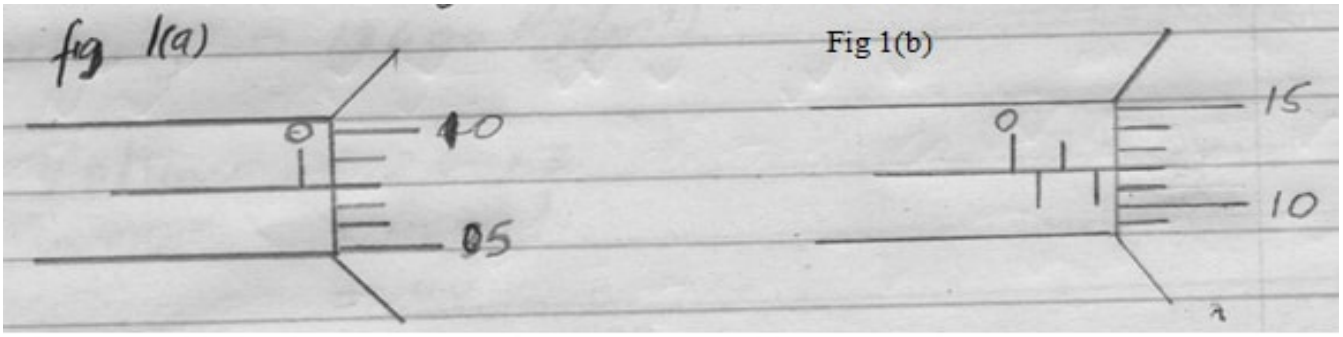


Figure 1a and Figure 1b

2. A form two student was provided with two springs to make a spring balances, she sets up two designs as shown below in **Figure 2(a)** and **Figure 2(b)**
   With reason(s) state which two designs you would use to measure the weight of a heavy load? (2mks)

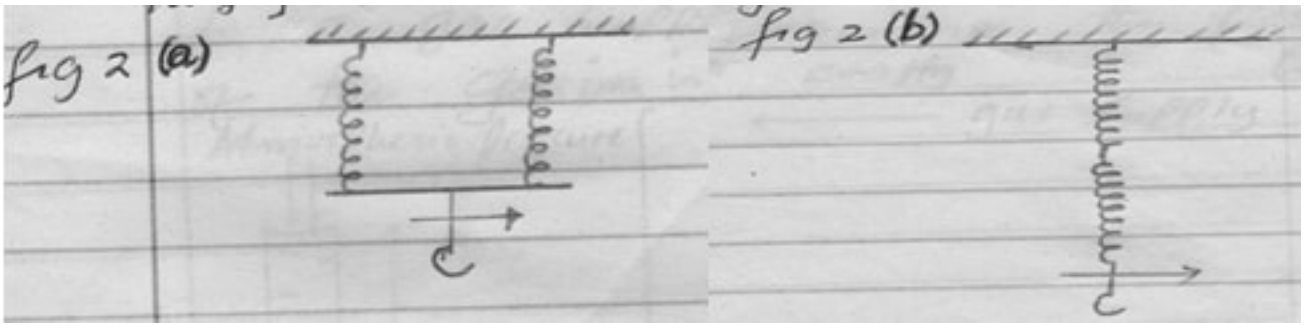


Figure 2a and Figure 2b

3. A rectangular container measures 2 cm by 4cm by 5cm. What is the weight of the mercury that will fill the container to the brim? (3mks)

4. **Figure 3** below shows a U-tube connected to a gas supply. Determine the pressure of the gas in cmHg

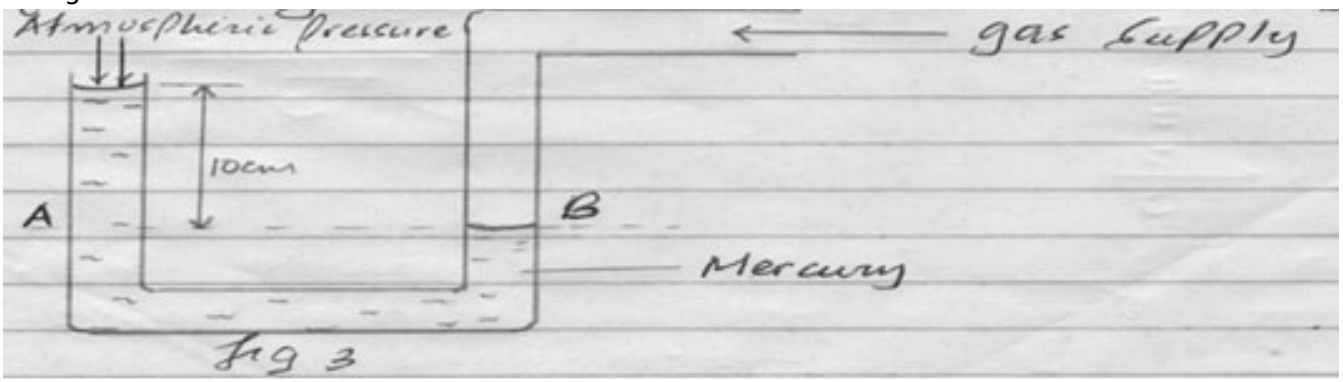


Figure 3

5. Three iron sheets meant for construction in hot regions have oval- shaped holes. Bolts are used to fix them on the roof through the oval holes. Explain the importance of the shape of the holes. (1mk)
6. **Figure 4** below shows paper kite

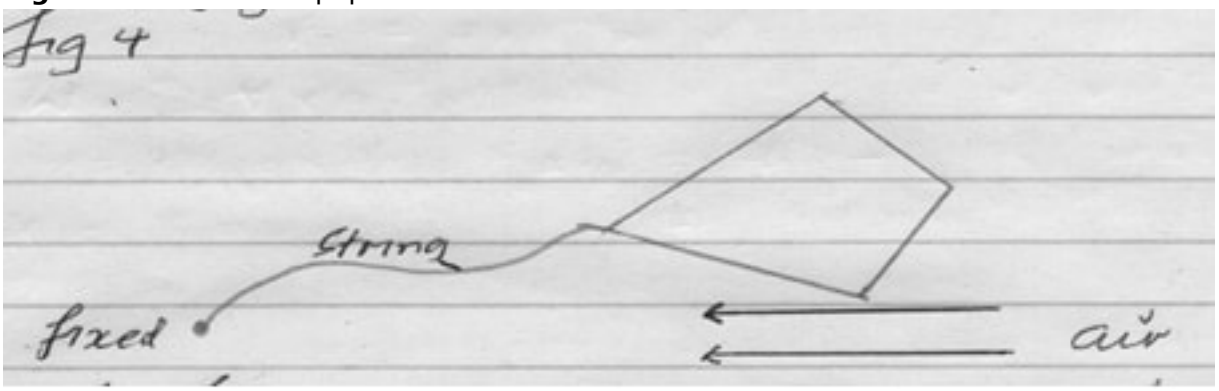


Figure 4

Fast moving air is blown horizontally under the kite as shown in the diagram. State and explain the observation made. (2mks)

7. **Figure 5** below shows a light rod balanced by the forces shown. M is a magnet of weight 5N and P is a permanent magnet fixed on the bench. (2mks)

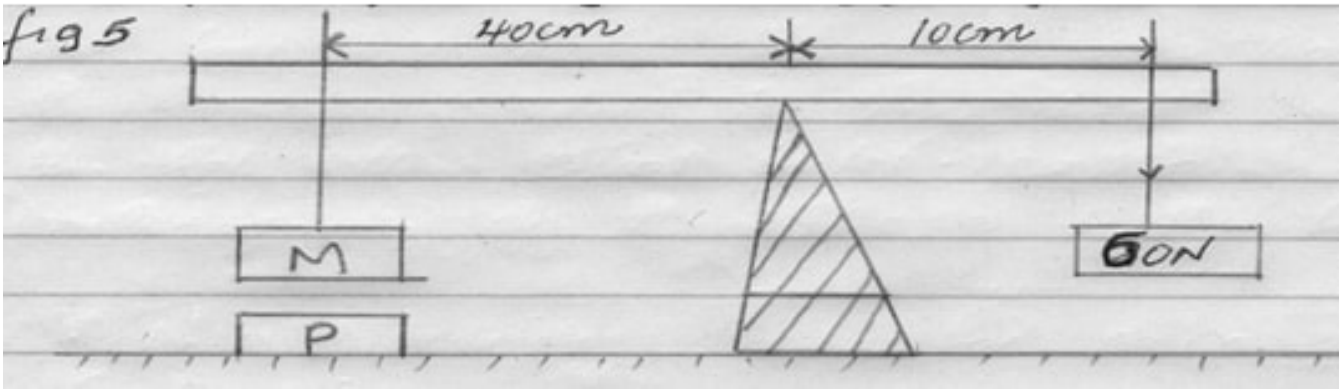


Figure 5

Find the attraction force between M and P.

8. A heating coil rated 1000w takes 20 minutes to heat 10kg of a liquid from 25^{o}C to 65^{o}C Determine the specific heat capacity of the liquid. (Assume no heat is lost to the surroundings).
9. **Figure 6** below shows 3 identical masses m_1, m_2 and m_3 placed on a smooth **rotating**

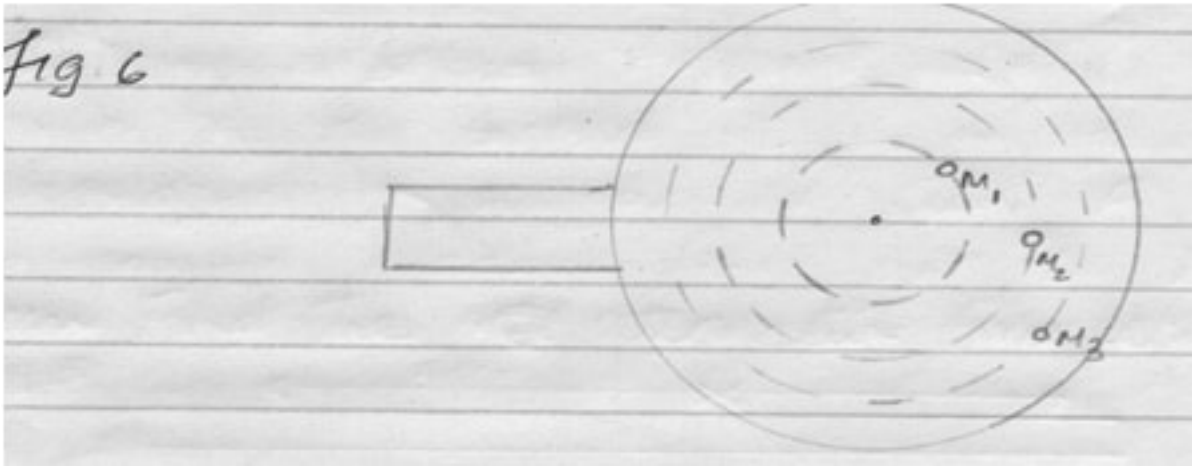


Figure 6

State the factors that determine whether a particular mass slides off table or not. (1mk)

10. Ice is in a beaker which is placed in a table as shown in **Figure 7** below.

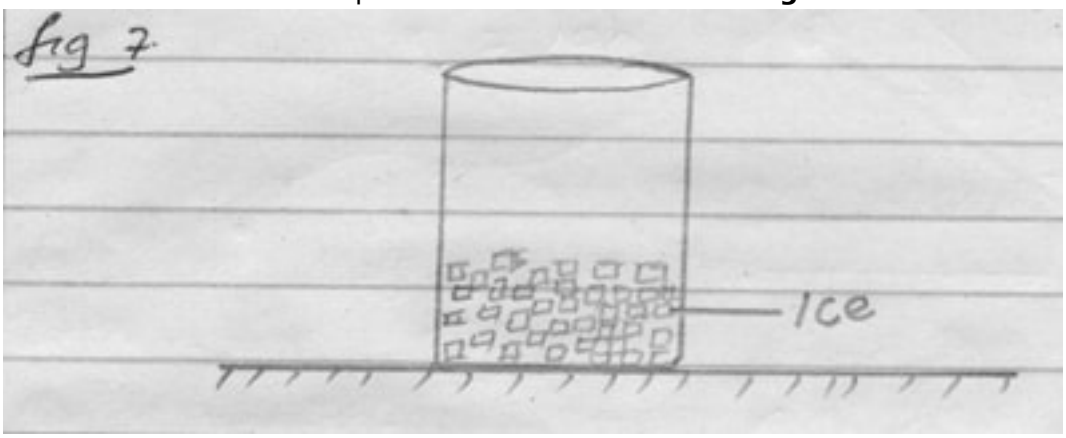
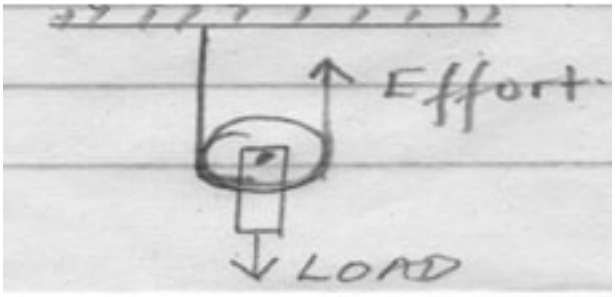


Figure 7

The ice is heated until it melts. Explain what happens to the stability of the beaker (2mks)

11. What is the velocity ratio of the pulley system shown in the figure below? (1mk)



12. **Figure 8** below shows how the displacement of a point varies with time as a wave passes it.

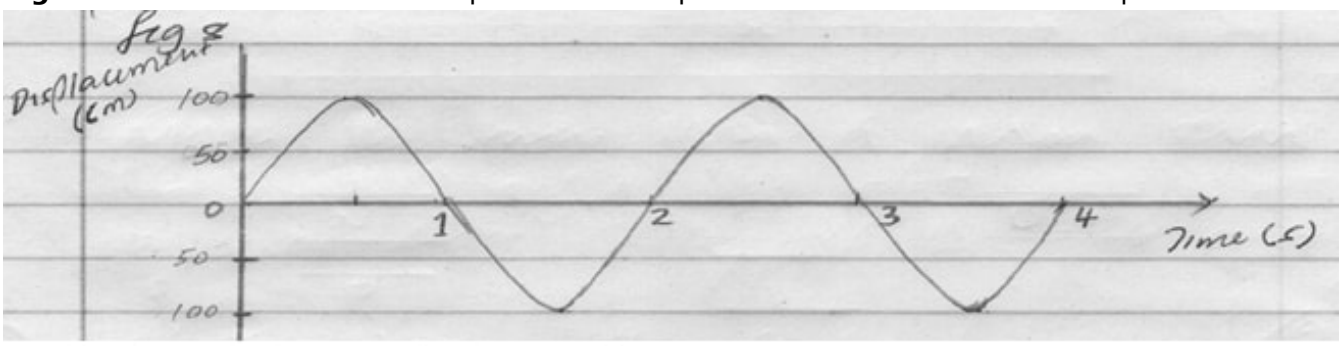


Figure 8

On the same diagram draw a wave which passes the point with half the amplitude and twice the frequency. (2mks)

13. A part from pressure state another factor that affects the melting point of a substance. (1mk)

SECTION B (55 MARKS)

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

14.

a. A piece of wood weighs 5.0N in air and 0.45N when immersed in water
Determine;
   i. its relative density (2mks)
   ii. Its apparent weight in a liquid of density 800kg/m^3. (3mks)

b. **Figure 9** shows a cylindrical solid 20 cm long and density2400kg/m^3. Its cross-section area is 6cm^2 and floats in water of density 1000kg/m^3 while partially submerged with 10cm below the surface of water

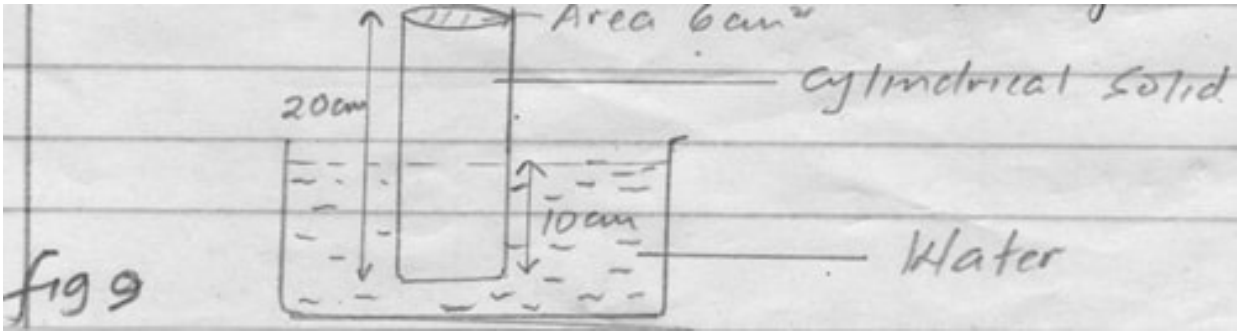


Figure 9

Determine
   i. Weight of the solid (3mks)
   ii. Upthrust on the solid (3mks)

15.

a. **Figure 10** below shows a section of a tape pulled through a ticker timer of requency50Hz.

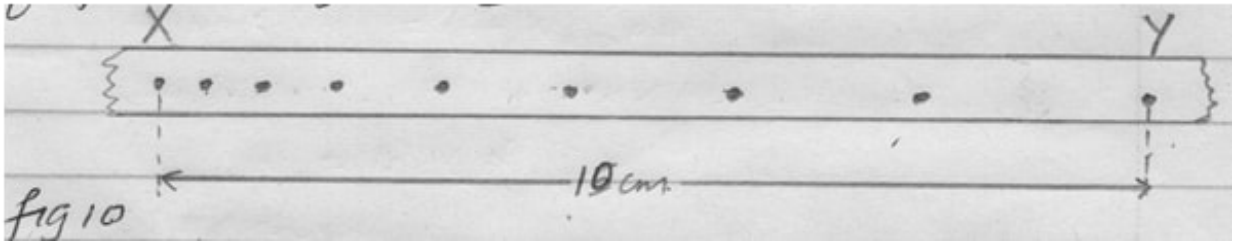


Figure 10

   i. Determine the velocity of the body pulling the tape in cm/s in figure 10 above(3mks)
   ii. Find the acceleration of a body in cm/s^2 for the tape represented in **Figure 11** below. (take the frequency as 50Hz) (4mks)

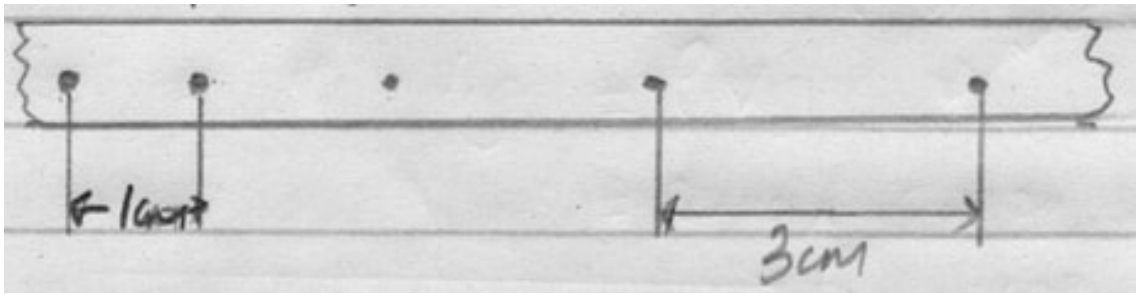


Figure 11

b. A lorry of mass 12000kg is travelling at 10m/s and is brought to rest in 20seconds
Determine;
   i. The acceleration of the lorry (2mks)
   ii. The average retarding force (2mks)

16. Two similar cans are partly filled with equal quantities of paraffin. Each holds a thermometer, is covered with a lid and stands on a wooden bench at the same distance from radiant heat as shown in **Figure 12** below.

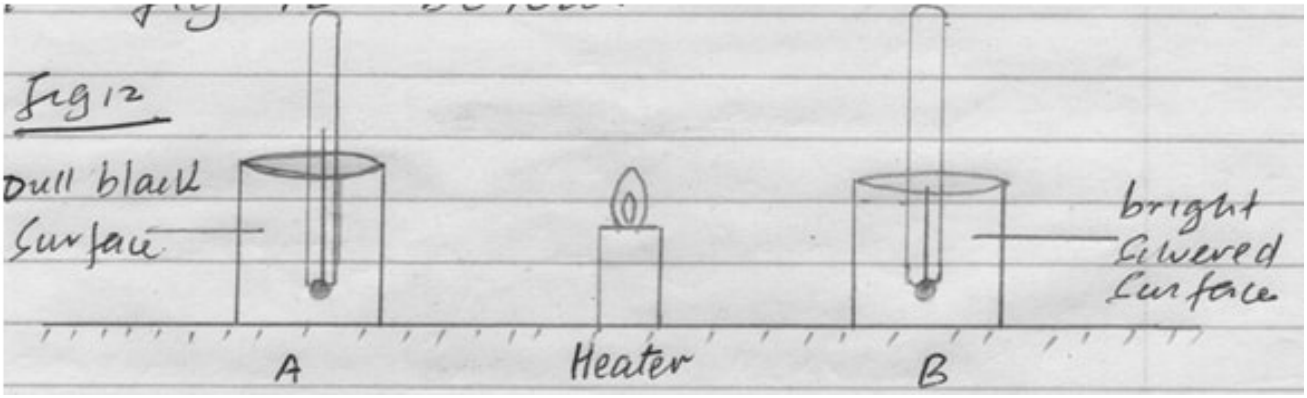


Figure 12

Container A has a dull black surface and container B has bright silvered surface. The following temperatures were recorded.

Time in minutes	0	1	2	3	4	5
Temp ^{o}C (dull black)	19	21	23	25	27	29
Temp ^{o}C (silvered bright)	19	20	21	22	23	24

a. Explain why heat from the heater could not have reached the cans by:-
   i. Conduction – (1mk)
   ii. Convection - (1mk)
   iii. Explain why there is a difference in the thermometer readings in A and B. (2mks)
   iv. How can the set-up in figure 12 above be adjusted in order to produce same reading of the thermometer. (1mk)

b. Two beakers A and B contain equal amounts of warm water initially at 35^{o}C Water at 0^{o}C is added to beaker A while ice cubes at 0^{o}C are added to beaker B. Which beaker will have a lower temperature after a few minutes and why? (2mks)

c. In an experiment to determine the specific latent heat of vaporization of water, steam at 100^{o}C was passed into water contained in a well lagged aluminum calorimeter. The following measurements were made;
   Mass of calorimeter = 150g
   Initial mass of water 100g
   Intial temperature of water = 18^{o}C
   Final mass of calorimeter + condensed steam = 275g
   Final temperature mixture 68^{o}C
   (Specific heat capacity of water = 4.2KJkg^{-1}K^{-1}
   And C.H.C for aluminium = 400 Jkg^{-1}K^{-1})
   Determine;
   a. Mass of condensed steam (1mk)
   b. Heat gained by calorimeter and water (3mks)
   c. Given that Lv is the specific latent heat of vaporization of steam.
      i. Write an expression for the heat given out by steam. (1mk)
      ii. Determine the value of Lv. (3mks)

17. **Figure 13** below shows a hydraulic press used to lift a load L. The effort applied is 400N at the end of the lever 50cm long and pivoted at the other end.

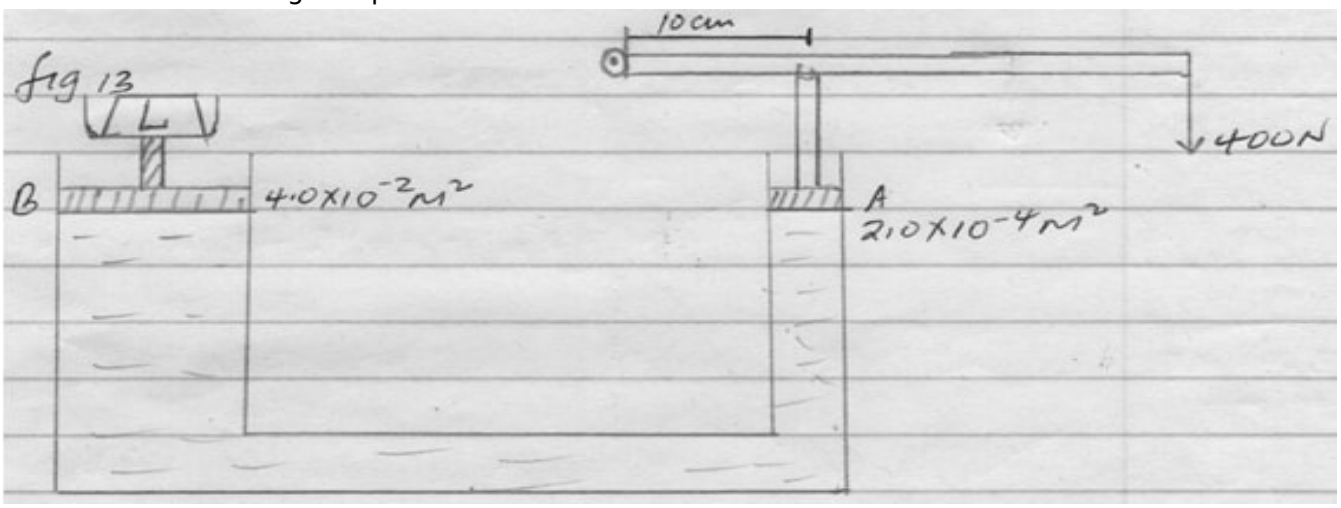


Figure 13

The plunger is 10cm from the pivot. The area of piston A is 2.0 x 2^{-4} m^2 and that of piston B is 4.0 x 10^{-2} m^2.

Determine;

a. Pressure exerted at piston A. (3mks)
b. Weight of the load L being lifted. (3mks)
c. If small piston moves down a distance of 10cm, determine how far upwards the longer piston B moves. (3mks)

18.

a. State the differences between temperature measured in Kelvin scale and Celsius scale. (1mk)
b. **Figure 14** below shows a simple set up for pressure law apparatus.

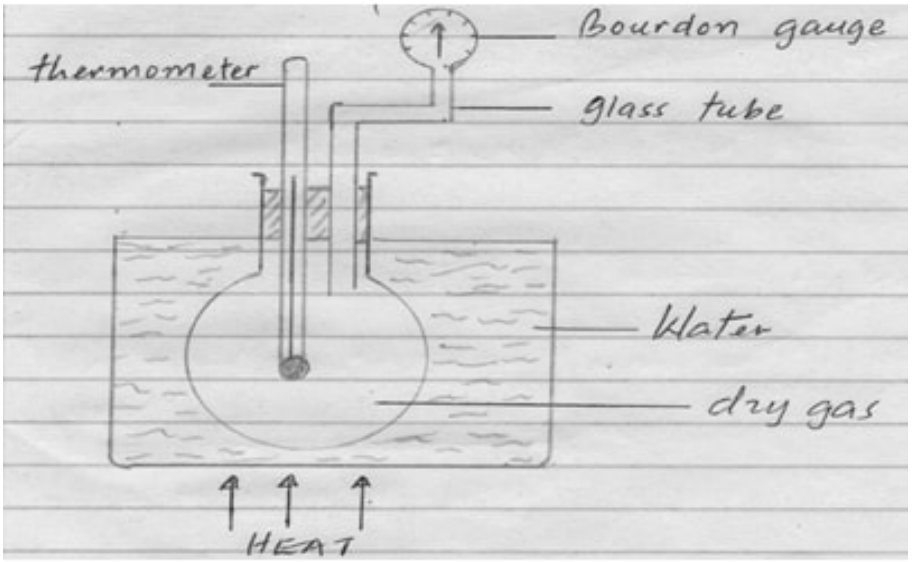


Figure 14

i. State two measurements that can be recorded using the above apparatus (2mk)
ii. Explain how the measurement above in (i) may be used to verify pressure law. (3mks)

c. State one assumptions of real gas laws (1mk)
d. At 20^{o}C the pressure of a gas is 50cm of mercury. At what temperature would the pressure of the gas fall to 10 cm of mercury. (3mks)

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

Instructions

a. Answer all questions in section A and B
b. All working for numerical questions must be clearly shown;
c. Non programmable silent electronic calculators may be used
d. The paper is out of 80 marks;

Constants

You may use the following constants where necessary

a. Speed of Sound is $330ms^{-1}$
b. Refractive index of glass = $^{3}/_{2}$
c. Refractive index of water = $^{4}/_{3}$

SECTION A (25 Marks)

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

1. **Figure 1** below shows a ray of light incident on a plane mirror at O.

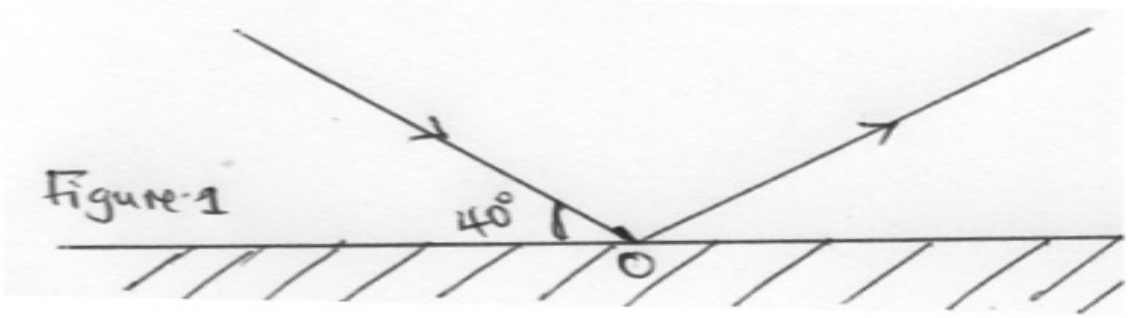


Figure 1

The mirror is rotated through an angle of 25^{0} about an axis perpendicular to the paper .Determine the angle through which the reflected ray is rotated (2mks)

2. A car battery requires topping up with distilled water occasionally. Explain why this is necessary and why distilled water is used. (2mks)
3. **Figure 2** below shows two parallel current carrying conductors A and B cutting through a piece of cardboard.

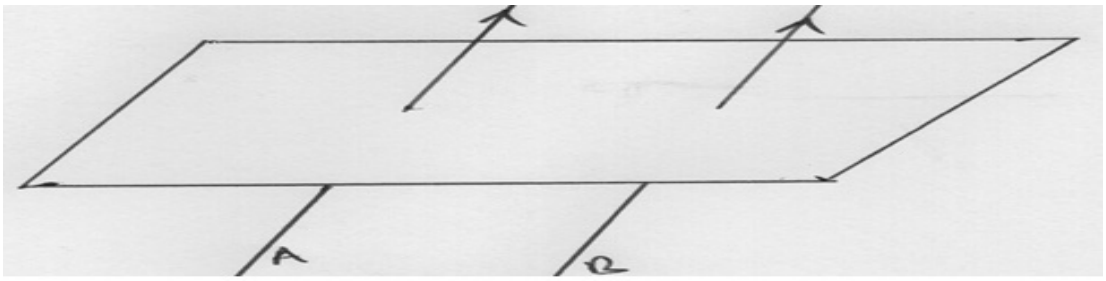


Figure 2

   i. Sketch the magnetic field pattern produced. (2mks)
   ii. Identify the nature of the force between them (1mk)
4. Distinguish between ultraviolet rays and infrared (1mk)
5. A student synchronizes his watch with a church bell 2km away. The following morning, there is a wind. .He notes that the church bell sounded 0.15s later. Assuming his watch was correct and bell was sounded at the usual time. Determine the direction and the speed of the wind. (Assuming the speed of sound in still air is 340m/s) (3mks)

6. **Figure 3** below shows an illustration of a good storage magnets

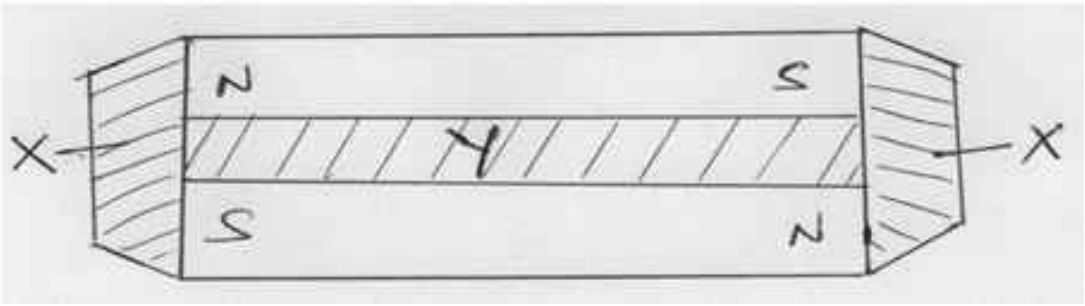


Figure 3

State and explain the material suitable for Y (2mks)

7. **Figure 4** below shows a circular wave approaching a plane barrier in uniform medium.

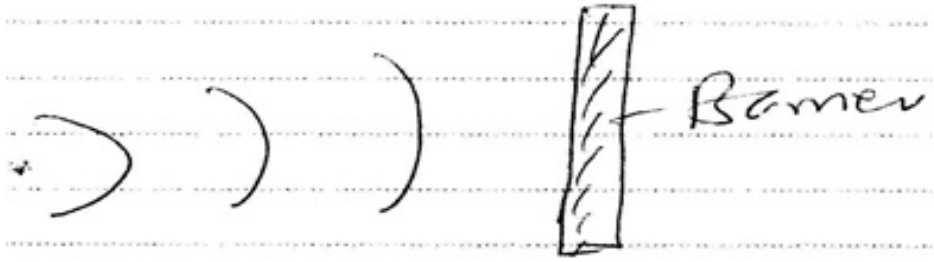


Figure 4

On the diagram sketch the reflected waves in water (2mks)

8. A negatively charged rod is brought near the cap of a leaf electroscope. The cap is them earthed momentarily by touching with finger. Finally the rod is withdrawn .State and explain the observation made. (2mks)
9. The following equation represents a decay series

$$^{210}_{83}R \xrightarrow{X} {}^{210}_{84}P \longrightarrow {}^{a}_{b}Q$$

   i. Identify radiation x. (1mk)
   ii. Determine the values of a & b. (2mks)

10. **Figure 5** below shows a circuit where a battery of e.m.f 4.5V, Switches A &B, two capacitors (C_1=0.6μF and C_2=1.0μF) and a voltmeter are connected.

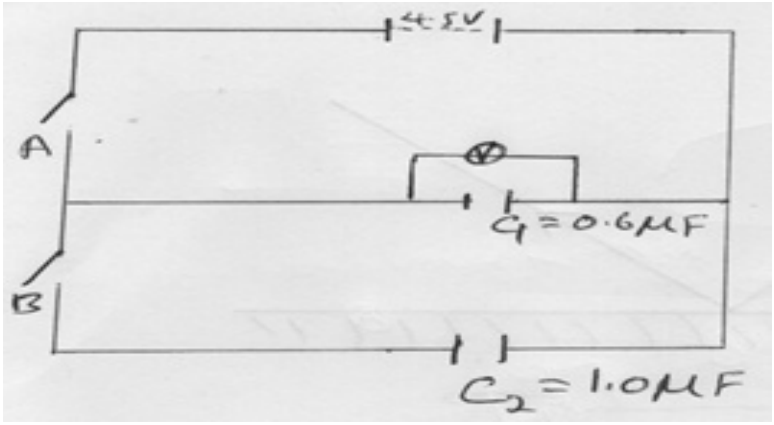


Figure 5

   i. Determine the charge on C_1 when the switch A is closed and switch B is open. (2mks)
   ii. What is the effective capacitance C when both switches A and B are closed? (2mks)

11. Describe the energy charges that occurs in the cathode ray tube. (1mk)

SECTION B (55MKS)

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

12.

a. Two coins were placed at the bottom of two jars each containing a different clear liquids as shown in **Figure 6** below.

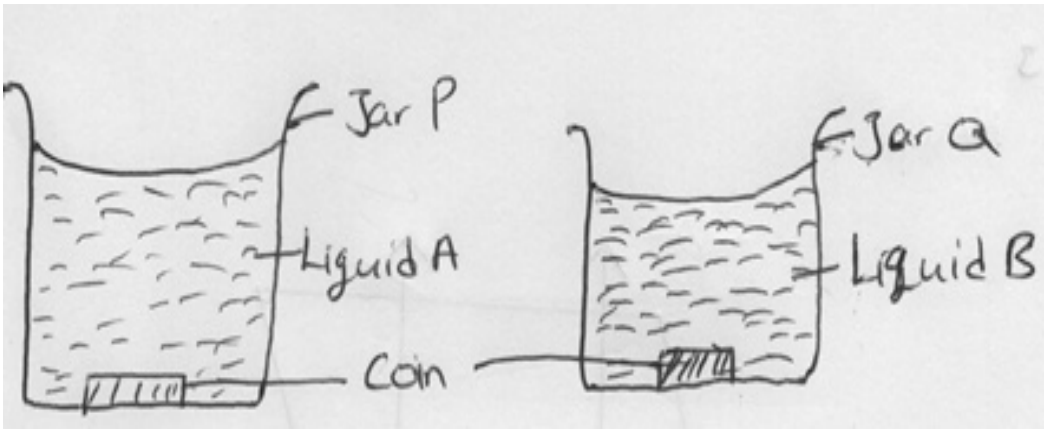


Figure 6

The liquids in the two jars are at the same level. The coin in jar Q appears shallower than in jar P. Explain (2 mk)

b. A ray of light travels from air to glass as shown in **Figure 7** below.

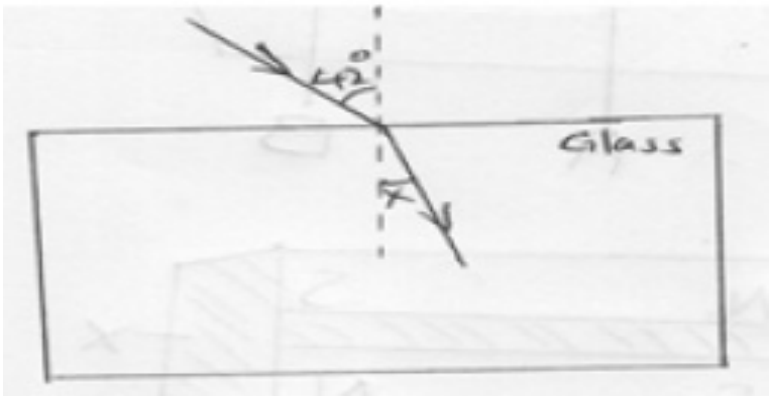


Figure 7

Given that the critical angle of glass is 42^0

Determine the value of angle X.
(4mks)

c. **Figure 8** below shows a ray of eight incident on a triangular prism and a white sources is placed in front of the screen.

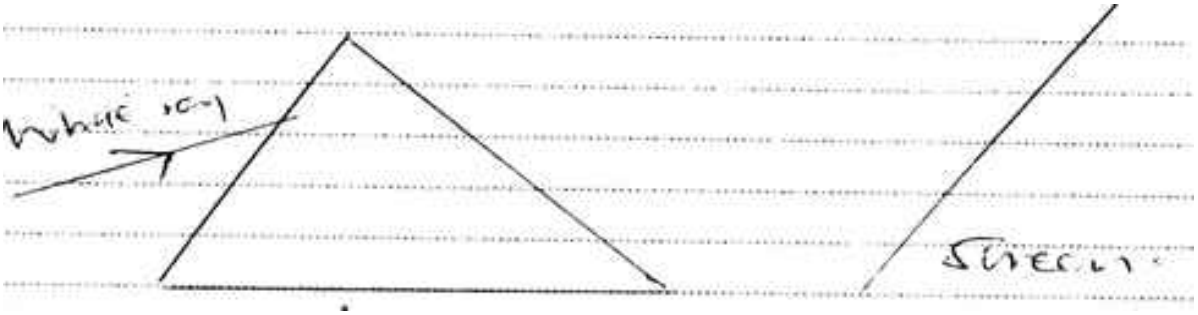


Figure 8

Complete the diagram to show the path followed by the ray up to the screen. (2mks)

13.

a. Sate faraday's law of electromagnetic induction. (1mk)

b. **Figure 9** below shows a simple transformer. Study it and answer the questions that follow.

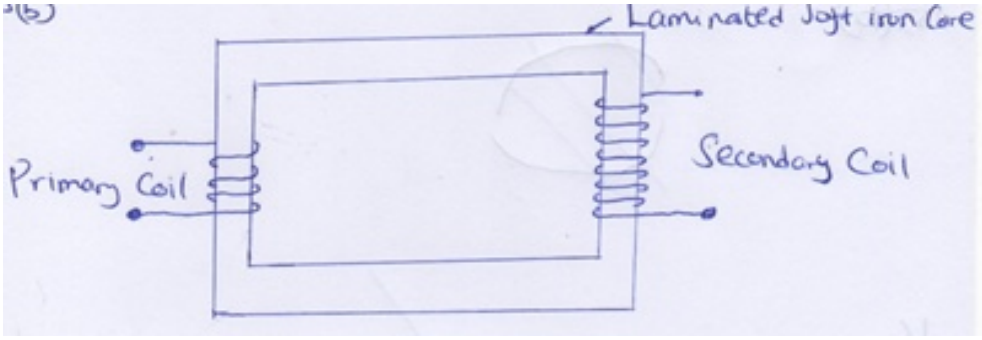


Figure 9

i. Explain why the core is a continuous loop (1mk)
ii. Give a reason as to why the cure is laminated. (1mk)
iii. State and explain which coils are thicker. (2mks)

c. Sate one difference and one similarity between a step up transformer and induction coil. (2mks)
d. State two advantages of the use of alternating voltage for the transmission of electrical energy. (2mks)
e. The primary coils of a transformer have 2000 turns and carries a current of 3A. If the secondary coil is designed to carry a current of 30A. Calculate the maximum number of turns in the secondary coil. (3mks)

14.

a. State Ohm's law (1mk)
b. **Figure 10** below shows how a student set up a circuit using 3 identical bulbs X, Y and t each rated 12V, 2.0A

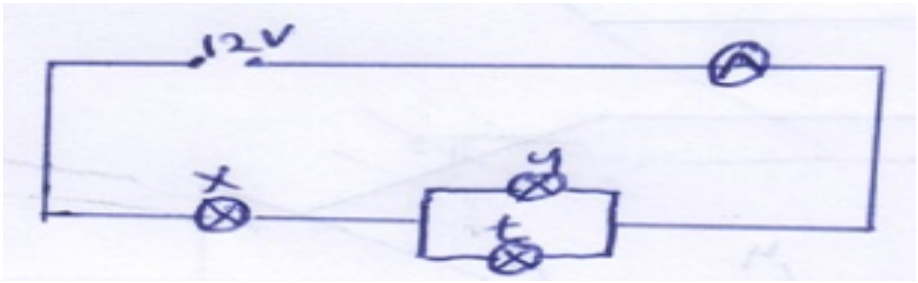


Figure 10

i. When operating normally calculate the resistance of the bulbs. (2mks)
ii. Calculate the effective resistance of the three bulbs. (2mks)
iii. What will be reading of the ammeter? (2mks)

c. When a switch is kept open in the circuit shown in **Figure 11** below the voltmeter reads 1.5V, when the switch is closed, the reading drops to 1.3V and the current through the resistor is 0.5A.

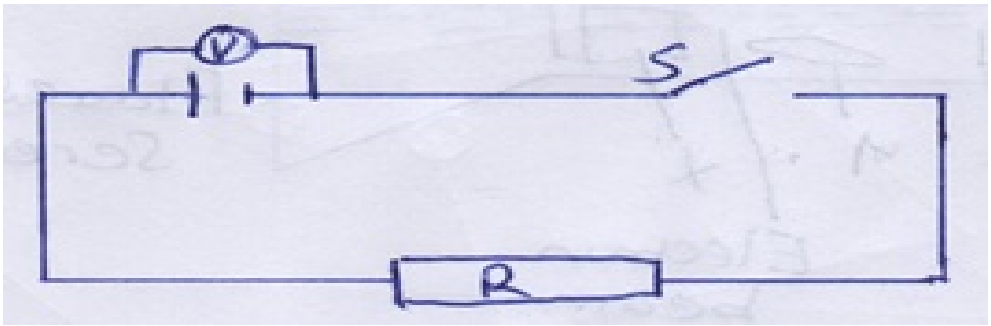


Figure 11

i. What is the emf of the cell (1mk)
ii. What is the terminal voltage of the cell (1mk)
iii. Calculate the valve of R (2mks)

15.

a. **Figure 12** below shows an object in front of a lens.

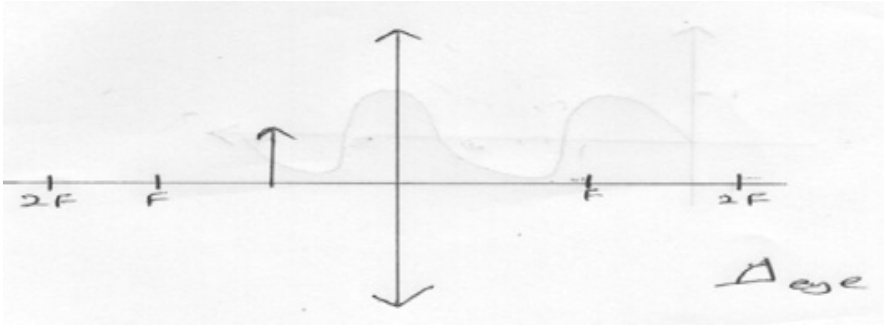


Figure 12

i. Using rays locate the image as seen by the eye. (2mks)
ii. Give one application of such a such a dens as used above. (1mk)

b. **Figure 13 (a) and (b)** shows diagrams of human eye

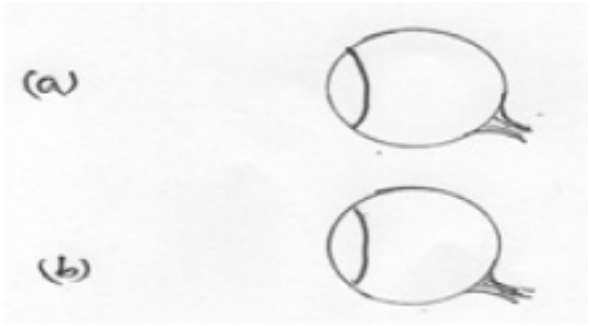


Figure 13

i. In figure (a),sketch a vary diagram showing long sightedness.(1mk)
ii. In figure (b) sketch a ray diagram shown how lens is used to correct long sightedness.(2mks)

c. An object of height 10.5am stands before a diverging lens of focal length 20cm and a distance of 10cm from the lens.Determine
i. The image distance (2mks)
ii. Height of the image (2mks)
iii. Magnification (2mks)

16.

a. State two differences between cathode rays and electromagnetic radiation (2mks)

b. **Figure 14** below shows the main features of a cathode ray oscilloscope (CRO)

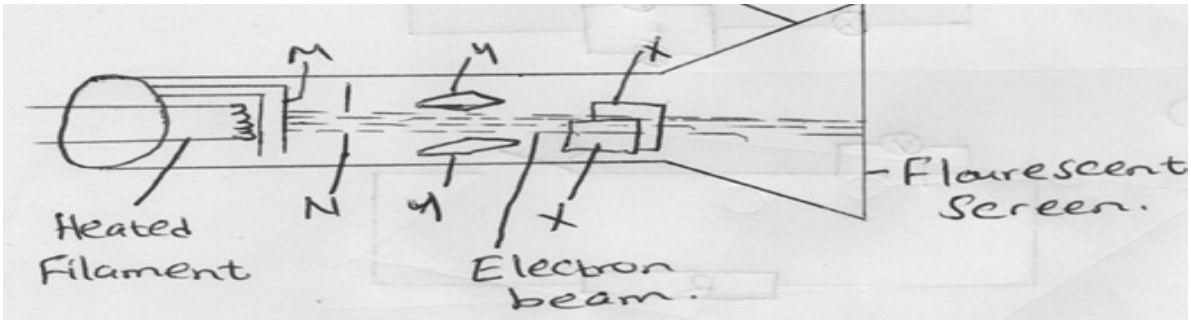


Figure 14

i. Name the parts labeled M and N. (2mks)
ii. Explain how electrons are produced in the tube (2mks)
iii. When using the CRO to display waveforms of voltages, state where the following should be connected.
    I. The voltage to be displayed on the screen (1mk)
    II. The time base voltage(1mk)
iv. Sate why the tube is highly evacuated(1mk)

c. **Figure 15** below shows the waveform of a signal applied at the y-plates of an oscilloscope while time base is switched to the scale of 2milliseconds per minutes.
Determine the frequency of the signal (3mks)

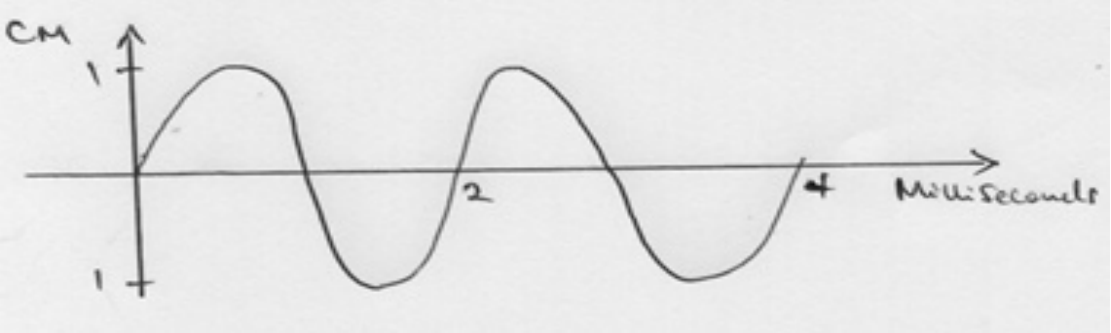


Figure 15

PHYSICS PAPER 3 - 2019 K.C.SE Prediction Set 2

INSTRUCTIONS

a. All working for numerical questions must be clearly shown;
b. Non programmable silent electronic calculators may be used
c. The paper is out of 40 marks;

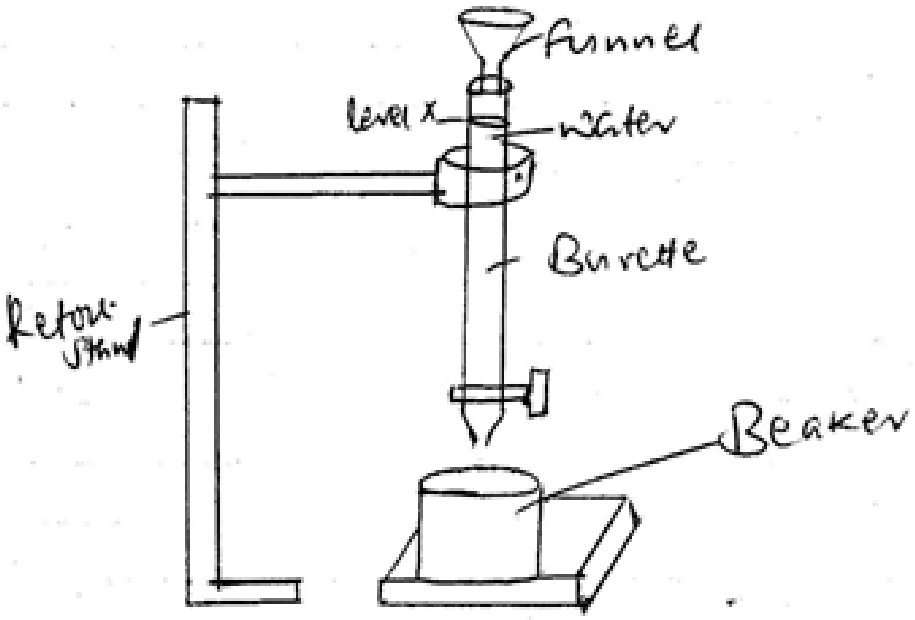
QUESTION 1

You are provided with the following apparatus

- Two beakers.
- A complete retold stand.
- Funnel
- Cotton wool.
- Access to water.
- Stop watch.
- A burette with a tap ($50cm^3$).
- 100ml measuring cylinder.

Proceed as follows:

a. Set the apparatus as follows:



I. Support the burrete on a result as shown above
II. Close the tap of the burrete and fill it with water to the brim
III. Transfer the water to the 100ml measuring cylinder and record the volume of the water
Volume V_1..... (1mk)

b. Fill the burrette with water up to the $0cm^3$ mark. Drain this water into 100ml measuring cylinder and record its volume V_2
V_2..... (1mk)
The excess water above the zero mark is given by
$V_0 = V_1 - V_2$
V_0 = ... (1mk)
(This volume should be added to the final volume of the burette reading when water has been drained)

c. Fill the burrete with water to the brim. Finally open the tap at once and start the stop watch simultaneously. Obtain the time, t taken for the level of water to reach X=10cm^3

Volume drained = (V_0+10) cm^3

Refill the burette with water. Finally open the tap at once and start the stopwatch simultaneously. Obtain the time taken for the level of water to reach x = 20cm^3

Volume drained = (V_0+20) cm^3

d. Repeat the procedure for other values of the burette readings.

Record the volume drained and the corresponding time in the table below. (9 marks)

Burette Reading X (cm^3)	Volume of water drained v = (V_o + x)cm^3	Time t(s)	$Log_{10}V$
10			
20			
30			
40			
45			
50			

i. Plot the graph of $log_{10}v$ (vertical axis) against time t. (5mks)

ii. Using your graph, calculate the value for b and n from the equation. (3mark)

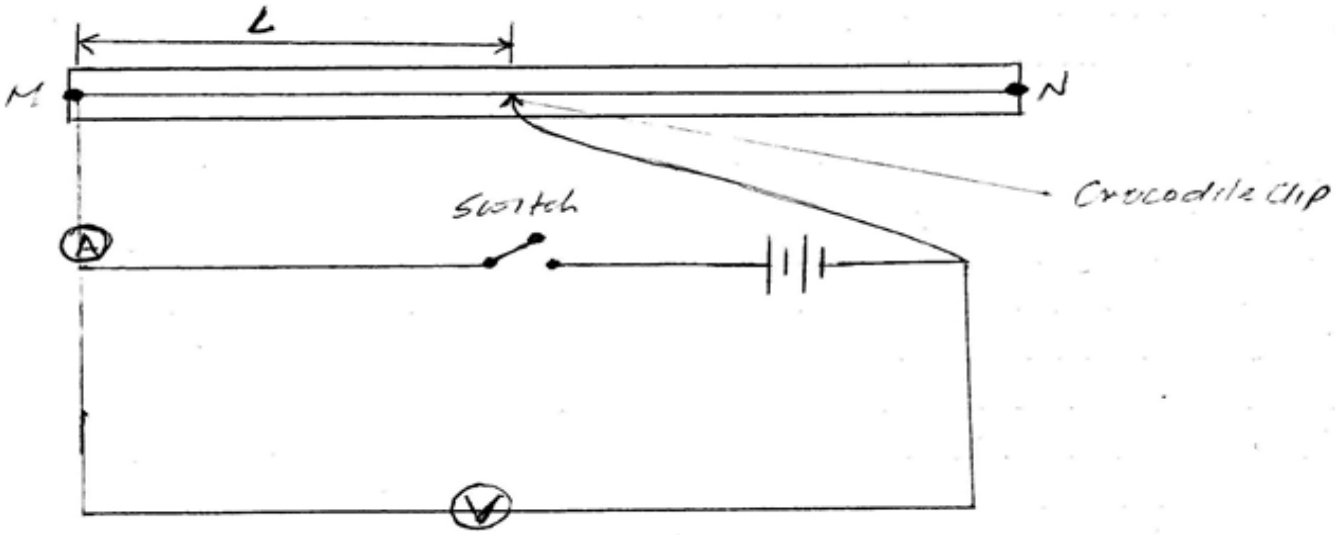
$Log_{10}\ v = {}^{4.2t}/_{b} + n$

QUESTION 2

a. You are provided with the following apparatus:

- Resistance wire fitted on a scale labelled MN
- Switch
- Voltmeter (0.3v) or(0.5v)
- Ammeter (0.1A)
- Two dry cells
- Six connecting wires

Set up the apparatus as shown in the figure below.



i. Remove the crocodile clip from the resistance wire MN and close the switch. Record the voltmeter reading. Y=.....V

(1mk)

ii. Attach the crocodile clip to the resistance wire such that L=10cm.
iii. Record the voltmeter and ammeter reading in the table below.
iv. Repeat the procedure in (iii) and (iv) for L= 20 cm, 30 cm, 40 cm, 50cm, 60 cm, 70cm and 80 cm.
v. Complete the table below. (9mks)

Length L (cm)	10	20	30	50	80
Current I (A)					
P.d. V (V)					
$y - v$					
$^{V}/_{Y-V}$					
$^{V}/_{I}$ = R (Ω)					

vi. Plot the graph of $^{V}/_{Y-V}$, vertical axis against R (5 marks)

b. Determine the slope, m of the graph (2mks)

c. The graph is given by the equation

$^{V}/_{Y-V} = {}^{MR}/_{5} + d$

Determine the value of m and d (3 marks)

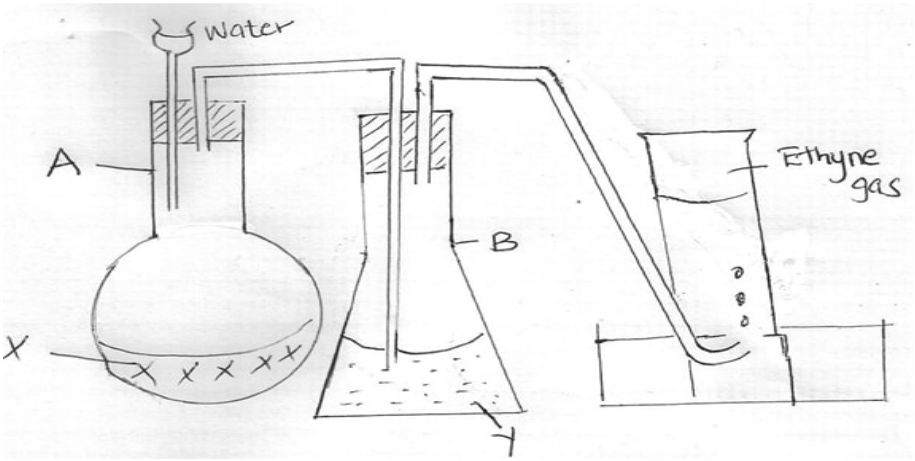
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CHEMISTRY PAPER 1 - 2019 K.C.SE Prediction Set 2

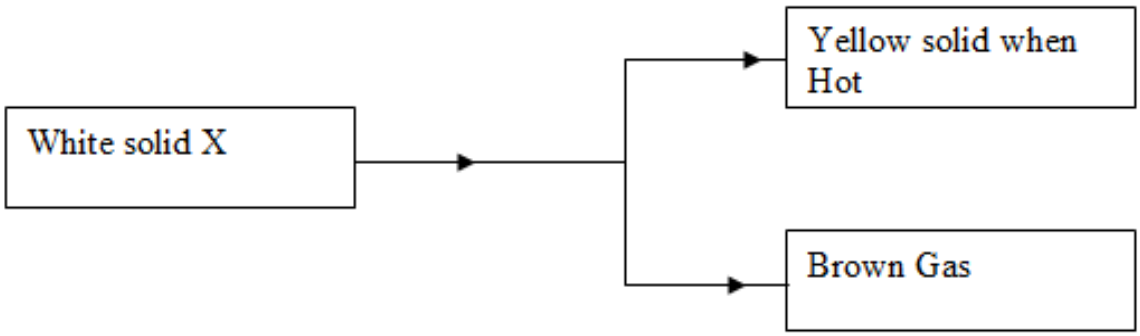
INSTRUCTIONS

- *Answer all the questions*
- *All working must be shown clearly where necessary*
- *Mathematical tables and silent non – programmable electronic calculators may be used*
- *Candidates must answer the questions in English.*
- *Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.*

1. An element T has an atomic number 12.
   a. Write the formula of the nitride of T. (1mk)
   b. What type of bond is formed between T and Nitrogen (1mk)
2. Ethanol has a lower molecular mass than butane.
   Explain why ethanol is a liquid and butane is a gas at room temperature (2mks)
3. The set up below shows how a pure sample of Ethyne gas is prepared in the laboratory



   a. Identify substances (1mk)
   X _____
   Y _____
   b. Write down a chemical equation for the reaction that takes place in flask A (1mk)
4. A gas occupies $500cm^2$ at a temperature of 27^0C and 760mmHg pressure. Calculate its volume when pressure is doubled and temperature raised to 40^0C. (3mks)
5. Chlorine gas is bubbled through Iron (II) sulphate solution.
   a. Explain the observations made (2mks)
   b. Write an ionic equation for the reaction that occurs (1mk)
6. Study the scheme below and answer questions that follow



a. Identify cations and anions in solid X
(1mk)
Cations _____
Anions _____

b. Write down the equation for the reaction between hydrochloric acid and the yellow solid.
(1mk)

7. Silicon and Sulphur are both non-metals in period 3. The melting points of their oxides are shown below

Oxide	Mpt ^oC
SiO_2	1728
SO_2	-76

Explain this great difference in the melting point of the compounds. (2mks)

8. Describe how you would obtain a pure sample of Sodium Carbonate from a mixture of Calcium Carbonate, Sodium carbonate and Ammonium Chloride. (3mks)

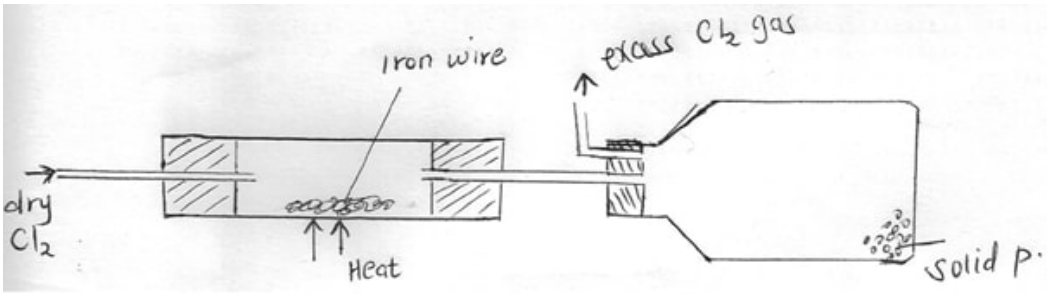
9. Manganate (VII) ions react with Iron (II) ions in the presence of H+ ions according to the following reaction

$MnO_4^- + 5Fe^{2+} + 8H^+ \rightarrow Mn^{2+} + 5Fe^{3+} + 4H_2O$

a. Work out the oxidation number of Manganese ions in the manganate (VII) ions (2mks)

b. Which species has been reduced? Explain (2mks)

10. Dry Chlorine gas was passed over hot iron wire as shown in the diagram below



a. Name solid P
(1mk)

b. Write a chemical equation for the reaction that forms solid P
(1mk)

11. The table below shows elements W,X,Y,Z in the same group of the periodic table. The letters do not represent the actual symbols of the elements. Study it to answer the questions that follow.

Element	Atomic radius (nm)	Ionic radius (nm)
W	0.072	0.136
X	0.133	0.216
Y	0.144	0.195
Z	0.099	0.181

a. Is this a group of metallic or non - metallic elements? Explain (2mks)

b. Arrange the elements in order of the reactivity starting with the least reactive (1mk)

12. Use the following half cells standard reduction potentials to answer the questions that follow

$Mg^{2+} + 2e^- \rightarrow Mg$ -2.36

$Zn^{2+} + 2e^- \rightarrow Zn$ -0.76

$Ag^+ + e^- \rightarrow Ag$ $+0.80$

$Cu2^{2+} + 2e^- \rightarrow Cu$ $+0.34$

a. Select two half cells which when combined give the largest cell potential (1mk)

b. Calculate the cell potential of the cell formed in a) above. (2mks)

13. Concentrated Sulphuric (VI) acid is used as a drying agent. Explain why it is not suitable drying agent in preparation of Ammonia (2mks)
14. Use the bond euthalples given below to answer the questions that follow

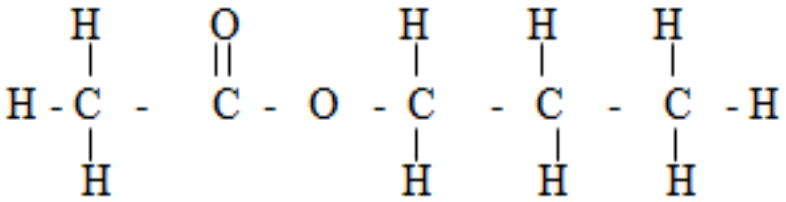
Bond	Bond euthalpies (KJ/Mol)
H-H	436
N-H	388
N=N	944

Calculate the heat of reaction of

a. $N_{2(g)} + 3H_{2(g)} \rightarrow 2NH_{3(g)}$ (2mk)

b. Is the above reaction exothermic or endothermic? Give a reason (1mk)

15. The compound shown below is formed when an alcohol reacts with an alkanaic acid in presence of concentrated Sulphuric (VI) acid



a. Give the IUPAC name of the compound (1mk)

b. Identify the alcohol and the alkanoli acid that were used to form the compound

Alcohol _____

Alkanolic Acid _____

16. What mass of copper would be deposited when a current of 2 amperes is passed for 4 minutes (1F = 96500 Coulombs, Cu= 63.5) (3mks)
17. Starting with Copper metal, describe how we can prepare Copper (II) Carbonate. (3mks)
18. When excess Magnesium ribbon is burned in air, two products are formed.

a. Identify the two products (1mk)

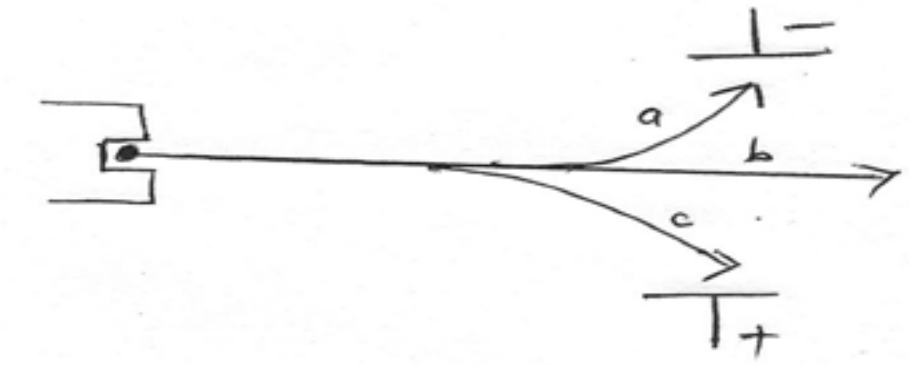
b. Write two equations for the reactions that form the two products in(i) above (2mks)

19. Diamond and graphite are two allotropes of carbon

a. Define the term allotrope (1mk)

b. In terms of bonding, explain why graphite conduct electricity while diamond does not (2mks)

20. 1.23g of the hydrated salt, $MgSO_4.XH_2O$ was dissolved in $50cm^3$ of water and the solution diluted to $500cm^3$ using distilled water. The concentration of the final solution was found to be 0.011M. Find the value of X (Mg = 24, S=32, O=16, H=1) (3mks)
21. The arrangement below was used to compare the effects of an electric field on the emission of a radioactive decay.



a. Name radiations
(2mks)
a _____
b _____
c_____

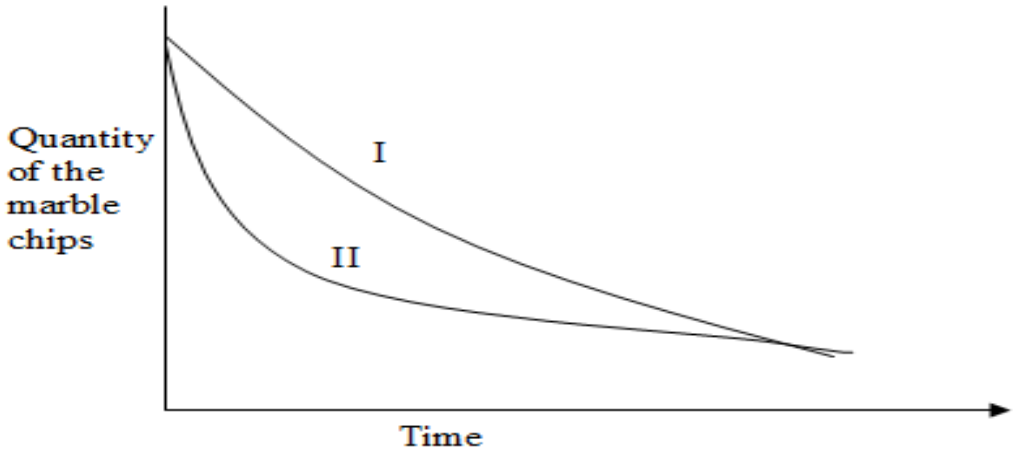
b. Account for the difference in the deflection of a and c
(1mk)

22.

a. State the industrial method for the manufacture of ethanol (1mk)

b. State two uses of ethanol (1mk)

23. The curves below were obtained when equal volumes of hydrochloric acid of the same concentration were reacted with 25g of marble chips. In one case, the acid was first warmed to a higher temperature.

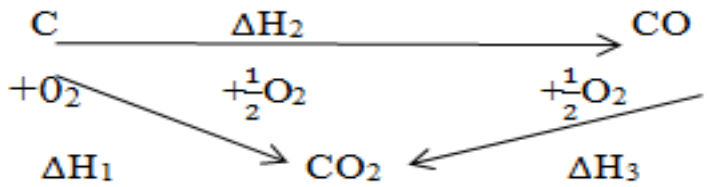


a. Which curve represents the reaction using warm hydrochloric acid?
(1mk)

b. Explain how temperature affects the rate of reaction.
(1mk)

c. Apart from temperature, state any other factor that affects the rate of reaction involving solids. (1mk)

24. Study the energy cycle diagram below and then answer the questions that follow.



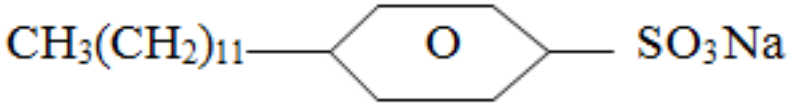
a. Name the heat changes labeled ΔH_2 and ΔH_3.
(1mk)

b. Given that the ΔH2 = -110kJMol^{-1} and ΔH3 = -283kJMol^{-1} . Calculate the value of ΔH1 for one mole of graphite C = 12, O=16 (2mks)

25. Ammonium Iron (II) Sulphate heptahydrate was heated gently then strongly in a dry test tube. Explain the observations made. (3mks)

26. A Solution contains 4g of Potassium hydroxide in one litre. 25.0cm^3 of this solution requires 22.0cm^3 of dilute SulphuricVI acid for complete neutralization. Calculate the concentrationof the acid in moles per litre. (K=39, O = 16) (3mks)

27. The following structure represents a popular compound used for washing



a. Explain why it is a better washing agent than soap in both hard and soft water (2mks)

b. State one problem associated with the use of the above compound. (1mk)

28.

a. State two properties of carbon(IV) oxide that makes it suitable for use as a fire extinguisher (1mk)

b. Give one use of Carbon (IV) oxide other than as fire extinguisher (1mk)

29. Ethanoic acid has a higher boiling point than ethanol. Explain this in terms of structure and bonding. (2mks)

30. Drug abuse is a rapidly growing problem.

a. Name two addictive drugs (1mk)

b. State one problem that drug above can cause. (1mk)

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

INSTRUCTIONS

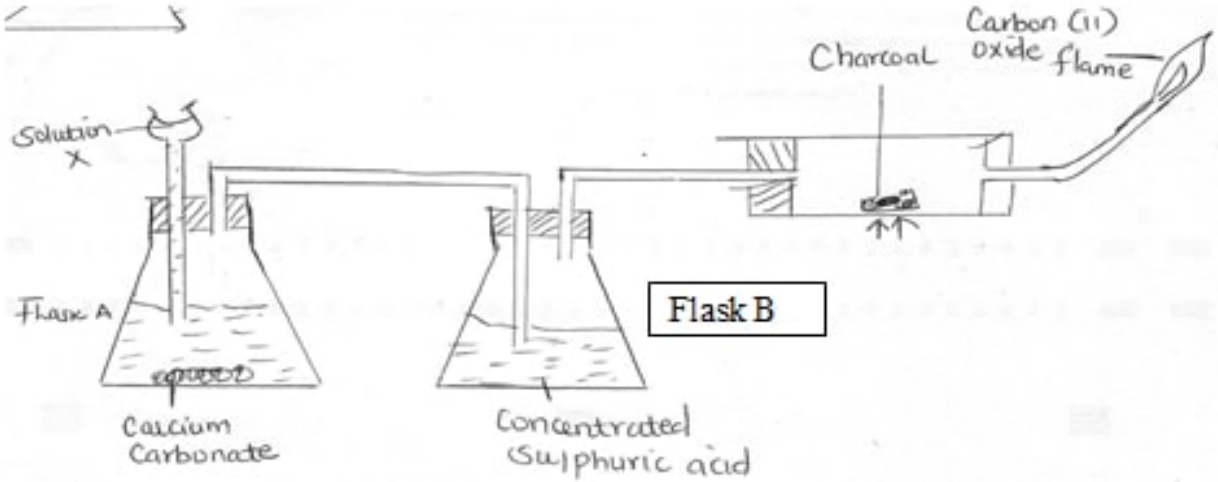
- *Answer ALL questions*
- *All working MUST be clearly shown where necessary*
- *Mathematical tables and silent non- programmable electronic calculators may be used.*
- *Candidates must answer all the questions in English.*

1. Use the grid below to answer questions that follow. Letters do not represent the actual symbols of the elements

F	I				M		O	
G	J		K	L		N	P	Q
H								

   a. What family name is given to elements G and H (1mk)
   b. State and explain the difference in reactivity between
      i. G and J (1mk)
      ii. N and P (1mk)
   c. How does the atomic radius of K compare to that of L. Explain (2mks)
   d. Element R forms an oxide of the formula RO_2 and belongs to period 2. Indicate on the grid the position of R. (1mk)
   e. Explain the trend in melting points in the group of elements to which I and J belong (2mks)
   f. Write down the formula of the compound formed between K and P (1mk)
   g. Name the type of bond formed when F reacts with D. Explain (2mks)
   h. Give one use of element Q. (1mk)
   i. Write down the electronic arrangement of ion of:- (2mks)
      H =
      N =

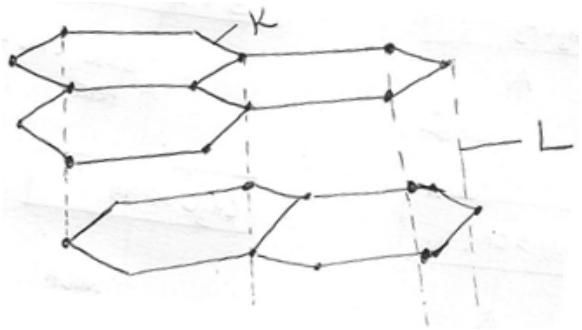
2.
   a. Use the set up below to answer the questions that follow



      i. Write the equation for the reaction in the flask A (1mk)

ii. Give the purpose of concentrated sulphuric (VI) acid in the set up (1mk)
iii. Name another substance which can be used instead of concentrated sulphuric (VI)acid (1mk)
iv. Write an equation for the reaction taking place in the combustion tube (1mk)
v. What property of carbon is being investigated by the reaction in the combustion tube (1mk)
vi. Why is carbon (ii) oxide gas burned and not allowed to escape into the air (1mk)

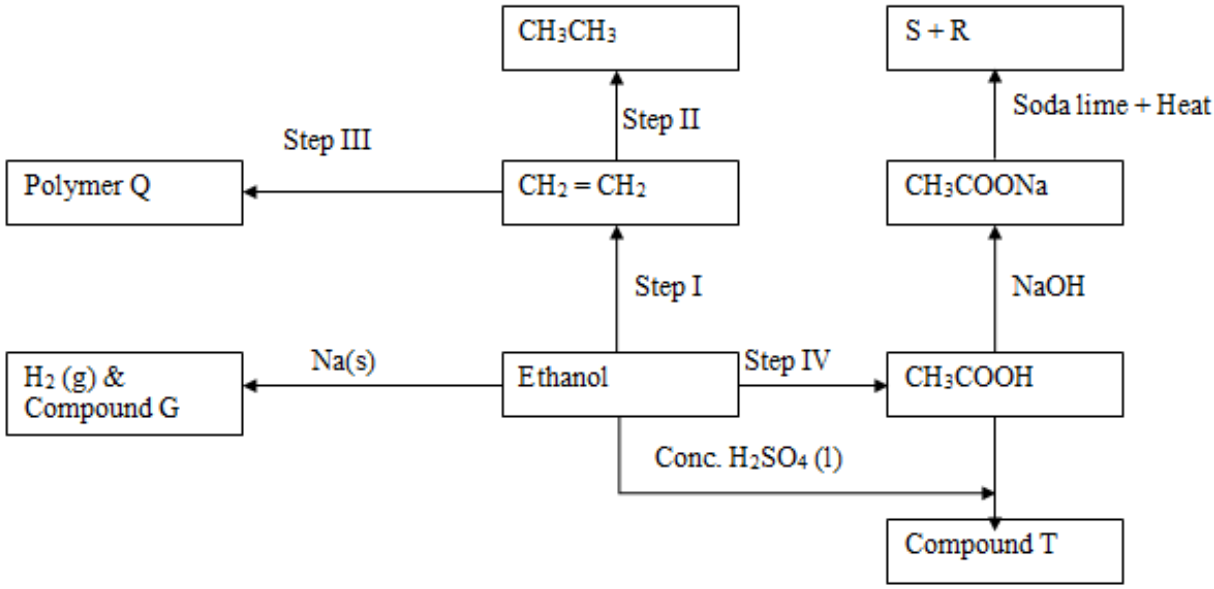
b. Study the diagram below and answer questions that follow



i. Identify the structure (1mk)
ii. Name the bonds labeled (2mks)
K –
L –
iii. Explain why the allotrope drawn above conducts electricity (2mks)

3.

a. Name one natural fibre (1mk)
b. State two advantages of synthetic fibre over natural fibre (2mks)
c. The flow chart below shows reactions starting with ethanol. Study it and answer the questions that follow



i. Apart from fermentation, state another way in which ethanol can be obtained. (1mk)
ii. Identify the reagent and catalyst used in step II (1mk)
Reagent _____
Catalyst _____

iii. Name compound G (1mk)

iv. Write down a chemical equation between CH_3COONa and soda lime to form products S and R (1mk)

v. State one disadvantage of continuous use of substance the formed in step III (1mk)

vi. Give the LUPAC name and draw the structure of compound T (2mks)

vii. Name the homologous series to which T belongs (1mk)

viii. Name the process in (1mk)

Step I _____

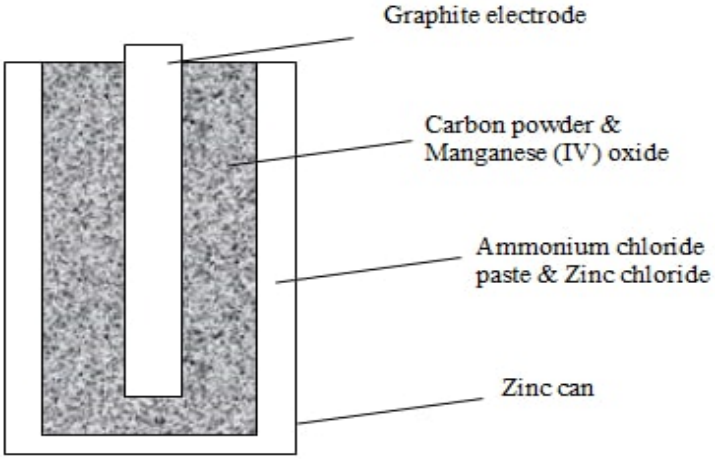
Step IV _____

ix. State one industrial use of the process in Step II (1mk)

4.

a. State the main difference between electrolytic cell and electrochemical cell (1mk)

b. The diagram below represents a dry cell with Zinc can and graphite as electrodes. Study it and answer the questions that follow



i. Identify the anode and the cathode (1mk)

Anode _____

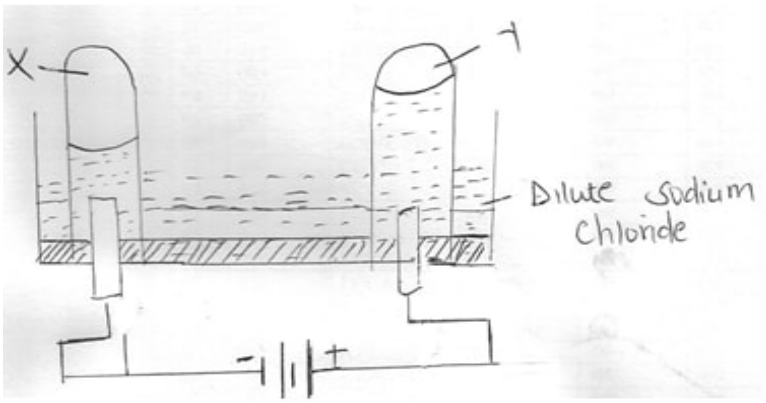
Cathode _____

ii. Explain why ammonium chloride is in paste form and not in solid form (1mk)

iii. Write an ionic equation at the cathode (1mk)

iv. Explain why Manganese (IV) oxide is used in the cell (1mk)

c. The diagram below shows an arrangement used in electrolysis of dilute sodium chloride solution using inert electrodes and collect gaseous products. Study it and answer question that follow.



i. Write the half equations for the reaction at the (1mk)

Cathode _____

Anode _____

ii. Explain why the volume of gas X is larger than that of gas Y (2mks)

iii. If Brine is used in place of dilute sodium chloride a different gas is produced at the anode. Name the gas produced. Explain. (2mks)

iv. State two factors that may influence the products at the electrode during electrolysis (1mk)

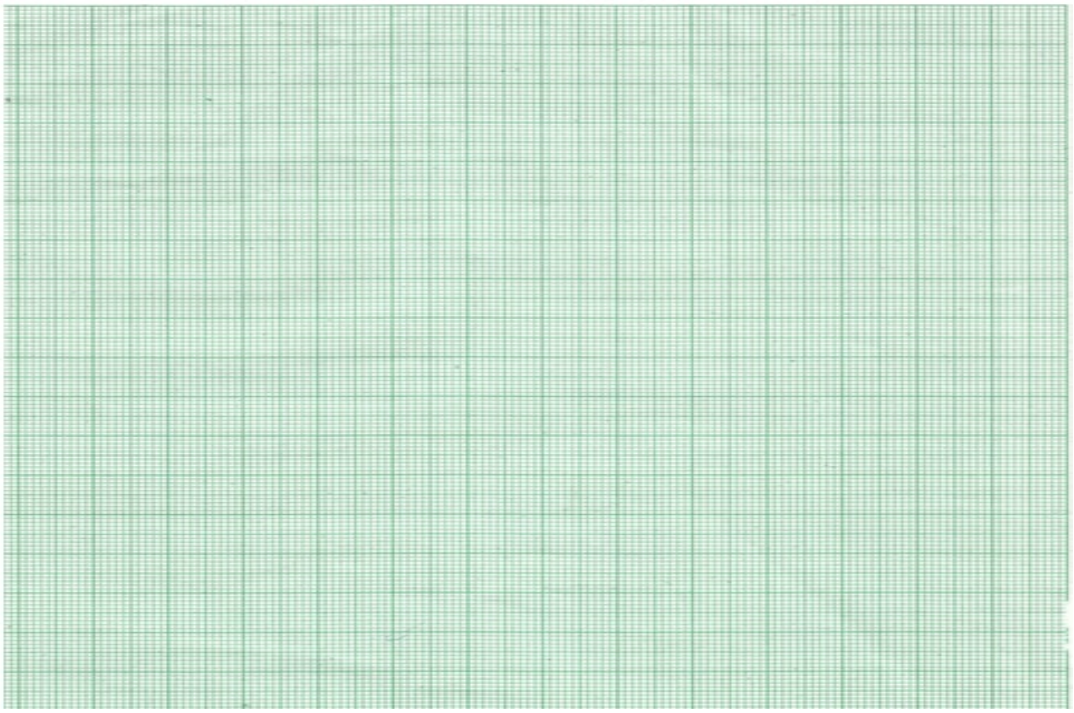
d. In an electrolysis of molten Aluminium oxide, a current of 200 amperes was passed for 48 minutes. Determine the volume of oxygen gas produced at STP during the electrolysis (IF = 96500c, volume of the gas at STP = $22.4dm^3$). (3mks)

5. Study the information in the table below and use it to answer the question that follow

Mass of a catalyst per 5g of $KClO_3$ in (g)	Time required to produce maximum volume of oxygen gas in (min)	$^1/_t$ (min^{-1})
0.00	8	
0.10	6	
0.20	5	
0.40	4	
0.75	3	
1.00	2.5	

a. Complete the table (2mks)

b. On the grid provided, draw a graph of 1/t against the mass of catalyst used (3mks)

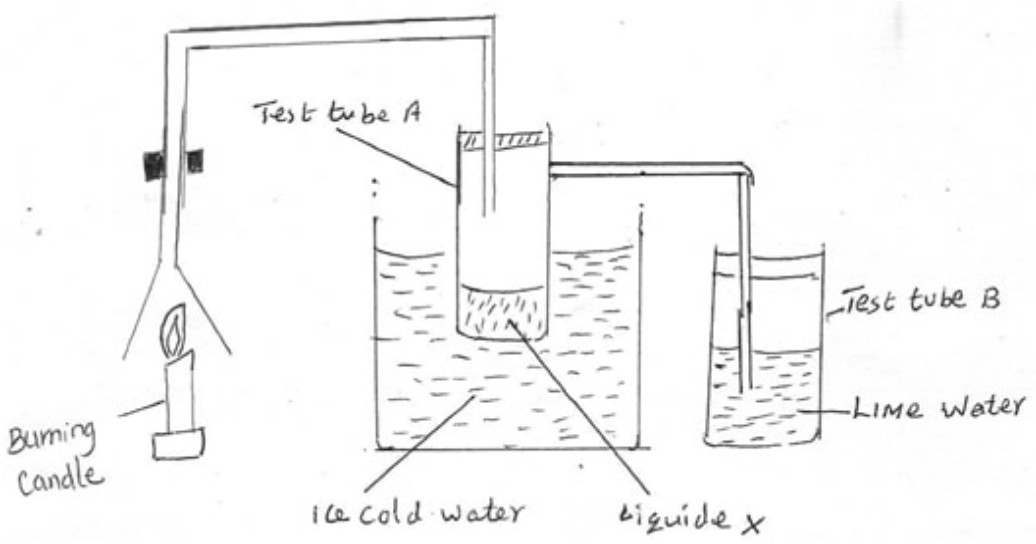


c. What conclusion can you draw from the graph (1mk)

d. How would the rate of evolution of oxygen alter if granular manganese (iv) oxide was used instead of powdered manganese (iv) oxide. Explain (2mks)

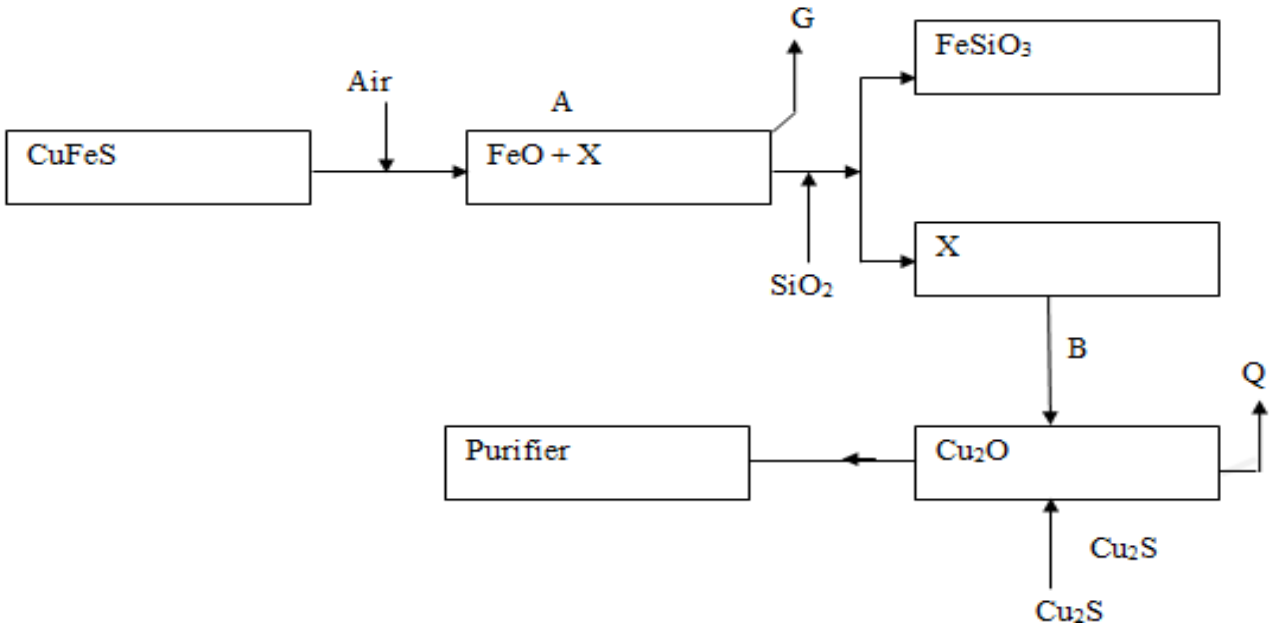
e. Calculate the total volume of oxygen gas evolved when 5g of Pottasium chlorate is decomposed completely (K = 39, Cl = 35.5, O = 16 one mole of gas at RTP = $24.0dm^3$. (3mks)

6. Study the diagram below and use it to answer questions that follow



a. Write an equation for the reaction taking place when the candle burns (1mk)
b. What general name is given to compounds made up of the same elements as the candle (1mk)
c. What is the purpose of ice cold water (1mk)
d. State one observation made in test tube B when all the burning candle is used up. Explain with the help of equations (3mks)
e. Describe how you can test the purity of liquid M (2mks)

7. The scheme below shows the main stages in the extraction of copper metal.



a. Name ores from which copper is extracted (1mrk)
b. Identify
   i. liquid x (2mrks)
   ii. gas G
c. Explain how x is separated from iron (ii) silicate($FeSiO_3$) (1mrk)
d. Write an equation for the reaction taking place at chamber B (1mrk)
e. Name one environmental hazard associated with the extraction of copper (1 mrk)
f. Using relevant equations describe how copper is purified (2mrks)
g. Give two uses of copper

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CHEMISTRY PAPER 3 - 2019 K.C.SE Prediction Set 2

INSTRUCTIONS

- *Answer all the questions*
- *All working must be shown clearly where necessary*
- *Mathematical tables and silent non – programmable electronic calculators may be used*
- *Candidates may be penalized for not following the instructions given in this paper.*
- *Candidates must answer the questions in English.*

1. You are provided with
    - Solid V
    - 2.0 M hydrochloric acid, solution B
    - 0.1M sodium hydroxide, solution C

   You are required to determine the enthalpy change, ΔH for the reaction between solid V and one mole of hydrochloric acid

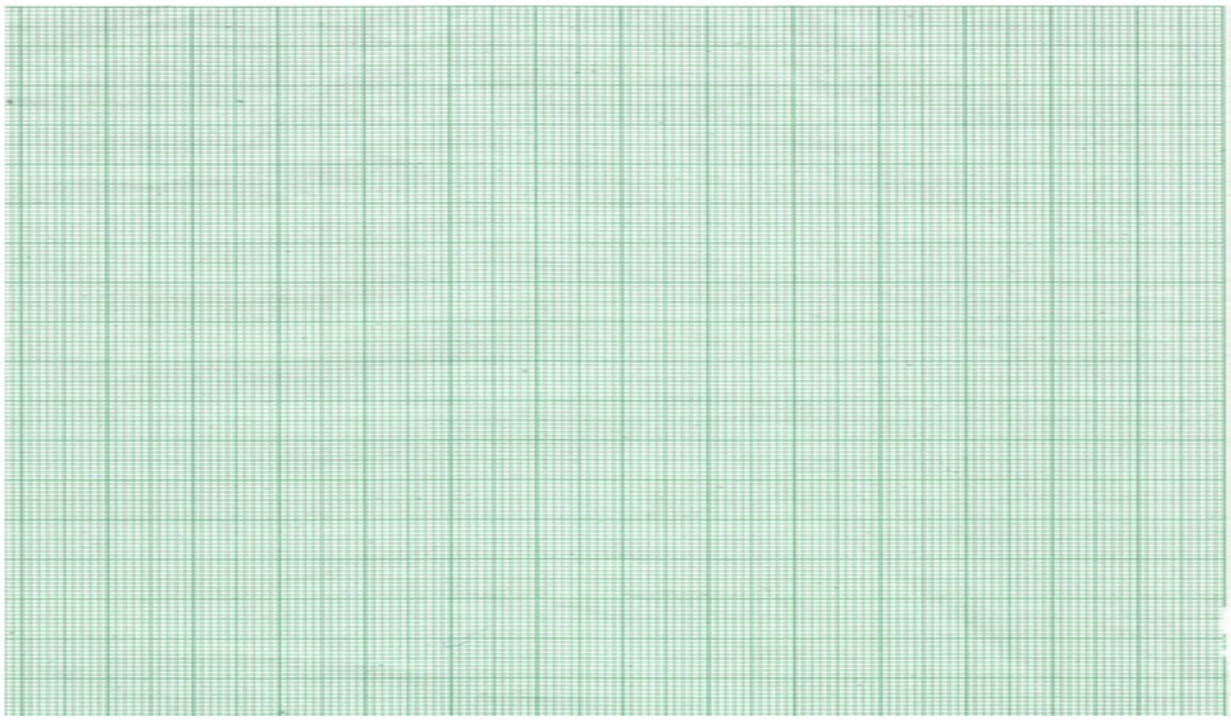
   Procedure I

   Using a burette, place 20 cm^3 of 2.0M hydrochloric acid, solution B in a 100ml plastic beaker. Record the temperature of the solution after every half minute and record the values in table 1 below. At exactly 2 ½ minutes, add all of solid V to the acid. Stir the mixture gently with a thermometer and record the temperature of the mixture after every half minute in table 1. Retain the mixture for use in procedure II

   Table 1

Time (Min)	0	1	1½	2	2½	3	3½	4	4½	5
Temperature										

   a. On the grid provided, plot a graph of temperature (vertical axis) against time (3mks)



   b. From the graph, determine the change in temperature ΔT (1mk)

c. Calculate the heat change for the reaction (Assume that the specific heat capacity of the mixture is 4.2Jk^{-1} 1g^{-1} and the density of the mixture is 1g/cm3. (1mk)

Procedure II

Rinse the burette thoroughly and fill it with 0.1 M sodium hydroxide, solution C. Transfer all the contents of the 100ml plastic beaker used in procedure I into a 250ml volumetric flask. Add distilled water to make up to the mark. Label this solution V. Using a pipette and a pipette fillers, pipette 25cm^3 of solution V into a conical flask . Add 2-3 drops of phenolphthalein indicator and titrate with solution C. Record your results in table 2 below. Repeat the titration two more times and complete table 2 below.

	I	II	III
Final burette reading			
Initial burette reading			
Volume of solution C used cm^3			

Calculate:

a. The average volume of sodium hydroxide used (1mk)
b. The number of moles of;
   i. Sodium hydroxide used (1mk)
   ii. Hydrochloric acid in 25cm^3 of solution V (1mk)
   iii. Hydrochloric acid in 250cm^3 solution V (1mk)
   iv. Hydrochloric acid in 20cm^3 of solution B, that reacted with solid V (1mk)
   v. Calculate the enthalpy of reaction between solid V and one mole of hydrochloric acid (2mks)

2. You are provided with solid P. Carry out the tests below and record your observations and inferences in the spaces provided

a. Transfer a spatula and full of solid P into a boiling tube and add 20cm^3 of distilled water. Shake thoroughly then filter. Raise the residue and the distilled water and keep both the residue and the filtrate. Divide the filtrate into three portions.

i. To one portion of the filtrate add ammonia solution drop wise until in excess

Observation	Inference
1 mk	½ mk

ii. To the second portion, add about four drops of 0.5M lead (II) nitrate solution

Observation	Inference
1 mk	1 mk

iii. To portion three of the filtrate, add 4 drops of Barium chloride solution followed by 5cm^3 of nitric (v) acid.

Observation	Inference
1 mk	1 mk

b. Scrap the residue from the filter paper in (a) above using a spatula and transfer it into a boiling tube. Add about 8cm^3 of 1M nitric (v) acid.
Keep the resulting solution for use in (c) below

Observation	Inference
1 mk	1 mk

c. Divide the solution obtained in (b) above into three portions

i. To the first portion, add ammonia solution dropwise until in excess

Observation	Inference
1 mk	1 mk

ii. To the second portion, add 4 drops of 1M hydrochloric acid solution

Observation	Inference
1 mk	1 mk

iii. To the third portion, add 4 drops of Pottasium iodide solution

Observation	Inference
½ mk	½ mk

3. You are provided with solid Q. Carry out the tests below and record you observations and inferences in the spaces provided.

i. Scoop a portion of the solid using a clean spatula and introduce it to a non-luminous flame.

Observation	Inference
1 mk	1 mk

ii. To the remaining portion of solid Q, add 10cm^3 of distilled water. Shake and divide the solution into three parts.

Observation	Inference
1 mk	1 mk

iii. To the first portion add about 1cm^3 of acidified potassium manganate (vii) solution

Observation	Inference
1 mk	1 mk

iv. To the second portion, add about 1cm^3 of acidified potassium dichromate (vi) solution

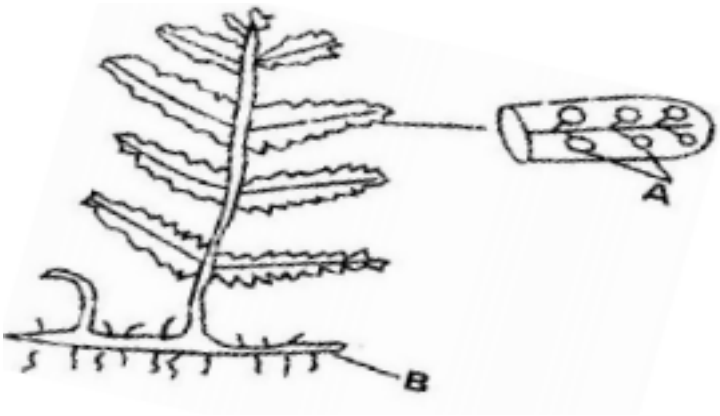
Observation	Inference
1 mk	1 mk

v. To the third portion, determine the PH of the solution

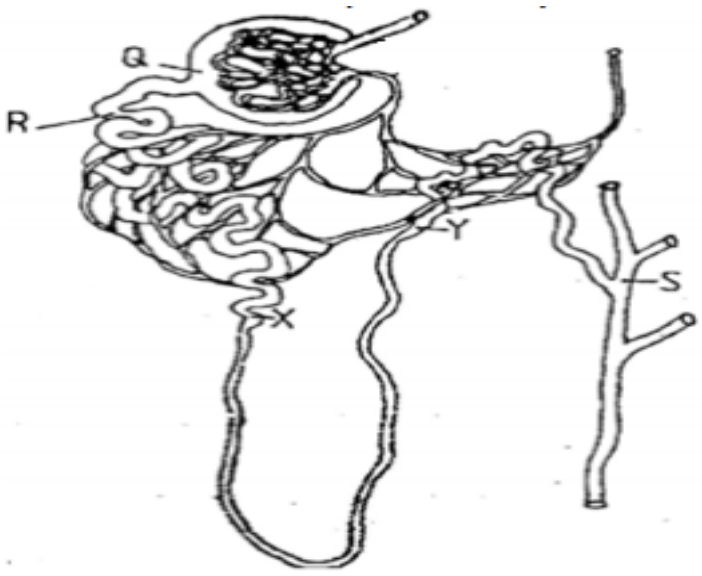
Observation	Inference
½ mk	½ mk

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

1. Name the tissues whose cells are thickened with:
    a. Cellulose and pectin. (1mk)
    b. Lignin. (1mk)
2. The diagram below represents a fern.

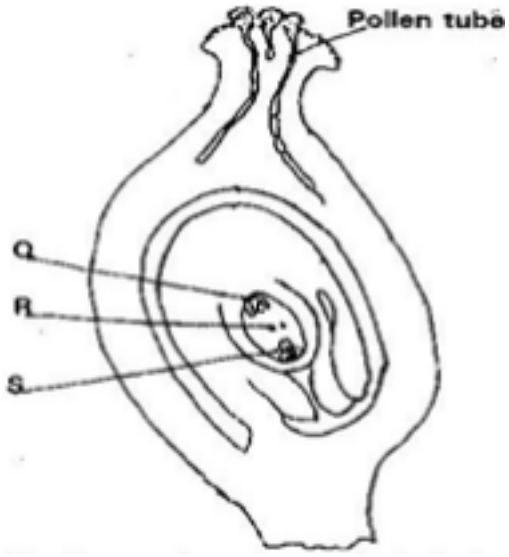


    a. Name Parts labeled A and B. (2mk)
    b. To which division does the plant belong? (1mk)
3. State three measures that can be taken to control infection of man by protozoan parasites (3mk)
4. Explain how the following factors hinder self pollination in plants:
    i. Protogyny(1mk)
    ii. Dioecism(1mk)
5. Explain the likely effect on humans and other organisms of untreated sewage discharged into water body that supplies water for domestic use. (3mk)
6. Name two structures in herbaceous stems that enhance their support. (2mk)
7.
    a. Define the term immunity. (1mk)
    b. Distinguish between natural immunity and acquired immunity. (1mk)
    c. Identify one immunizable disease in Kenya. (1mk)
8. State three differences between osmosis and active transport. (3mk)
9. The diagram below illustrates part of a nephron from a mammalian kidney.



a. Name the fluid found in the part labeled Q. (1mk)
b. Identify the process responsible for the formation of the fluid named in (a) above. (1mk)
c. Which two hormones exert their effect in the nephron? (2mk)

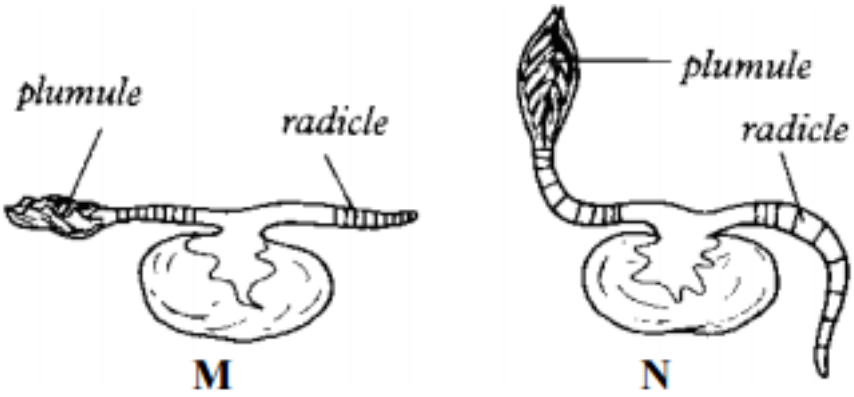
10. State three characteristics of members of kingdom Monera that are not found in other kingdoms. (3mk)
11. What is meant by the following biological terms?
    i. Crenation (1mk)
    ii. Haemolysis (1mk)
    iii. Plasmolysis (1mk)
12. The diagram below shows a stage during fertilization in flowering plant.



a. Name the parts labeled Q, R, and S. (3 mk)
b. State the function of the pollen tube. (1 mk)

13.
a. State the major factor in the 'Global warming' experienced in the world today. (1mk)
b. Suggest two ways of reducing the Global warming. (2mk)

14. An experiment was set to investigate a certain aspect of response. A seedling was put on a horizontal position as shown in figure M below. After 24 hours, the set up was as shown in figure N.



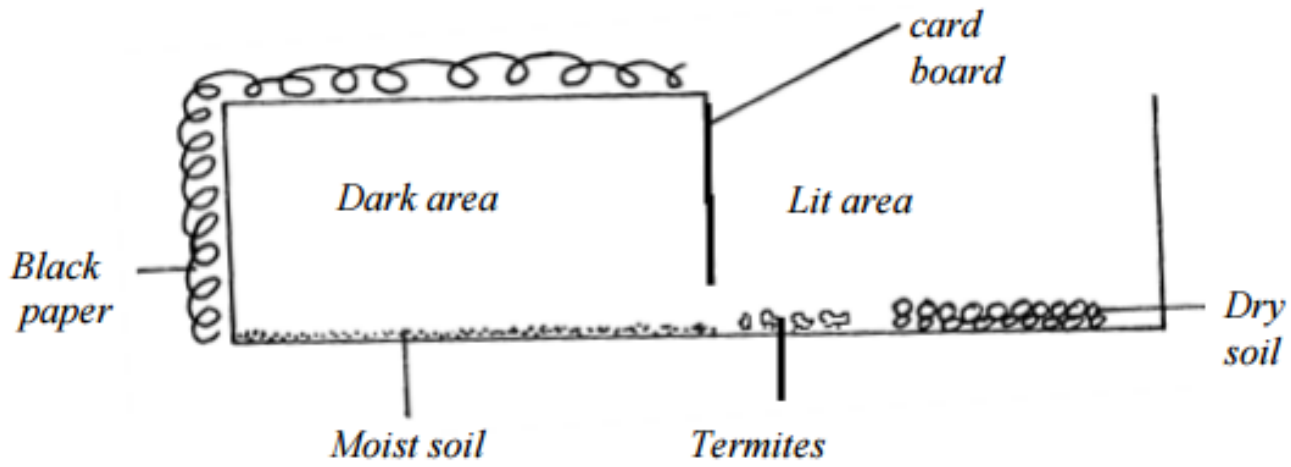
a. Name the response exhibited. (1mk)
b. Explain the curvature of the shoot upwards. (3mk)

15. The paddles of whales and the fins of fish adapt these organisms to aquatic habitats.

a. Name the evolutionary process that may have given rise to these structures. (1mk)
b. What is the name given to such structures? (1mk)
c. Give two examples of vestigial organs in man. (2mk)

16.
a. Name a protein and vitamin involved in blood clotting.
   i. Protein.(1mk)
   ii. Vitamin(1mk)
b. Explain why blood is not normally used for transfusion after one month. (1mk)

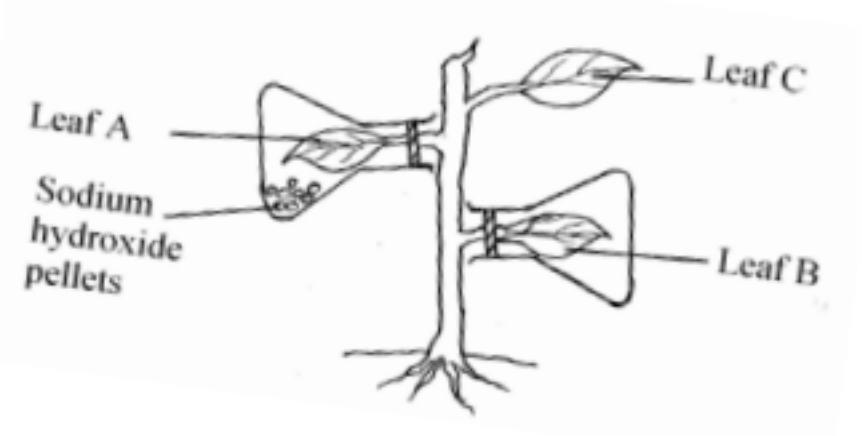
17. A group of Form four students set up an experiment to investigate a biological process using termites. They used a small box in which a portion was covered with black paper and had moist soil. The open part had dry soil. Termites were placed inside in open area of the box.



a. Predict what happened to the termites after 30 minutes. (1mk)
b. What form of response is exhibited by termites? (1mk)
c. State one biological significance of the above response to termites.(1mk)

18.
a. Name two fins in a bony fish which perform the following functions:-
   i. Changing direction. (1mk)
   ii. Control pitching. (1mk)
b. State the role of myotomes in fish. (1mk)

19. The diagram below represents an experimental set up to investigate a certain scientific concept. The potted plant was first destarched by keeping it in dark for four days.



The set up was then placed in sunlight for five hours and leaves were tested for starch.

a. What scientific concept was being investigated? (1mk)

i. Give the results likely to be obtained after starch test for A and B.
ii. Account for the results in leaf A in b (i) above. (1mk)

c. Why was leaf C included in the set-up? (1mk)

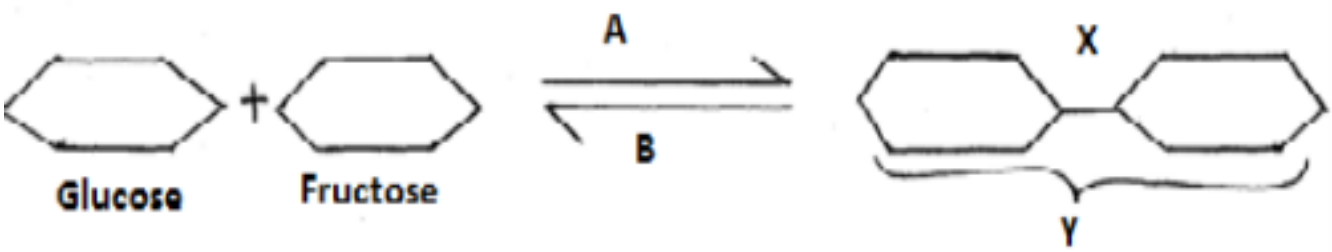
20.

a. Explain the importance of transport in plants. (2mk)
b. What is the role of root hairs in plants? (1mk)

21.

a. Identify the source of urea that is removed via the kidneys in a healthy human being. (1mk)
b. Explain why a pregnant woman excretes less urea compared to a woman who is non-pregnant. (2mk)

22. Study the reaction below and answer the questions that follow.



a. What biological processes are represented by A and B? (2mk)
b. Identify the product Y. (1mk)
c. State the bond represented by X. (1mk)

23. Explain the events of the light stage of photosynthesis. (3mk)
24. Explain what happens in humans when the concentration of glucose in the blood rises above the normal level. (3mk)
25.

a. Outline the main features of Lamarckian theory of evolution. (2mk)
b. In view of modern genetics, explain why Lamarck's theory is unacceptable. (1mk)
c. Name one factor in nature that increases the process of evolution. (1mk)

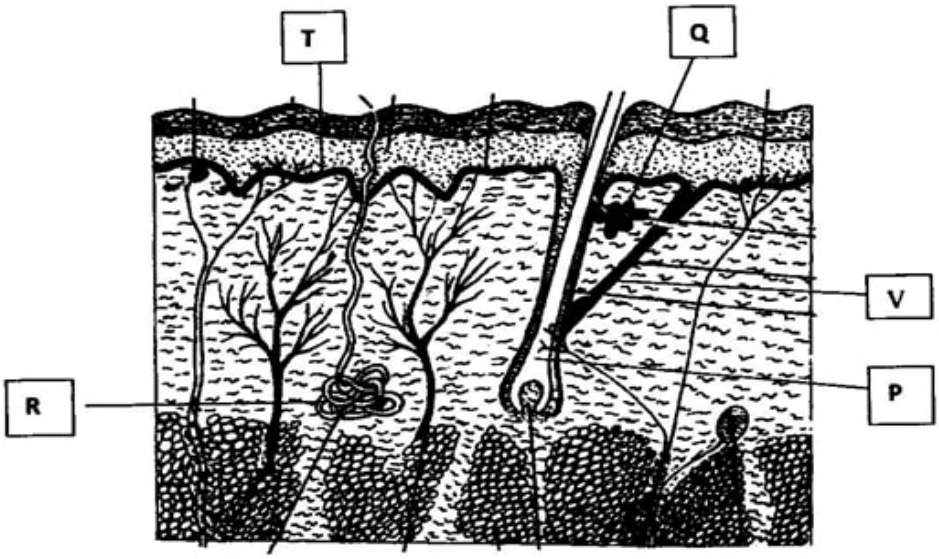
BIOLOGY PAPER 2 - 2019 K.C.SE Prediction Set 2

INSTRUCTIONS

- *Answer **all** the questions in Section **A** in the spaces provided.*
- *In section **B** answer questions **6** (compulsory) and either question **7** or **8** in the spaces provided*

SECTION A (40 Marks)

1. Below is a diagram of a mammalian skin, use it to answer the questions that follow.



   a. Name the parts labelled P, Q, R (3mks)
   P.....
   Q.....
   R.....
   b. Give the function of the parts labelled Q and T (2mks)
   Q.....
   T.....
   c. Briefly explain how the part labelled R contribute to lowering of body temperature on a hot day. (2mks)
   d. Give **one** function of the mammalian skin other than thermoregulation. (1mk)

2. Form two students subjected an orange plant growing outside the laboratory to the Following;
   - Selected two sized leaves and gently brushed them clean on both sides.
   - Placed two strips of dry cobalt chloride paper on both sides of each leaf and opposite each other and covered the cobalt chloride papers with cello tape.

   They observed the time taken for any colour change to occur and recorded the following.

Side of leaf	Upper epidermis	Lower epidermis
Time taken	5 minutes	2 minutes

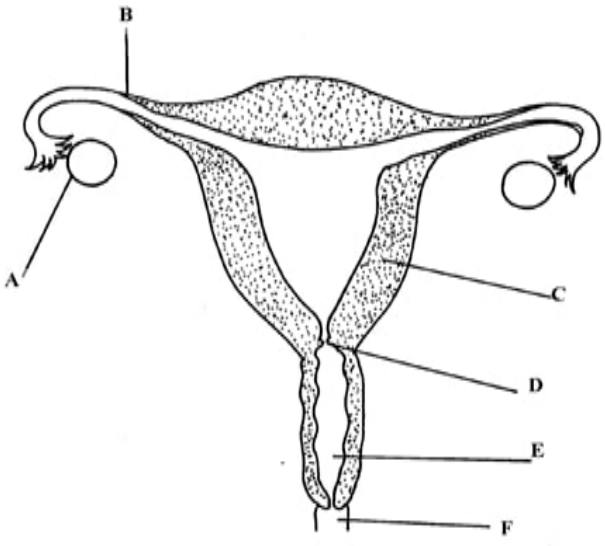
   Use the above information to answer the following questions.
   a.
      i. What was the aim of the above experiment. (1mk)
      ii. What was the purpose of brush cleaning the leaf (1mk)
      iii. What was the role of cello-tape in this experiment? (1mk)
   b.
      i. What was the original colour of dry cobalt chloride paper. (1mk)
      ii. What colour change did the students observe? (1mk)
   c. Explain the difference in time taken for the colour change observed. (3mks)

3. Red-green colour blindness is controlled by a sex-linked gene. The allele for normal sight is represented by letter C and of colour blindness is represented by letter c. A carrier female is married to a colour blind male.
    a. What is sex linked gene? (1mk)
    b. Write down the genotype of the parents. (2mks)
    c. Work out the F1 genotypes. (4mks)
    d. What is the percentage of colour blind sons in all the male offspring's (1mk)
4. The photographs below are of organisms resting on different environmental backgrounds. Observe them and answer the questions that follow;



A B

    a. Name the aspect of evolution depicted in the photograph (1mk)
    b. Explain the phenomenon. (4mks)
    c. How do we refer to this concept mentioned in (b) above. (1mk)
    d. State any four other evidences of the phenomenon in (a) above in the modern World. (2mks)
5. The diagram below represents female reproductive system;



    a. Name the part labelled A, B, C and D (4mks)
    b. State two functions of structure A (2mks)
    c. How is part C adapted to its function? (1mk)
    d. Of what significance is part E to reproduction? (1mk)

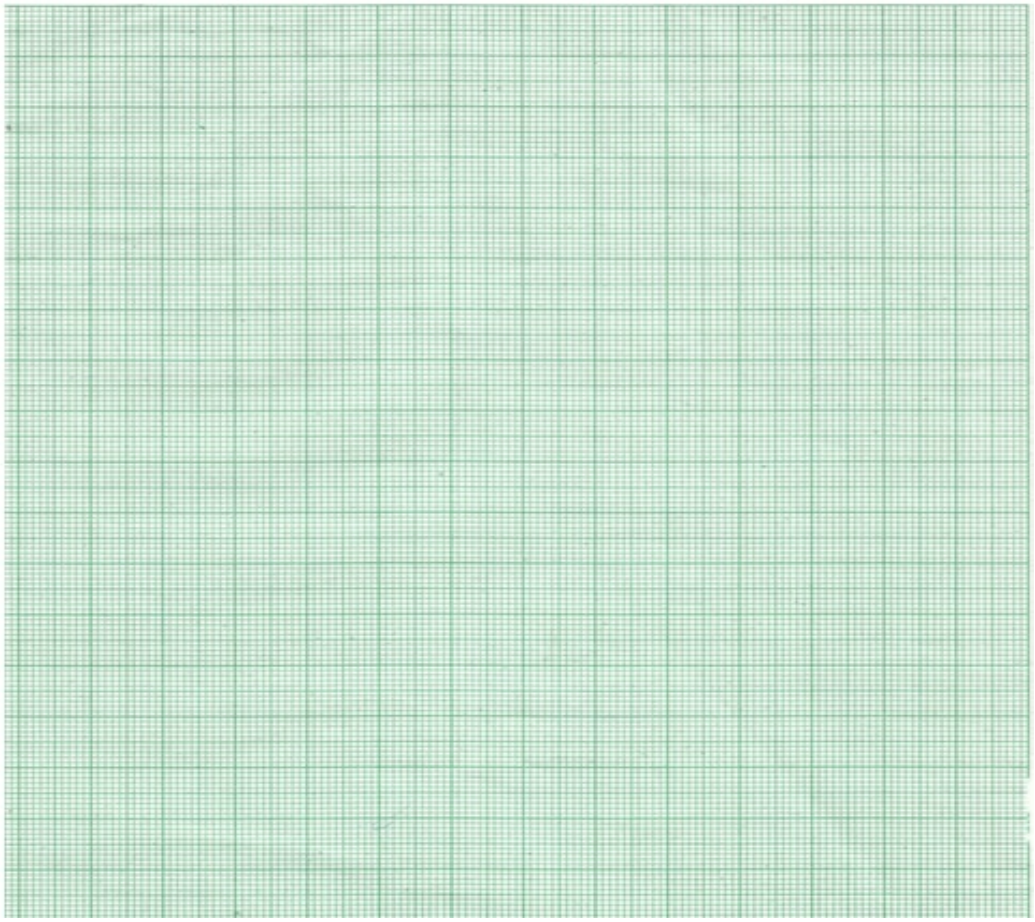
SECTION B (40 Marks)

*Answer **question 6 (Compulsory)** and either question 7 or 8 in the spaces provided.*

6. A research was carried out to determine the trend of growth for 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	11.1	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	52.5
20	48.5	55.0

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



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

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

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

e. Why do girls above 10 years require intake of food that is richer in iron than boys of the same age. (1mk)
f. Mention two other factors apart from the diet that affect the rate of growth in boys and girls. (2mks)
g. Apart from using average mass to estimate growth in human beings, name two other parameters that can be used. (2mks)

7. Explain how the following plants are adapted to their habitats.
   a. Xerophytes (14mks)
   b. Halophytes. (6mks)
8.
   a. Describe the mechanism of inhalation in man. (8mks)
   b. State **three** factors affecting breathing rate in human beings. (6mks)
   c. Describe how the brain regulates breathing. (6mks)

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BIOLOGY PAPER 3 - 2019 K.C.SE Prediction Set 2

INSTRUCTIONS

- *Answer **ALL** the questions*

1.

a. You are provided with specimen labelled Q. Remove the endosperm and crush using a motor and pestle. Add distilled water and obtain a solution. Decant the mixture to obtain solution Q1. Using the reagents provided, test the food present in solution Q1. (8marks)

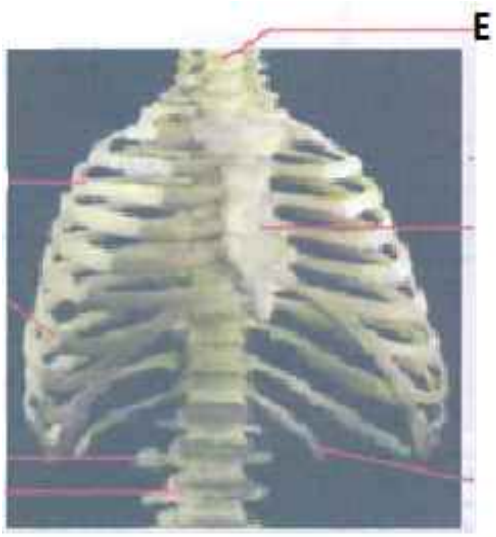
Food	Procedure	Observation	Conclusion

b. Account for your observation in (a) above (3marks)

c. Name the type of germination represented in the specimen above (1 mark)

2.

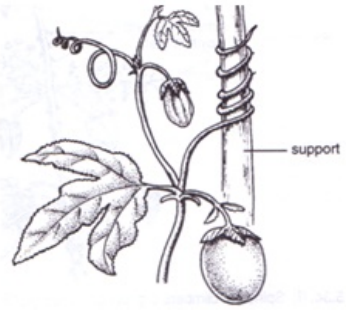
a. You are provided with a photograph with part of human skeleton. Use it to answer questions that follow.



i. Name the first vertebra labelled E and state how it is adapted to its function. (4marks)
Name.....
Adaptations.....

ii. Name the structure in the skull that articulates with the vertebra E (1mark)

iii. Below are two photographs of plants.



M

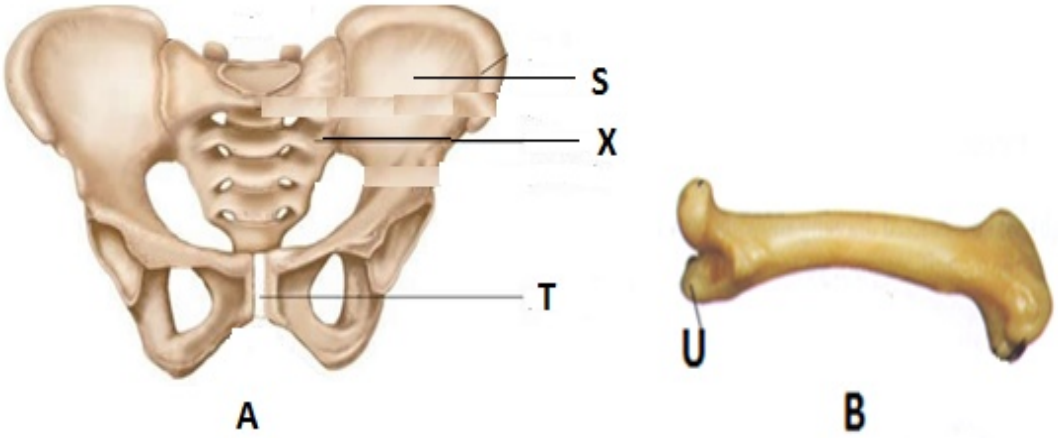


R

I. Identify support structures used by the plants in photographs M and R shown above. (2marks)

II. Other than the structures illustrated above, name any one support structure in herbaceous plants. (1 mark)

b. The photographs below represent some skeletal materials obtained from a certain mammal.
Study them then answer the questions that follow.



i. Identify fused bone labelled X (1mark)

ii. Name parts S and T on photograph A and part U on photograph B (3marks)

iii. Name the type of joint formed at the proximal and distal end of bone B 2marks)
Proximal end.....
Distal end.....

iv. Name the type of joint found in structure labelled X (1mark)

3.

a. You are provided with specimen labelled P. Using a sharp scalpel, cut the specimen longitudinally to obtain two halves. Draw a large well labelled diagram of one of the sections obtained. (5marks)

b.

i. Identify the agent of pollination of the above specimen (1mark)

ii. Give three reasons for your answer above (3 marks)

iii. Describe the floral parts of specimen P (4mark)

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

INSTRUCTIONS

- *Answer all the questions*

1. You are the secretary of the Young Farmers club in your school. In consultation with the chairperson, you call a meeting for 18th March 2015 at 4.00pm. Out of the total membership of 15, 10 attend 4 are absent with apology and 1 does not send any apology.
   The agenda is as follows.
   1. Preliminaries
   2. Confirmation of previous minutes
   3. Matters arising
   4. Negotiations with the school bursar for the purchase of tomatoes.
   5. Schedule for the harvesting of the tomatoes.
   6. Sharing of the income.
   7. A.O.B

   Record the minutes of the meeting. (20mks)

2. ***Read the passage below and fill each blank space with the most appropriate word. (10 marks)***
   Every year, the government of Kenya 1_____ hundreds of billions of shillings in tax revenue 2_____ smuggling. Dumping of sub standard goods 3_____ counterfeit products poses another 4_____ threat 5_____ the stability of the economy.
   Local traders say smuggling 6_____further fuelled by economic growth registered in the last two years. They attribute this 7_____ to rising demand for imported goods, especially electronic 8_____,cars and petroleum products.
   And while import volumes 9 _____ increased substantially in the past two years, facilities and equipment 10_____the Kilindini harbour, Mombasa and Kenyatta International Airport (J.K.I.A) are overstretched.

3. ***Read the following poem and answer the questions that follow***

   Sonnet 29

   When, in disgrace with fortune and men's eyes,
   I all alone between my outcast state
   And trouble deaf heaven with my bootless cries,
   And look upon myself and curse my fate,
   Wishing me like to one more rich in hope,
   Featured like him, like him with friends possessed,
   Desiring this man's art and that man's scope
   With what I must enjoy contented least,
   Yet in these thoughts myself almost despising
   Haply I think on thee, and then my state
   (Like to the lark at the break of day arising)
   From sullen earth sings hymns at heaven's gate,
   For thy sweet love remembered such wealth brings,
   That then I scorn to change my state with Kings.
   (William Shakespear'ssonnet 29)

Questions

a.
   i. List any **four** words that rhyme in this poem. (2mrks)
   ii. Give **two** instances of the use of alliteration in this poem. (2mrks)
   iii. How would you say the words in brackets in this poem?(line 11) (2mrks)
   iv. How would you perform the last two lines of this poem. (1mrk)

b. **For each of the following sentence indicate whether you would say it with a falling or rising intonation.** (3mrks)
   i. Which hospital does Khadija goto?
   ii. Lusuli never liked people who told lies.
   iii. They cook very good food in Belcibo restaurant.

c. You have been asked to make a speech about the dangers of drug and substance abuse. State **four** effective ways of ending such a speech. (4mrks)

d. You are giving a speech without the public address system . How do you ensure you are heard by everybody? (3mrks)

e. **For each set of words below, underline the odd one out.** (3mrks)
   i. Cough bough dough
   ii. Think thy thigh
   iii. Not Knot Note

f. *Consider the following conversation between Kombo and Shirandula and then explain the short comings in Shirandula listening skills*. (6mrks)

Kombo: Before she died of throat cancer, my sister felt a lot of pain and lost a lot of weight.
Shirandula: Talking about that I had a backache last night. I tell you I couldn't sleep.
Kombo: Yes, so about my sister…….
Shirandula: You remind me about my own sister. In fact she wrote to me last week telling me about her son's fees. She believes I have more money than I need and that I should give her some.
Kombo: Well, may be you have lots of money. But thank you for being such a good listener! (stands up to go)
Shirandula: What! Have I offended you?

4. **For each of these words construct two sentences to bring out the difference in their meaning.**(4mrks)
   i. Beat
   ii. Man

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ENGLISH PAPER 2 - 2019 KCSE Prediction Set 2

INSTRUCTIONS

- *Answer **ALL** the questions in this question paper.*
- *Candidates must answer all the questions in English.*

1. **Read the following passage and answer the questions that follow: (20 Marks)**

When in early 1970s ultrasound confronted me with the sight of the embryo in a womb, I simply lost my faith in abortion on demand. I did not hold onto my old convictions. The change was in its way a clean and surgical conversion. I am by nature one that works out the conflicting data, weighs the opposing argument with great care, makes a decision and then acts upon it with no lingering backward glances.

By 1984 however, I had begun to ask myself more questions about abortion: What actually goes on in an abortion? I had done many but abortion is a blind procedure. The doctor does not see what he is doing. He puts an instrument into a uterus and he turns on a mortar and a suction machine goes on and something is vacuumed out; it ends up as little pile of meat in a gauze bag. I wanted to know what happened, so in 1984 I said to a friend of mine who was doing fifteen or maybe twenty abortions a day:‘ Look ,do me a favour,Jay .Next Saturday when you are doing all these abortions put an ultra sound on the mother and tape it on me.”

He did, and when he looked at the tapes with me in the editing studio, he was so affected that he never did another abortion. Although I had not performed an abortion in five years, I was shaken to the very roots of my soul by what I saw. The tapes were shockingly amazing. Some of the tapes weren’t of very good quality but I selected one that was of better quality than the others and began to show it at pro- life gatherings around the country.(I had my first contact with pro-life movement in 1981 when the then president of the National Right to Life Committee, Carolyn Gerster, had gotten in touch with me).

At the time, I was speaking at a pro-life meetings around the country in weekends, and the response to the tape was so intense and dramatic that finally I was approached by a man named Don Smith, who wanted to make my tape into a film. I agreed that it would be good idea. That is how *The Silent Scream*, which was to generate so many furore, came to be made. We showed it for the first time in Fort Lauderdale, Florida, on January3, 1985. The reaction was instantaneous. Everybody was up in arms because *The Silent Scream* represented an enormous threat to the abortion forces, and because it escalated the war (it is not really a debate- we don’t debate with each, we scream at one another). For the first time, we had the technology, and they had nothing.

The *Silent Scream* depicted a twelve- week- foetus being torn to pieces in the uterus by the combination of suction and crushing instrumentation by the abortionist. It was so powerful that pro choicers trotted out their heaviest hitters to denounce the tape. They very cleverly deflected the impact of the film into an academic cul- de- suc: a dispute regarding whether the foetus feels pain during an abortion. The impetus for the debate came from an on – the- record musing by the then President, Ronald Reagan, as to how much pain the foetus feels during an abortion.
(Source: The hand of God: A journey from death to life by the Abortion doctor who changed his mind- Bernard N. Nathanson, MD)

a. Based on your understanding of the entire passage, comment on the nature of the writer’s ‘old convictions’. (2 marks)

b. Explain why it was easy for doctors such as the writer to carry out abortions prior to

introduction of ultrasound technology? (2 marks)

c. What are the names that are commonly used to refer to the two opposing groups mentioned in the passage(2 marks)
d. Briefly describe, in your own words, how those who supported abortion tried to undermine the impact of ' ***The Silent Scream'***. (2 marks)
e. " I was shaken to the very roots of my soul by what I saw''. Rewrite this sentence beginning: **(What…)**(1 mark)
f. Make notes on the way abortion is carried out according to this passage(4 marks)
g. Identify and illustrate the use of parenthesis in the passage, give two examples. (2 marks)
h. Provide one example from the passage to illustrate the need for leaders to weigh their words carefully. (2 marks)
i. Explain the meaning of the following words as used in the passage.(3 marks)
    i. convictions
    ii. escalated
    iii. impetus

The Play, Henrik Ibsen, *A Doll's House.*

2. Read the excerpt below and then answer the questions that follow. (25 marks)

Mrs. Linde: Listen to me Nora you are still very like a child in many things, and I am older than you in many ways and have a little more experience. Let me tell you this-you ought to make an end of it with Doctor Rank.
Nora : What ought I to make an end to?
Mrs. Linde: Of two things I think. Yesterday you talked some nonsense about a rich admirer who was to leave you money-
Nora : An admirer who doesn't exist, unfortunately! But what then?
Mrs. Linde: Is Doctor Rank a man of means?
Mrs. Linde: And comes here every day?
Nora : Yes, I told you so.
Mrs. Linde: But how can this well-bred man be so tactless?
Nora : I don't understand you at all.
Mrs. Linde:Don't prevaricate, Nora.do you suppose I don't guess who lent you the two hundred and fifty pounds?
Nora: Are you out of your senses? How can you think of such a thing? A friend of ours, who comes hereevery day! Do you realize what a horribly painful position that would be?
Mrs. Linde: Then it really isn't he?
Nora : No, certainly not. It would never have entered into my head for a moment. Besides, he had no money to lend then; he came into his money afterwards.
Mrs. Linde: Well I think that was lucky for you, my dear Nora.
Nora: No, it would never have come into my head to ask Doctor Rank. Although I am quite sure if I had asked him-
Mrs. Linde: But of course you won't.
Nora: Of course not. I have no reason to think it could possibly be necessary. But I am quite sure that if I told Doctor Rank-
Mrs. Linde: Behind your husband's back?
Nora: I must make an end of it with the other one, and that will be behind his back too, I must make an end of it with him.
Mrs. Linde: Yes, that is what I told you yesterday, but-
Nora: (*walking up and down*) a man can put a thing like that straight much easier than a woman.
Mrs. Linde: One's husband , yes.

Nora: Nonsense!(*standing still*) When you pay off a debt you get your bond back, don't you?
Mrs. Linde:Yes, as a matter of course.
Nora: And can tear it into a hundred thousand pieces and burn it up- the nasty dirty paper.
Mrs. Linde:(*looks hard at her, lays down her sewing and gets up slowly*.) Nora you are concealing something from me.
Nora: Do I look as if I were?
Mrs. Linde: Something has happened to you since yesterday morning. Nora, what is it?

a. Briefly explain what happens before the events in this extract. (4marks)
b. Explain why Mrs. Linde says "...I am older than you in many ways and have a little more experience? (3 marks)
c. From the dialogue, what do we learn about Nora's character? (4 marks)
d. What is Mrs. Lindes' view about Doctor Rank and Nora's relationship? (2 marks)
e. Identify and explain the use of hyperbole in this excerpt. (2 marks)
f. What does Mrs. Linde thinks Nora is concealing from her? Is Mrs. Lindes right? (3 marks)
g. Explain the meaning of the following words as used in the extract. (3 marks)
    i. A man of means.....
    ii. Prevaricate.....
    iii. nasty.....
h. Describe what happens immediately after the events presented in this extract (4 marks)

3. ***Read the narrative below and answer the questions that follow.*** (20 marks)

Long ago, there was famine in Gikuyu land. This famine had made the cows and goats to die. Only human beings were left and even them, it could be seen that they were not going to live much longer. Now the people asked themselves, "What shall we do?" It was decided that the most beautiful girl, one called Wanjiru should be sacrificed to god so that the rain could fall. She was brought to a place where there was a big river. She started to sing:

Rain fall and make this ridge green
Make this ridge green
My father said I should be lost. I should be lost
My mother said I should be lost. I should be lost

Rain fall and make this ridge green
Make this ridge green
She went down on her knee, she sang:
Rain fall and make this ridge green
Make this ridge green
My father said I should be lost, I should be lost
Rain fall and make this ridge green
Make this ridge green
The water reached the waist, she sang
Rain fall and make this ridge green

Make this ridge green
My father said I should be lost, I should be lost

My mother said I should be lost, I should be lost
Rain fall and make this ridge green
Make this ridge green

The water reached the neck, she sang
Rain fall and make this ridge green
Make this ridge green
My father said I should be lost, I should be lost
My mother said I should be lost, I should be lost
Rain fall and make this ridge green
Make this ridge green
The head went in
Very heavy rains fell on this land. The grass grew, a lot of food and the people began to feel better. Now where Wanjiru went she found her people who had died before her. These people had a lot of cows and goats. Now they asked her what she would like. She said she wanted cows and goats. She was given many goats and cows and then she was told to lie down in a place. When she woke up she found that she had returned back to her people. She woke up at a place where there was a river and she had her cows and goats. Now when the people saw her they rejoiced greatly.
The story ends there.
*Adapted from: The Oral Literature of the Gikuyu by WanjikuKabira and Karega Mutahi***.**

a. Why do you think this community makes the choice of a beautiful girl such as Wanjiru to sacrifice to god so as to get rain? (1 mark)
b. Which functions does this song serve in this narrative? (2mark)
c. Describe one character trait of the villagers in this narrative.(2 marks)
d. In point form, list how events follow each other in this story. (3 marks)
e. Identify and explain **two** features of oral narration employed in this narrative. (4 marks)
f. Identify two elements of fantasy in this story. (2 marks)
g. Describe Wanjiru's tone in the song. (3marks)
h. Which social/cultural practices of the Gikuyu are brought out in this narrative? (2 marks)
i. What does this phrase mean? "My father said I should be lost." (1 mark)

4.

a. Rewrite the following sentences according to the instructions. Do not alter the meaning. (3 marks)
   i. Muli could have passed the examination. Muli was regularly absent from school. (Join into one sentence beginning: Were it not.....)
   ii. The nurses agreed to work after signing an agreement with the government. (Begin: Only…)
   iii. This is the boy. His father is a generous man. (Join into one sentence using a relative pronoun).
b. Replace the phrasal verbs underlined in the sentences below with one word that means the same. (3 marks)
   i. It is wrong to look down on students from other schools.
   ii. Teachers should not give into their students' unreasonable demands.
   iii. The delegates came up with ten rules to guide our response to globalization.
c. Complete the following passage with the most appropriate forms of the words in brackets. (3 marks)
   The Tsunami .....(cruel) destroyed lots of lives and property. For days, the survivors ..... (agony) searched for their missing relatives. The whole

experience was .....(horrible) traumatizing.

d. Fill in the blanks with the appropriate prepositions. (2 marks)
   i. He was charged .....forging property inheritance document.
   ii. Kamau deals.....groceries

e. Fill the blank spaces with the correct article(2 marks)
   i. The students said they wanted.....union.
   ii. What is ..... Ewe?

f. Explain the meaning of the following sentences (2marks)
   i. Lydia found the empty room.
   ii. Lydia found the room empty.

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ENGLISH PAPER 3 - 2019 K.C.SE Prediction Set 2

INSTRUCTIONS

- *Answer **THREE QUESTIONS** in this paper*
- ***Question 2** is a **compulsory question***
- *Where a candidate presents work on more than one optional text, only first one to appear will be marked.*

1. Imaginative Composition (20 mks)
   Either
   a. Write a story starting with the statement,
   The news on the cancellation of my KCSE results after being in Bahati High School for five years was received with shock and resentment.....
   OR

   b. Write a composition based on the following statement.
   "The solution to the run-away corruption is in the hands of Kenyan's themselves."
2. Compulsory questions. The blossoms of savannah by Olet Kulet (20 mks)
   'Our greatest enemies are those close to us.' Support this statement with illustrations from the novel.
3. The optional setbooks(20 mks)
   Answer only one question from these choices
   Either
   a. **Short story**
   When a teenage girl is brought up by an absentee mother, she is bound to face countless challenges.
   Justify this assertion basing your answer on Lesley Nneka's story 'Light' in memories we lost and other stories by Chris Wanjala. (20 mks)
   OR
   b. Write an essay to show the truth of the saying.
   " what you see is always what you get."
   Use illustrations from John Steinbeck's The Pearl' (20 mks)

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

MAAGIZO

- *Andika Insha mbili, insha ya **kwanza** ni ya **lazima.***
- *Chagua Insha ya pili kutoka tatu zilizobakia.*
- *Kila Insha isipungue maneno 400.*
- *Kila Insha ina alama 20.*

1. **Lazima**
   Serikali ya gatuzi lako limetangaza nafasi ya kuajiri mhandisi wa barabara. Tuma ombi lako la kutaka nafasi hii na uambatanishe wasifu kazi yako.
2. Kukithiri kwa utovu wa usalama nchini kumesababishwa na serikali. Jadili.
3. Fahali wawili wapiganapo ziumiazo ni nyasi. Jadili.
4. Malizia kwa
   .....nilipofika ilibainika kuwa nilihadaiwa.

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

MAAGIZO:

- *Jibu maswali yote.*

1. **UFAHAMU**
   Soma makala yafuatayo kisha ujibu maswali.

   Kama mvulana aliyezaliwa, kulelewa na kukulia kijijini, mtagusano wangu na wanyamapori ni mpana. Pamoja na ndugu zangu tulikuwa tukiwafukuza ndovu walipovamia shamba letu kuharibu mimea, hasa wakati wa usiku kwa kutumia mienge ya mto. Fisi nao hawakuwa wageni machoni petu. Mara kwa mara, walikuwa wakipitia kando kando ya nyumba yetu na tulikuwa tukifurahia sana tulipowafukuza kuelekea mbugani. Nyani na tumbili walikuwa kama ndugu zetu kwani kila mara tulipobakisha chakula tungewarushia.Kwa ufupi, maisha ya ujanani na utangamano na wanyama hawa yalikuwa ya kuridhisha sana. Lakini mvurugiko wa utangamano huu ulianza tu ubinafsi ulipomwingia binadamu.Mbegu hii mbaya ilimgeuza binadamu kuwa katili, hasidi na mchumaji asiyejali madhara ya anakopania kupata lishe lake.

   Wanyama hawa wamegeuzwa kuwa wahasiriwa wa tamaa ya mwanadamu wanauawa kila siku huku mamlaka zilizowajibishwa kuwalinda zikizidi kutepetea na kutojali. Ni fedheha kuu kwa shirika la wanyamapori nchini (KWS) kwani ni kama limeshindwa kuwalinda wanyama hawa hasa ndovu, vifaru na simba. Pembe zao ndizo zimekuwa zikiwaongoza kwa mauti yao, nazo dhana kuwa zinatibu magonjwa kama zinaa na saratani zinachangia pia.

   Jamii zetu zinapaswa zielimishwe kutangamana na wanyama hawa; si maadui, ni marafiki wazuri. Hadithi za mababu zetu zinapaswa kuibua hisia za kujali miongoni mwetu. Hata kama wanavamia mimea na mifugo yetu, makosa si yao bali ya mamlaka simamizi. Simba anapohisi njaa na ua wa mbuga anayoishi haujatengenezwa ifaavyo, sharti ajitafutie njia ya kujishibisha na watoto wake kama vile walivyotufanyia mama zetu. Tutazilaumu mamlaka hizo, kama KWS, bali si mnyama.

   Kwa hivyo, kwa binadamu razini kuchomoa silaha kusudi kumuua kifaru au ndovu, ni uhayawani - yeye binadamu ndiye amegeuka kuwa mpungufu wa shufaka. Ni kutokana na wanyama hawa ambapo wazungu humiminika nchini kuwatazama, ni sababu yao ambapo nchi hii hupewa tuzo za ulinzi wa mazingira; ni uwepo wao ambapo baadhi ya tamaduni za kikale za jamii zimeendelea kudumu hasa vipera vya fasihi simulizi kama ngano, visaviilini nk. Mbona basi tuwahasi? Mbona tuwavamie viumbe hawa wasiofahamu lolote? Mbona tumejitia hamnazo, hadi kukosa kuona uhai? Huu ndio ustaarabu? Kwa yote naulamu ubepari, na roho ya ubinafsi uliomwingia mwanadamu. Hata hivyo tufikirie kuhusu mustakabali wetu na maisha ya vizazi vijavyo. Turejelee maisha ya kizamani kwa kutowaua wanyama hawa.

   MASWALI

   a. Ipe taarifa hii kichwa mwafaka:- (alama.1)
   b. Eleza uhusiano uliokuwepo kati ya msimulizi na wanyama pori kijijini. (alama 2)
   c. Ni kitu gani kiliharibu uhusiano unaorejelewa katika swali 2? (alama 2)
   d. Mamlaka yanayolinda wanyama hayawajibiki. Thibitisha. (alama 2)
   e. Taja sababu zinazopelekea kuuawa kwa wanyama pori. (alama 2)
   f. Taja faida za wanyama pori. (alama 2)
   g. Mwandishi anapendekeza suluhisho gani kwa tatizo lililozungumziwa katika kifungu? (alama 2)

h. Eleza maana ya vifungu hivi vya maneno kama vilivyotumika katika taarifa. (alama 2)
   i. Kujitia hamnazo
   ii. Kutangamana.

2. **UFUPISHO (Muhtasari) (Alama 15)**

Biashara ya kimataifa ni muhimu sana katika ukuaji wa uchumi wa nchi yoyote ile. Nchi mbalimbali zimekuwa zikitegemea kwa namna moja au nyingine. Kwa mfano, nchi ya Kenya imekuwa ikiuza maua na mboga katika nchi za ng'ambo na kupata fedha za kigeni ambazo hutumiwa humu nchini kuendeleza miradi mbalimbali ya maendeleo.

Biashara ya kimataifa huziwezesha nchi ambazo hazizalishi bidhaa na hata huduma mbalimbali kupata bidhaa hizo kutoka nchi nyingine zinazohusiana nayo katika biashara. Mathaian, Kenya ni nchi ambayo imekua ikitegemea kilimo lakini hiajaendelea katika sekta ya viwanda. Kenya huagiza bidhaa kama vile vipuri vya magari na hata magari yenyewe kutoka nchi kama vile japan. Nayo Kenya huuza mazao ya shambani kama vile pareto, chai na kahawa ng'ambo.

Kupitia kwa biashara ya kimataifa, nchi hupata masoko kwa bidhaa zake. Kwa vile biashara ya kimataifa huziwezesha nchi husika kuzalisha kiasi kikubwa cha bidhaa kuliko mahitaji yake ya nyumbani. Nchi basi hulazimika kutafuta masoko nje ya mipaka yake. Kwa njia hii uchumi wa Nchi huendelea kuimarika.

Aidha, biashara ya kimataifa huwezesha nchi kupata huduma za kitaaluma ambazo hazipatikani katika nchi husika. Kuna Nyanja za kiuchumi huhitaji wataalamu mahususi. Kwa mfano, katika sekta ya matibabu nchini humu tumepata kwamba kuna baadhi ya magonjwa haya huagiziwa madaktari kutoka ng'ambo au hata kupelekwa ng'ambo kwa uchunguzi na matibabu zaidi.

Biashara ya kimataifa hukuza ushurikiano wa kimataifa. Nyakati za majanga ya kimaumbile na hata mengine yanayosababishwa na kutowajibika kwa binadamu, nchi hupata usaidizi kutoka nchi za ng'ambo. Kwa mfano wakati wa mkasa wa bomu wa 1998, Kenya ilipata msaada wa kukabiliana na janga hili kutoka Israeli, Marekani na hata Ujerumani ambako baadhi ya waathiriwa wa mkasa huo walipelekwa kwa matibabu zaidi. Ushirikiano huu wa kimataifa huwezesha wananchi kutoka nchi fulani kwenda kusomea na hata kufanya kazi katika nchi nyingine. Katika miaka ya hivi karibuni wakenya wengi wamekuwa wakienda kusomea vyuo vikuu vya ng'ambo. Wengine wamediriki kupata kazi katika mashirika ya kimataifa katika nchi mbalimbali kama vile afrika kusini, Rwanda, Msumbiji na kadhalika.

Biashara ya kimataifa husaidia kukuza ushindani kati ya nchi husika. Ushindani huu ni hakikisho la uzalishaji wa bidhaa za thamani bora. Kila nchi itafanya juu chini kuzalisha bidhaa ambazo zinaweza kukubalika katika soko la kimataifa. Pia wananchi wa nchi husika hupata aina tofauti za bidhaa badala ya kutegemea aina moja tu ya bidhaa zinazozalishwa nchini mwao.

Biashara ya kimataifa huleta ushirikiano wa kisiasa na uelewano zaidi kati ya madola mbali mbali. Mathalan muungano wa nchi za afrika mashariki – Kenya, Uganda na Tanzania, hauchangii tu kuleta manufaa ya kiuchumi bali huleta ushirikiano zaidi wa kisiasa. Ingawa biashara ya kimataifa ina natija, biashara hii huandamana na hasara mbalimbali. Biashara hii imesababisha kuwapo kwa masoko huru ambayo yameleta ushindani mkubwa kwa wafanyibiashara wadogo humu nchini. Baadhi ya wafanyi biashara wamelasimika kufunga biashara zao baada ya kufilisika. Ushuru mkubwa unaotozwa baadhi ya bidhaa zinazoingia nchini huwafanya wananchi wengi kutofaidika

kwa bidhaa na huduma kutoka nke. Aidha, kuna uchelewashaji wa bishaa zilizoagizwa. Bidhaa hizi mara nyingi huchukua muda kabla ya kutoka nchini, kwa hivyo wafanyi biashara wengi hulazimika kungojea kupata bidhaa hizi za kuwauzia wateja wao.

Vilevile, kutokana na biashara ya kimataifa bidhaa duni huweza kupenyezwa katika mataifa yanayoendelea. Pia baadhi ya wafanyi biashara wa kimataifa huchukua fursa hii kulangua dawa mbalimbali za kulevya ambazo huwaathiri vijana wan chi husika. Wengine uhusika katika vitendo vya kigaidi. Kama vile uchomaji wa majengo mbalimbali kwa bomu na mauaji ya wananchi wasio na hatia. Ni kweli kuwa biashara ya kimataifa ina hasara zake. Hata hivyo mhimili mkubwa wa uchumi wa mataifa machanga.

Maswali

a. Kwa maneno yasiyozidi themanini eleza umuhimu wa biashara za kimataifa (alama. 7, mtiririko 1)

Matayarisho/Nakala chafu
.....
.....
Jibu/Nakala safi
.....
.....

b. Kwa maneno yasiozidi 40, eleza ujumbe wa aya ya tatu za mwisho (alam. 6, utiririko 1)

Matayarisho/Nakala chafu
.....
.....
Jibu/Nakala safi
.....
.....

3. **MATUMIZI YA LUGHA (AL. 40)**

a. Bainisha sifa mbili za kitamkwa kifuatacho /n/. (al. 2)
b. Ainisha mofimu katika neno lifuatalo. (al. 3)
Sikumkaribisha
c. Andinka kwa msemo wa taarifa. (al. 3)
"Maria! Mama! Njoo hapa,'' Mama akamwita, "Kesho nitaenda Nairobi, kesho kutwa Kisumu na sasa ninaenda huko sokoni.''
d. Virai vilivyopigiwa mstari katika sentensi ifuatayo ni vya aina gani. (al. 2)
Walimu wote hutupatia mtihani mara kwa mara.
e. Eleza maana mbili zinazopatikana katika sentensi hii. (al. 2)
Huyu amekuja kutuliza.
f. Taja sifa mbili za sentensi ya Kiswahili. (al. 2)
g. Onyesha matumizi ya -ni katika sentensi hii. Niliyemsaidia ni huyu lakini sasa simameni muende uwanjani . (al. 2)
h. Tumia kihusishi mpaka katika sentensi ili kuonyesha uhusiano wa: (al. 2)
    i. Mahali
    ii. Wakati
i. Nomino zifuatazo ni za ngeli gani? (al. 1)
    i. Mawingu
    ii. cheki
j. Nyambua vitenzi vifuatavyo katika kauli zilizo kwenye mabano. (al. 2)

i. Pa (kutendeka)
ii. Pokea (kutendwa)

k. Andika upya sentensi zifuatazo kwa kuzingatia maagizo (al. 2)
Hatutaki hizi wala zile (maliza kwa tunazotaka)

l. Onyesha aina mbili ya shamirisho. (al. 2)
Kamau alimjengea baba yake nyumba kwa matofali.

m. Andika sentensi ifuatayo ukizingatia kinyume cha maneno yaliyopigwa mstari (al. 2)
Mizigo hiyoitatolewa kwenye makasha na kupakiwa taratibu .

n. Andika katika wingi:
Nywa (al. 1)

o. Tafautisha baina ya kiwakilishi nafsi tegemezi na nafsi huru kwa kutolea mifano. (al.2)

p. Changanua sentensi ifuatayo kwa njia ya mistari. (al.4)
Mwizi aliyetuibia jana amekamatwa hatimaye.

q. Fafanua maana ya kishazi. (al. 1)

r. Tofautisha maana baina ya vitate vifuatavyo:
Randa na landa. (al. 2)

s. Onyesha aina ya vitenzi katika sentensi ifuatayo.
Fundi ndiye yule na ndiye atamjengea nyumba. (al. 3)

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

a. Elezea sifa zozote nne za sajili ya siasa. (al. 4)

b. Eleza tofauti kati ya lahaja na lafudhi. (al. 2)

c. Fafanua mambo manne ambayo yanaweza kufanywa ili kuendeleza matumizi na ukuaji wa Kiswahili nchini. (al. 4)

KISWAHILI KARATASI YA 3 - 2019 K.C.SE Prediction Set 2

Maagizo

a. *Jibu maswali **manne** pekee.*
b. *Swali la **kwanza** ni la **lazima**.*
c. *Maswali hayo mengine **matatu** yachaguliwe kutoka sehemu **nne** zilizobaki..*
d. *Usijibu maswali **mawili** kutoka **sehemu moja**.*
e. *Majibu yote **lazima** yaandikwe kwa lugha ya Kiswahili.*

SEHEMU YA A: RIWAYA

Assumpata K. Matei: Chozi la Heri

LAZIMA

1. “Haiwezekani! Hili haliwekazi! Itakuwa kama kile kisa cha yule kiongozi wa kiimla wa kike”
    a. Eleza muktadha wa dondoo hili. (alama 4)
    b. Eleza kwa kifupi yaliyowapata wahafidhina baada ya usemi huu. (alama.4)
    c. Riwaya ya chozi la heri inaonyesha maovu yanayotamalaki katika jamii.Thibitisha. (alama 12)

SEHEMU B: TAMTHILIA

Kigogo.Pauline Kea.

Jibu swali la 2 au la 3

2. Tatizo la uongozi katika bara la Afrika ni kikwazo kikubwa cha maendeleo. Kwa kurejelea matukio kwenye tamthilia ya kigogo, jadili ukweli wa kauli hii (alama 20)

AU

3. “Mtalipa kila tone la damu mlilomwaga sagamoyo ;wewe na watu wako.”
    a. Eleza muktadha wa maneno haya (alama 4)
    b. Eleza sifa za mzungumzaji (alama 4)
    c. Thibitisha kwa kutoa mifano kuwa maisha ya anayezungumziwa yametawaliwa na dhuluma. (alama 12)

SEHEMU YA C: HADITHI FUPI

4. Kwa kurejelea hadithi ya mapenzi ya kifaurongo, onyesha jinsi jamii imegawanyika kitabaka kuegemea.
    i. Kielimu
    ii. Kikazi
    iii. Kiuchumi (alama 20)

SEHEMU D: USHAIRI

5. **WASIA**

Huno wakati mufti, vijana nawausia
Msije juta laiti, mkamba sikuwambia
Si hayati si mamati, vijana hino dunia
Uonapo vyang`aria, tahadhari vitakula

Japo aula kushufu, na machoni vyavutia
Dunia watu dhaifu, yaugua nasikia
Vijana nawasarifu, falau mkisikia
Uonapo vyang'aria, tahadhari vitakula.

Jepusheni na zinaa, mlale penye sheria
Msije andama baa, makaa kujipalia
Jepusheni na zinaa, madhara kukadiria
Uonapo yyang'aria, tahadhari vitakula.

Ngawa waone wazuri, nadhifu kukuvalia
Wajimwaie uturi, na mapoda kumichia
Si mlango nyumba nzuri, ngia ndani shuhudia
Uonapo vyang'aria , tahadhari vitakula.

Wawapi leo madume, anasa walopapia?
Wamepita ja umeme, leo yao sitoria
Shime enyi wana shime, bora kumcha Jalia
Uonapo vyang'aria, tahadhari vitakula

Nambie faida gani, nambie ipi fidia
Upatayo hatimani, waja wakikufukua
Ila kufa kama nyani, kasoro yako mkia
Uonapo vyang`aria, tahadhari vitakula.

Vyatiririka tariri, vina vyanikubalia
Alo bora mshairi, pa tamu humalizia
Nahitimisha shairi, dua ninawapigia
Uonapo vyang'aria , tahadhari vitakula.

Ewe Mola mtukuka, si shaka wanisikia
Wakingie wanarika, na anasa za dunia
Amina wangu Rabuka, dua yangu naishia
Uonapo vyang'aria, tahadhari vitakula.

MASWALI:

a. Ni ujumbe gani wanaopewa vijana kupitia shairi?. (alama 4)
b. Bainisha tamathali mbili za usemi katika shairi hili. (alama 2)
c. Eleza bahari ya shairi hili kwa kuzingatia vigezo vifuatavyo. (alama 2)
    i. idadi ya vipande katika mshororo
    ii. mpangilio wa vina katika beti.
d. Eleza mbinu zozote mbili za kishairi zilizotumika katika shairi hili. (alama 2)
e. Andika ubeti wa pili kwa lugha nathari (alama 4)
f. Eleza toni ya shairi hili. (alama 1)
g. Tambua: alama 2)
    i. Nafsi neni
    ii. Nafsi nenewa
h. Eleza umuhimu wa mbinu ya kimtindo iliyotumika katika ubeti wa tano. (alama 2)
i. Eleza maana ya msamiati: 'aula' (alama 1)

SEHEMU YA E: FASIHI SIMULIZI

6.

a. Eleza maana ya miviga. (alama.2)
b. Eleza sifa tano za miviga. (alama.5)
c. Miviga ina udhaifu gani. (alama.3)
d. Fafanua umuhimu wa ngomezi katika jamii. (alama.6)
e. Eleza vizingiti viwili vinavyokumba ngomezi. (alama.4)

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

INSTRUCTIONS

- *This paper has **two** sections, **A** and **B**.*
- *Answer **all** the questions in section **A**.*
- *Answer question **6** and any other **two** questions from section **B**.*

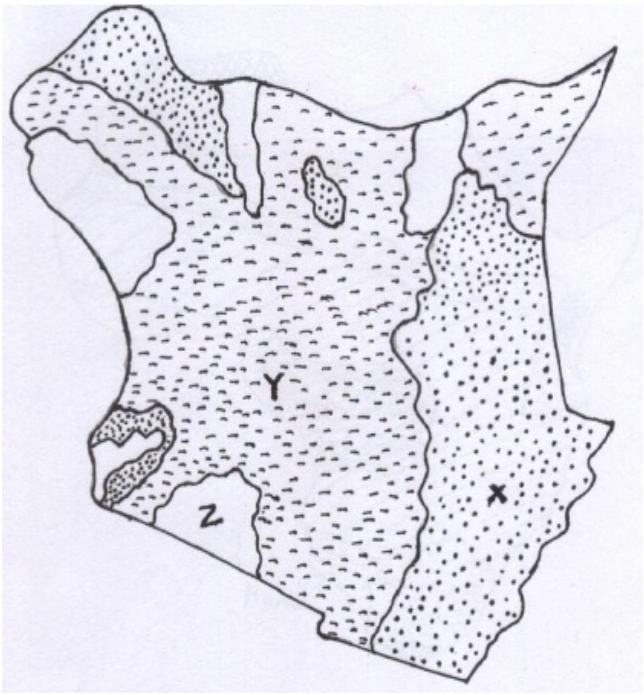
SECTION A (25 MARKS)
*Answer **ALL** questions in this section*

1.
   a. What is a planet? (2mks)
   b. State **three** characteristics of planets. (3mks)
2.
   a. State **two main** features of the mantle. (2mks)
   b. Give reasons why the crustal rocks are solid and cooler than those of the mantle. (4mks)
3.
   a. What is river rejuvenation? (2mks)
   b. State **four** ways in which rivers erode. (4mks)
4.
   a. Name **two** mountains in East Africa that have glaciers. (2mks)
   b. Give the differences between nunataks and pyramidal peaks. (2mks)
5.
   a. What is Biological weathering? (1mk)
   b. Briefly explain how block disintegration occurs in physical weathering. (3mks)

SECTION B (75 MARKS)
*Answer **QUESTION 6** and **any other TWO** questions*

6. Study the map of Kitale 1:50000 sheet 122/1 and answer the questions that follow.
   a.
      i. Name **two** human features found in grid square 2320. (2mks)
      ii. State the latitude and longitude of the south east corner of the map. (2mks)
   b.
      i. What is the bearing ofair photo principal point at grid square 3426 from the air photo principal point at grid square 2931 (2mks)
      ii. What is the length of the dry weather road (C640) from the junction at point M (345142) to the junction at point N (416201) give your answer in kilometer (2mks)
   c.
      i. Describe the relief of the area covered by the map. (5mks)
      ii. Name **three** natural vegetation found in the area covered by the map. (3mks)
   d.
      i. Draw across section from point 410180 to grid reference 500180 using a scale of 1cm to represent 40 meters (4mks)
      ii. Name **three** social services citing evidence offered in the area covered by the map. (5mks)
7.
   a.
      i. What is a rock? (1mk)
      ii. Outline the common characteristics of minerals. (4mks)

b. The figure below shows a Map of Kenya showing rock distribution. Study it and answer the questions that follow



i. Name the rocks marked x y &z. (3mks)
ii. Give reasons why the rocks marked x are common near Coast. (3mks)

c.

i. What is rock metamorphism. (2mks)
ii. Explain **three** process of rock metamorphism. (6mks)

d. Explain the economic importance of rocks to people. (6mks)

8.

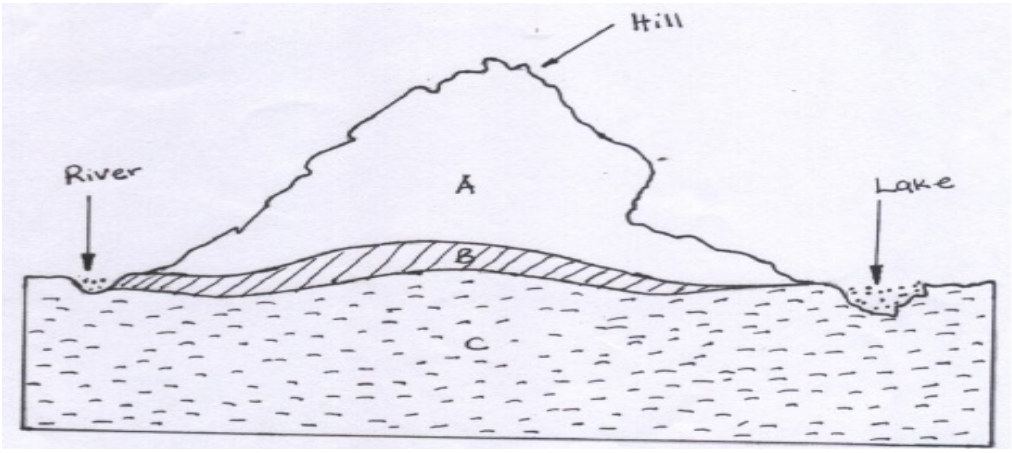
a.

i. What is a desert. (2mks)
ii. Name **three** desert surfaces common in hot desert. (3mks)

b.

i. Give **three** reasons why wind is an effective erosion agent in hot deserts. (3mks)
ii. Explain how the artesian well is formed in deserts. (6mks)

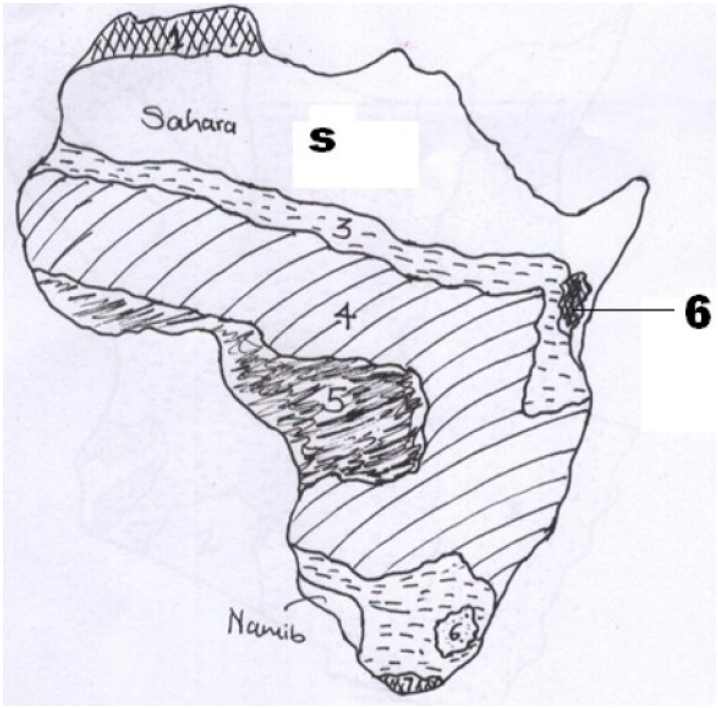
c. The diagram below shows different levels of underground water.



i. Name the parts labelled A,B, and C. (3mks)
ii. Explain **four** ways in which under ground water influences human activities. (8mks)

9.
    a.
        i. What is volcanicity. (2mks)
        ii. State **three** characteristics of basic Lava. (3mks)
    b. Using diagrams, explain how a volcanic plateau is formed. (5mks)
    c. What is the economic significance of Batholiths to people. (4mks)
    d. Students at Kibabii high school carried out a field study on the Granitic Tors around their school.
        i. Why did they prepare a hypothesis? (2mks)
        ii. What preparation did they undertake with their geography teachers? (4mks)
        iii. State three main problems they encountered in the field. (3mks)

10. The map of Africa, below shows main climatic regions labelled 1,3,4 5&6.



    a.
        i. Name the climatic regions labelled 1 to 6. (5mks)
        ii. State the characteristics of the climatic region labelled S. (5mks)
        iii. Name the **main** factor that influences the climatic region labelled 6. (1mk)
    b. Explain how vegetation has adopted in the climatic region labelled Sahara or Namib. (6mks)
    c.
        i. Name **three** water Towers in Kenya. (3mks)
        ii. What measures have been taken to conserve forests in Kenya. (5 mks)

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

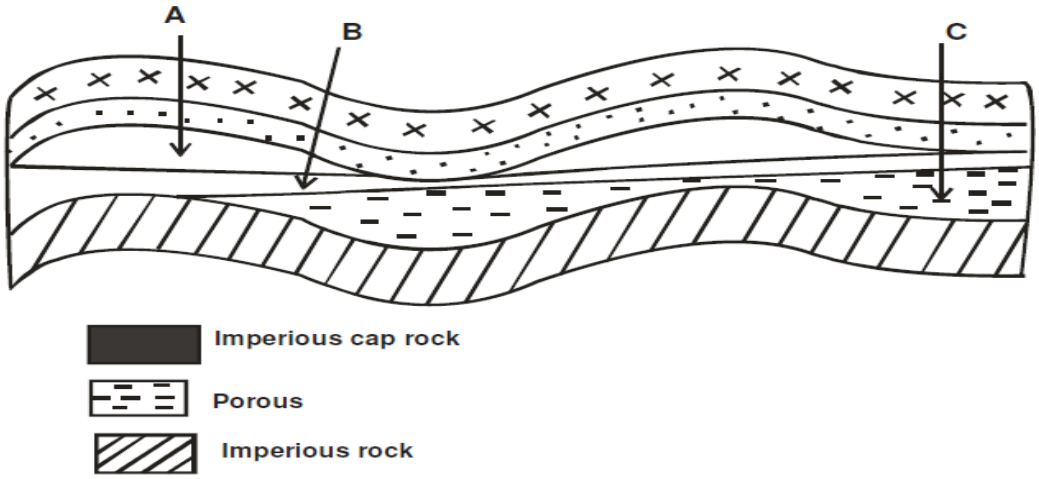
INSTRUCTIONS

- *This paper has **two** sections, **A** and **B**.*
- *Answer **all** the questions in section **A**.*
- *Answer question **6** and any other **two** questions from section **B**.*
- *All answers **must** be written in the answer booklet provided.*
- *Candidate should answer the questions in English.*

SECTION A (25 MARKS)

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

1.
   a. Name **two** underground mining methods. (2 marks)
   b. Study the diagram below and answer the questions that follow



   Name the parts named A, B and C. (3 marks)

2.
   a. State **three** ways in which tourist attractions in Kenya differ from those in Switzerland. (3 marks)
   b. Give **two** tourist attractions in the coast. (2 marks)

3. State **five** factors which influenced the location of Perkerra irrigation scheme. (5 marks)
4. State **five** factors that led to the location of Mombasa city and port. (5 marks)
5.
   a. Name **two** areas in Kenya which are being exploited for geothermal power. (2 marks)
   b. State **three** factors that hinder expansion of geothermal production in Kenya. (3 marks)

SECTION B (75 MARKS)

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

6. The table below gives the figures for the year 1999 population census per district for Central Province of Kenya.

District	Population
Nyandarua	479 902
Nyeri	661 156
Kirinyaga	457 105
Murang'a	348 304
Kiambu	744 010
Thika	645 713
Maragua	387 969

a.
   i. Besides bar graph, name three other methods that can be used to represent the above data. (3 marks)
   ii. Draw a simple bar graph to represent the data in the table above. Use a scale of 1cm to represent 100,000 persons. (6 marks)
   iii. State **four** advantages of using bar graphs to represent statistical data. (4 marks)

b. Calculate the population density for Kiambu District, given that its area is 1324 square kilometres. (2 marks)

c. Give **five** reasons for the high population density in Central Province of Kenya. (10 marks)

7.
a. Distinguish between environment and habitat. (2 marks)

b. Give **four** reasons why we need to conserve and manage our environment. (4 marks)

c. Explain **three** causes of environmental degradation in Kenya. (6 marks)

d. Identify **five** measures taken by the Kenyan Government to manage and conserve the available natural resources. (5 marks)

e. Explain **four** ways through which floods are controlled. (8 marks)

8.
a.
   i. What is indiscriminate fishing? (2 marks)
   ii. Differentiate between inland and marine fishing. (2 marks)

b.
   i. Explain **five** physical factors influencing fishing. (5 marks)
   ii. Explain **four** benefits of fishing to Kenya. (8 marks)

c.
   i. Explain **three** problems facing the fishing industry in Japan. (6 marks)
   ii. State **two** reasons why marine fisheries in Kenya are underdeveloped. (2 marks)

9.
a.
   i. Mention **three** Districts in Kenya where beef farming is carried out on large scale in Kenya. (3 marks)
   ii. Name **four** types of beef cows kept in Kenya. (4 marks)

b.
   i. Explain **four** problems facing beef farmers in Kenya. (8 marks)
   ii. State **four** measures taken by the government of Kenya to improve beef farming. (4 marks)

c.
   i. Mention the name given to the temperate grasslands where beef farming is carried out in Argentina. (2 marks)
   ii. State **four** factors favouring beef production in Argentina. (4 marks)

10.
a.
   i. Give **two** examples of extractive industries. (2 marks)
   ii. Explain the problems that are associated with industries in Kenya. (6 marks)

b.
   i. Give **three** examples of industries found in the Ruhr region of Germany. (3 marks)
   ii. Explain **three** major reasons for the decline of coal as a major source of fuel. (6 marks)

c. Explain **four main** factors that have influenced development of electronics and car manufacture industries in Japan. (8 marks)

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

INSTRUCTIONS

a. *This paper consists of THREE sections A, B and C.*
b. *Answer **ALL** questions in Section A, **THREE** questions from section B and **TWO** questions from section C.*

SECTION A (25 MARKS)

*Answer **ALL** Questions in this section.*

1. Identify the first place the Oromo settled in Kenya when they arrived in the 16th century. (1mk)
2. Give the **main** benefit of the social political and economic organization of the Abagusii.(1mk)
3. State **two** effects of the spread of Islamic culture along the coastal region of Kenya. (2mks)
4. List **two** limitations to freedom of expression. (2mks)
5. Identify **two** communities which were entitled to Kenyan citizenship by the independence constitution of Kenya. (2mks)
6. Give **one** reason why the British didn't have interest in Kenya during the initial stages of her occupation of East Africa. (1mk)
7. Identify **two** operational bases established by the Imperial British East African Company in Kenya. (2mks)
8. Name the person who introduced the growing of sisal into the British protectorate. (1mk)
9. Give the **main** reason why the Kikuyu Association was not aggressive in demanding African rights. (1mk)
10. Identify the **main** reason why the Hilton Young Commission was established in 1927. (1mk)
11. Identify **two** education bodies that spearheaded the establishment of Independent Schools and churches among the Agikuyu. (2mks)
12. State the meaning of Natural justice. (1mk)
13. Identify the **main** function of the county assembly. (1mk)
14. Give **two** main categories of National revenue sources. (2mks)
15. Define civil service. (1mk)
16. Identify **two** characteristics of African socialism that promote national development in Kenya. (2mks)
17. State **two** roles played by theatre in Kenya. (2mks)

SECTION B: (45 MARKS)

*Answer any **THREE** questions in this question*

18.
    a. Give **five** reasons why the Bantu migrated from their coastal settlement at Shungwaya in the 16th Century. (5mks)
    b. Describe the political organization of the Maasai during the pre-colonial period. (10mks)
19.
    a. Identify **five** factors that led to the growth of towns along the coast of Kenya before the 19th Century. (5mks)
    b. Explain **five** factors which led to the decline of the coastal towns after 1500. (10mks)
20.
    a. Identify **five** roles of the political parties in the struggle for independence in Kenya between 1945 and 1963. (5mks)
    b. Explain the impact of colonial land policies in Kenya. (10mks)

21.

a. State **five** changes which have taken place in Kenya as a result of the introduction of Multi-party democracy since 1991. (5mks)
b. Explain the roles which the co-operative movement has played in promoting National Development in Kenya since 1963. (10mks)

SECTION C: (30 MARKS)

*Answer any **TWO** questions in this question*

22.

a. Identify the functions of the Director of Public prosecutions in Kenya. (5mks)
b. Explain **five** functions of the Supreme Court in Kenya. (10mks)

23.

a. Give **three** circumstances under which a Governor may be impeached. (3mks)
b. Explain the relationship between the National and county government. (12mks)

24.

a. State the functions of the commission on revenue allocation. (5mks)
b. Explain the challenges faced by the government in raising funds. (10mks)

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HISTORY & GOVERNMENT PAPER 2 - 2019 K.C.SE Prediction Set 2

INSTRUCTIONS

a. *This paper consists of **THREE** sections A, B and C.*
b. *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. State **one** advantage of archeology as a source of history. (1mk)
2. What was the title of the tools made by the New Stone Age man? (1mk)
3. Name **one** urban centre that emerged as a result of early agriculture in Egypt. (1mk)
4. Identify **one** environmental cause of food shortage in Africa. (1mk)
5. Name **two** challenges faced by space explorers. (2mks)
6. Give **one** use of steel during the industrial revolution. (1mk)
7. Give **one** contribution of Robert Koch in the field of medicine. (1mk)
8. State **two** factors that enabled West Germany to recover after the Second World War. (1mk)
9. Identify **two** factors that led to the growth of Meroe as an urban centre. (2mks)
10. Give **two** importance of the Odwira festival in the Asante kingdom. (2mks)
11. State **one** way in which public opinion in Europe contributed to the colonization of Africa (1mk)
12. Identify **two** forms of African reaction to European colonization. (2mks)
13. State **two** differences between British and French administration. (2mks)
14. Mention **two** ways in which Mobutu Sese Seko displayed dictatorship in Zaire.(2mks)
15. Give **one** reason for USA's entry into the Second World War. (1mk)
16. Give **two** reasons why the Manchester Congress of 1945 was unique. (2mks)
17. State **two** ways in which the congress checks the powers of the president in the United States of America / USA. (2mks)

SECTION B: (45 MARKS)

*Answer any **THREE** questions in this question*

18.
    a. State **three** dating methods used by archaeologists. (3mks)
    b. Explain the way of life of the early man in the upper Paleolithic period. (12mks)
19.
    a. State **five** roles played by the Tuaregs in the Trans-Saharan trade. (5mks)
    b. Explain **five** challenges faced by Trans-Saharan traders. (10mks)
20.
    a. Name **three** European nations that scrambled for West Africa in the 19th century. (3mks)
    b. Explain **six** reasons why Samori Toure was able to resist the French for a long time. (12mks)
21.
    a. State **five** disadvantages of using fire and smoke signals in communication. (5mks)
    b. Explain **five** impacts of modern means of communication. (10mks)

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SECTION C: (30 MARKS)

*Answer any **TWO** questions from this question*

22.

a. Give **three** causes of Second World War. (3mks)
b. Explain **six** reasons why the Allies defeated the Axis powers. (12mks

23.

a. Give **five** characteristics of commonwealth member states. (5mks)
b. Explain **five** challenges facing the commonwealth. (10mks

24.

a. State **three** ways in which one can become a member of the House of Lords in Britain. (3mks)
b. Explain any **six** functions of the Federal government in USA. (12mks)

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C.R.E PAPER 1 - 2019 K.C.SE Prediction Set 2

INSTRUCTIONS

- *This paper consists of **six** questions*
- *Answer any **five** questions*
- *Each question carries 20 marks*

1.
    a. Describe the first Biblical creation account (Genesis 1) (8 mks)
    b. Mention **six** relationships between human beings and God in the second Biblical account of creation (6 mks)
    c. Give lessons to Christians from the fall of Adam into sin in Genesis 3 (6 mks)
2.
    a. Outline **six** importance of the Abrahamic covenant (6 mks)
    b. What were the physical effects to the Egyptians when Pharaoh refused to release the Israelites (7 mks)
    c. State lessons to Christians from the breaking of Sinai covenant (7 mks)
3.
    a. Identify **five** problems encountered by the Israelites while settling in Canaan (5 mks)
    b. Write down failures of King Saul (7 mks)
    c. State activities that describe Elijah as a man of God (8 mks)
4.
    a. Outline **five** differences between the Old Testament Prophets and African Seers (5 mks)
    b. Describe the vision of the Plumb-line as revealed to Prophet Amos during his call (Amos 7:7-9) (8 mks)
    c. State lessons to Christian from Amos teaching on Israel Election (7 mks)
5.
    a. Identify teaching of Prophet Jeremiah on idolatry (6 mks)
    b. Explain the significance of Jeremiah's symbolic act of buying linen waist cloth (Jeremiah 13) (8 mks)
    c. Mention **six** sufferings of Jeremiah during his ministry (8 mks)
6.
    a. What were the roles of Rainmakers in Traditional African Communities (7 mks)
    b. State occasions when services of the herbalist were required in African Communities
    c. Identify traditional African practices undermining the dignity of women (7 mks)

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C.R.E PAPER 2 - 2019 K.C.SE Prediction Set 2

INSTRUCTIONS

- *This paper consists of **six** questions*
- *Answer any **five** questions*
- *Each question carries 20 marks*

1.
    a. Describe the concept of the Messiah in the New Testament (7 marks)
    b. Outline the activities that took place when Mary visited Elizabeth. (Lk 1:39-56) (7 marks)
    c. Identify **six** ways in which Christian youths should show gratitude to God (6 marks)
2.
    a. Relate the story of the healing of a man with a withered hand (Lk 6:6-11) (8 marks)
    b. Explain the teachings of Jesus from the parable of the Sower (4 marks)
    c. Write down **eight** ways in which churches are assisting the sick (8 marks)
3.
    a. Give reasons why Jesus was arrested (6 marks)
    b. Describe an incident when Jesus was questioned about his authority during Jerusalem ministry (Lk 20:18) (6 marks)
    c. Outline the importance of Easter holiday to Christians (8 marks)
4.
    a. Mention St. Paul's teachings on how the gifts of the Holy Spirit should be used in the church
    b. Explain the New Testament teachings on Christian unity (6 marks)
    c. State **six** challenges that Church ministers face today (6 marks)
5.
    a. How did the African community view marriage? (7 marks)
    b. Give **seven** circumstances under which divorce is allowed in Traditional African Community (7 marks)
    c. How is the Church encouraging the youth to prepare for marriage? (6 marks)
6.
    a. State ways in which the Church can help reduce poverty in Kenya (6 marks)
    b. Why is the Church against death penalty as a form of punishment? (7 marks)
    c. Suggest ways in which order may be created in the modern society (6 marks)

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

INSTRUCTIONS

- *This paper consists of **6** questions*
- *Answer **any five** questions*
- *All questions carry equal marks.*

1.
   a. Explain **five** functions of money (10mks)
   b. Differentiate between a public limited company and a partnership (10mks)
2.
   a. Explain **five** principles that guide the tax system in a country (10mks)
   b. Labour is one of the basic factors of production. Outline five measures that a business can take to increase the productivity of its labour force (10mks)
3.
   a. With the aid of a diagram, explain the effects of an increase in supply on equilibrium price and quantity of a commodity (10mks)
   b. Discuss **five** causes of unfavourable balance of payment for most developing countries (10mks)
4.
   a. Explain **five** factors that influence the choice of a channel for distributing flowers (10mks)
   b. Explain **five** circumstances that would influence a producer to use wholesalers in distributing farm produce (10mks)
5. The following balances relate to Msafiri traders as at 31st December 2014

	Sh
Purchases	900,000
Stock 1.1.2014	230,000
Buildings	1,200,000
Motor Vehicles	750,000
Returns outwards	50,000
Debtors	190,000
Creditors	310,000
Loan from IDB	600,000
Cash	130,000
Bank	270,000
Drawings	100,000
Capital	1,840,000
Net profit	170,000

Additional information

   i. Stock 31/12/14 280,000
   ii. Expenses (including carriage inwards Shs. 150,000) 250,000

Required

   a. Balance sheet as at 31st December 2014 (6mks)
   b. Calculate
      i. Mark-up percentage (2mks)
      ii. Return on capital employed (2mks)
   c. Explain five problems associated with a sole proprietorship form of a business (10mks)

6.

a. Businesses are adopting new technology in their operations. Explain five limitations of adoption of this practice (10mks)

b. The following balance sheet was extracted from the books of Sagana traders on 1st April 2015

Sagana Traders

Balance sheet

As at 1st April 2015

	Sh		Sh.
Equipment	200,000	Capital	415,000
Furniture	82,000	Mutai (creditor)	27,000
Stock	140,000		
Cash	20,000		
	442,000		442,000

The following transactions took place during the month of April 2015

4th April: Sagan traders sold her personal assets for sh. 30,000 receiving payment by cheque which she invested in the business

10th: She purchased goods for sh. 29, 000 on credit from Mutai

19th April: She returned goods worth sh. 3,000 to Mutai after they were found defective.

Required

a. Open the ledger accounts record the above transactions and balance them off. (5mks)

b. Extract a trial balance (5mks)

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

INSTRUCTIONS

- *Answer all questions*

1. State the circumstances under which human wants becomes; (4mks)
   a. Competitive
   b. Repetitive
   c. Habitual
   d. Complementary
2. Give **four** features of capital as a factor of production (4mks)
3. Mr. Kamau has a business in Nakuru town. His business has been doing well. Give four reasons for success of his business. (4mks)
4. Name **four** characteristics of a good filing system (4mks)
5. The following are occupations for different level of production. Give the nature of activities (4mks)

Occupation	**nature of activities**
a. Maize milling	_____
b. Bread banking	_____
c. Railway construction	_____
d. Wholesaling	_____

6. Outline the benefits of using internet in transacting business in an organization (4mks)
7. State **four** characteristics of government owned corporations (4mks)
8. Highlight on **four** disadvantages of government participation in business activities (4mks)
9. Give **four** circumstances under which air transport will be appropriate as a means of transport (4mks)
10. Despite wide use of cell phone landline continue to be in existence. Give four reasons for continued existence of landline phones (4mks)
11. State **four** ways in which warehousing facilitates trade in a country (4mks)
12. Outline benefits of poling of risks to an insurance company (4mks)
13. List any **four** ways of determining price of commodity (4mks)
14. State **four** advantages of delocalization of firms (4mks)
15. Highlight on **four** features of monopolistic competition (4mks)
16. State **four** drawbacks encountered in comparing standards of living in different countries using national incomes (4mks)
17. Outline the **four** causes of unemployment in Kenya (4mks)
18. Using balance sheet equation, fill the figures in the table (4mks)

Capital	Liabilities	Assets
21920	.....	30341
.....	73000	100920
62470	58940	.....
.....	210560	475120

19. In the course of preparing his balance sheet as at 31st dec. 2003 Karanja found that he had capital amounting to sh. 120000 in his business. During the year investments totaled to sh. 50000 while drawings were sh. 56000. Calculate his initial capital as at 1st jan. 2003 if profits was sh. 38000 (4mks)

20. Complete the following table by indicating the account to be debited /credited (4mks)

Transaction	**Account (DR)**	**Account (CR)**
a. Started a business with sh. 50000 in cash	.....	.....
b. Received a cheque from a debtor	.....	.....
c. Bought office equipment by cheque	.....	.....
d. Paid creditor in cash	.....	.....

21. State **two** reasons why the three column cashbook is both a ledger as well as a book of original entry (4mks)
22. Outline the **four** importance of books of original entry (4mks)
23. The following relates to Kagwiria books of accounts (4mks)

	Ksh
Gross profit	130000
Salaries and wages	8000
Rent Received	20000
Insurance	8000
Discount allowed	1000
Discount received	3000
Carriage on sales	9000
Power and lighting	5000

Prepare a profit and loss account for the period ended 31st dec. 2005

24. Enumerate on **four** functions of micro finance companies (4mks)

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

INSTRUCTIONS

- *This paper consists of three sections A, B and C*
- *Answer **all** the questions in section A and B and **two** questions in section C*

SECTION A (30MARKS)

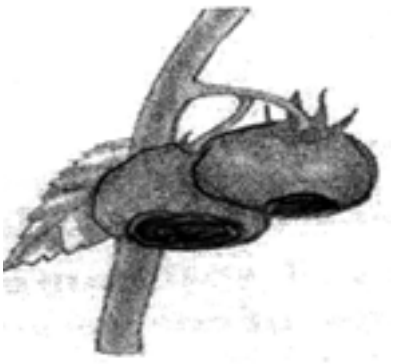
*Answer **ALL** the question in this section in the spaces provided*

1. Give **one** reasons why agriculture is regarded as a science (1mk)
2. List **four** methods of farming (2mks)
3. Differentiate between soil structure and soil texture (1mk)
4. State **four** reasons for draining a water logged land (2mks)
5. State **two** effects of siltation in dams and reservoirs (1mk)
6. Give **three**benefits of undersowing in pasture production (1mk)
7. Give **four** reasons for growing crops under optimum temperature condition (2mks)
8. Name **one** vegetative material used to propagate each of the following crops (2mks)
    a. Bananas
    b. Pineapples
    c. Irish Potatoes
    d. Pyrethrum
9. List **four** advantages of the title deed to a farmer (2mks)
10. What is meant by the following terms in crop as production?
    a. Crop rotation (1mk)
    b. Mulching (1mk)
11. Give **two** factors than can increase seed rate in crop production (2mks)
12. State **three** functions of Nitrogen in crops (1 ½ mks)
13. State **four** ways of improving labour productivity on the farm (2mks)
14. State **four** advantages of applying lime as a measure of improving soil condition (2mks)
15. List **three** sources of organic matter in the soil (1 ½ mks)
16. List **four** post harvest practices that are carried out in maize production (2mks)
17. Give **three** factors affecting selectivity and effectiveness of herbicides (1 ½ mk)
18. What is meant by the term preference and choice as used in agriculture economics (1mk)

SECTION B (20 MKS)

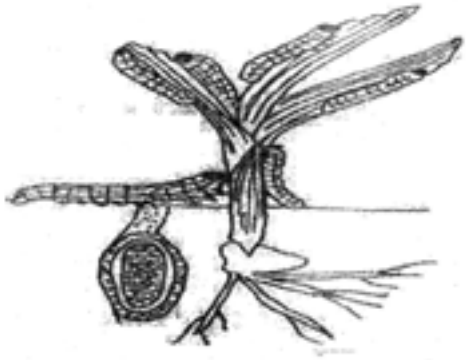
Answer all questions in this section in the spaces provided

19. The diagram below shows a physiological condition of tomatoes . Use it to answer the following questions.



a. Identify the condition (1mk)
b. Give **three** causes of the condition identified in (a) above (3mks)

20. The diagram drawn below shows pests that attack crops in the field. Use it to answer the questions that follows.



a. Identify the pest (1mk)
b. Classify the above pest depending on the feeding habit (1mk)
c. List **three** effects of the pest above in crop production (3mk)

21. The diagram below illustrates a final seedbed after a tertiary operation done during land preparation.
Study it carefully and answer the questions that follow



a. Name the tertiary operation carried out on the seedbed (1mk)
b. Describe how the tertiary operation named in (a) above is carried out (2mks)
c. Give **two** advantages of planting crops on the final seedbed illustrated above (2mks)

22. The table below shows the population and gross domestic products of countries A and B

Country	Gross Domestic Produce (Million Kshs)	Population (Million)
A	1800	36
B	1200	15

a. Calculate the per capita income for each country. Show your working (3mks)
b. Which of the **two** countries is more developed economically (1mk)
c. Give a reason for your answer in (b) above (1mk)
d. How can agriculture increase the gross domestic product of a country (1mk)

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SECTION C (40 MARKS)

*Answer any **TWO** questions from this section in the spaces provided after question 25*

23.

a. Discuss production of beans (*Phaseolus Vulgaris*) under the following sub-headings
   i. Selection and preparation of planting materials (3mks)
   ii. Planting (3mks)
   iii. Disease control (2mks)
b. Outline four factors that determine the depth of planting maize seeds (4mks)
c. Outline the advantages of a mixed grass legume pasture over pure grass (8mks)

24.

a. Explain the factors that contributes to competitive ability of weeds (7mks)
b. State **five** factors that determine the choice of irrigation to use in the farm (5mks)
c. Outline **five** characteristics of fertile soil (5mks)
d. Name **three** types of soil water? (3mks)

25.

a. Describe **five** characteristics of Nitrogenous fertilizers (5mks)
b. Discuss the guidelines that should be followed when planning a crop rotation programme (10mks)
c. Explain the importance of a nursery in crop propagation (5mks)

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

INSTRUCTIONS

- *This paper consists of three sections A, B and C*
- *Answer all the questions in section A and B and two questions in section C in the spaces provided*

SECTION A (30 MARKS)

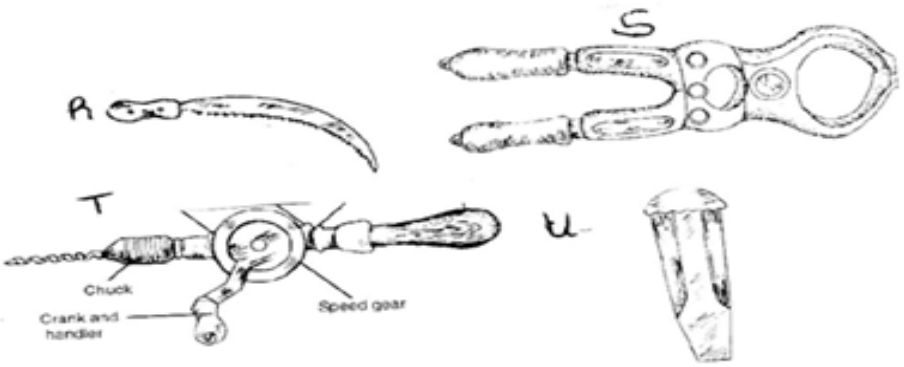
*Answer **ALL** questions in this section*

1. Name a goat breed kept for hair production (½mks)
2. State **four** predisposing factors to livestock diseases (2mks)
3. Outline **four** factors that determine the amount of water required by an animal (2mks)
4. State the role of each of the following parts of the male's reproductive system
    a. Testes (1mk)
    b. Epididym's (1mk)
    c. Penis (1mk
5. Differentiate between crutching and ringing in sheep management (2mks)
6. Define the term dry cow therapy in cattle production (2mks)
7. Outline **four** features of a good egg for incubation (2mks)
8. Mention **four** causes of egg eating in a flock of layers (2mks)
9. Highlight **four** factors to consider when choosing construction material (2mks)
10.
    a. Name **four** major groups of livestock diseases according to causes (2mks)
    b. State **three** symptoms of Anthrax disease in cattle (1½ mks)
11. State the distinguishing colour of the following livestock breeds
    i. Duroc jersey pig (½ mk)
    ii. Saanen goat breed (½ mk)
    iii. Dorper sheep breed (½ mk)
    iv. Light Sussex poultry breed (½ mk).
12. Outline **two** criterial for classifying tractor engines (1mk)
13. Mention **four** advantages of embryo transplant in cattle breeding (2mks)
14. State **four** effects of internal parasites on livestock (2mks)
15. Name a tool equipment to perform each of the following farm operation
    a. Driving and removing nails from wood (½ mk)
    b. Cutting thin sheet of metal (½ mk)
    c. Checking right angles during construction of a wall (½ mk)
    d. Smoothening curved surfaces in wood (½ mk)

SECTION B (20mks)

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

16. Study the diagrams below then answer the questions that follow



a. Identify each of the farm tool/equipment illustrated above
   R..... (½ mk)
   S..... (½ mk)
   T..... (½ mk)
   U..... (½ mk)
b. State the use of tool equipment labeled R and U
   R .....(1 mk)
   U .....(1 mk)
c. Give **two** maintenance practices of tool labeled S (2mks)

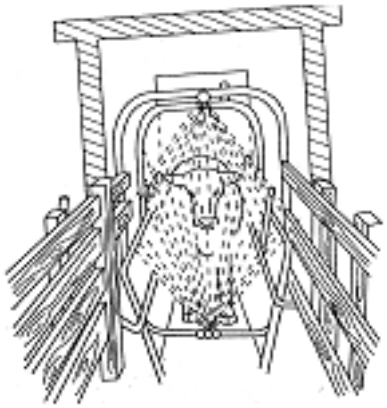
17. Using pearson's square method , compute a 300 kg calf rearing ration containing 18% DCP using maize meal (8% DCP) and soya bean meal (35 % DCP (show your working) (5 mks)
18. Study the illustration below then answer the questions that follow (1mk)



a. Identify the method of identification illustrated by the diagram above (1mk)
b. State the identification number of the above animal (1mk)
c. Using the above diagram, draw animals to represent the following identification numbers

   i. 65 (1mk)
   ii. 24 (1mk)

19. The illustration below represents a farm structure used in the control of external parasites in livestock



a. Identify the structure (1mk)
b. State **two** advantages of using the above farm structure (2mk)
c. Other than the structure shown above , name two other farm structures that can be used for carrying out similar operation as the one shown above (2mk)

SECTION C (40 MARKS)

*Answer **Two** questions in this section*

20.

a. Explain the advantage of artificial insemination as a method of service in livestock (7mks)
b. Give **five** importance of keeping livestock healthy (5mks)
c. Describe the short term tractor service (8mks)

21.

a. Discuss the factors that affect milk composition (10mks)
b. State **five** control measures of tapeworms (5mks)
c. Describe the characteristics of indigenous cattle breeds. (5mks)

22.

a. Mention **four** precaution when handling farm tools and equipment (4mk)
b. Describe the uses of fences in the farm (8mks)
c. Name **two** harmones that influence milk let down (2mks)
d. Describe the control , measure of mastitis in cattle production (6mks)

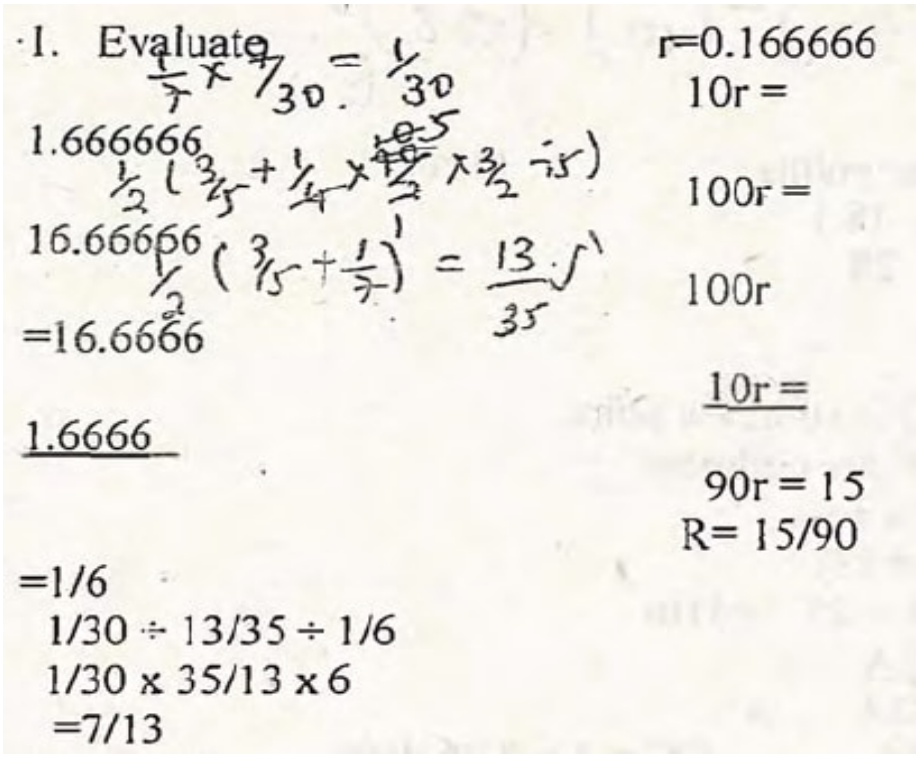
MATHEMATICS PAPER 1 Marking Scheme - 2019 K.C.SE Prediction Set 2

SECTION I (50 MARKS)

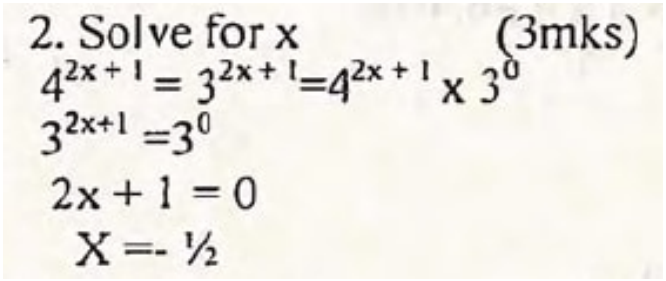
*Answer **all** the questions in this section*

1. Evaluate (4 marks)

$$\frac{\frac{1}{2}\ of\ (\frac{2}{5}-\frac{1}{6})}{\frac{1}{2}\ (\frac{3}{5}+\frac{1}{4}(\frac{7}{3}-\frac{3}{7}))\ of\ 1\frac{1}{2}\ \div 5}\ \text{of}\ 0.1\dot{6}$$



2. Without using logarithm tables or calculators, solve for x in the equation $12^{2x+1} = 4^{2x+1}$ (3 marks)



3. Use square, reciprocal and square root tables to evaluate, correct to 4 s.f the expression below (3 marks)

$$\frac{2}{\sqrt{1.256 \times 10^{-1}}} + (0.3894)^{2/3}$$

$= \frac{2}{0.35440} + 0.5332$

$= 2(0.2823) + 0.5332$

$= 1.0978 = 1.098$

4. The line L_1 with equation $2x + 3y = 4$ is reflected along the line $y=0$. Find the equation L_2. Give your answer in the form, $ax + by - c = 0$ (3 marks)

$L_1 : 2y + 3x = 4$

$2y = -3x + 4$

$Y = -3/2x + 2$

$L_2 : G = -3/2$ y intercept -2

Equation $y = -3/2 x - 2$

5. A tour company in Kenya received US dollar 100,00. The money was converted into sterling pounds in a bank whose exchange rate is given below

F

	Buying (Kshs)	Selling (Kshs)
1 US Dollar	100.20	100.98
1 Sterling Pound	131.13	132.11

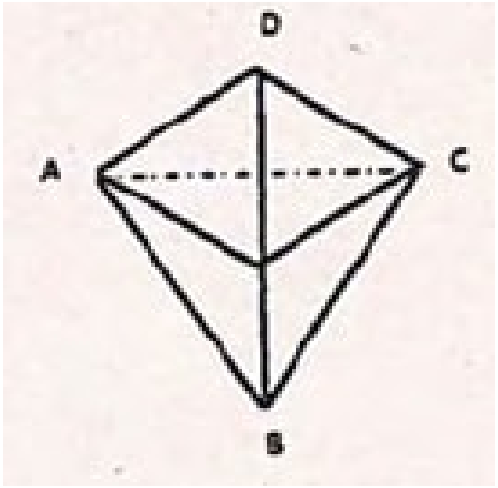
If the money was erroneously converted back to kshs, find the percentage loss made. Give your answer correct to 3 d.p. (3 marks)

US$ 100000=Ksh. 100000 x 100.20 =Ksh 10,020000

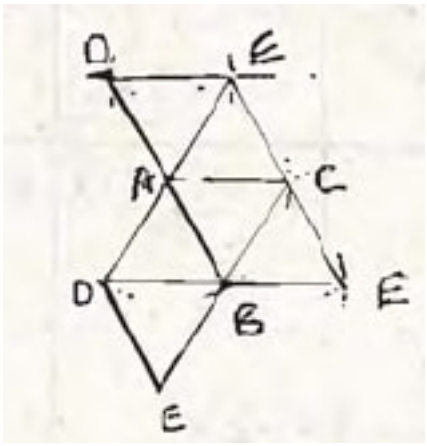
Ksh 100 20000=£ $\frac{10020000}{132.11}$ £75845.886

£75845.886 = Ksh.75845.886 x 131.13 = Ksh 9945,671 % Loss= $\frac{1002000 - 994567}{1002000}$ x 100= 0.742 %

6. The figure below shows a solid made by pasting twp equal regular tetrahedron



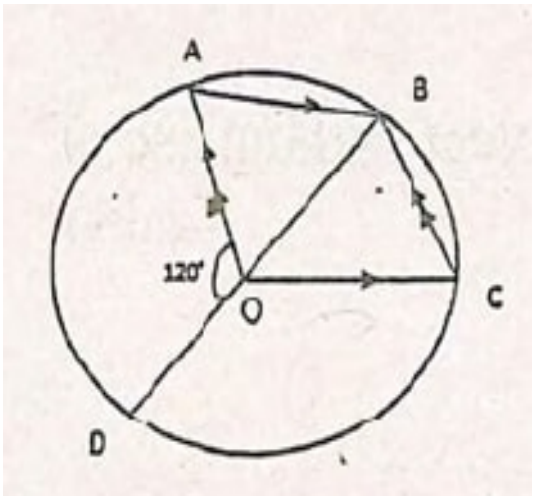
a. Draw a net of the solid (2 marks)



b. If each face is an equilateral triangle of sides 5 cm, find the surface area of the solid (2 marks)

$h = \sqrt{5^2 - 2.5^2}$
$= \sqrt{18.75}$
$= 4.33$
$A = \frac{1}{2} \times 5 \times 4.33 \times 6$
$= 54.95\ cm^2$

7. The straight line whose equation is $5y - 7x + 35 = 0$ passes through points P, R and Q. If point Q is on the X axis, point P on the Y axis and point R is such that $2PR = 3RQ$, find the equation of line AR in double intercept form given point A (3, −3) (3 marks)
8. In the figure below O is the center of the circle and DOB is the diameter. Find the value of Y if angle AOD = 120^o. (2 marks)



Find the value of y if angle $AOD = 120^0$
$\angle AOB = 180^0 - 120^0 = 60^0$
$\angle OBC = 60^0$
$OB = OC$
$Y = 60^0$

9. Solve the inequality and state the integral values that satisfies it (3 marks)

$$\frac{2}{2x+1} \leq x < \frac{3}{x} - 1$$

$2 \leq 2x^2 + x$ $\quad$ $x^2 - x - 1 < 0$

$2x^2 + x - 2 \geq 0$ $\quad$ $x < \frac{1 \pm \sqrt{13}}{2}$

$x \geq 0.7801$ or $\quad$ $x < -1.302$ or

$x \geq -1.281$ $\quad$ x

< 2.308

$-1.281 \leq < 2.303$

$X = -1, 0, 1, 2$

10. Without using mathematical tables or calculators simplify the expression (3 marks)

$$\text{Tan}45^\circ - \frac{\sin 60^\circ \tan 30^\circ \cos 30}{\tan^2 60 + \sin 60^\circ}$$

11. Without using a calculator or mathematical tables, evaluate (3 marks)

$$\frac{-2(5+3) - 9 \div 3 + 5}{-3x - 5 + -2 \times 4 \div 2 + 3}$$

$= -2(8) - 3 + 5$ $\quad$ $-3x - 5 + -2x$

$2 + 3$

$= -16 + 5 - 3$ $\quad$ $= 15 + -4 + 3$

$= -14$ $\quad$ $= 14$

$\frac{-14}{14} = -1$

Deno

$-3x - 5 + -2x4 \div 2 + 3$

12. Evaluate (3 marks)

$$\int_{-2}^{2} (4x^3 - 3x^2 + 2x - 8)\,dx$$

$= \left[x^4 - x^3 + x^2 - 8x\right]_{-2}^{2}$ ✓ 1

$= \left[2^4 - 2^3 + 2^2 - 8(2)\right] - \left[(-2)^4 - (-2)^3 + (-2)^2 - 8(-2)\right]$

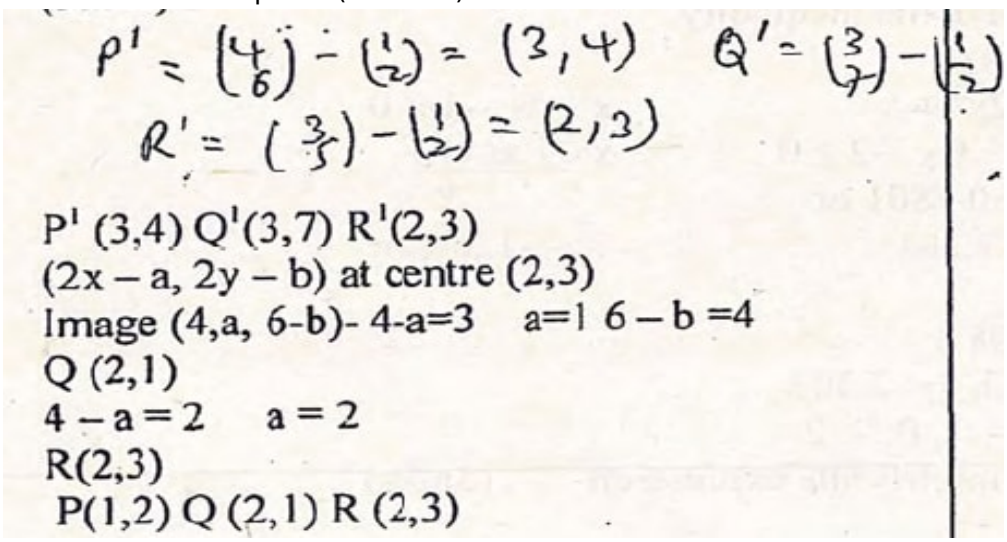
$-4 - 44$

$= -48$ ✓ 1

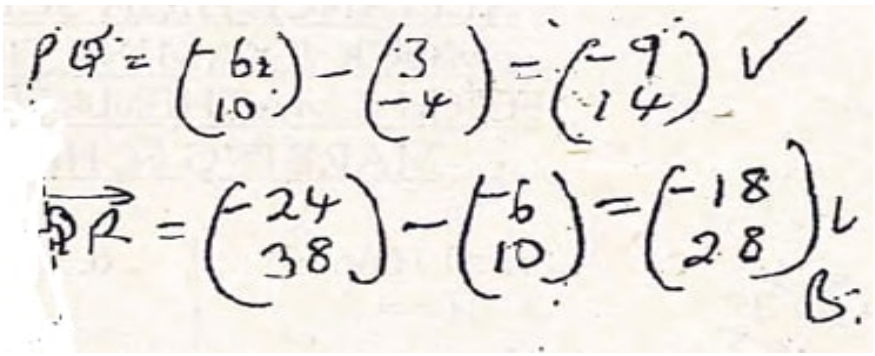
13. Use logarithms tables only to find the value of (4 marks)

$$\left(\frac{7.34 + 6.26 \cos 56^\circ}{0.4575 \sin 65^\circ}\right)^{-2/3}$$

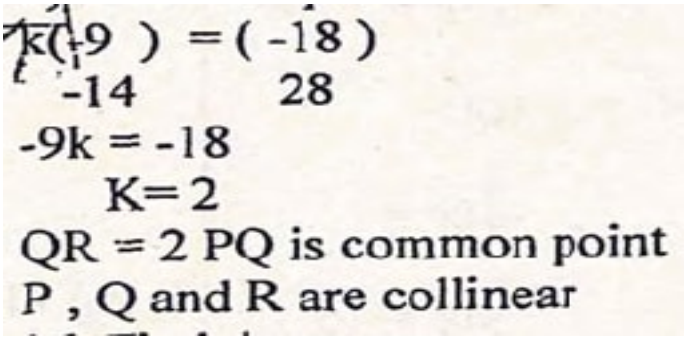
14. The image of triangle PQR after a rotation of 180^{o} about (2,3) is P'Q'R. If P'Q'R is given a translation (½) the final image is P''(4, 6), Q''(3,7), and R'(3,5). Find the coordinates of the object without the use of a Cartesian plane (3 marks)



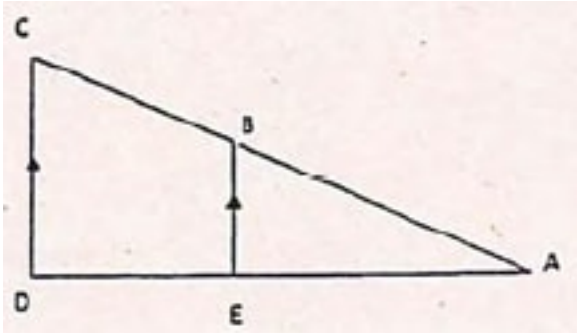
15. A bird flew from a point P(3, −4) to a point Q(−6, 10) and then to a point R (−24, 38)
    a. Write the two vectors representing the birds movement in terms of the unit vectors (2 marks)



    b. Show that points P,Q and R are collinear (1 mark)



16. In the figure below BE//DC, AD = 8 cm, AB = √41 and AE = 5 cm



Find the area of the quadrilateral DEBC (3 marks)

$BE = \sqrt{41 - 25} = 41m$

$\frac{BE}{DC} = \frac{EA}{DA}$

$\frac{4}{DC} = \frac{5}{8}$ $\quad OC = \frac{4 \times 8}{5} = 6.4cm$

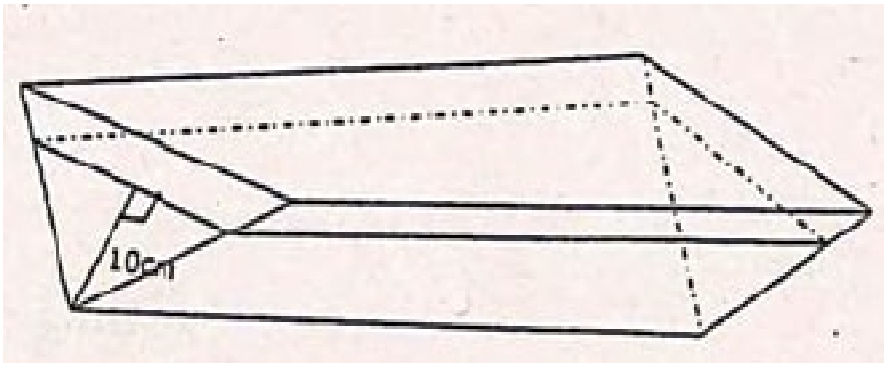
$\frac{1}{2} \times 8 \times 6.4 - \frac{1}{2} \times 5 \times 4$

$25.6 - 10 = 15.6cm^2$

SECTION II (50 MARKS)

*Answer **any** five questions from this section*

17. The figure below shows a trough whose cross-section is a triangle of equal lengths. The trough which is 8 meters long initially contains water to a depth of 10 cm and water flows into the trough at the rate of 20 litres per minute. If the length of each side of the larger triangle is four times the previous depth of water in the trough, calculate to the nearest minute the time it takes to fill the trough (10 marks)



$A = \sqrt{s(s-a)(s-b)(s-c)}$

$S = 120/2 = 60$

Area $= \sqrt{60 \times 20 \times 20 \times 20} = 692.82cm^2$

Vol of water $= 692.82 \times 800 = 554256.2584cm^3$

Vol of water to a depth of $10cm^2$

$\tan 30^0 = x/10 \rightarrow x = 10 \tan 30^0$

Base of triangle $= 20 \tan 30^0 = 11.547cm^2$

Cross section area $= \frac{1}{2} \times 11.547 \times 10 = 57.735cm^2$

Vol of water $= 57.735 \times 800 = 46188.02154$

$55.4256.2584 - 46188.02154 = 508068.2369$

Time $= 508068.2369/20000 = 25.403$ minutes

25 minutes

18. Machana starts walking towards the next village 24 km away at noon. He walks for half an hour at an average speed of 8 km/hr before his friend catches up with him and offers him a lift on his bicycle which moves at an average speed of 25km/hr. It takes him 2.5 minutes to board the stationary bicycle.
    a. Determine how far he walks before he is given the lift (2 marks)
        - distance covered in ½ hr

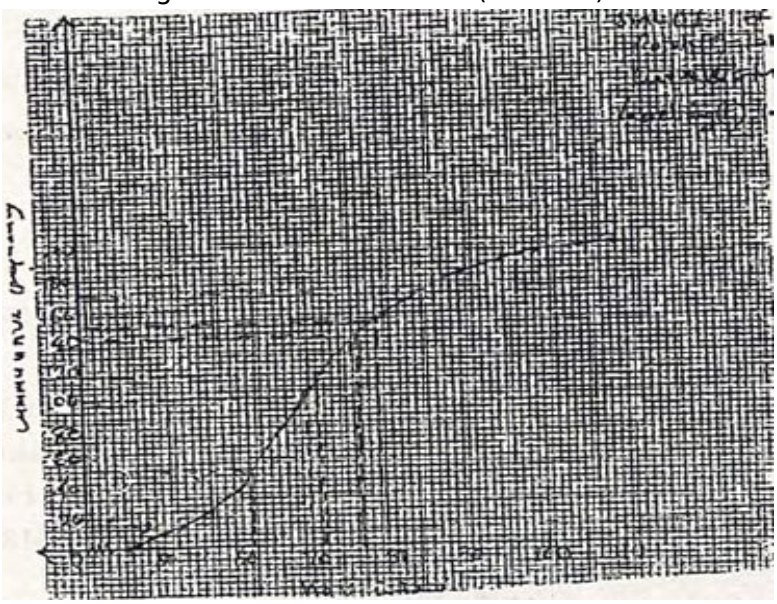
          =8 × ½ = 4 km
    b. At what time did his friend start if the two are neighbors (3 marks)

Time taken by friend to catch up with Machana = Distance between them / speed of the friend
= (4/25 x 60) min
= 9.6 min = 10 min
Starting time 12.30 – 10
= 12.20 pm

    c. How much longer would he take to complete the journey if he head not been given the lift (5 marks)
        - **Time he would take to cover 24km = 24/8 = 3 hrs**
          Time taken to cover the remaining distance (20km)
          20/25 ×60 min = 48 min
          Total time taken = 48 + 10 + 2½ = 60½ min
          He would take (180 − 60½) = 119.5 min longer
19. The table below shows the masses (measured to the nearest kg) of 200 people

Mass (kg)	40-49	50-59	60-69	70-79	80-89	90-99	100-109
No. of people	9	27	70	50	26	12	6
Cumulative frequency	**9**	**36**	**106**	**156**	**182**	**194**	**200**

    a. Draw and ogive for the above data (4 marks)



    b. Use your graph to estimate
        i. The median mass (1 mark)
            - **69 kg ± 1**

ii. The number of people whose mass lies between 70.5 kg and 75.5 kg (1 mark)

- **70.5 kg - 115 75.5 - 142**
  142 − 115 = 27 people ± 2

c. From your graph, find

i. The lower quartile (1 mark)

- **¼ × 200 = 50 - 61.5 kg±1**

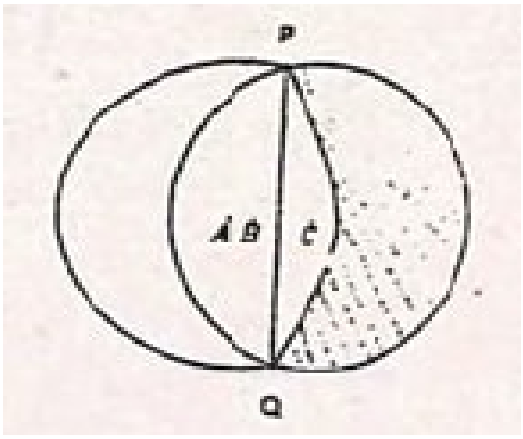
ii. The upper quartile (1 mark)

- **¾ × 200 = 150 - 78kg±1**

iii. The inter-quartile range (2 marks)

- **78 − 61.5 = 16.5±1**

20. The figure below shows two intersecting circles with their centres A and B on same side of the chord PQ. Given that AP = 4 cm, radius BP=3 cm the chord PQ = 5.1 cm and the joining A to B is perpendicular to PQ.



Determine

a. The length AB (3 marks)

$AM = \sqrt{4^2 - 2.55^2}$

$= 3.0818$

$BM = \sqrt{3^2 - 2.255^2}$

$AB = 3.0818 - 1.5803$

$= 1.5803$

$= 1.50515\text{cm}$

b. The shaded area (7 marks)

$\text{Sin } ½\,\Theta = \frac{2.55}{4}$

$\text{Sin } ½ = \frac{2.55}{3}$

$\Theta = 79.21^0$

$= 116.42^0$

$\text{Area} = \frac{79.21}{360} \times \frac{22}{7} \times 4^2 - ½ \times 4 \times \sin 79.21$

$\text{Area} = \frac{116.42}{360} \times \frac{22}{7} \times 3^2 - ½ (3^2)\text{Sin}116$

$= 11.06 - 7.8506$

$= 9.144 - 4.0$

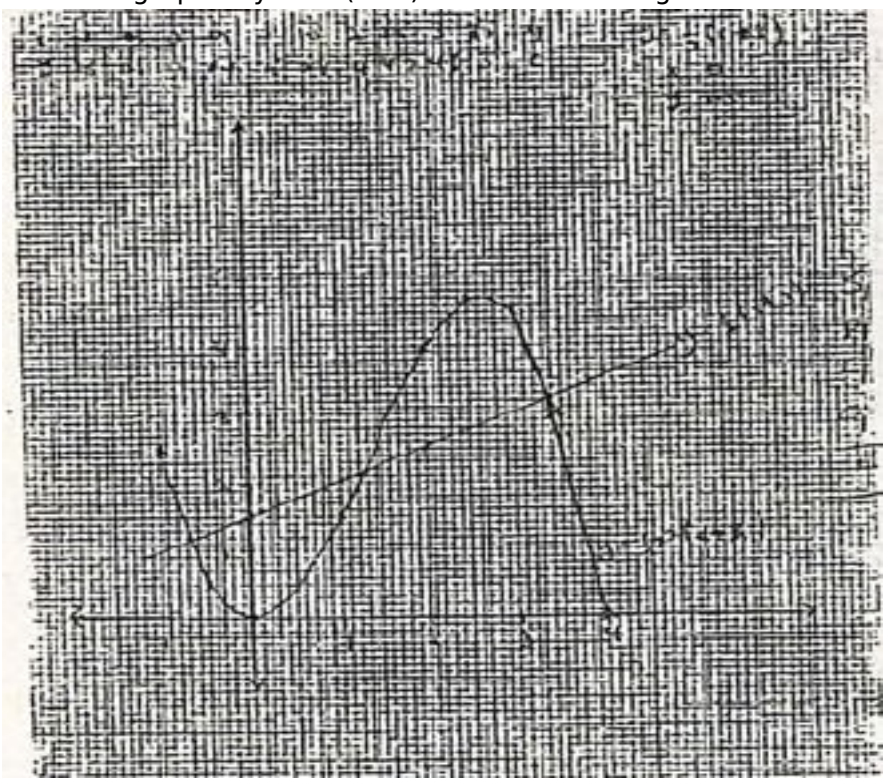
$= 3.2104\ \text{cm}^2$

$= 5.113\text{cm}^2$

$= 5.114 - 3.2104 = 1.9126\text{cm}^2$

21.

a. Draw the graph of $y=\frac{1}{2}x^2(4-x)$ fro $-1 \leq x \leq 4$ using an interval of 0.5.



b. Use your graph tp solve the equation $\frac{1}{2}x^2(4-x) - \frac{1}{2}(x + 3) = 0$ (3 marks)

- **$x=-0.7$ or 1.35 or 3.45**

c. What is the equation in x whose solutions are the values of x in (b) above (1 marks)

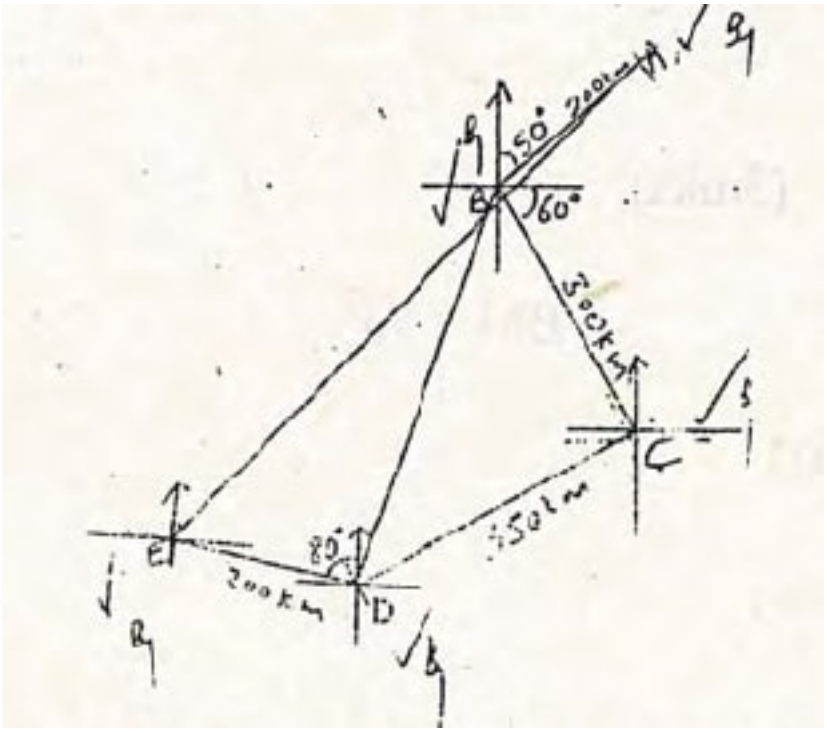
- **$\frac{1}{2} \times 2 (4-x) - \frac{1}{2})x+3) = 0x^3 - 4x^2 + x + 3 = 0$**

d. For what ranges of values of x is $x^2(4-x)$ greater than x+3 (2 marks)

- **$x < -0.7$ and $1.25 < x > 3.45$**

22. Five towns A,B,C,D and E are situated such that A is 200km from B on a bearing of N50°E. C is 300 km from B on a bearing of 150°. D is 350km on a bearing of s60°W from C. E is 200 km from D and the bearing of D from E is S80°E, using a scale of 1 cm to represent 50 km

a. Draw the diagram representing the positions of the towns (6 marks)



b. From the diagram determine,

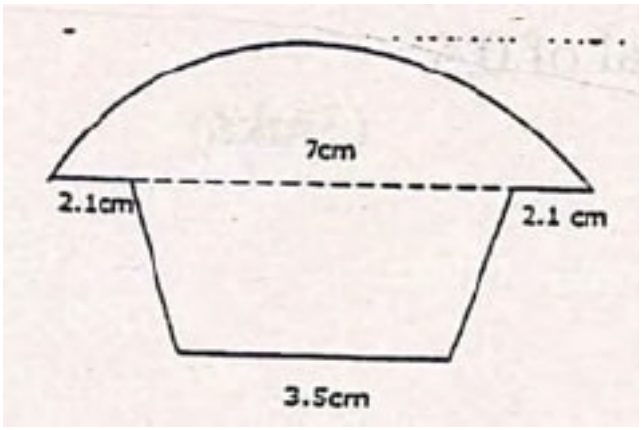
i. The distance and bearing of A from E in compass bearing (2 marks)

- **AE = 14.4 cm ± 1**
  AE = 14.4 × 50
  = 720 cm ± 5

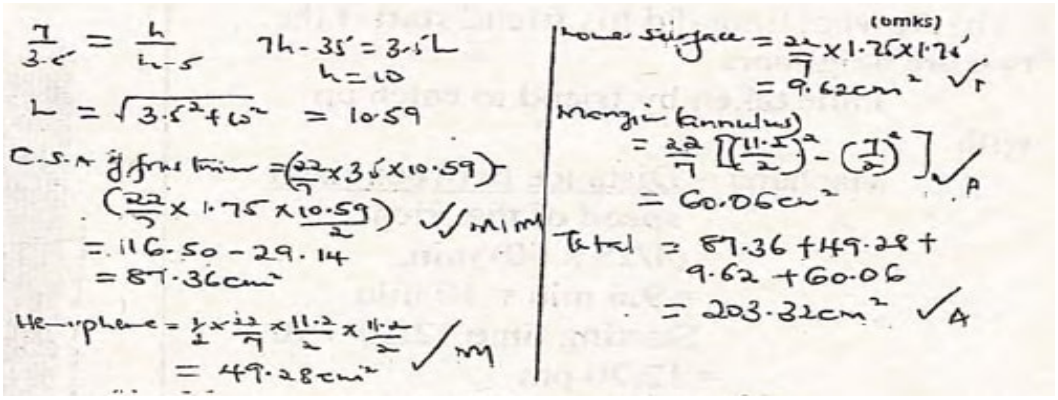
ii. The compass bearing of D from B (2 marks)

- **bearing = 200° ± 1°**

23. The figure below is a cross-section of a 3 dimensional representation of a company logo. It is in the shape of a hemisphere and a conical frustum with dimensions given for the cross section. The height of the frustum is 5 cm



a. Calculate the surface are of the solid (6 marks)



b. calculate the volume of the metal used to make the logo (4 marks)

24. The new Nairobi cinema hall has a maximum sitting capacity of 468 people with 3 long special benches and 2 short ones. The long benches take two more people than the shorter ones. The new management finds this arrangement crowded and decides that by having one more person on each long bench, he can take out some rows and still retain the same number of people. If one row of benches was taken out, Find the original number of people per row (10 marks)

Let short benches be x

Long benches be $x + 2$

$3(x + 2) + 2x = 5x + 6$

Original no of rows $= \frac{468}{5x + 6}$

New arrangement $= 3(x+3) + 2x = 5x + 8$

New no of rows $= \frac{468}{5x + 9}$

$\frac{468}{5x + 6} - \frac{468}{5x + 9} = 1$

$468 (5x + 9) - 468 (5x + 6 = (5x + 6) (5x + 9$

$2340 x + 4212 - 2340x - 2808 = 25x^2 + 75 x + 54$

$4212 - 2808 = 25x^2 + 75x + 54$

$1404 = 25x^2 + 75x + 54$

$25x^2 + 75x - 1350 = 0$

$X^2 + 9x - 54 = 0$

$X^2 - 9x - 6x - 54 = 0$

$X(x + 9) - 6 (x+9) = 0$

$(x - 6) (x+9=0$

$X=6$ or -9

$X=6$

Original number of people per row is $5x + 6$

$5x6+6 = 30+6 = 36$ people

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

SECTION A:50 MARKS

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

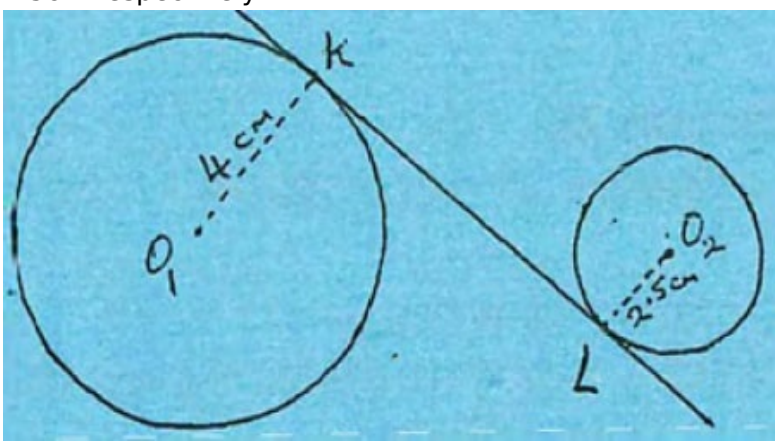
1. Make q the subject of the formula. (3 mks)

$$tq^2 + 2pq = 2r$$
$$q^2 + \frac{2p}{t}q = \frac{2r}{t}$$
$$q^2 + \frac{2p}{t}q + \left(\frac{2p}{2t}\right)^2 = \frac{2r}{t} + \left(\frac{2p}{2t}\right)^2$$
$$q^2 + \frac{2pq}{t} + \left(\frac{p}{t}\right)2 = \frac{2r}{t} + \frac{p^2}{t^2}$$
$$\left(q + \frac{p}{t}\right)^2 = \frac{2r}{t} + \frac{p^2}{t^2}$$
$$\left(q + \frac{p}{t}\right) = \pm\sqrt{\frac{2rt + p^2}{t^2}}$$
$$q = \frac{-p}{t} \pm \frac{\sqrt{2rt + p^2}}{t}$$

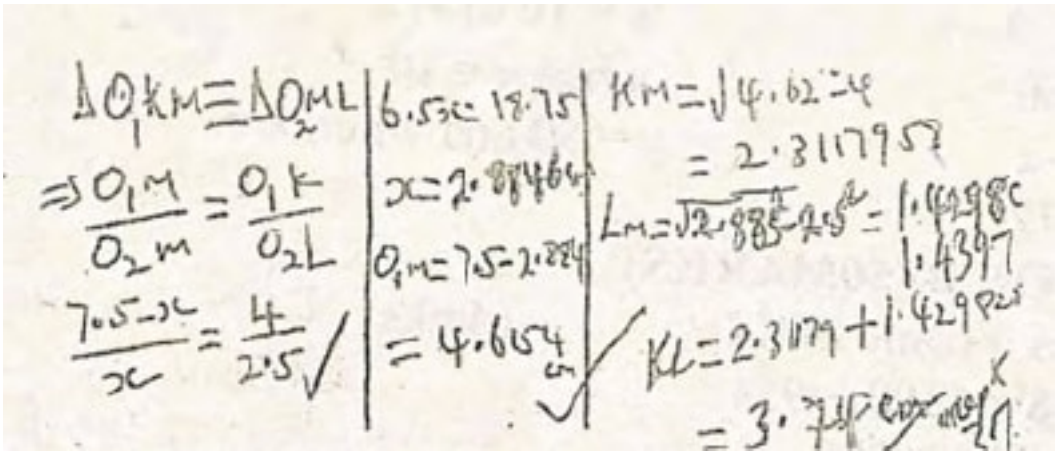
2. Solve for x in
$4\cos^2 x = 3\sin x + 3$ for $0 \le x^o \le 180^o$ (3 mks)

$$4(1-\sin^2 x) = 3\sin x + 3$$
$$4\sin^2 x = 3\sin x - 1 = 0$$
$$(4\sin x - 1)(\sin x + 1) = 0$$
$$4\sin x - 1 = 0 \text{ or } \sin x + 1 = 0$$
$$\text{Sin } x = -1$$
$$\text{Sin } x = 0.25 \quad \sin x = -1$$
$$X = 14.48^0 \quad 165.52^0$$

3. The figure below shows two circles centre O_1 and O_2 which are 7.5cm apart and of radii 4cm and 2.5cm respectively.



Calculate the value of KL to 2 decimal places. (3 mks)



4. Without using tables or calculators simplify (3mks)

$$15 + \sqrt{216} \div \frac{\sqrt{3} + \sqrt{2}}{\sqrt{3} - \sqrt{2}}$$

5. Express as a single logarithm. (3mks)

$$\text{Log}\sqrt{(x^2 - 1)} + \tfrac{1}{2}\log\frac{(x+1)}{x-1}$$

$$\tfrac{1}{2}\log(x^2-1) + \tfrac{1}{2}\log\frac{(x+1)}{(x-1)}$$

$$\tfrac{1}{2}\left(\log(x+1)(x-1) \times \frac{(x+1)}{(x-1)}\right.$$

$$\tfrac{1}{2}\left(\log(x+1)^2\right. \quad \tfrac{1}{2} \times 2\log(x+1)$$

$$\text{Log}(x+1)$$

6. The mass of some rabbits in a certain agriculture class were recorded as follows.

Mass	1.0-1.9	2.0-2.9	3.0-3.9	4.0-4.9	5.0-5.9	6.0-6.9
No. of rabbit	7	16	14	8	13	2

Calculate the quartile deviation of the data to 3 s.f (3 mks)

Upper quartile

$\frac{3}{4} \times 60 = 45$

$3.95 + \frac{45-37}{8} \times 1 = 4.95$

Lower quartile

$\frac{1}{4} \times 60 = 15$

$1.95 + \frac{15-7}{16} \times 1 = 2.45$

Quartile deviation

$\frac{4.95 - 2.45}{2}$

$\frac{2.5}{2} = 1.25$

7. Given triangle AOB, O(0,0) A(2,0), B(0,4) and its image O'($^{\sqrt{3}}/_{2}$,0) A'(√3,1), B'(-2,2√3). Find the matrix that maps OAB into O'A'B and describe the transformation represented by this matrix fully. (3mks)

$$\begin{bmatrix} a & b \\ c & d \end{bmatrix} \begin{bmatrix} 0 & A & B \\ 0 & 2 & 0 \\ 0 & 0 & 4 \end{bmatrix} = \begin{bmatrix} 0^1 & A^1 & B^1 \\ \sqrt{3} & \sqrt{3} & -2 \\ 0 & 1 & 2\sqrt{3} \end{bmatrix}$$

$2a + 0 = \sqrt{3}$

$a = \frac{\sqrt{3}}{2}$

$0 + 4b = -2$

$4b = -2$

$b = -2/4$

$b = -\frac{1}{2}$

$2c + 0 = 1$

$2c = 1$

$c = \frac{1}{2}$

$0 + 4d = 2\sqrt{3}$

$d = \frac{2\sqrt{3}}{4}$

$d = \frac{\sqrt{3}}{2}$

$\begin{pmatrix} \frac{\sqrt{3}}{2} & -\frac{1}{2} \\ \frac{1}{2} & \frac{\sqrt{3}}{2} \end{pmatrix}$ $\sin 60°$ $\cos 60°$ $\sin 60°$

rotation of 60° about the origin

8. Ketepa tea worth Ksh.40 per kg is mixed with Sasini tea worth Ksh. 60 per kg in the ration 3:1 in what ratio should this mixture be mixed with Kericho tea worth Ksh. 50 per kg to produce a mixture worth Ksh. 47 per kg. (3mks)

8. $\frac{40 \times 3 + 60 \times 1}{4} = \text{sh } 45 \text{ per kg}$

$\frac{45x + 50y}{x + y} = 47$

$47x + 47y = 45x + 50y$

$2x = 3y$

$\frac{x}{y} = \frac{3}{2}$

$X : y = 3 : 2$

9. Calculate the area enclosed by the curve $y = (x-1)^2 + 4$ and the line $y = -x + 7$ (3 mks)
10. Expand in ascending process of x upto and including the term in x^3 (3 mks)
$(3 - x - x^2)^4$

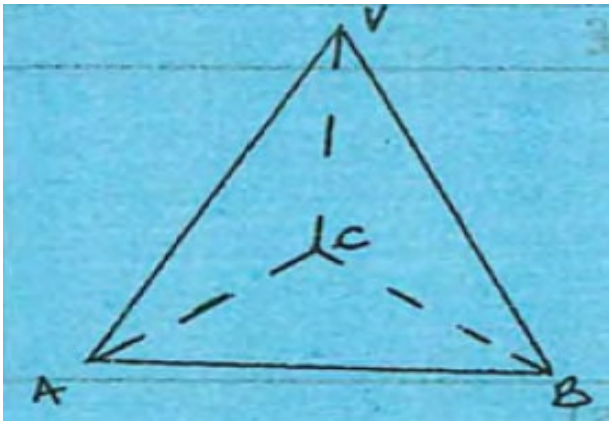
$[3 - (x + x^2)]^4 = 3^4 - 4(3^3)(x + x^2) + 6(3^3)(x + x^2)^2$

$= 81 - 108(x + x^2) + 54(x^2 + 2x^3 + x^4)$

$= 81 - 08x - 108x^2 + 54x^2 + 108x^3 + 54x^4$

$= 81 - 108x - 54x^2 + 108x^2 + \ldots\ldots$

11. In the triangular based pyramid shown below, find the angle between planes VAC and VCB to 1 decimal place if the base is an equilateral triangle of side 10cm and edges VA = VB = VC = 16cm each. (4mks)

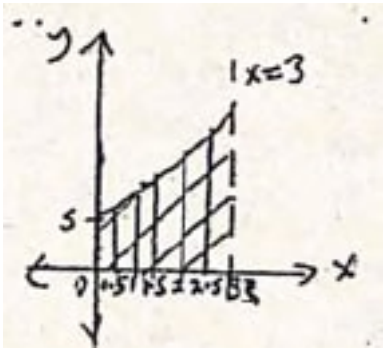


- Area AVB (½ × x × h) + ½(16 −x)
  = 76cm^2
  AN = 9.5 cm and CN = 3
  < ANB = 63.5^o

12. Calculate the area bounded by the curve y=x^2 + 5 and lines y = 0 and x−3 = 0. Using mid-ordinate rule with 6 strips giving your answer to 4 decimal place. (4 mks)

X	0.25	0.75	4.25	1.75	2.25	2.75
Y	5.0625	5.5625	6.5625	8.0625	10.0625	12.5625

h(y_1 + y_2 + y_3 + ...+ y_n)
0.5 (5.0625 + 5.5625 + 6.5625 + 8.0625 + 10.0625 + 12.5625)
½(47.875) = 23.9375



13. The matrix M is $\begin{pmatrix} 4 & 3 \\ 1 & 2 \end{pmatrix}$. Find the image of line y=2x + 1 under M. (3mks)

Any two points on the line
Y = 2x + 1
(4 3) (0 2) = (3 23)
1 2 1 5 2 12
M of the line = $\frac{12-2}{23-3}$ = ½
x+ ½ or 2y = x +1

y= ½ x + c
2 = 3/2 + c
c = ½
y = ½

14. From a metal rod of length 2.00m, 15 students each cut a piece 5cm long. If all the students had an error of ± 0.2cm in their cuts, determine the minimum and maximum length of the rod that remained. (3 mks)
    - (1.995 ≤ 2.00 ≤ 2.005) m
      15 × 5 = 75
      (4.8 ≤ 5 ≤ 5.2) m
      2.00m=200cm
      max cut 5.2 × 15 = 78 cm
      Max rod = 2.005 − 15(0.048) = 1.285 m
      min cut 4.8 × 15 = 72 cm
      min rod = 1.995 − 15(0.052) = 1.215 m
      max that remained 200 − 72 = 128 cm
      min that remained = 200 − 78 = 122 cm
15. Given that where k is a constant and t is increased by 44% and b reduced by 88%, find the ratio by which x is changed. (3mks)

$X_1 = k\sqrt{\frac{1.44t}{0.12b}}$

$X_1 = \frac{1.2k\sqrt{t}}{0.12b}$

increased in the ration 10: 1

$X_1 = 10\frac{k\sqrt{t}}{B}$

$10\frac{k\sqrt{t}}{b} : \frac{k\sqrt{t}}{b}$

$10: 1 - x$ is

16. The numbers 2, x and y form a geometric sequence. The numbers x, 30 and y form an arithmetic sequence. Find the possible value of x and y. (3mks)

2,x,y

$\frac{y}{x} = \frac{x}{2}$

$2y = x^2$

X, 30 , y

$y - 3c = 30 - x$

$y + x = 60$

$y = 60 - x$

$-12\ y = 72$

$2y = x^2$

$2(60 - x)\ x^2$

$120 - 2x = x^2$

$x^2 + 2x - 120 = 0$

$x = 10$ or -12

when $x = 10$

$y = 50$ and when $x =$

SECTION B (50 MARKS)

*Answer **any five** questions from this section*

17. A youth fund employee in Kiambu county lives in government premise in Thika. He pays a normal rent of sh. 1066 and is entitled to tax relief of sh. 1056 p.m. He also has an insurance scheme for which he pays sh. 5,300 pm and claims relief at 18% of the premium to a maximum of sh. 2000. His medical allowance is sh. 3855 p.m and his P.A.Y.E is sh. 5244.70pm. Use the tax table below to calculate the questions that follow.

Income K£ p.a	Rate (%) per K£
1 - 5808	10%
5808 - 11280	15%
11281 - 16752	20%
16753 - 22224	25%
22225 and above	30%

a. His income in K£ p.a (4 mks)

Relief $\frac{18}{100} \times 5300 = 954$

$\times \frac{20}{100} = Sh.\ 21888$

100

PAYE = 5244.70 p.m

$\times \frac{25}{100}$ = sh 27 360

Reliefs = 1056.00

sh 77,280

Insurance = 954.00

Gross tax sh 7,254.70p.m

5472

5472

Excess = sh 9775.40

x 12

y x 30 x 20 = sh. 9776.40

sh. 87,056.40p

100

5808 x 10

6y = 9776.40 y = K£ 1629.4

100 = sh 11616

Total 22224 + 1629.4

5472 x 15 = 16416 Total

income K£ 23,853.40

100

b. His basic pay in Ksh p.m to the nearest Ksh. (3 mks)

Taxable income = basic salary + allowances + Housing less nominal

Total taxable = K£ 23.853.4

Sh 477,068 p.a

Sh 39755.70 p.m

Housing (115 x B.S -1066) ++ 3855 = 39755.70

100

115 b.s – 39,755.7 – 2789

B.s = sh 32,145

c. If other deductions added upto sh. 3850 p.m, find his net pay p.m (3mks)

Gross pay G.P = 32145 net pay = sh 36000-14,394

+3855 sh

21,605.30

Sh, 36000

Deductions tax = 5244.70

Others = 3850

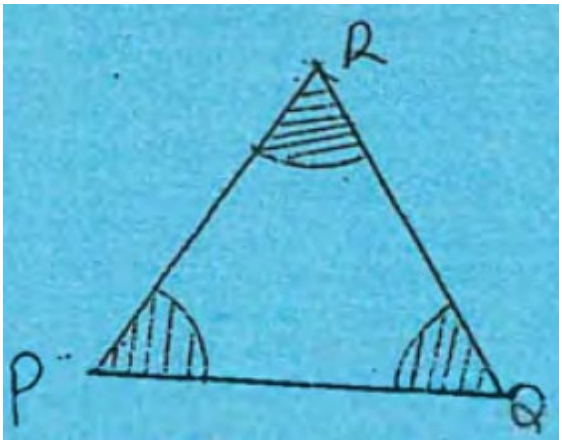
Premium 5300

Sh. 14,394.70

18.

a. A box contains n beads of which k are white and the rest are green. What is the probability of obtaining one of each colour in two successive drawing from the box.
   i. With replacement. (3mks)
   ii. Without replacement. (3 mks)

b. The figure below shows an equilateral triangle PQR of side 4cm. The shaded areas are sectors of circle centres P, Q and R with radii 1cm. If a point is selected at random from the triangle, find the probability that it lies in the unshaded region. (giving your answers in terms of pie and surd form) (4 mks)



19.

a. Sketch the curve
y = x(x+1)(x-2) (5 mks)

$Y = x^3 - x^2 - 2x$

$\frac{dy}{dx} = 3x^2 - 2x - 2$

turning pts

$\frac{dy}{dx} = 0$

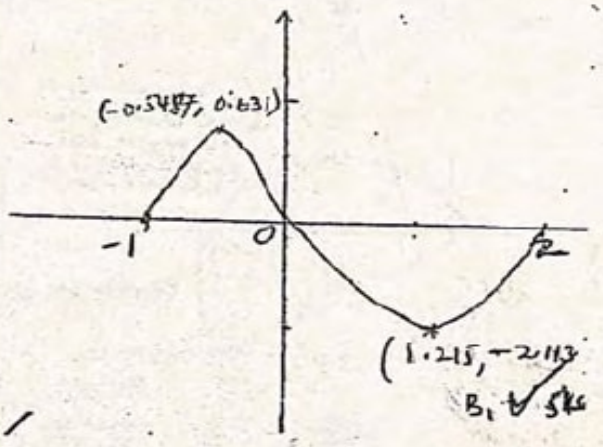
$3x^2 - 2x - 2 = 0$

$X = \frac{2 \pm \sqrt{28}}{6}$

$X = 1.215 - 0.5487$

Turning pts

(1.215 − 2.113) + (-0.5487, 0.631)



b. A carpenter cuts a rectangular sheet of cardboard such that the sum of the length and width is 6m. Find the maximum area of the cardboard he cuts. (5mks)

$l + w = 6$

$Area = lw$

$= l(6-l)$

$9cm^2$

$A = 6l - l^2$

$\frac{dA}{dl} = 6-2l$

$6-2l = 0$

$l = 3 \quad w = 3$

max area = 3 x 3 =

20. A certain uniform supplier is required to supply two types of shirts. One for girls labelled G and the other for boys labelled B. The total number of shirts must not be more than 400. He has to supply more of the type G that type B. However the number of type G shirts must not be more than 300 and the number of type B shirts must not be less than 80. By taking x to be the number of type G shirts, and y the number of type B shirts.

a. Write down in terms of x and y all the inequalities representing the information above. (4mks)

- $x + y \leq 400$
  $x \geq y$
  $x \leq 300 y \geq 80$

b. On the grid draw the inequalities and shade the unwanted regions. (3mks)

c. Given that type G cost shs. 500 per shirt and type B costs sh. 300 per shirt.

i. Use the graph (b) above to determine the number of shirts of each type that should be made to maximize the profit. (1 mk)

- 210 shirts for girls
- 109 shirts for boys

ii. Calculate the maximum possible profit. (2mks)

- $210 \times 500 + 190 \times 300$
  $= 162{,}000$

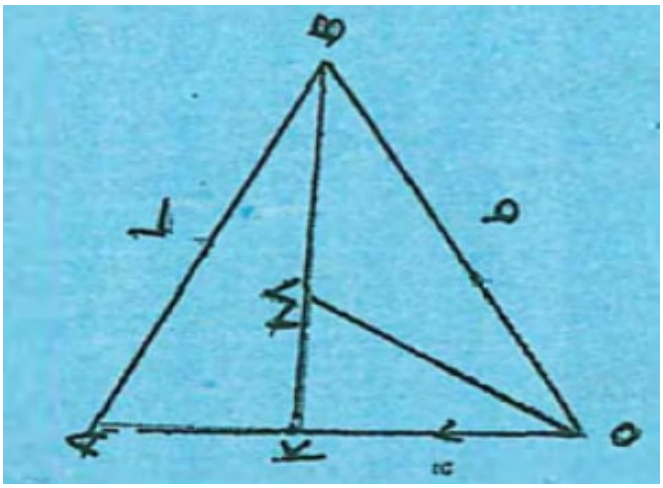
21.

a. Using a ruler and a pair of compasses only, construct a triangle ABC such that AB = 8cm, and angle ABC = CAB = 75^o. (2mks)

b. Locate the locus of P such that angle APB = 52.5^o and area of triangle APB = $20cm^2$. Locate the two possible loci as P_1 and P_2. Measure the distance P_1 and P_2 (4mks)

c. On the opposite side of AB construct a rectangle ABXY such that its area is $48cm^2$. Shade a point r inside the rectangle ABXY such that angle ARB > 9 and <XRY > 90^o. Locate and shade the region in which R lies. (4mks)

22.



In the triangle OAB above, **OA** = **a** and **OB** = **b**. Given that **OK** = **2KA** and M is the midpoint of **BK**.

a. Find in terms of **a** and **b.**

i. BA = a − b

ii. BK = $-b + {}^2/_3d$

iii. OM = OK + KM

- ${}^2/_3d + {}^1/_2KB$

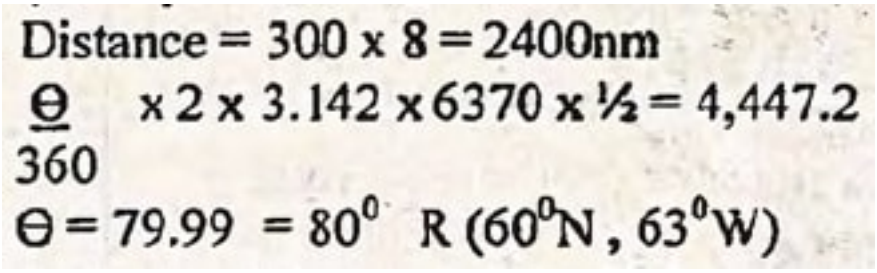
b. Given further that OL = sOM and BL = pBA express OL in two ways hence or otherwise find the value of scalars S and P.

c. P shows that points O, M and L are collinear.

23. An aircraft leaves town p(30^oS, 17^oE) and moves directly northwards to Q(60^oN,17^oE). It then moved at an average speed of 300knots for 8 hours westwards to town R.
Determine

a. The distance PQ in nautical miles. (3 mks)
PQ = 60 nm
$=60 \times 90 = 5400nm$
or $PQ = 90 \times 2\pi R = 90 \times 2 \times 3.14 \times 6370 = 5400.58$ nm

b. The position of town R. (3 mks)



c. The local time at R if local time at Q is 3:12pm (2mks)

- longitude difference = 80^{o}
  $^{80 \times 4}/_{360}$ = 5 hrs 20 min
  3.12 pm - 5 hrs 20 mins = 9.20 am

d. The total distance moved from P to R in kilometers. (take 1nm = 1.853km) (2 mks)

- Total difference = PQ + QR
  = (5400 + 2400) nm × 1.853
  =14,453.4 km

24. The table below shows values obtained form an experiment.

x	1	2	3	4	5	6
y	2.70	5.70	11.15	22.62	45.2	90.51

It is thought that y and x are connected by the formula $y = A^{(b + x)}$

a. By drawing a suitable linear graph, find the values of the constants A and b.

- Log y = blogA + xlogA log Y = XlogA + blogA

b. From the graph, estimate

i. The value of x when y=24 (2mks)

- log y4 = 1.38 = 1.4
  x=4
  blogA
  b × 0.3 = 0.2
  b = $^{0.2}/_{0.3}$ = $^{2}/_{3}$ b =0.6667 = 0.7

ii. The value of y when x = 5.6 (1 mk)

- log y = 1.875
  y = 71.989
  =74.99

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

SECTION A (25 Marks)

Answer all the questions in this section

1. **Figure 1(a)** below shows a micrometer screw gauge when closed and **Figure 1(b)** shows the same micrometer screw gauge measuring the thickness of a wire.

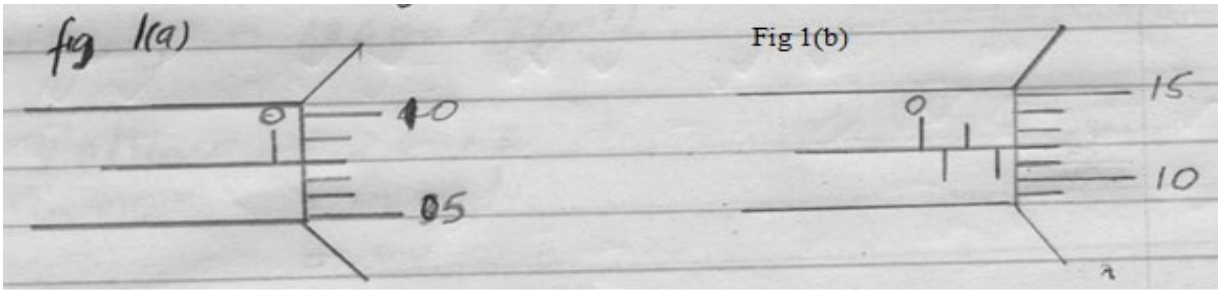


Figure 1a and Figure 1b

Determine the thickness of the wire (2mks)

- **Zero error - 0.08mm**
  Thickness of the wire = (1.62 – 0.08)mm
  = 1.54mm

2. A form two student was provided with two springs to make a spring balances, she sets up two designs as shown below in **Figure 2(a)** and **Figure 2(b)**

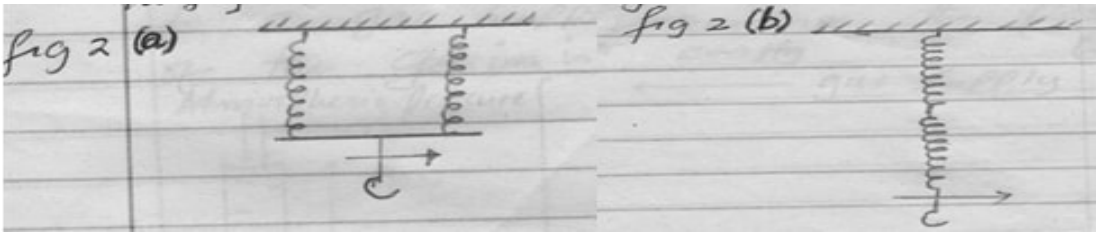


Figure 2a and Figure 2b

With reason(s) state which two designs you would use to measure the weight of a heavy load? (2mks)

- **Set a. Because the weight is shared by the two springs**

3. A rectangular container measures 2 cm by 4cm by 5cm. What is the weight of the mercury that will fill the container to the brim? (3mks)

$$\text{Volume} = 2 \times 4 \times 5$$
$$= 40\text{cm}^3$$
$$= \frac{40}{100 \times 100 \times 100}$$
$$V = 4 \times 10^{-5}\text{m}^3$$
$$W = e \times v \times g$$
$$= 13600 \times 4 \times 10^{-5} \times 10$$
$$W = 5.44\text{N}$$

4. **Figure 3** below shows a U-tube connected to a gas supply. Determine the pressure of the gas in cmHg

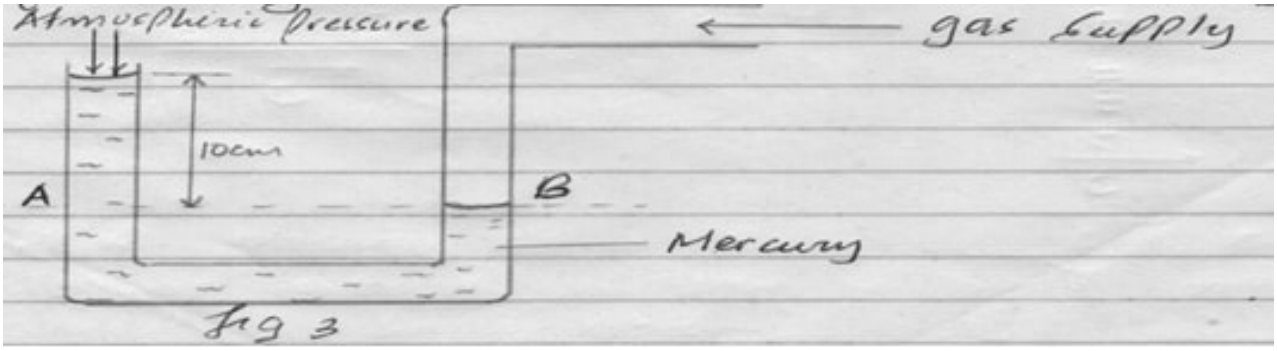


Figure 3

- **Pressure at A = pressure at B (pressure of the gas)**
  = (76 + 10) cm Hg
  Gas Pressure = 86cm Hg

5. Three iron sheets meant for construction in hot regions have oval- shaped holes. Bolts are used to fix them on the roof through the oval holes. Explain the importance of the shape of the holes. (1mk)
   - **They provide room for expansion and contraction**
6. **Figure 4** below shows paper kite

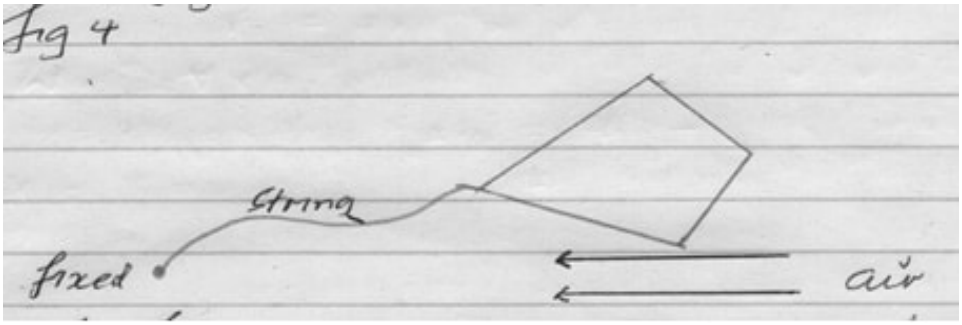


Figure 4

Fast moving air is blown horizontally under the kite as shown in the diagram. State and explain the observation made. (2mks)

- **When the air is blown, the kite moves downwards. This is because a region of low pressure is created below the kite due to fast moving air and excess atmospheric pressure above the kite processes it downwards**

7. **Figure 5** below shows a light rod balanced by the forces shown. M is a magnet of weight 5N and P is a permanent magnet fixed on the bench. (2mks)

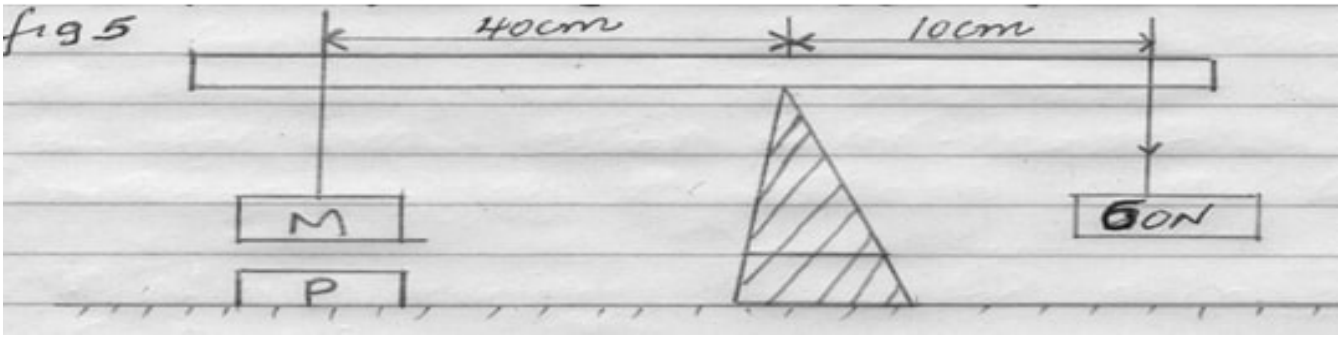


Figure 5

Find the attraction force between M and P.

- **Anticlockwise movements = clockwise movements**
  40 × (5 + x) = 60 x 10
  200 + 40x = 600
  40x = 400
  x = 10N

8. A heating coil rated 1000w takes 20 minutes to heat 10kg of a liquid from 25°C to 65° Determine the specific heat capacity of the liquid. (Assume no heat is lost to the surroundings).

$$Pt = MC\Delta\theta$$

$$1000 \text{ x } 20 \text{ x } 60 = 10 \text{ x } c \text{ x } (65\text{-}25)$$

$$C = \frac{1000 \, x \, 20 \, x \, 60}{40 \, x \, 10}$$

$$C = 3.0 \text{ x } 10^3 \text{ J/kg/k}$$

9. **Figure 6** below shows 3 identical masses m_1, m_2 and m_3 placed on a smooth **rotating**

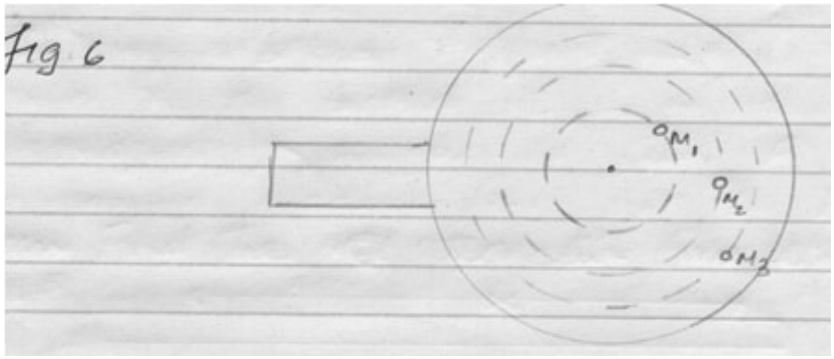


Figure 6

State the factors that determine whether a particular mass slides off table or not. (1mk)

- **Distance from the centre/Radius**
- **Angular Velocity of the rotating table**

10. Ice is in a beaker which is placed in a table as shown in **Figure 7** below.

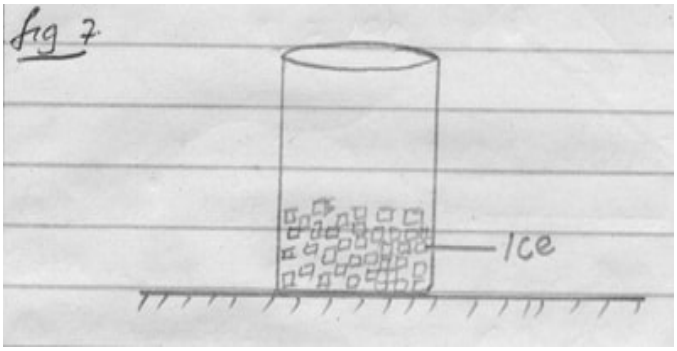
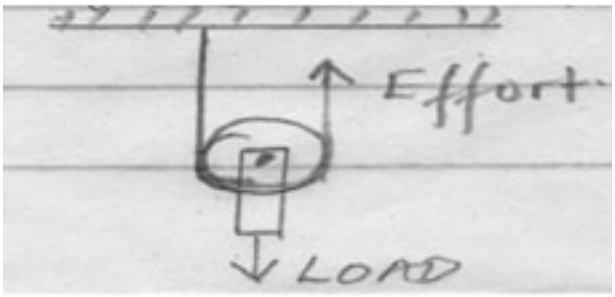


Figure 7

The ice is heated until it melts. Explain what happens to the stability of the beaker (2mks)

- **The beaker remained stable**
- **This is because position of c.o.g was lowered**

11. What is the velocity ratio of the pulley system shown in the figure below? (1mk)



- **V.R = 2 i.e. number of strings supporting the load**

12. **Figure 8** below shows how the displacement of a point varies with time as a wave passes it.

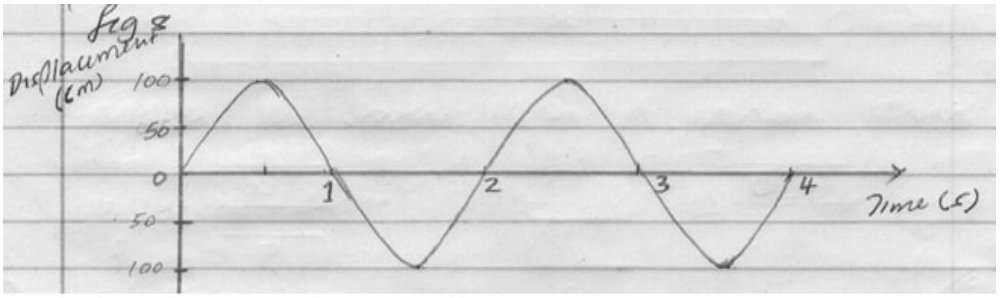
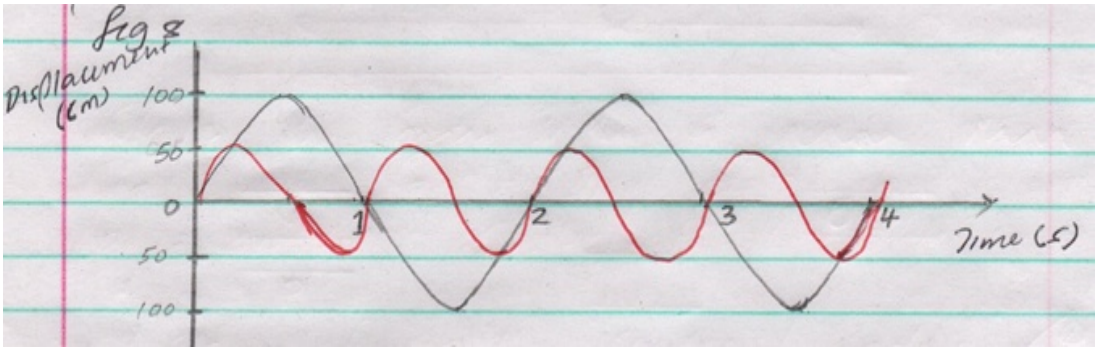


Figure 8

On the same diagram draw a wave which passes the point with half the amplitude and twice the frequency. (2mks)



13. A part from pressure state another factor that affects the melting point of a substance. (1mk)
    - **Impurities**

SECTION B (55 MARKS)

14.

a. A piece of wood weighs 5.0N in air and 0.45N when immersed in water
Determine;

i. its relative density (2mks)

$$R.D = \frac{\text{weight in air}}{\text{Apparent loss in } H_2o}$$

$$= \frac{5N}{(5-0.45)N}$$

$$= 1.099$$

ii. Its apparent weight in a liquid of density 800kg/m^3. (3mks)

Let the weight in the liquid be W

$$\text{R.D of liquid} = \frac{\text{apparent loss in liquid}}{\text{Apparent loss in water}}$$

$$\frac{800}{1000} = \frac{5 - W}{5 - 0.45} = \frac{5 - W}{4.55}$$

$$4.55 \times 800 = (5 - W)\,1000$$

$$3640 = 5000 - 1000W$$

$$W = 1.36N$$

b. **Figure 9** shows a cylindrical solid 20 cm long and density2400kg/m^3. Its cross-section area is 6cm^2 and floats in water of density 1000kg/m^3 while partially submerged with 10cm below the surface of water

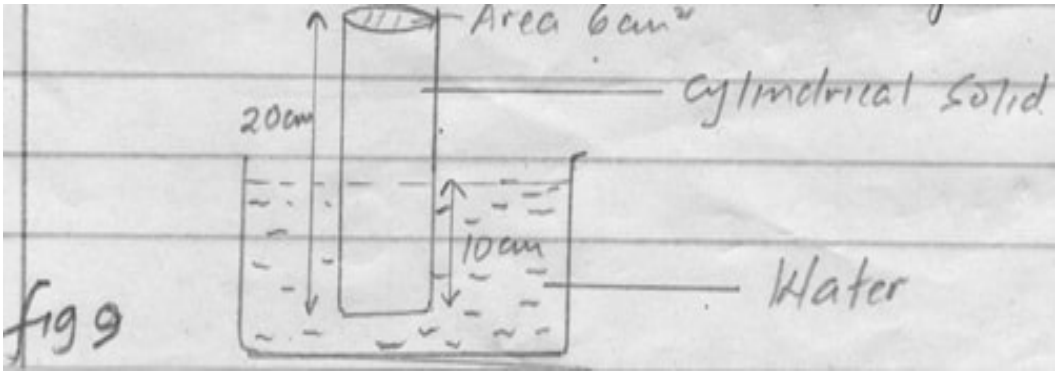


Figure 9

Determine

i. Weight of the solid (3mks)

$$\text{Weight of the log} = \rho vg$$
$$= 2400 \times \frac{6 \times 20}{1000000} \times 10$$
$$= 2.88\text{N}$$

ii. Upthrust on the solid (3mks)

$$\text{Upthrust} = \text{Weight of liquid displaced}$$
$$= \rho vg$$
$$= 1000 \times \frac{6 \times 10}{1000000} \times 10$$
$$= 0.6\text{N}$$

15.

a. **Figure 10** below shows a section of a tape pulled through a ticker timer of requency50Hz.

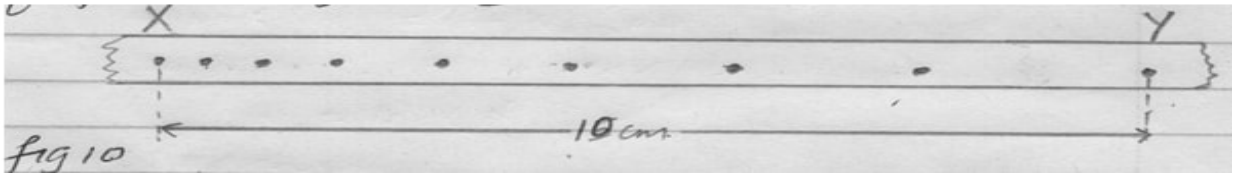


Figure 10

i. Determine the velocity of the body pulling the tape in cm/s in figure 10 above(3mks)

- **$T = {}^{1}/_{50} = 0.02(s)$**
  Velocity = $^{\text{displacement}}/_{\text{Time}}$
  $= 10/_{(8 \times 0.02)}$

  = 62.5 cm/s

ii. Find the acceleration of a body in cm/s^2 for the tape represented in **Figure 11** below. (take the frequency as 50Hz) (4mks)

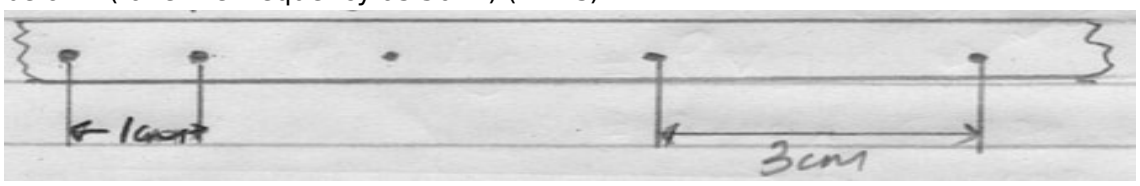


Figure 11

$$\text{Initial velocity} = \frac{1}{0.02} = 50\text{cm/s}$$

$$\text{Final velocity} = \frac{3}{0.02} = 150\ \text{cm/s}$$

$$\text{Acceleration} = \frac{150-50}{3\ x\ 0.02} = 1666.7\text{cm/s}^2$$

b. A lorry of mass 12000kg is travelling at 10m/s and is brought to rest in 20seconds Determine;

i. The acceleration of the lorry (2mks)

$$a = \frac{v-u}{t} = \frac{0-10}{20}$$

$$a = 0.5\text{m/s}^2$$

ii. The average retarding force (2mks)

- **F = ma**
  = 12000 x (0.5)
  = −6000kgm/s²

  F = − 6000N

16. Two similar cans are partly filled with equal quantities of paraffin. Each holds a thermometer, is covered with a lid and stands on a wooden bench at the same distance from radiant heat as shown in **Figure 12** below.

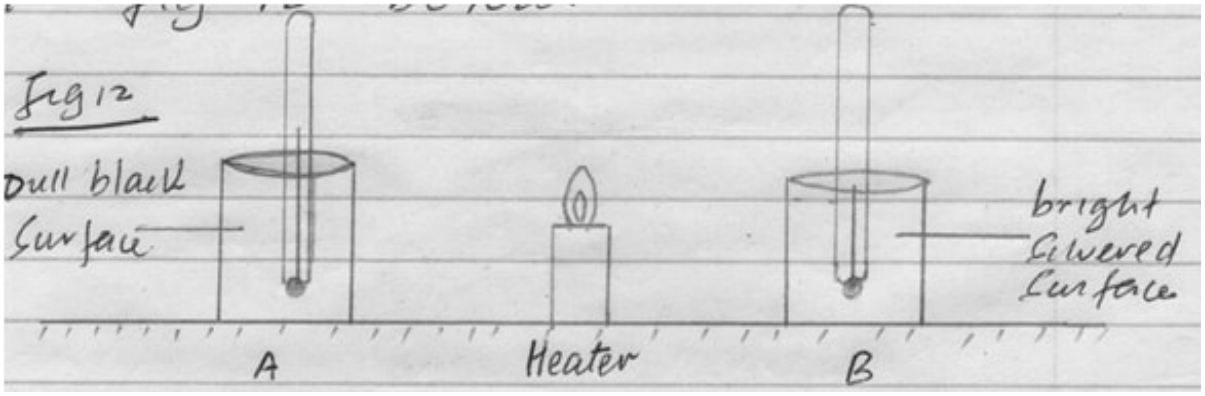


Figure 12

Container A has a dull black surface and container B has bright silvered surface. The following temperatures were recorded.

Time in minutes	0	1	2	3	4	5
Temp ^{o}C (dull black)	19	21	23	25	27	29
Temp ^{o}C (silvered bright)	19	20	21	22	23	24

a. Explain why heat from the heater could not have reached the cans by:-

i. Conduction (1mk)

- **Air is a poor conductor of heat**

ii. Convection (1mk)
- **Convection currents moves upwards**

iii. Explain why there is a difference in the thermometer readings in A and B. (2mks)
- **The can absorb radiant heat at different rates. Dull black surface absorbs radiant heat more than bright silvered surfaces.**

iv. How can the set-up in figure 12 above be adjusted in order to produce same reading of the thermometer. (1mk)
- **Move A further or move B closer to the heater.**

b. Two beakers A and B contain equal amounts of warm water initially at 35^{o}C Water at 0^{o}C is added to beaker A while ice cubes at 0^{o}C are added to beaker B. Which beaker will have a lower temperature after a few minutes and why? (2mks)
- **lowers more than A**
- **Latent heat to change ice to water will be supplied by the warm water in beaker B**

c. In an experiment to determine the specific latent heat of vaporization of water, steam at 100^{o}C was passed into water contained in a well lagged aluminum calorimeter. The following measurements were made;
Mass of calorimeter = 150g
Initial mass of water 100g
Intial temperature of water = 18^{o}C
Final mass of calorimeter + condensed steam = 275g
Final temperature mixture 68^{o}C
(Specific heat capacity of water = 4.2KJkg^{-1}K^{-1}
And C.H.C for aluminium = 400 Jkg^{-1}K^{-1})
Determine;

a. Mass of condensed steam (1mk)
- **275 – (100 + 150)**
  275 – 250 = 25g

b. Heat gained by calorimeter and water (3mks)
Heat gained = $M_cC_c\Theta_c + M_wC_w\Theta_w$
= 0.15 x 400 x (68 – 18) + 0.1 x 4200 x (68 – 18)
= 3000 + 21000
= 24000J

c. Given that Lv is the specific latent heat of vaporization of steam.

i. Write an expression for the heat given out by steam. (1mk)
- **H = MLV + Mcθ**
  where m – mass of steam
  C – S.H.C of condensed steam

ii. Determine the value of Lv. (3mks)
- **Mlv + mcθ = 24000**
  0.0025Lv + 0.025 x 4200 x (100 – 68) = 24000
  Lv = $^{20640}/_{0.025}$
  Lv = 825600 J/kg

17. **Figure 13** below shows a hydraulic press used to lift a load L. The effort applied is 400N at the end of the lever 50cm long and pivoted at the other end.

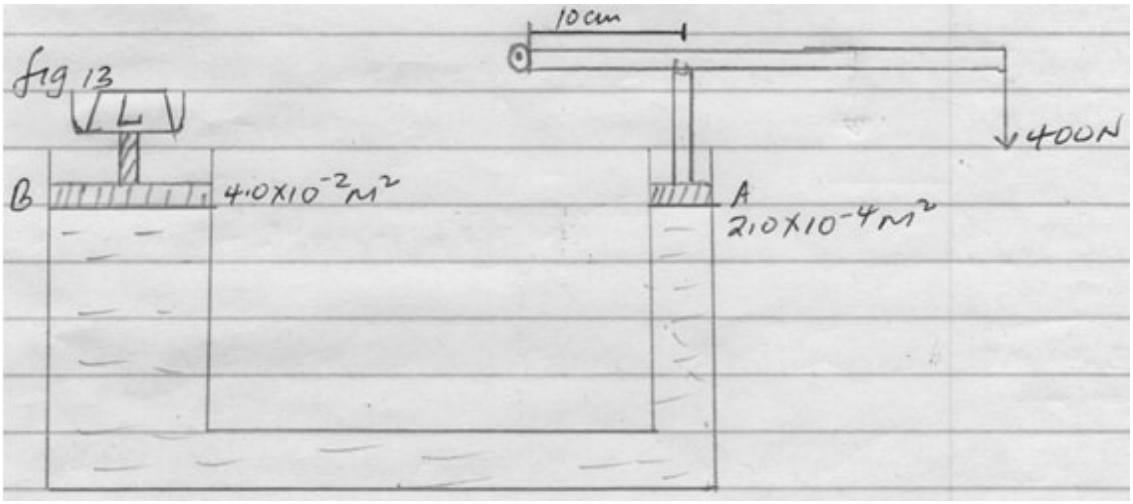


Figure 13

The plunger is 10cm from the pivot. The area of piston A is 2.0 x $2^{-4}m^2$ and that of piston B is 4.0 x $10^{-2}m^2$.

Determine;

a. Pressure exerted at piston A. (3mks)

$$400 \times 50 = F1 \times 10 \Rightarrow F1 = 2000N$$

$$P = F/A$$

$$P = \frac{2000}{2.0 \times 10^{-4}} = 1.0 \times 10^7 \ N/m^2$$

b. Weight of the load L being lifted. (3mks)

- **$P_A = P_B = 1.0 \times 10^7 \ N/m^2$**

$L = 1.0 \times 10^7 \times 4.0 \times 10^{-2} \ m^2$

$= 4.0 \times 10^5 \ N$

c. If small piston moves down a distance of 10cm, determine how far upwards the longer piston B moves. (3mks)

$$V_A = V_B$$

$$10 \times 2.0 \times 10^{-4} = X \times 4.0 \times 10^{-2}$$

$$X = \frac{10 \times 2.0 \times 10^{-4}}{4.0 \times 10^{-2}}$$

$$X = 0.05m$$

18.

a. State the differences between temperature measured in Kelvin scale and Celsius scale. (1mk)

- **Kelvin scale starts at absolute zero while Celsius scale starts at 273K.**

b. **Figure 14** below shows a simple set up for pressure law apparatus.

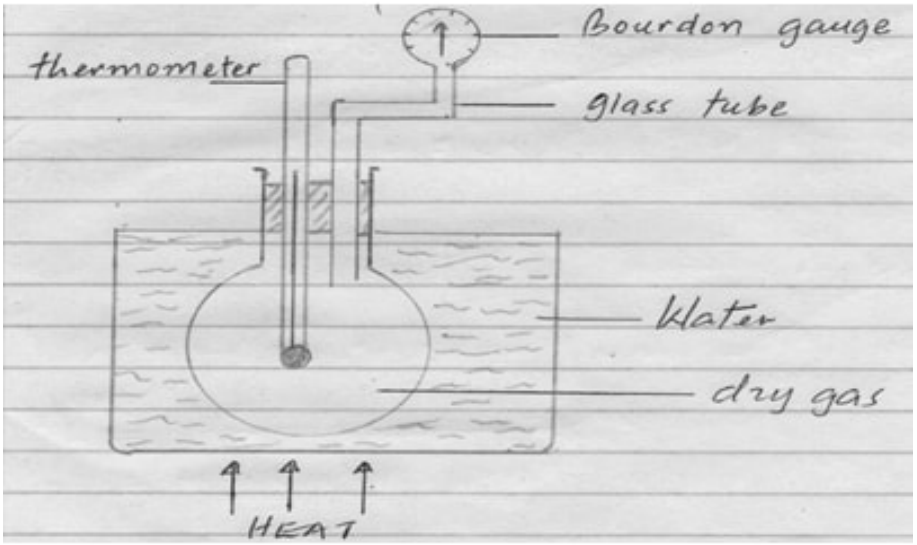


Figure 14

i. State two measurements that can be recorded using the above apparatus (2mk)
- **Pressure of the gas**
- **Temperature of the gas**

ii. Explain how the measurement above in (i) may be used to verify pressure law. (3mks)
- **Measure the value of pressure and temperature**
- **temperature varies with pressure**
- **values of temperature and then corresponding values of pressure are recorded**
- **A graph of pressure against temperature plotted.**
- **When the graph is interpolated it passes through the absolute zero**

c. State one assumptions of real gas laws (1mk)
- **Particles of gases do not collide with one another Kinetic Ener is not affected**

d. At 20^{o}C the pressure of a gas is 50cm of mercury. At what temperature would the pressure of the gas fall to 10cm of mercury. (3mks)
- **P/T = constant**
  $P_1/T_1 = P_2/T_2$
  $50/293 = 10/T_2$

  $T_1 = 2930/50$
  T_2 = 58.6K or -214.4^{o}C

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

SECTION A (25 Marks)

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

1. **Figure 1** below shows a ray of light incident on a plane mirror at O.

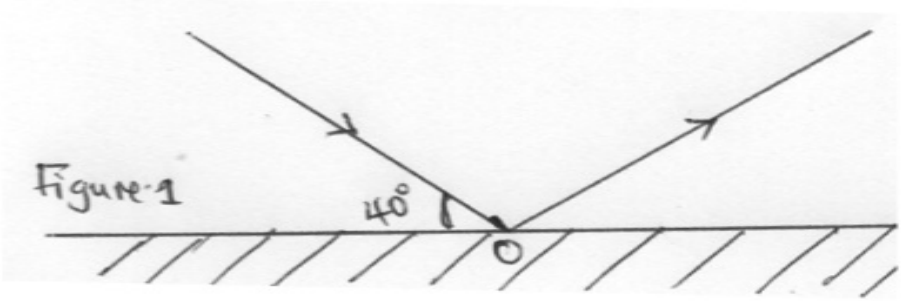


Figure 1

The mirror is rotated through an angle of 25^0 about an axis perpendicular to the paper .Determine the angle through which the reflected ray is rotated (2mks)

- **$\theta=2x25=50^0$**

2. A car battery requires topping up with distilled water occasionally. Explain why this is necessary and why distilled water is used. (2mks)
   - Evaporation on the cell reaction causes loss of water.
   - Distilled water is used because it does not introduce impurities to the cell.
3. **Figure 2** below shows two parallel current carrying conductors A and B cutting through a piece of cardboard.

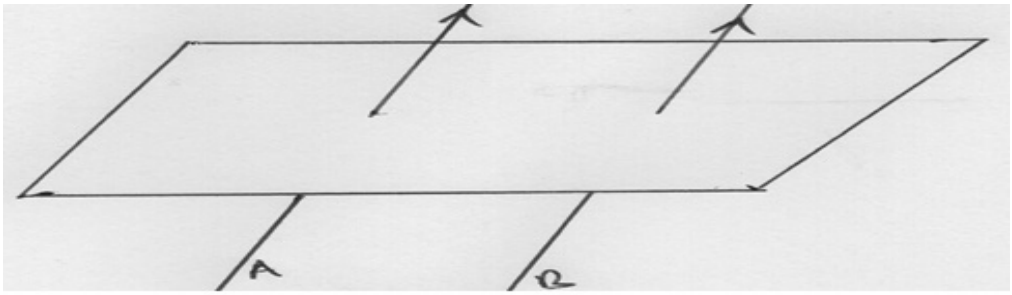


Figure 2

   i. Sketch the magnetic field pattern produced. (2mks)
   ii. Identify the nature of the force between them (1mk)
      - **Attractive force**
4. Distinguish between ultraviolet rays and infrared (1mk)
   - **UV rays are produced due to large energy charge in the electron of an atom while IR rays are produced due to small energy changes of an electron or molecular vibrations.**
5. A student synchronizes his watch with a church bell 2km away. The following morning, there is a wind. .He notes that the church bell sounded 0.15s later. Assuming his watch was correct and bell was sounded at the usual time. Determine the direction and the speed of the wind. (Assuming the speed of sound in still air is 340m/s) (3mks)
   - **Wind is blowing toward the church**
     Expected time = $^{2000}/_{340}$ = 5.882 sec
     Actual time =5.882+0.15 = 6.032
     Speed of sound = $^{2000}/_{6.032}$ =331.55m/s
6. **Figure 3** below shows an illustration of a good storage magnets

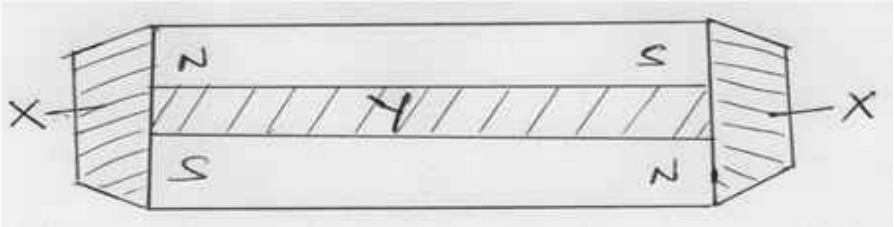


Figure 3

State and explain the material suitable for Y (2mks)

- **Non-magnetic materials**
- **To make it sustain its magnetism**

7. **Figure 4** below shows a circular wave approaching a plane barrier in uniform medium.

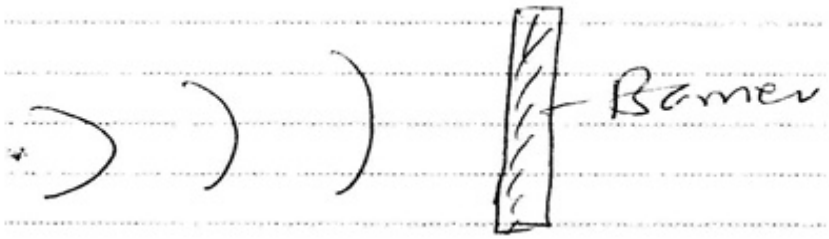


Figure 4

On the diagram sketch the reflected waves in water (2mks)

8. A negatively charged rod is brought near the cap of a leaf electroscope. The cap is them earthed momentarily by touching with finger. Finally the rod is withdrawn .State and explain the observation made. (2mks)
   - **On Earthing negative charges are repelled to the ground .When the rod is withdrawn, the leaf s left with a net positive charge. The leaf rises.**
9. The following equation represents a decay series

$$^{210}_{83}R \xrightarrow{X} {}^{210}_{84}P \longrightarrow {}^{a}_{b}Q$$

i. Identify radiation x. (1mk)
   - **X - A beta particle**

ii. Determine the values of a & b. (2mks)
   - **a-206**
   - **b-82**

10. **Figure 5** below shows a circuit where a battery of e.m.f 4.5V, Switches A &B, two capacitors (C_1=0.6μF and C_2=1.0μF) and a voltmeter are connected.

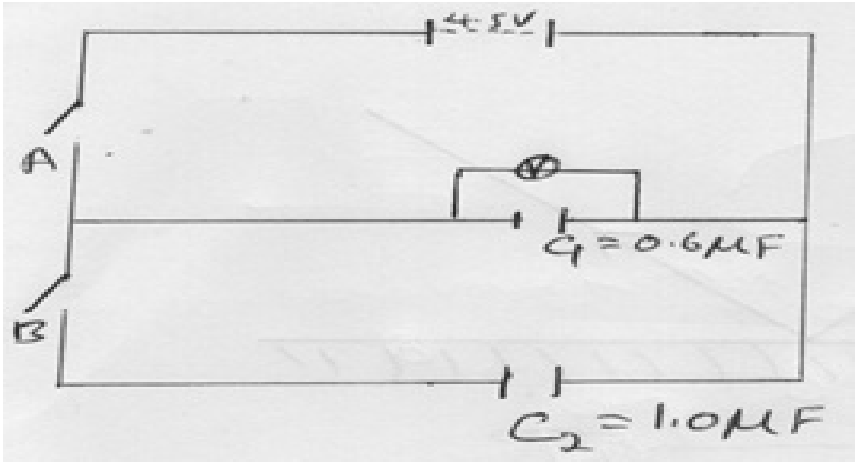


Figure 5

i. Determine the charge on C_1 when the switch A is closed and switch B is open. (2mks)

- **Charge Q_1 on C_1 is given by**
  $Q_1=C_1V$
  $=0.6\ \mu F \times 4.5$
  $=2.7\mu C$
  OR
  $Q_1=C_1V$
  $=0.6X10^{-6} \times 4.5$
  $=2.7X10^{-6}\ C$

ii. What is the effective capacitance C when both switches A and B are closed? (2mks)

- **$C_T=C_1+C_2$**
  $=(0.6+1.0)\ \mu f$
  $=1.6\mu f$

11. Describe the energy charges that occurs in the cathode ray tube. (1mk)

- Electrical to light energy

SECTION B (55MKS)

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

12.

a. Two coins were placed at the bottom of two jars each containing a different clear liquids as shown in **Figure 6** below.

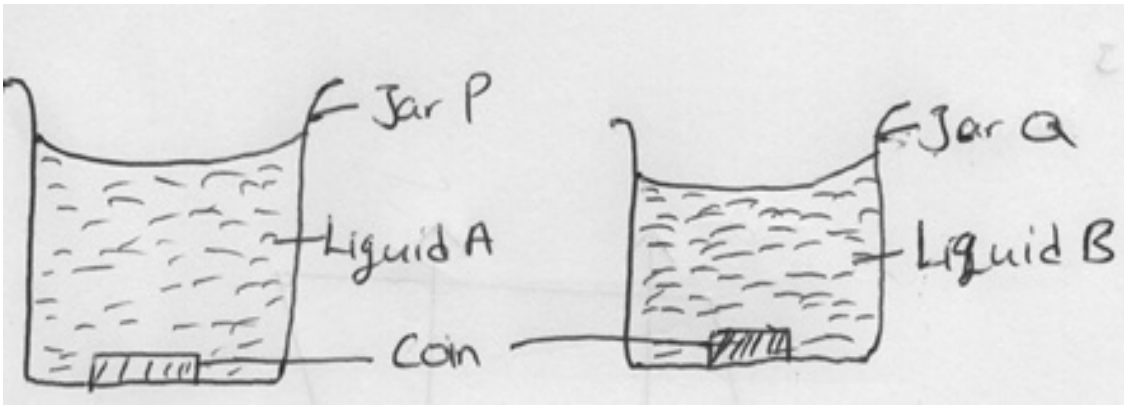


Figure 6

The liquids in the two jars are at the same level. The coin in jar Q appears shallower than in jar P. Explain (2 mk)

- **They have different refractive index ie refractive index of P is less than that of Q**

b. A ray of light travels from air to glass as shown in **Figure 7** below.

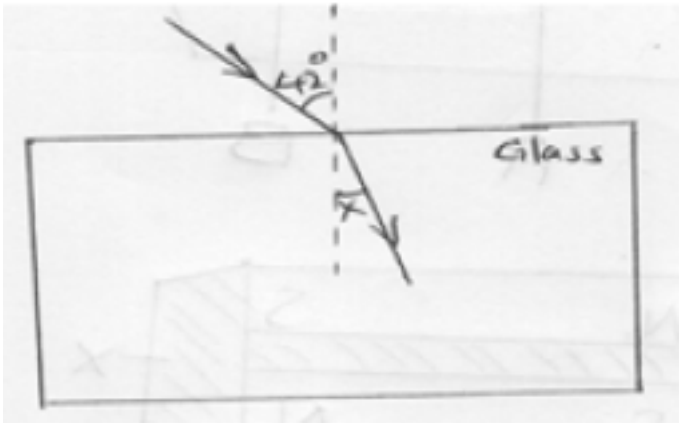


Figure 7

Given that the critical angle of glass is 42^o, Determine the value of angle X. (4mks)

- **$n = {}^{1}/_{\sin c} = {}^{1}/_{\sin 42} = 1.5$**
  $\sin 40/\sin x$
  $x = 25.4^{o}$

c. **Figure 8** below shows a ray of eight incident on a triangular prism and a white sources is placed in front of the screen.

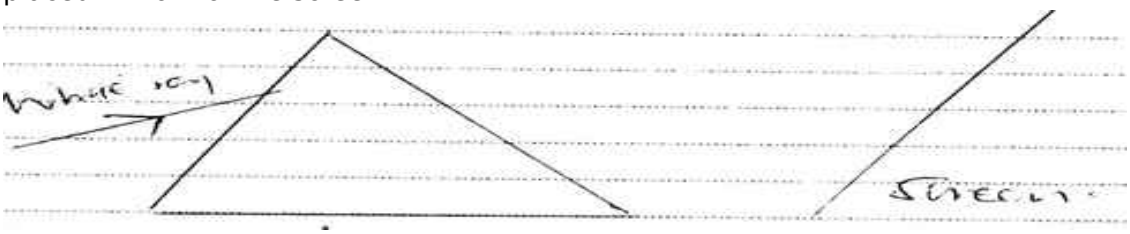


Figure 8

Complete the diagram to show the path followed by the ray up to the screen. (2mks)

13.

a. Sate faraday's law of electromagnetic induction. (1mk)
   - **The magnitude of the induced emf in a coil is directly proportion to the rate of change of magnetic flux linked with the coil.**

b. **Figure 9** below shows a simple transformer. Study it and answer the questions that follow.

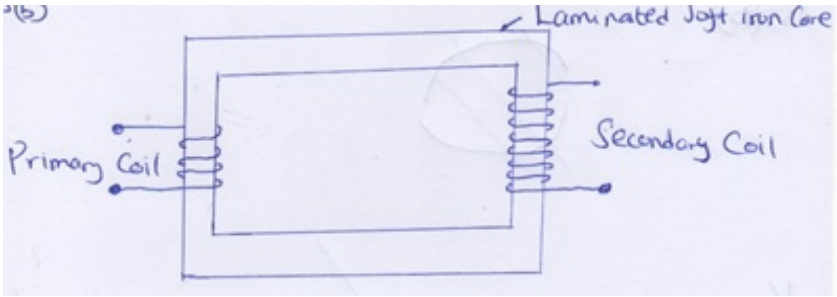


Figure 9

   i. Explain why the core is a continuous loop (1mk)
      - **It's continuous so as to maintain closed loops of the magnetic lines of force (circuit)**
   ii. Give a reason as to why the cure is laminated. (1mk)
      - **In order to reduce eddy currents.**
   iii. State and explain which coils are thicker. (2mks)
      - **Primary coils**
      - **Reason: Carry higher current**

c. Sate one difference and one similarity between a step up transformer and induction coil. (2mks)
   - **Difference:- step up uses A.C and while induction coil uses dc.**
   - **Similarly:-mutual inductance /both step up the voltage**

d. State two advantages of the use of alternating voltage for the transmission of electrical energy. (2mks)
   - **Can be stepped up or down**
   - **Can be converted to A.C**

e. The primary coils of a transformer have 2000 turns and carries a current of 3A. If the secondary coil is designed to carry a current of 30A. Calculate the maximum number of turns in the secondary coil. (3mks)
   - **${}^{Ip}/_{Is} = {}^{Ns}/_{Np}$**
     $Ns = {}^{(200 \times 3)}/_{30} = 200$

14.

a. State Ohm's law (1mk)

- **The amount of current flowing through a metallic conductor is directly proportion to the pd across its ends so long as temperature and other physical factor remain constant.**

b. **Figure 10** below shows how a student set up a circuit using 3 identical bulbs X, Y and t each rated 12V, 2.0A

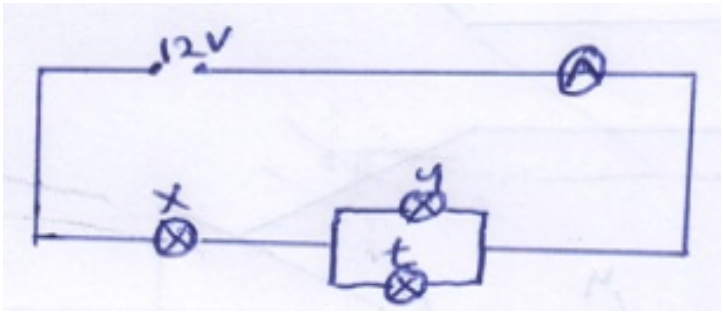


Figure 10

i. When operating normally calculate the resistance of the bulbs. (2mks)

- **V = IR**
  $R = {}^{V}/_{I} = {}^{12}/_{2} = 6\ \Omega$

ii. Calculate the effective resistance of the three bulbs. (2mks)

- **$ {}^{1}/_{Rp} = {}^{1}/_{6} + {}^{1}/_{6}$**
  Rp= 3 Ω
  X in series with Rp
  $R_T = 6 + 3 = 9\ \Omega$

iii. What will be reading of the ammeter? (2mks)

- **$I = {}^{V}/_{R} = {}^{12}/_{9} = 1.33$ A**

c. When a switch is kept open in the circuit shown in **Figure 11** below the voltmeter reads 1.5V, when the switch is closed, the reading drops to 1.3V and the current through the resistor is 0.5A.

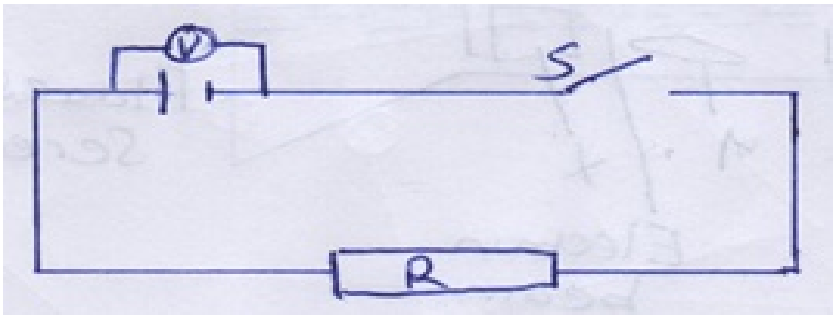


Figure 11

i. What is the emf of the cell (1mk)

- **E.m.f=1.5 V**

ii. What is the terminal voltage of the cell (1mk)

- **Terminal voltage =1.3 V**

iii. Calculate the valve of R (2mks)

- **$R = {}^{V}/_{I} = {}^{1.3}/0.5 = 2.6$ A**

15.

a. **Figure 12** below shows an object in front of a lens.

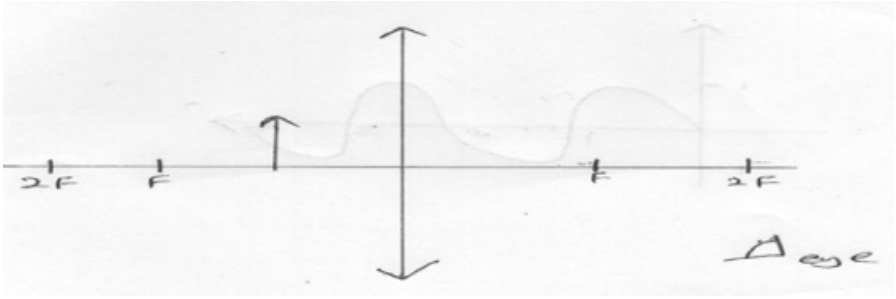


Figure 12

i. Using rays locate the image as seen by the eye. (2mks)
ii. Give one application of such a such a dens as used above. (1mk)
- **As a magnifying glass**

b. **Figure 13 (a) and (b)** shows diagrams of human eye

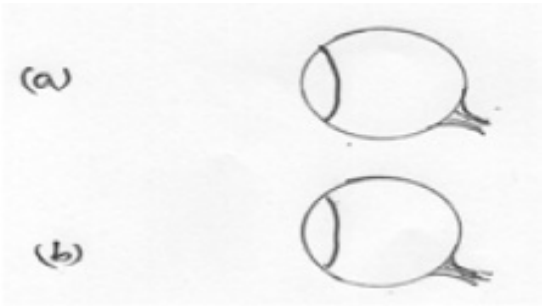


Figure 13

i. In figure (a),sketch a vary diagram showing long sightedness.(1mk)
ii. In figure (b) sketch a ray diagram shown how lens is used to correct long sightedness.(2mks)

c. An object of height 10.5am stands before a diverging lens of focal length 20cm and a distance of 10cm from the lens.Determine

i. The image distance (2mks)

$\frac{1}{v}+\frac{1}{u}=\frac{1}{f}$ $\quad f = -20$

$u=10$

$\frac{1}{v}=\frac{-1}{20}\ \ \frac{-1}{10}$

$\frac{1}{v}=\frac{-3}{20}$

$V=6.67cm$

ii. Height of the image (2mks)

$\text{Image length}=\frac{Image\ distance\ x\ object\ height}{object\ distance}$

$HI=\frac{Vxho}{u}$

$=\frac{6.67x10.5}{10}$

$=7.0cm$

iii. Magnification (2mks)

$m= {}^{v}/_{u} = {}^{6.67}/10 = 0.67$

16.

a. State two differences between cathode rays and electromagnetic radiation (2mks)
- **Cathode rays have charges but electromagnetic radiation do not have**
- **Cathode rays are particle and have mass while electromagnetic radiation are waves**
- **Cathode rays travel with a speed depending on accelerating voltage while electromagnetic radiation travel with the speed of light in vacuum**

b. **Figure 14** below shows the main features of a cathode ray oscilloscope (CRO)

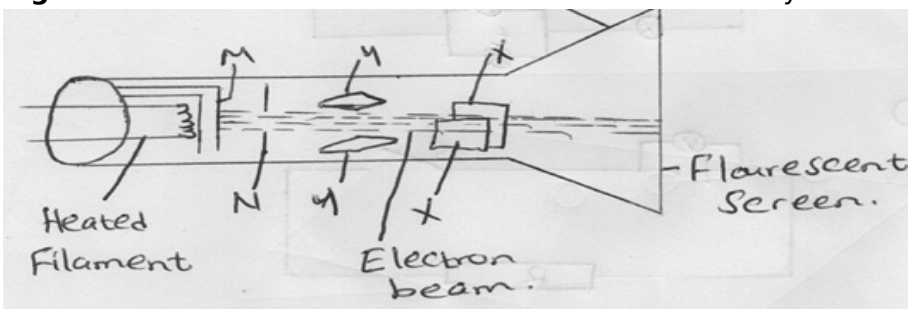


Figure 14

i. Name the parts labeled M and N. (2mks)
- **M-grid**
- **N-Accelerating anode**

ii. Explain how electrons are produced in the tube (2mks)
- The cathode is heated by filament and electrons are released from cathode by thermionic emission.

iii. When using the CRO to display waveforms of voltages, state where the following should be connected.

I. The voltage to be displayed on the screen (1mk)
- **Across Y-Plates**

II. The time base voltage(1mk)
- **Across X-plates**

iv. Sate why the tube is highly evacuated(1mk)
- This is to reduce collisions of cathode rays with air molecule in the tube.

c. **Figure 15** below shows the waveform of a signal applied at the y-plates of an oscilloscope while time base is switched to the scale of 2milliseconds per minutes.
Determine the frequency of the signal (3mks)

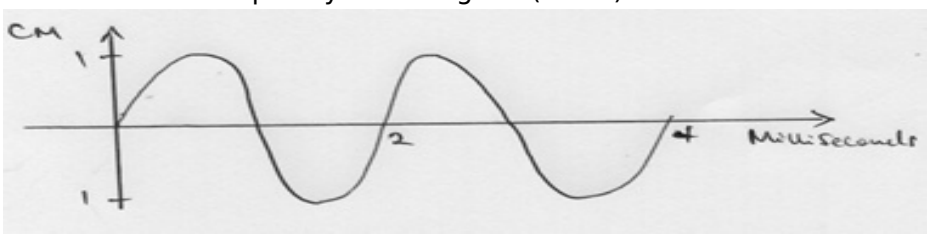


Figure 15
- **2 x 2 = 4 Milliseconds for one wave**
  T= $^{4}/_{1000}$ =0.004s
  F= $^{1}/_{T}$ = $^{1}/_{0.004}$ = 250Hz

PHYSICS PAPER 3 Marking Scheme - 2019 K.C.SE Prediction Set 2

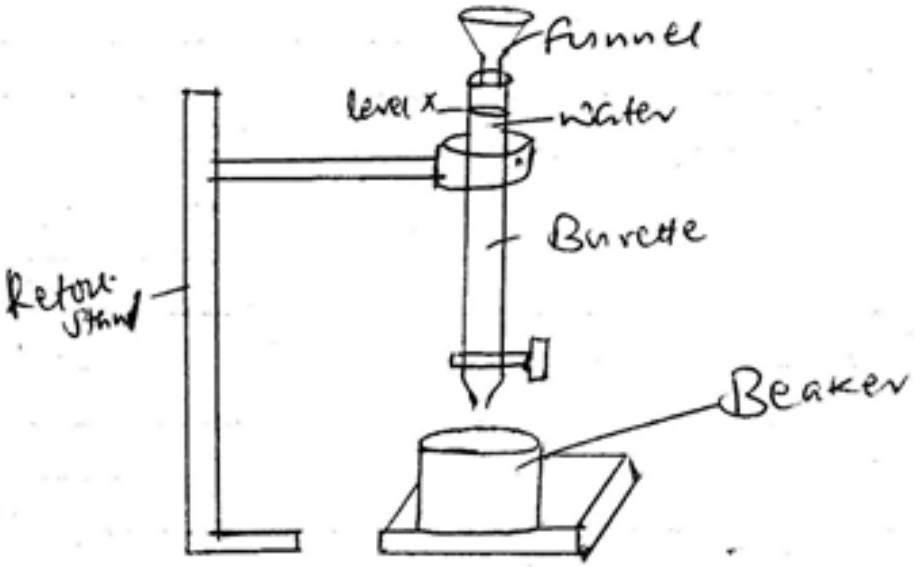
QUESTION 1

You are provided with the following apparatus

- Two beakers.
- A complete retold stand.
- Funnel
- Cotton wool.
- Access to water.
- Stop watch.
- A burette with a tap (50cm^3).
- 100ml measuring cylinder.

Proceed as follows:

a. Set the apparatus as follows:



I. Support the burrete on a result as shown above
II. Close the tap of the burrete and fill it with water to the brim
III. Transfer the water to the 100ml measuring cylinder and record the volume of the water
Volume V_1 = **65cm^3** (1mk)

b. Fill the burrette with water up to the 0cm^3 mark. Drain this water into 100ml measuring cylinder and record its volume V_2
V_2= **53 cm^3** (1mk)
The excess water above the zero mark is given by
$V_0 = V_1 - V_2$
V_0 = **65 − 53 = 12 cm^3** (1mk)
(This volume should be added to the final volume of the burette reading when water has been drained)

c. Fill the burrete with water to the brim. Finally open the tap at once and start the stop watch simultaneously. Obtain the time, t taken for the level of water to reach X=10cm^3

Volume drained = (V_0+10) cm^3
Refill the burette with water. Finally open the tap at once and start the stopwatch simultaneously. Obtain the time taken for the level of water to reach x = 20cm^3

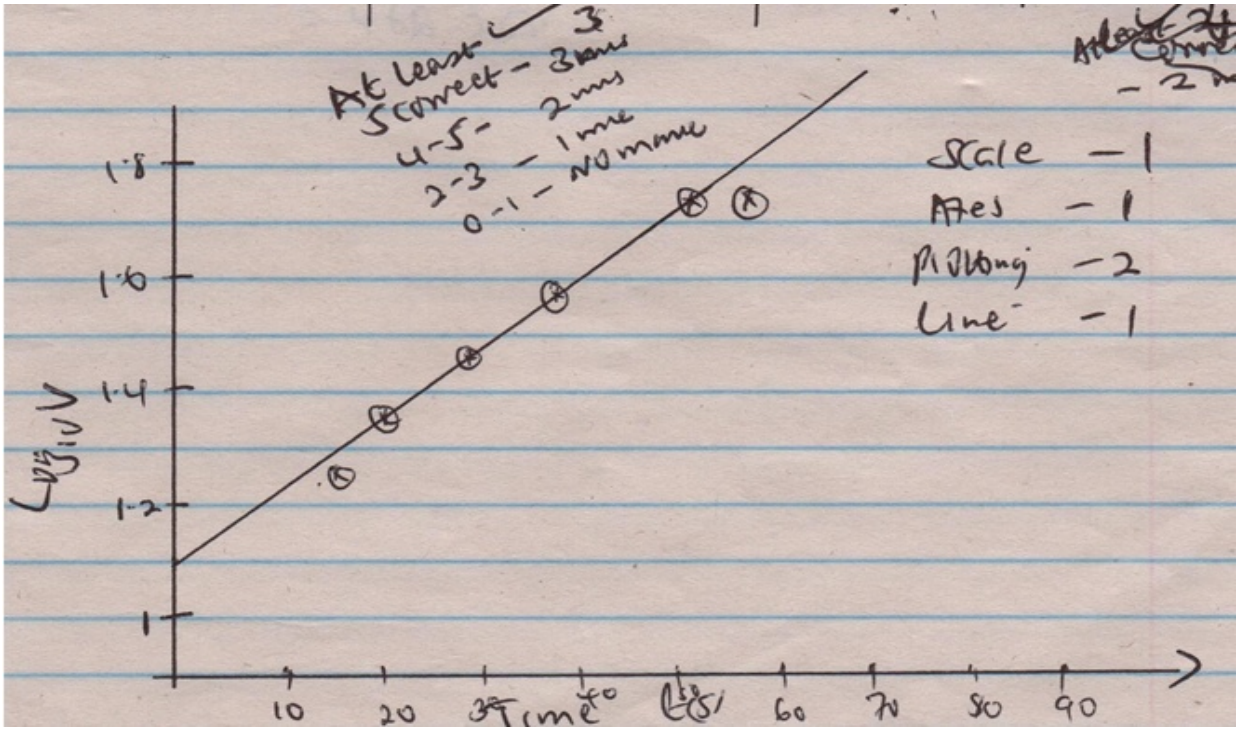
Volume drained = (V_0+20) cm^3

d. Repeat the procedure for other values of the burette readings.
Record the volume drained and the corresponding time in the table below.

Burette Reading X (cm^3)	Volume of water drained $v = (Vo + x)cm^3$	Time t(s)	$Log_{10}V$
10	**22**	**15.90**	**1.3424**
20	**32**	**23.29**	**1.5051**
30	**42**	**33.15**	**1.6232**
40	**52**	**44.12**	**1.7160**
45	**57**	**49.50**	**1.7559**
50	**62**	**59.28**	**1.7924**

(9marks)

i. Plot the graph of $\log_{10}v$ (vertical axis) against time t. (5mks)



Slope = $^{(1.88 - 1.3)}/_{(64 - 0)}$
= $^{0.58}/_{64}$ = 0.009 s^{-1}

ii. Using your graph, calculate the value for b and n from the equation. (3mark)
$Log_{10}\ v = {}^{4.2t}/_{b} + n$

$$\text{Log10 } v = \frac{4.2t}{b} + n$$

n= the vertical intercept
n = 1.28

$$\text{Slope} = \frac{4.2}{b}$$

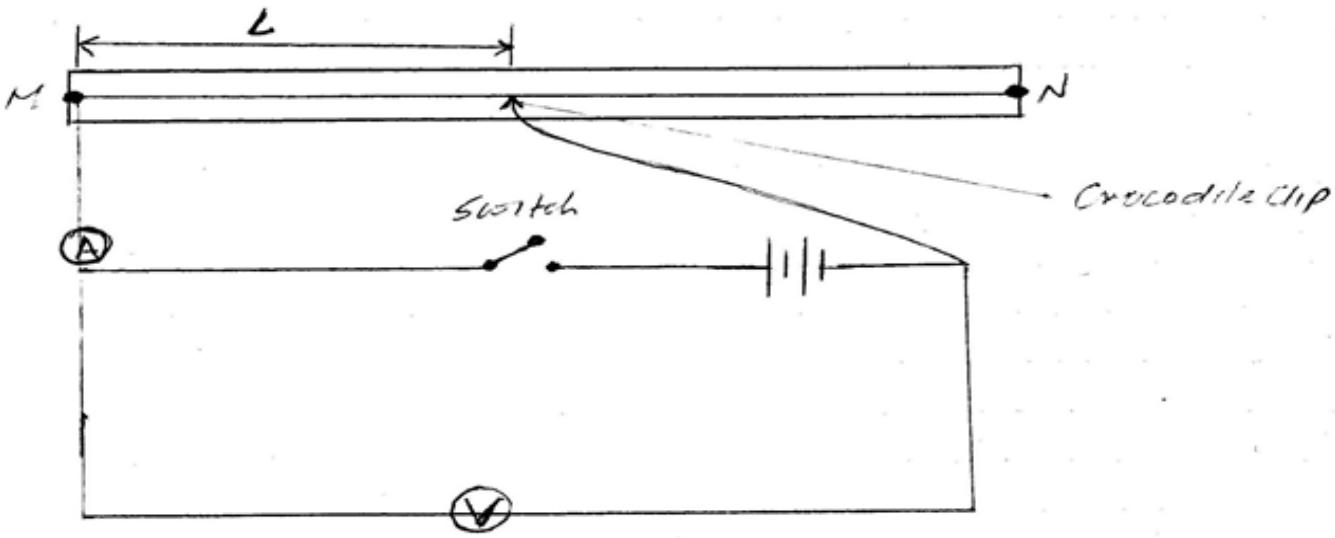
$$b = \frac{4.2}{slope}$$

$$= \frac{4.2}{0.009} = 466.755$$

QUESTION 2

a. You are provided with the following apparatus:
- Resistance wire fitted on a scale labelled MN
- Switch
- Voltmeter (0.3v) or(0.5v)
- Ammeter (0.1A)
- Two dry cells
- Six connecting wires

Set up the apparatus as shown in the figure below.



i. Remove the crocodile clip from the resistance wire MN and close the switch. Record the voltmeter reading.
Y= **2.7 V** (1mk)

ii. Attach the crocodile clip to the resistance wire such that L=10cm.

iii. Record the voltmeter and ammeter reading in the table below.

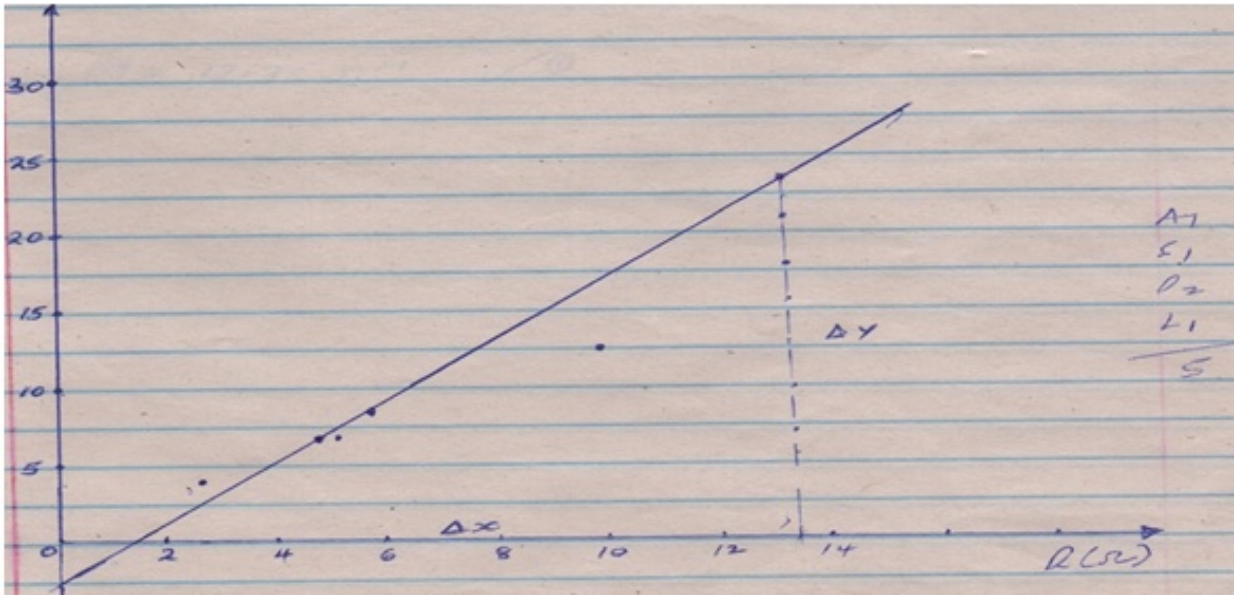
iv. Repeat the procedure in (iii) and (iv) for L= 20 cm, 30 cm, 40 cm, 50cm, 60 cm, 70cm and 80 cm.

v. Complete the table below. (9mks)

Length L (cm)	10	20	30	50	80
Current I (A)	**0.86**	**0.48**	**0.43**	**0.255**	**0.205**
P.d. V (V)	**2.1**	**2.3**	**2.4**	**2.5**	**2.6**
y − v	**0.6**	**0.4**	**0.3**	**0.2**	**0.1**
$^{V}/_{Y-V}$	**3.5**	**5.75**	**8.0**	**12.5**	**26**
$^{V}/_{I}$ = R (Ω)	**2.44219**	**4.717**	**5.5814**	**9.8039**	**12.6829**

- *At least 3 correct readings row 1 and 2 - (2mks)*
- *4-5 correct reading row 1 & 2 – (3 mks)*
- *Row 3 & 4 all correct - (1mk)*

vi. Plot the graph of $^{V}/_{Y-V}$, vertical axis against R (5 marks)



b. Determine the slope, m of the graph (2mks)

$$\text{Slope} = \frac{d\frac{V}{Y-V}}{dR}$$

$$= \frac{26-0}{12.8-2.6}$$

$$\text{Slope} = 2.55\ \Omega^{-1}$$

c. The graph is given by the equation

$^{V}/_{Y-V} = {}^{MR}/_{5} + d$

Determine the value of m and d (3 marks)

$$d = -2.55$$

$$\frac{m}{5} = \text{Gradient} + \text{slope}$$

$$\frac{m}{5} = 2.55$$

$$M = 2.55 \times 5$$

$$m = 12.75\ \Omega^{1}$$

PHYSICS PAPER 3 CONFIDENTIAL PAPER - 2019 K.C.SE Prediction Set 2

1.
   - Two beakers 100ml.
   - Complete retort stand.
   - Cotton wool.
   - Access to water.
   - Stop watch.
   - A burette with a tap($50cm^3$)
   - 100ml measuring cylinder.
2.
   - Resistance wire fitted on a scale labelled MN. (Swa- 28)
   - Voltmeter (0-3V) or (0-5V)
   - Ammeter (0-1 A)
   - Two dry cells(1.5V)
   - Six connecting wires with crocodile clips on one end.

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

1.
   a. T_3N_2 √1
   b. Ionic bond √1
2. Ethanol forms hydrogen bond√1 while butane has no√1 hydrogen bond
3.
   a. X Calcium Carbide / CaC_2 √½
      Y Copper (II) sulphate √½
   b. b) $CaC_{2(s)} + 2H_2O_{(l)} \rightarrow C_2H_{2(g)} + Ca(OH)_{2(aq)}$
4.
5. Iron (II) sulphate change from green to yellow / brown √1 iron (iii) sulphate
   Chlorine oxidizes Iron (ii) ions to Iron (iii) ions √1
   Fe^{2+} + Cl
6.
   a. Cations Zn^{2+} √½
      Anion NO_3^- √½
   b. $2HCl_{(aq)} + ZnO(s) \rightarrow ZnCl_{2(aq)} + H_2O_{(l)}$ √1
7. SiO_2 form giant atomic structure √½
   SO_2 simple molecular structure √½
   Giant atomic structure requires strong heating to break √1
8. Heat the mixture and collect NH_4Cl√½ in a cold surface. Add water √½ to the remaining mixture stir then filter. Obtain filtrate√½ Na_2CO_3 and residue√½ as $CaCO_3$. Heat filtrate √½in a water bath to saturation and allow it to crystallize. √½
9.
   a. MnO_4^- = -1
      x + -2 (4) = -1 √1
      x-8 = -1
      x = 7 √1
   b. MnO^-_4 √1
      Oxidation number of manganese changes from +7 to +2 √1
10.
   a. Iron (iii) chloride / $FeCl_3$ √1
   b. $2Fe_{(s)} + 3Cl_{(g)} \rightarrow 2FeCl_{3(s)}$ √1
11.
   a. Non metallic √1
      Ironic radius is higher than the atomic radius √1
   b. Y<X<Z<W √1
12.
   a. $Mg^{2+} + 2^{e-} \rightarrow Mg$ -2.36 √1
      $Ag^+ + e^- \rightarrow Ag$ +0.80 √1
      Or
      $Mg(s) / Mg^{2+}(aq) // Ag^+(aq) / Ag(s)$ √1
   b. Ered - Eox
      0.80 v - -2.36 √1
      3.16v √1
13. It reacts with ammonia to form Ammonium Sulphate √1

14.

a. N ≡ N = 944
3(H-H) 3x436 = 1308
Total energy required to break bonds
944 + 1308
= 2252 (endotherimic) √1

Bond formation
2x(3x388) = -2328 √1
ΔHr = -2328 + 2252
= -76kJmcl^{-} √1

b. Exothermic√½. The heat of reaction is negative √½

15.

a. Propyl ethanoate
b. Alcohol - Prupanol
Alkanic acid – Ethanoic acid

16. Q = It
= 2 x 4 x 60
= 480 Columbs √1
$Cu^{2+} + 2e^{-} \rightarrow Cu$
Moles of copper deposited
=$\frac{480 \times 1}{96500 \times 2}$
=0.002487gm √1

Mass deposited = 0.002487 Mol x 63.5
= 0.1579grams

17. React excess copper √½ metal with concentrated nitric (v) acid to form Copper (II) nitrate√½ solution.
React the solution obtained above with a soluble carbonate√½
Filter to obtain copper carbonate as the residue. √½
Wash the residue with distilled water and dry it between filter papers. √½

18.

a. MgO √½ and Mg_3N_2 √½
b.
i. $2Mg_{(s)} + O_{2(g)} \rightarrow 2MgO_{(s)}$ √1
ii. $3Mg_{(s)} + N_{2(g)} \rightarrow Mg_3N_{2(s)}$√1

19.

a. Different crystalline forms of the same element in the same physical state √1
b. In graphite, the fourth electron is delocalized √1 (unbounded) while all the four electrons in diamond are used for bonding√ The delocalized electron is responsible for conductivity

20. Moles of $MgSO_4$ X H_2O in 500cm^3.
$\frac{0.011M \times 500}{1000}$
= 0.0055mol √1
Mole = $^{\text{Mass in gramm}}/_{\text{R.F.M}}$
RFM = $^{1.23}/_{0.0055}$

= 224 √1
MgSO4. XH2O = (24+32+64+18X) = 224 √½

= 120 +18X = 224
= 18X = 104
X = 6 √½

21.
a.
a - Alpha particle
b - Gamma rays
c - Beta particles
b. beta particles are lighter√½ than alpha particles hence more deflected√½

22.
a. Hydrolysis of ethane
b. Fuel√½
- Solvent√½
- Beverage

23.
a. Curve II √1
b. Increases the kinetic energy√½ of the reacting particles hence increasing the rate of successful collisions. √½
c. Surface area
Catalyst

24.
a. ΔH_2 Enthalpy of formation of Carbon (II) Oxide (ΔH_f CO)
ΔH_3 Enthalpy of combustion of CO
(ΔH_c CO)
b. $\Delta H_1 = \Delta H_2 + \Delta H_3$
= -110 + -283 √1
= -393kJmol^{-1} √1

25. Colourless droplets were formed at the cooler part of the test tube√½
A gas that turns a moist red litmus paper blue was produced√½
NH_4SO_4, $FeSO_4$. $6H_2O$ is a hydrated√1 salt and ammonium sulphate decomposes to form Ammonia gas √1

26. Concentration of KOH = $^4/_{56}$
= 0.0714M√½
Moles of KOH used=
$\frac{0.0714 \times 25}{1000}$
= 0.001786Mol√½
Mole ratio
$2KOH_{(aq)} + H_2SO_{4(aq)} \rightarrow K_2SO_{4(aq)} + 2H_2O_{(l)}$
2:1√½
Moles of H_2SO_4 Used =
$\frac{0.001786}{2}$
= 0.00089 Moles√½
Concentration of H_2SO_4 =
$\frac{0.00089 \times 1000}{22}$√½
= 0.04√½

27.
a. It does not form scum with hard water √1

b. it causes environmental pollution
Since it is non-biodegradable

28.

a. It is denser than air√½
It does not burn neither does it support combustion √½
b. Refrigeration as dry ice
manufacture of sodium carbonate in Solvay process
Used in preservation of soft drinks

29. Ethanoic acid forms more√1 hydrogen bonds between molecules√1 than ethanol

30.

a. Alcohol
Tobbaco
Bhang
Miraa
Cocaine
Madrax
b. Hallucinations
Addiction
Health problems
Family break ups

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

1.
   a. Alkali metals
   b. Q and J – Q is more reactive than J; this is due to stronger metallic bond.
      M and P - P is more reactive them M, this is because P requires to gain a single electron for it to react which M requires two. This indicates that it is more electronegative as compared to M.
   c. The atomic radius of K is smaller them that of L. This is because of increase in nuclear charge across the period.
   d. Group (IV) period 2.
   e. As we move down the group, the melting point and the boiling points reduce. This is due to the subsequent increase in the atomic radius down the group which reduces the electrostatic force.
   f. KP_3
   g. Ionic bond
   h. Street lightening
      In Bulbs
   i. H – 2 .8.8 M – 2 . 8

2.
   a.
      i. $CaCO_{3(g)} + 2HCl_{(aq)} \rightarrow CaCl_{2(aq)} + H_2O_{(l)} + CO_{2(g)}$
      ii. Drying agent / To dry carbon (iv) oxide
      iii. Anhydrous calcium chloride
      iv. $C_{(s)} + CO_{2(g)} \rightarrow 2CO_{(g)}$
      v. Reducing property
      vi. Its poisonous
   b.
      i. Graphite
      ii. K – Covalent
          L – weak vanderwalls forces / intermolecular forces
      iii. Forms white ppt which dissolves later to form a colourless solution
          $Ca(OH)_{2(aq)} + CO_{2(g)} \rightarrow CaCO_{3(s)} + H_2O_{(l)}$
          $CaCO_{3(s)} + H_2O_{(l)} + CO_{2(g)} \rightarrow Ca(HCO_3)_{2(aq)}$

3.
   a. Cotton / silk / sisal / banana fibre (Award 1mk for any correct fibre)
   b. Last longer
      Less easily attacked by acids and alkali (Award any one correct property)

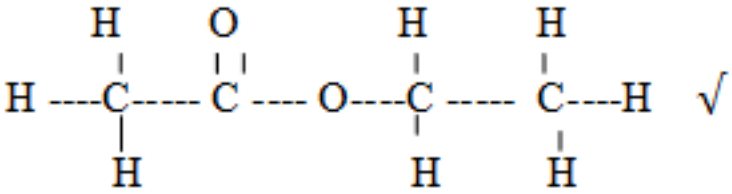
      Stronger
      Durable
   c.
      i. Hydrolysis of ethene gas with conc sulphuric acid (deny hydrolysis of alkenes)

      ii. Reagent - Hydrogen gas √½
          Catalyst - Nickel √½
      iii. Sodium ethoxide √ (accept the formulae)

      iv. $CH_3COONa + NaOH \rightarrow Na_2CO_3 + CH_4$ √

v. It causes pollution since it is non biodegradable √

vi. Ethylethanoate √ (deny ester)



vii. Ester / Alkyalkanoate √

viii. Step I Dehydration √1/2

(IV) Oxidation √1/2

ix. Used in manufacturing of margarine √

4.

a. Electrolytic cells uses electrical energy to decompose substances while electrochemical cells produces electrical energy by chemical reaction

b.

i. Anode graphite
Cathode Zinc can

ii. Ions more freely in paste (deny electron)

iii. $Zn_{(s)} \rightarrow Zn^{2+}_{(aq)} + 2e^-$

iv. It oxidizes hydrogen gas to water. Hydrogen bubbles lowers the efficiency of the cell.

c.

i. Cathode
$2H^+_{(aq)} + 2e^- \rightarrow H_{2(g)}$ √

Anode
$4OH^-_{(aq)} \rightarrow 4e^- + H_2O_{(l)} + O_{2(g)}$ √

ii. In dilute NaCl. OH^- and H^+ ion are preferentially discharged. The ratio of Hydrogen to oxygen atoms in water molecules is 2:1 therefore the volume of hydrogen is larger than that of oxygen.

iii. Chlorine √
Chloride ions are more concentrated than OH^- ions in brine √

iv. Concentration of electrolyte
Nature of the electrodes used (award any two correct factors)
Position in electrochemical series

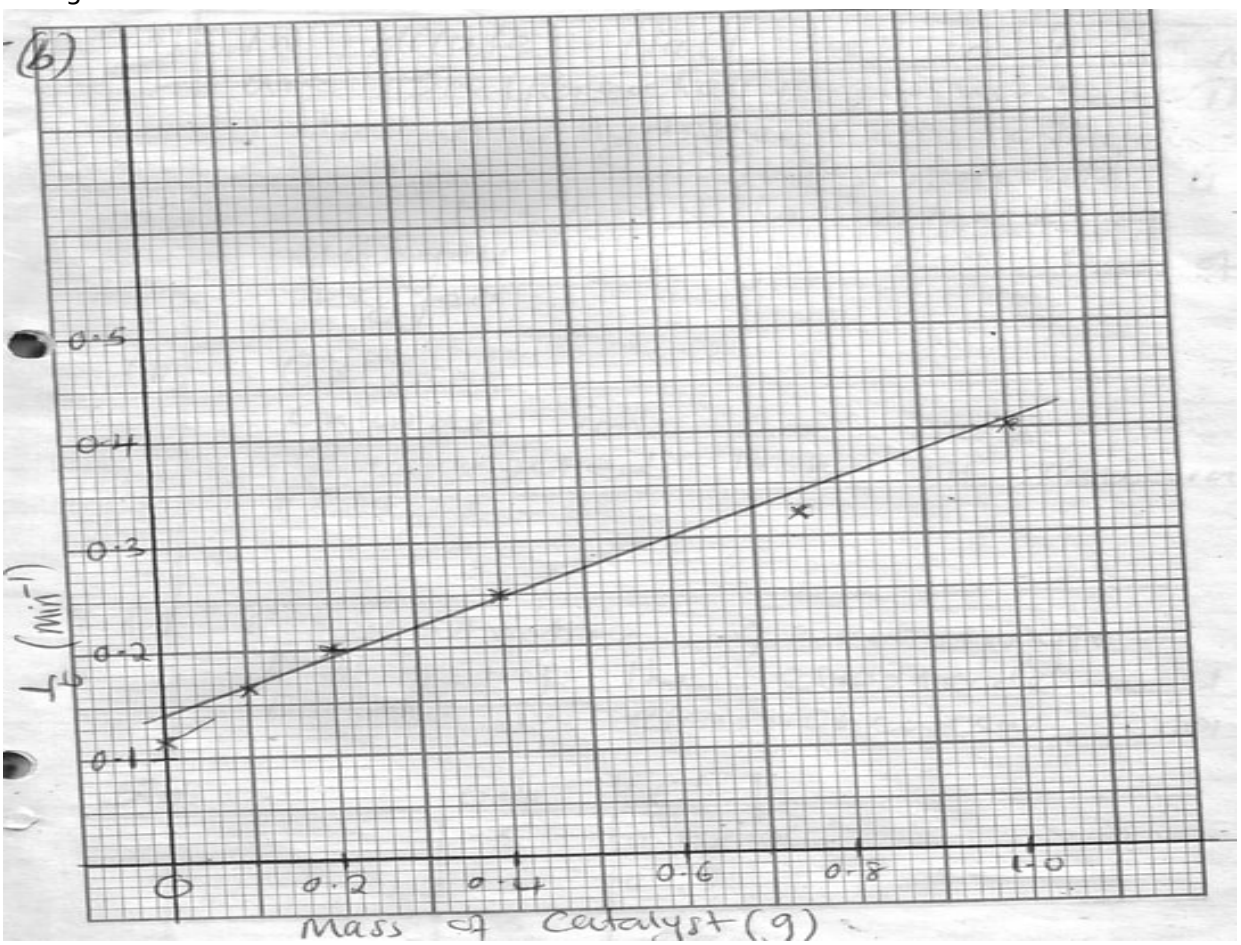
5.

a.

Time	t^{-1}
8	0.125
6	0.167
5	0.200
4	0.250
3	0.330
2.5	0.400

Award 4 correct entries 1mark
All correct award 2mks)

b. scale √
Correct plotting√
Straight line√



c. The rate of reaction is directly proportional to the amount of the catalyst used √
d. The rate of production would be lower√ Granular MnO_2 has a small surface area compared with powdered MnO_2√
e. $KClO_3$
39 + 35.5 + 3(16)
= 122.5g √ ½ (molar mass of $KClO_3$ √½)

1Mole 122.5g
? 5g
0.0408mole (moles of $KClo_3$ √½)
$2KClO_3 \rightarrow 2KCl + 3O_2$ √½

Mole ratio 2:3 (mole ratio √½)
0.0408

Moles of $^{0.0408 \times 3}/_{2}$ (working √½)

Oxygen gas (moles of oxygen √½)
0.0618
$24 \times 0.0618 = 1.4694 dm^3$ (answer √½)
Total = 3mks

6.

a. $4CH_{(s)} + 5O_{2(g)} \rightarrow 4CO_{2(g)} + 2H_2O_{(l)}$

b. Hydrocarbon
c. To condense the steam
d. Forms white ppt which dissolves later to form a colourless solution
$Ca(OH)_{(aq)} + CO_{2(g)} \rightarrow CaCO_{3(s)} + H_2O_{(l)}$
$CaCO_{3(s)} + H_2O_{(l)} + CO_2(g) \rightarrow Ca(HCO_3)_{2(aq)}$
e. Put liquid in a boiling tube, heat at boiling. The boiling should be at 100^0c at sea level.

7.

a. Copper pyrite
Cuprite (any one)
Chalcocite
b. Substance X Copper (I) Oxide
Gas G Sulphur (IV) oxide (accept correct formula)
c. X is denser and immiscible with $FeSiO_3$, so it is tapped off from the bottom of the vessel.
d. $2Cu_2O_{(l)} + Cu_2S_{(s)} \rightarrow 6Cu_{(s)} + SO_{2(g)}$ (correct balanced equation √½) (state symbol √½)

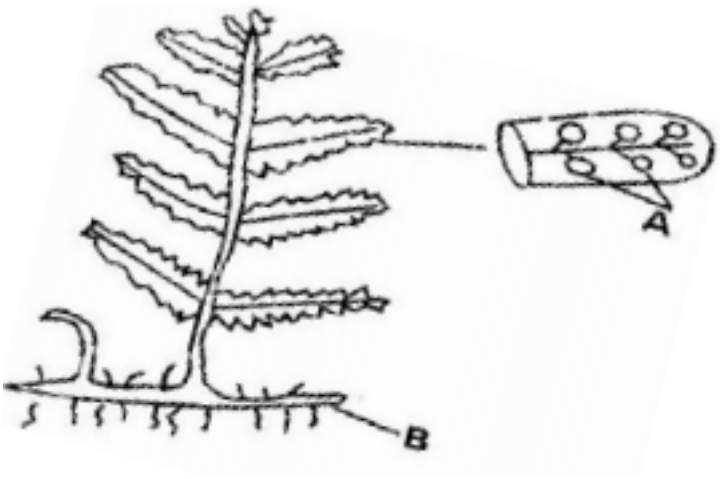
e. O_2 gas produced lead to acid rain
f. Impure copper is used as the the anode in a solution of copper (II) sulphate where it dissolves (√½)
$Cu_{(s)} \rightarrow Cu^{2+} + 2e^-$ (√½)
At the cathode pure copper in used where copper is deposited on the pure metal.(√½)

$Cu^{2+} + 2e^- \rightarrow Cu_{(s)}$ (√½)
g. Used as electrical cables
Coins
Alloy of copper & Zinc is used in medal (any two correct uses)

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

1. Name the tissues whose cells are thickened with:
    a. Cellulose and pectin. (1mk)
        - **Collenchyma**
    b. Lignin. (1mk)
        - **Sclerenchyma**
2. The diagram below represents a fern.



    a. Name Parts labeled A and B. (2mk)
        - **A. Sori**
        - **B. Rhizome**
    b. To which division does the plant belong? (1mk)
        - Pteridophyta
3. State three measures that can be taken to control infection of man by protozoan parasites (3mk)
    - **Improving sanitation/hygiene;**
    - **using insecticides to kill vectors;**
    - **avoiding indiscriminate sexual intercourse;**
    - **clearing bushes/tall grass around the house;**
    - **draining stagnant water;**
    - **proper disposal of household refuse;**
4. Explain how the following factors hinder self pollination in plants:
    a. Protogyny(1mk)
        - **Stigma matures earlier and is ready to receive pollen grains before the anthers are ready;**
    b. Dioecism(1mk)
        - **Male and female gametes occur in separate plants;**
5. Explain the likely effect on humans and other organisms of untreated sewage discharged into water body that supplies water for domestic use. (3mk)
    - **Contains disease – causing micro-organisms which may cause outbreak of water borne diseases;**
    - **faecal material is broken down by saprophytes leading to depletion of dissolved oxygen thus suffocation of aquatic organisms;**
    - **breakdown of matter releases nutrients which enrich the water resulting in eutrophication;**
6. Name two structures in herbaceous stems that enhance their support. (2mk)
    - **Possession of hooked spines;**

- **tendrils;**
- **twining stems;**
- **adventitious roots;**

7.

a. Define the term immunity. (1mk)

- **Ability of the body to identify/ recognize foreign antigens and develop mechanisms of destroying them / ability to resist infection;**

b. Distinguish between natural immunity and acquired immunity. (1mk)

- Natural immunity is inborn /inherited /passed from parents to offspring while acquired immunity is obtained in life;

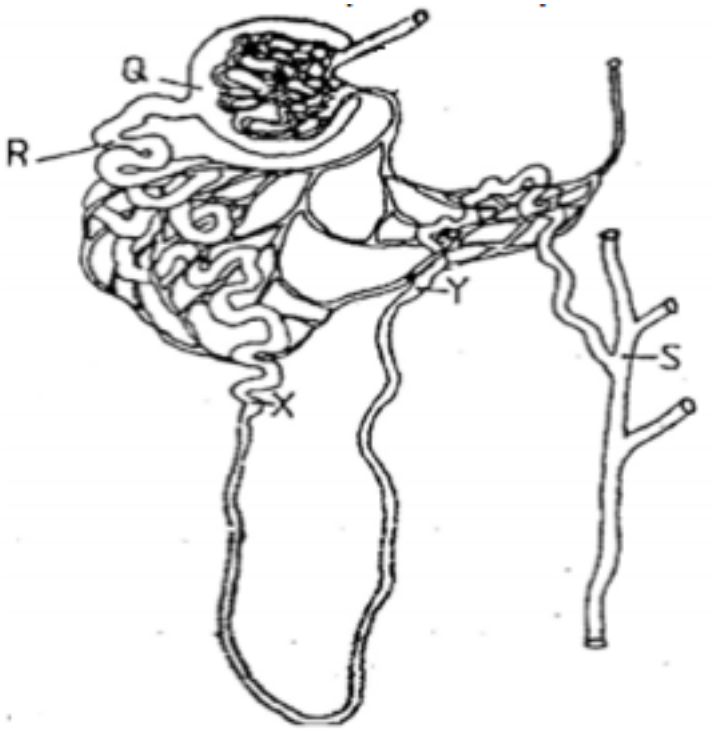
c. Identify one immunizable disease in Kenya. (1mk)

- **Tuberculosis**
- **poliomyelitis**
- **diphtheria**
- **whooping cough**
- **measles**

8. State three differences between osmosis and active transport. (3mk)

- **Osmosis involves movement of water /solvent molecules, active transport involves movement of solute molecules;**
- **Osmosis does not require energy, active transport requires energy**
- **In osmosis molecules move along a concentration gradient, in active transport molecules move against a concentration gradient;**

9. The diagram below illustrates part of a nephron from a mammalian kidney.



a. Name the fluid found in the part labeled Q. (1mk)

- **Glomerular filtrate**

b. Identify the process responsible for the formation of the fluid named in (a) above. (1mk)

- **Ultra-filtration / pressure filtration;**

c. Which two hormones exert their effect in the nephron? (2mk)

- **Antidiuretic hormone / vasopressin;**

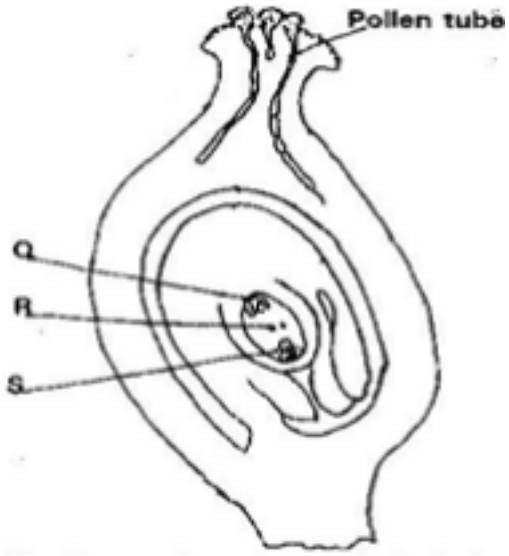
- **Aldosterone;**

10. State three characteristics of members of kingdom Monera that are not found in other kingdoms. (3mk)
    - **Nucleus lack nuclear membrane / organelles not membrane bound; nucleus not organized; mitochondria absent / most organelles absent; cell wall made of mucoprotein;**
11. What is meant by the following biological terms?
    a. Crenation (1mk)
        - **Shrinking of red blood cells/ animal cells as a result of water loss by osmosis (when placed in hypertonic solution);**

    b. Haemolysis (1mk)
        - **Bursting of red blood cells as a result of uptake of water by osmosis (when placed in hypotonic solution);**

    c. Plasmolysis (1mk)
        - **Shrinking and pulling away of the cell membrane from the cell wall of plant as a result of water loss by osmosis;**

12. The diagram below shows a stage during fertilization in flowering plant.



    a. Name the parts labeled Q, R, and S. (3 mk)
        - **Q – Antipodal cell(s);**
        - **R – Polar nucleus / body;**
        - **S – Functional egg cell;**

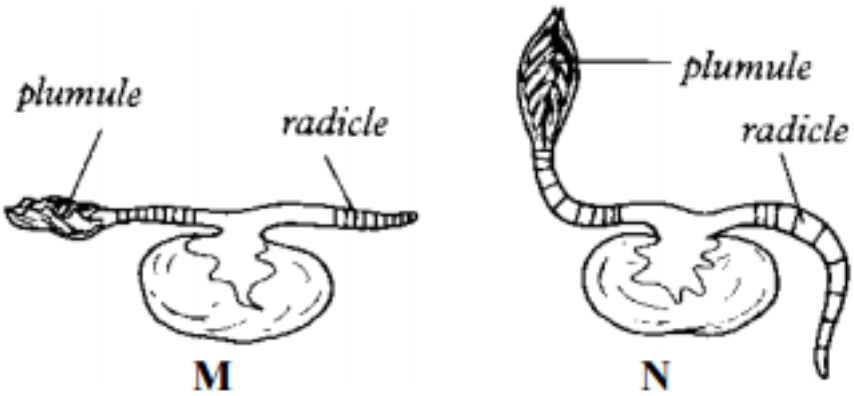
    b. State the function of the pollen tube. (1 mk)
        - **pathway through which male nuclei reach the embryo sac / improves efficiency of fertilization;**
        - **its tip produce lytic enzyme which dissolves the embyo sac wall to allow entry of male nuclei;**

13.
    a. State the major factor in the ‘Global warming’ experienced in the world today. (1mk)
        - **Carbon (IV) Oxide**

    b. Suggest two ways of reducing the Global warming. (2mk)
        - **Reducing use wood / fossil fuels;**
        - **planting more trees / afforestation or re-afforestation;**

14. An experiment was set to investigate a certain aspect of response. A seedling was put on a

horizontal position as shown in figure M below. After 24 hours, the set up was as shown in figure N.



a. Name the response exhibited. (1mk)
- **Geotropism**

b. Explain the curvature of the shoot upwards. (3mk)
- **Gravity causes high concentration of auxins on the lower part of the shoot; this causes faster elongation of cells on the lower part compared to the upper part; making the shoot to curve upwards**

15. The paddles of whales and the fins of fish adapt these organisms to aquatic habitats.
a. Name the evolutionary process that may have given rise to these structures. (1mk)
- **Convergent evolution**

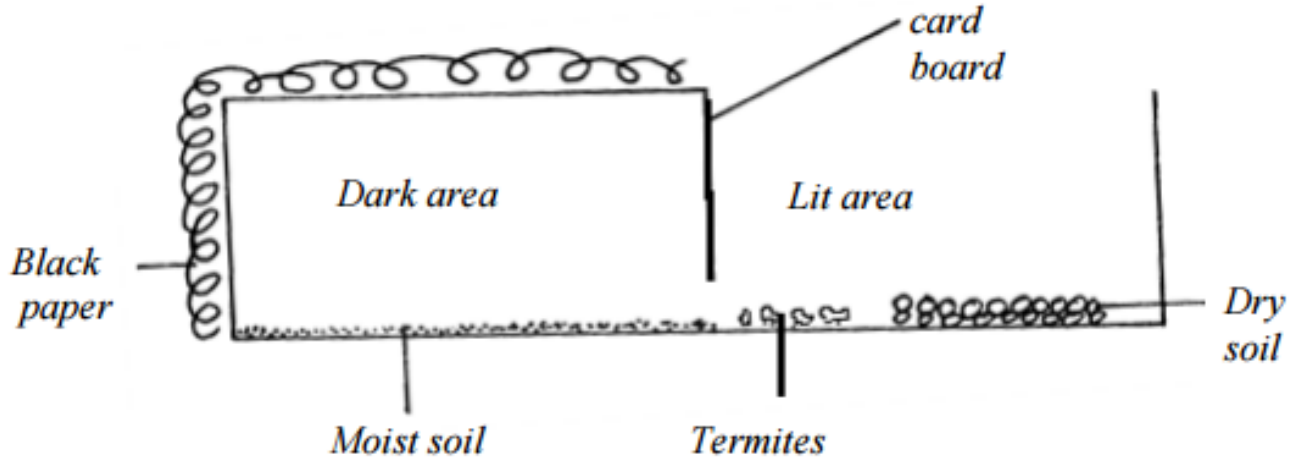
b. What is the name given to such structures? (1mk)
- **Analogous structures**

c. Give two examples of vestigial organs in man. (2mk)
- **Coccyx;**
- **appendix;**

16.
a. Name a protein and vitamin involved in blood clotting.
- Protein.(1mk)
  - **Fibrinogen**
- Vitamin(1mk)
  - **(Vitamin) K;**

b. Explain why blood is not normally used for transfusion after one month. (1mk)
- Most of the red blood cells will have died

17. A group of Form four students set up an experiment to investigate a biological process using termites. They used a small box in which a portion was covered with black paper and had moist soil. The open part had dry soil. Termites were placed inside in open area of the box.



a. Predict what happened to the termites after 30 minutes. (1mk)
- **Moved to the dark area**

b. What form of response is exhibited by termites? (1mk)
- **Negative phototaxis / positive hydrotaxis**

c. State one biological significance of the above response to termites.(1mk)
- **To escape predation;**
- **to reduce dessication**;

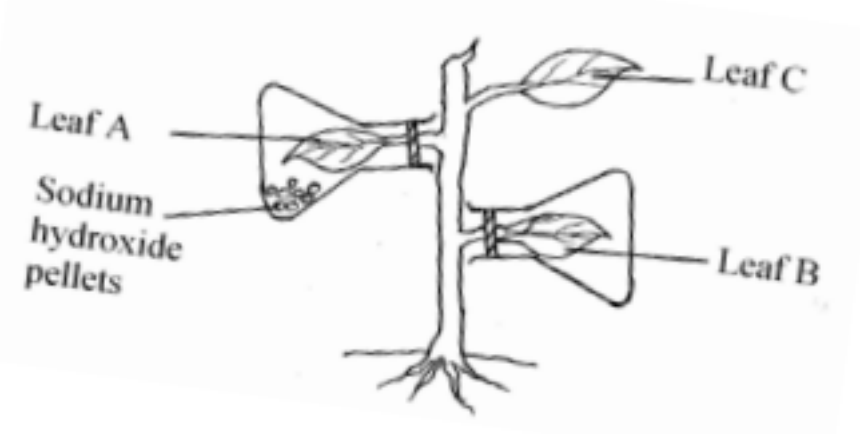
18.

a. Name two fins in a bony fish which perform the following functions:-
   i. Changing direction. (1mk)
   - **Pectoral fins**

   ii. Control pitching. (1mk)
   - **Pectoral and pelvic fins**

b. State the role of myotomes in fish. (1mk)
- **Contract and relax alternately to bring about undulating movement**

19. The diagram below represents an experimental set up to investigate a certain scientific concept. The potted plant was first destarched by keeping it in dark for four days.



The set up was then placed in sunlight for five hours and leaves were tested for starch.

a. What scientific concept was being investigated? (1mk)
- **Photosynthesis**

b. Give the results likely to be obtained after starch test for A and B.
- **Negative test / starch absent**
- **Positive test / starch present**

c. Account for the results in leaf A in b (i) above. (1mk)
- **Sodium hydroxide absorbed all the Carbon (IV) Oxide hence no photosynthesis**

d. Why was leaf C included in the set-up? (1mk)
- **Control experiment**

20.

a. Explain the importance of transport in plants. (2mk)
- **Supplies water and mineral ions to the (photosynthetic) cells;**
- **Conduct products of photosynthesis / nutrients to all parts of the plant / translocation;**

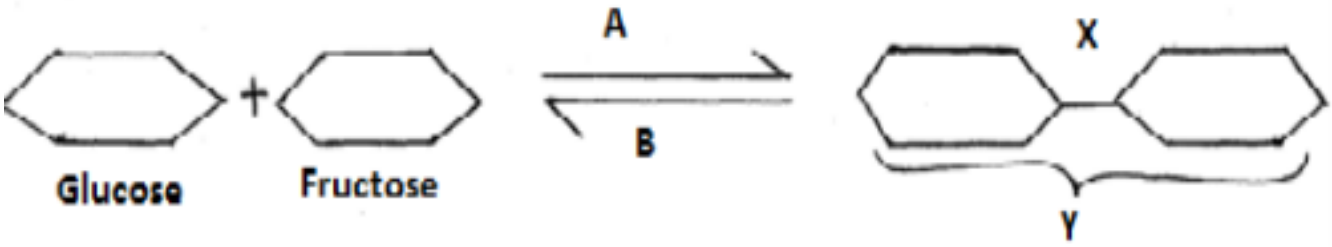
b. What is the role of root hairs in plants? (1mk)
- **Absorption of water and mineral ions from the soil**

21.

a. Identify the source of urea that is removed via the kidneys in a healthy human being. (1mk)
- **Deamination of excess proteins / amino acids in the liver**

b. Explain why a pregnant woman excretes less urea compared to a woman who is non-pregnant. (2mk)
- **Amino acids are used in the formation of foetal tissues; thus has less excess to be eliminated**

22. Study the reaction below and answer the questions that follow.



a. What biological processes are represented by A and B? (2mk)
- **A – Condensation**
- **B – Hydrolysis**

b. Identify the product Y. (1mk)
- **Sucrose**

c. State the bond represented by X. (1mk)
- **Glycosidic**

23. Explain the events of the light stage of photosynthesis. (3mk)
- **Light energy is s absorbed by chlorophyll molecules;**
- **used to split water molecule into oxygen and hydrogen atoms/ ions;**
- **light energy is converted into chemical energy (ATP) and stored**

24. Explain what happens in humans when the concentration of glucose in the blood rises above the normal level. (3mk)
- **Insulin is produced which increases oxidation of glucose;**
- **facilitate conversion of glucose into glycogen / fats for storage;**
- **inhibits conversion of glycogen into glucose;**

25.

a. Outline the main features of Lamarckian theory of evolution. (2mk)
- **Use and disuse of structures / when structures are not used for a long time they shrink and when used they develop properly; transmission of physically acquired characteristics / physically acquired characteristics**

are passed on to the offspring;

b. In view of modern genetics, explain why Lamarck's theory is unacceptable. (1mk)

- **phynotypically / physically acquired characteristics which do not affect the genes cannot be inherited;**

c. Name one factor in nature that increases the process of evolution. (1mk)

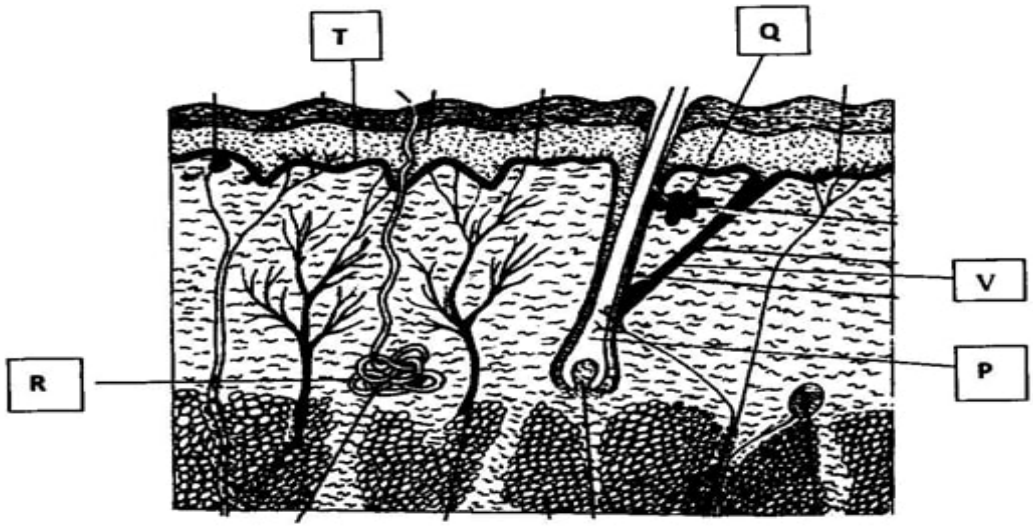
- **Natural selection;**
- **cross- breeding;**
- **mutation;**

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

SECTION A (40 Marks)

1. Below is a diagram of a mammalian skin, use it to answer the questions that follow.



a. Name the parts labelled P, Q, R (3mks)
- **P - Hair follicle;**
- **Q- Sebaceous gland;**
- **R- Sweat gland;**

b. Give the function of the parts labelled Q and T (2mks)
- **Q - Secretes sebum;**
- **T - Consist of actively dividing cells that produce new cells to replace cells lost/cells contain melanin that protect skin against harmful ultraviolet rays from the sun;**

c. Briefly explain how the part labelled R contribute to lowering of body temperature on a hot day. (2mks)
- **It secretes sweat, water in sweat evaporates; carrying away latent heat of vaporization hence leaving a cooling effect;**

d. Give **one** function of the mammalian skin other than thermoregulation. (1mk)
- **Reception of stimuli**
- **Protection of internal organs and tissues**
- **Storage of fat**
- **Excretion**
- **Synthesis of vitamin D**

2. Form two students subjected an orange plant growing outside the laboratory to the Following;
- Selected two sized leaves and gently brushed them clean on both sides.
- Placed two strips of dry cobalt chloride paper on both sides of each leaf and opposite each other and covered the cobalt chloride papers with cello tape.

They observed the time taken for any colour change to occur and recorded the following.

Side of leaf	Upper epidermis	Lower epidermis
Time taken	5 minutes	2 minutes

Use the above information to answer the following questions.

a.

i. What was the aim of the above experiment. (1mk)
- **To compare the rate of transpiration between the upper and lower leaf surfaces;**

ii. What was the purpose of brush cleaning the leaf (1mk)

- **To remove dust particles from the surface of the leaf and any moisture;**

iii. What was the role of cello-tape in this experiment? (1mk)

- **To prevent moisture from the atmosphere from reaching cobalt chloride paper;**

b.

i. What was the original colour of dry cobalt chloride paper. (1mk)

- **Blue**

ii. What colour change did the students observe? (1mk)

- **Pink**

c. Explain the difference in time taken for the colour change observed. (3mks)

- **The upper leaf surface took more time than the lower leaf surface; the upper surface has fewer stomata than the lower surface; therefore lower rate of transpiration on the upper surface than the lower surface;**
- **The lower epidermis took less time because it has more stomata;**

3. Red-green colour blindness is controlled by a sex-linked gene. The allele for normal sight is represented by letter C and of colour blindness is represented by letter c. A carrier female is married to a colour blind male.

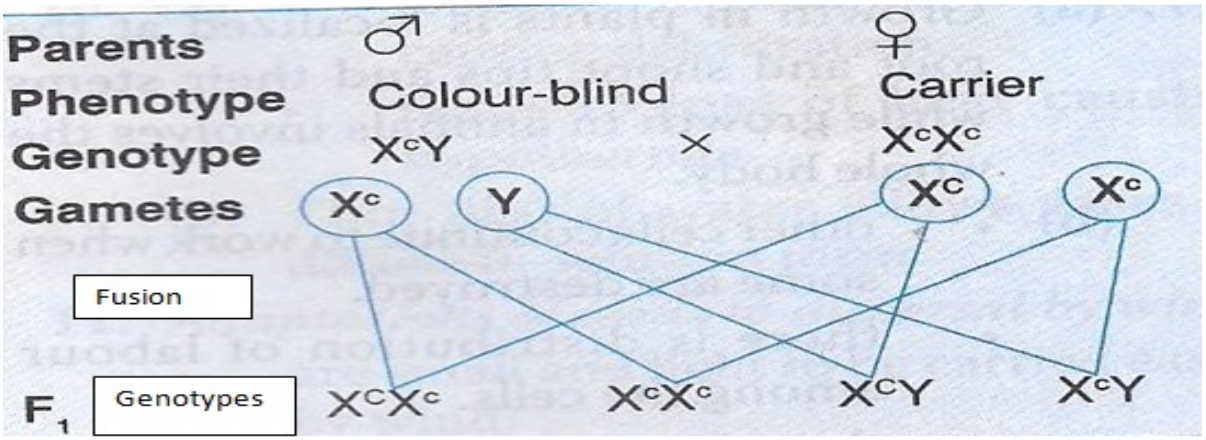
a. What is sex linked gene? (1mk)

- **Gene that is inherited together with those determining sex of the individual;**

b. Write down the genotype of the parents. (2mks)

- Male: **X^cY;**
- Female: **X^CX^c;**

c. Work out the F1 genotypes. (4mks)



d. What is the percentage of colour blind sons in all the male offspring's (1mk)

- **$^1/_2 \times 100 = 50\%$**

4. The photographs below are of organisms resting on different environmental backgrounds. Observe them and answer the questions that follow;



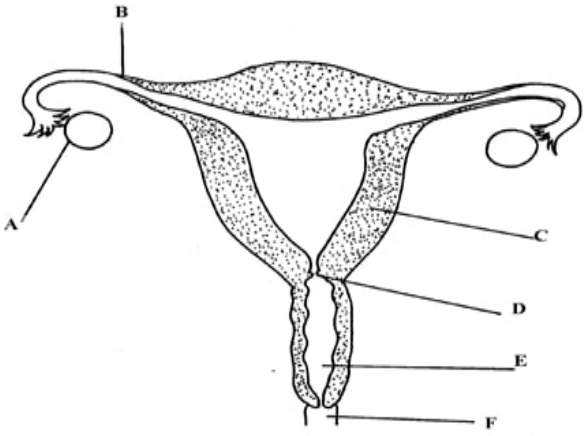
a. Name the aspect of evolution depicted in the photograph (1mk)
- **Industrial melanism**

b. Explain the phenomenon. (4mks)
- **Prior to industrial revolution there was only one form of peppered moth, speckled white variety which blended well /camouflaged; with the barks of the trees that were covered with lichens; After industrial revolution the barks of trees were covered with soot hence the white moth were easily detected and preyed on by birds; while the black melanic form blended well with the soot-covered barks of trees in industrial regions;**

c. How do we refer to this concept mentioned in (b) above. (1mk)
- **Survival of the fittest/adaptive radiation/natural selection;**

d. State any four other evidences of the phenomenon in (a) above in the modern World. (2mks)
- **Sickle trait in humans;**
- **Resistance to drugs, pesticides, and antibiotics by pathogens;**

5. The diagram below represents female reproductive system;



a. Name the part labelled A, B, C and D (4mks)
- **A- Ovary**
- **B- Oviduct/ fallopian tube**
- **C- Uterus/ uterine wall**
- **D- Cervix**

b. State two functions of structure A (2mks)
- **Produce ova**
- **Produce female hormones/ oestrogen and progesterone**

c. How is part C adapted to its function? (1mk)
- **Highly vascularized to supply nutrients to foetus/ drain away excretory wastes**

- **Inner wall lined with endometrium for implantation of fertilized egg/ zygote**
- **Muscular for peristalsis to expel menses during menstruation/ parturition**
- **Great capacity to expand during gestation to accommodate developing foetus**

d. Of what significance is part E to reproduction? (1mk)

- **Copulation**
- **Birth canal**

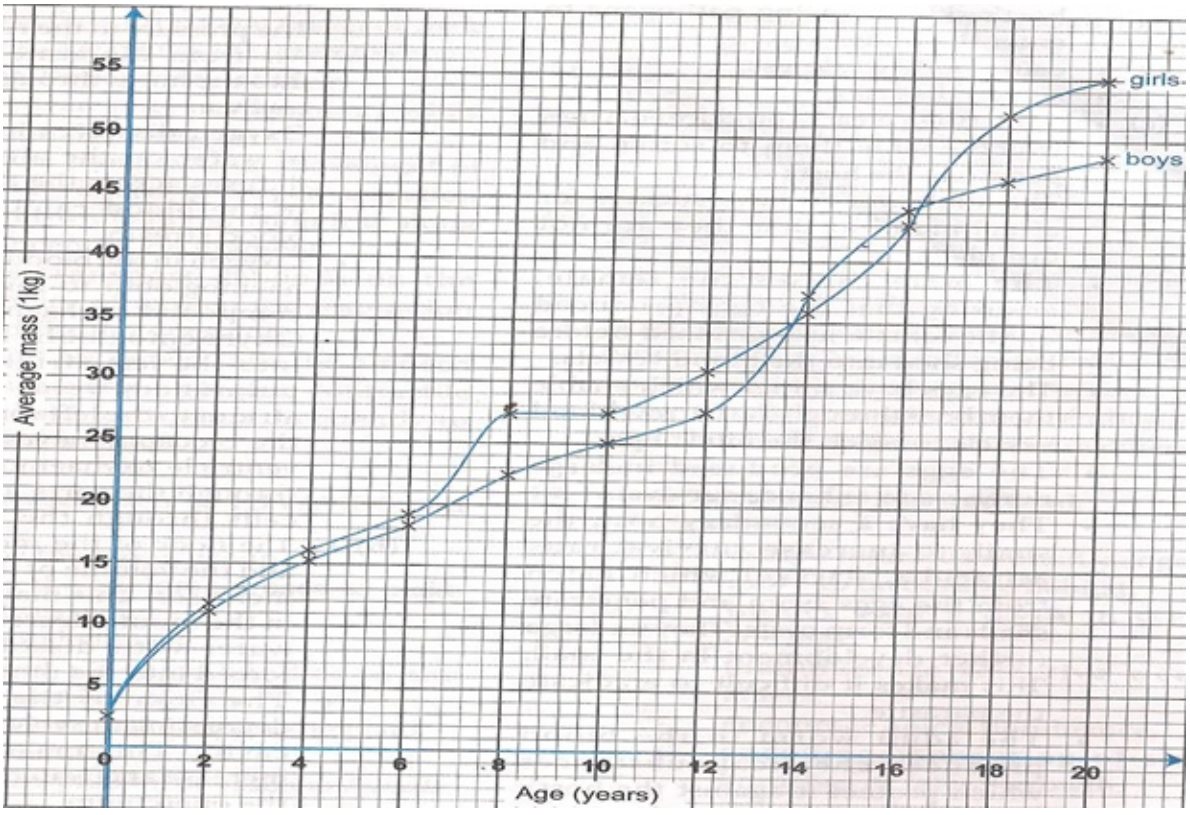
SECTION B (40 Marks)

*Answer **question 6 (Compulsory)** and either question 7 or 8 in the spaces provided.*

6. A research was carried out to determine the trend of growth for 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	11.1	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	52.5
20	48.5	55.0

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



Scale: 1mk ×2=2mks
Axes: 1/2mk ×2=1mk
Plotting: 1mk ×2=2mks
Curve: 1/2mk ×2=1mk
Labeling: 1/2mk ×2=1mks

b. From the graph , determine the;
   i. Mass for boys at age of 11 years. (1mk)
      - 26 kg ± 0.5
   ii. Growth rate in girls between ages 13 and 15 (3mks)
      - **Girls 15 years -39**
        Girls 13 years -33
        39-33 $=^{6}/_{2}$ = 3.0kgs/year

c. Account for the change in the mass of girls during the age stated in (ii) above. (2mks)
   - **There is an increase in mass; because girls at adolescence grow faster;**

d. Explain the trend observed in the curves for both boys and girls. (2mks)
   - **There is an increase in mass; because girls at adolescence grow faster;**

e. Why do girls above 10 years require intake of food that is richer in iron than boys of the same age. (1mk)
   - **Menstruation cycle begins hence they need more iron to replace blood lost during menstruation;**

f. Mention two other factors apart from the diet that affect the rate of growth in boys and girls. (2mks)
   - **Genetic composition;**
   - **Sex of the child;**
   - **State of health**
   - **Emotional status**

g. Apart from using average mass to estimate growth in human beings, name two other parameters that can be used. (2mks)
   - **Height of the body;**
   - **Volume of the body;**

7. Explain how the following plants are adapted to their habitats.
   a. Xerophytes (14mks)
      - ***Some have leaves reduced in size / to spine of reduces the surface area for water loss.***
      - ***Some xerophytes have photosynthetic stems that take the place of leaves; to reduce the surface area for transpiration;***
      - ***Some shed-off leaves during dry season; reduce surface exposed to transpiration;***
      - ***Some have thick wax cuticle; which reduces cuticular transpiration;***
      - ***Some xerophytes have fleshy / succulent /juicy stems / roots for storage of water;***
      - ***Some have sunken stomata; that accumulate moisture / creating low diffusion gradient; thus reducing transpiration rate;***
      - ***Most have reduced number of stomata; mostly on the lower leaf surface to reduce the rate of transpiration; The stomata are also small in size to reduce loss of water by transpiration;***
      - ***Some show reversed stomatal rhythm (open stomata at night and close during the day) to prevent excessive loss of water by transpiration;***
      - ***Some have succulent stem; that stores water; used in dry season;***
      - ***Some have long tap roots that extend deep into the soil to absorb water***

far below.

- ***Some xerophytes have shallow roots that spread widely / extensively in order to trap water from any little shower of rain;***
- ***Some xerophytes roll their leaves to reduce surface area exposed thus reducing rate of water loss by transpiration;***
- ***Some xerophytes have thorns on their stems / branches / midribs / leaves to protect the plant from predator / browsers / herbivorous animals;***
- ***Some xerophytes have a very short life cycle thus grow fast to use the little rain within a very short time; and produce seeds that can survive the drought.***

b. Halophytes. (6mks)

- ***They have roots that concentrate a lot of salts in their cells by active transport; to enable them off set osmotic imbalance and take in water by osmosis***
- ***Some have salt glands that secretes excess salts***
- ***Some have water storage tissues to store water that has been taken in.***
- ***Some like mangrooves have pneumatophores which have lenticels for gaseous exchange***
- ***Some mangrooves have stilt roots for extra anchorage in mudflats.***
- ***Most halophytes are found growing close to the water surface to enable them get sufficient light for photosynthesis***
- ***Those in deeper water have highly sensitive chloroplasts to photosynthesise under low light intensity***
- ***Some e.g. coconut have fruits with large aerenchyma tissue to enable them float.***

8.

a. Describe the mechanism of inhalation in man. (8mks)

- **This process occurs when the thoracic cavity increases in volume and thereafter decreases in pressure;**
- **During inspiration the external intercostal muscles contract; while the internal intercostal muscles relax;**
- **This movement pulls the ribs upwards and outwards;**
- **The diaphragm which is dome shaped flattens; by the contraction of its muscles**
- **The flattening of the diaphragm together with the outward movement of the ribs increases the volume of the thoracic cavity and decreases the pressure inside it;**
- **Atmospheric pressure being higher; than pressure inside the thoracic cavity forces air to rush into the lungs through the nose and trachea; hence inflating the lungs;**

b. State **three** factors affecting breathing rate in human beings. (6mks)

Exercise;

During vigorous physical activity the rate of breathing increases so as to meet the increased demand of $O_{2;}$

Faster breathing also eliminates the extra CO_2 produced by the increased respiration.

Age;

Young people have a higher demand of O_2. They therefore have faster breathing rate; This is because young people are actively growing hence the faster rate of breathing is to supply tissues with O_2

Emotions;

Generally the body emotions affect the production of hormone adrenaline which increases the general metabolism and hence increased rate of breathing; e.g. fear anxiety and fright

Temperature ;

When the temperature is high there is a tendency in the rate of gaseous exchange to increase. However if temperature is too high the breathing rate will reduce

Health

During sickness the rate of breathing increases. The faster rate of breathing enables the liver to remove toxins in drugs those released by diseases causing micro-organism
The faster rate of breathing also enables the kidneys to excrete waste products of body metabolism through urine

Altitude

At high altitude the rate of breathing is faster than at low altitude. At high altitude O_2 concentration is low thus faster rate of breathing helps supply tissues with sufficient oxygen

c. Describe how the brain regulates breathing. (6mks)

- **Breathing movements normally take place unconsciously, in the brain there is a region called medulla oblongata which controls the breathing movements;**
- **As CO_2 in the blood reaches this region it triggers this part of the brain to send impulses to the rib muscles and the diaphragm which in turn respond appropriately;**
- **This makes breathing to continue on and on.**
- **During vigorous activity the concentration of CO_2 increases into the body tissues; hence more CO_2 diffuses into the blood and reaches the medulla oblongata;**
- **The high concentration of CO_2 in blood triggers the medulla oblongata to increase the rate of breathing;**
  Increased rate of breathing helps to increase the amount of O_2 in the blood thereby meeting the demands of the increased tissue respiration;

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BIOLOGY PAPER 3 Marking Scheme - 2019 K.C.SE Prediction Set 2

1.

a. (8marks)

Food Substance	Procedure	Observation	Conclusion
Starch	Put $2cm^3$ of test solution in a test tube, add 3 drops of iodine solution	Brown color of iodine persists	Starch absent
Reducing sugar	Put $2cm^3$ of test solution in a test tube. Add equal amounts of Benedict's Solution, heat to boil; reject warm	Orange color observed Accept green,yellow	Reducing sugar present

b. Starch absent; all starch hydrolysed/broken down by enzyme (diastase); into simple sugars; (3 marks) accept. Converse

c. Epigeal germination;

2.

a.

i. Atlas
(1mark)
Wide neural canal for passage of the large spinal cord in the neck region; (3marks)
Broad facets for articulation with the occipital condyles of the skull;
Broad and flattened wing-like transverse process to offer a large surface area for attachment of neck muscles;

ii. Occipital condyles;
(1mark)

iii.

I. M – Tendrils; R – Twining stem;
(2 marks)

II. Turgidity of cells / Prop roots / Adventitious /Spines of climbers /Lignified cells /Cellulose / Pectin; @any one for 1 mrk (1 mark)

b.

i. Sacral vertebra rej. Vertabrae
(1mark)

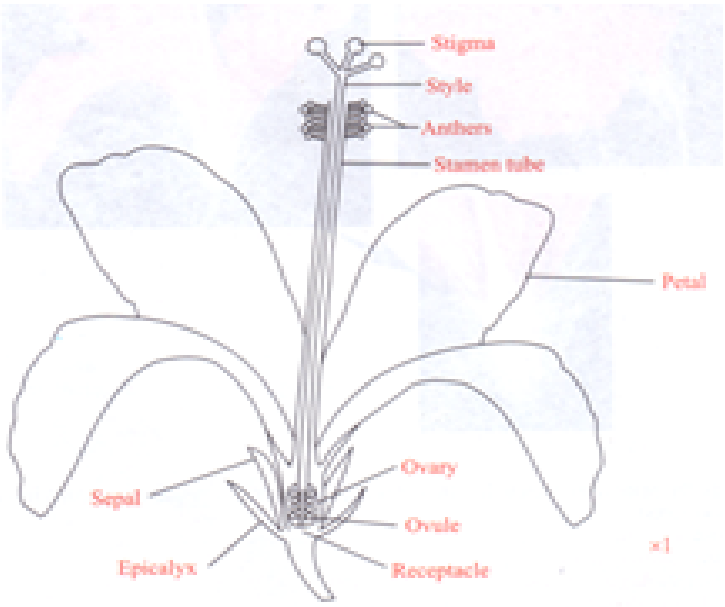
ii. S-Illium;
(3marks)
T-Pubis symphysis; (On the diagram)
M- Greater trochanter;

iii. Proximal: Ball and socket joint;
(2marks)
Distal: Hinge joint;

iv. Immovable/ fixed joint; (1mark)

3.

a. Drawing-1mark; Label any three parts- 3 marks; Mag- 1 mark; Total = 5mrks



b.

i. Insect pollinated; (1mark)

ii.

- Brightly coloured; (3marks)
- Large/Conspicuous;
- Scented;
- Tubular/funnel shaped;

iii.

- Syncarpous; (4marks)
- Floral parts in fives;
- Polysepalous;
- Hypogynous ovary (Superior)/ Ovary above other floral parts;
- Stigma positioned higher than anthers;
- Pedicillate flower;

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BIOLOGY PAPER 3 CONFIDENTIAL PAPER - 2019 K.C.SE Prediction Set 2

Confidential

- Hibiscus flower (labelled P)
- Maize seedling(germinated for 8-10 days) (labelled Q)
- Benedict’s solution
- Iodine solution
- Two tes tubes
- Test tube holder
- Labels
- Means of heating
- Scalpels
- Hand lens
- Distilled water
- Mortar and pestle

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

1. Must be minutes
   MINUTES OF THE Y.F.C CLUB HELD ON 18/3/2014 IN THE AUDITORIUM AT 4.00P.M

   Members Present- 10
   Absent with apology- 4

   Absent - 1
   Agenda
   Min 1/214 Preliminaries
   Min 2/2014 Confirmation of previous minutes
   Min 3/2014 Matters arising
      1. Min 22/2013
      2. Min 24/2013

   Min 4/2014 Negotiation with the bursar
   Min 5/2014 Schedule for harvesting vegetables
   Min 6/ 2014 Sharing of the income
   Min 7/2014 any Other Business
   Min 8/2014 Adjournment

   Confirmed
   Secretary_____Date_____
   Chairperson_____Date_____
   H -2
   ATT -2
   A -1
   C – 2
   MA – 2
   A/M - 3(Items)
   A.O.B – 1
   ADJ – 1
   S – 1
   L - 4
   Total 20 marks

2. **CLOZE TEST**
      1. loses
      2. through
      3. and
      4. serious
      5. to
      6. is
      7. trend
      8. appliances/ gadgets
      9. have
      10. at

      NOTE:
         - No unnecessary capitalization

- Correct spelling
- One word

3.

a.

i. eyes, cries
State, fate, gate
Hope, scope
Despising, arising
Brings, kings (Any four 2x1=2mrks) *accept the first four only*

ii. me , more that , than
myself, my like, lack
thee, than featured, friends
hymns, heavens sullen, sings
when, with scorn, state
with, what sweat, such
Nb- accept the first two only

iii.
- I would lower my voice and say in a low pitch almost a whisper.
- Stress the content words e.g like, lark, break and arising with a smile on my face. ***accept one verbal and one non-verbal***

iv. In a higher pitch with emphasis , confidence .
The last 2 lines conclude the argument of the poem.

b.

i. Falling
ii. Falling
iii. Falling

c.

- With a short story/ anecdote
- A quotation from a leading authority in NACADA, medicine or a major write.
- A proverb
- Refer to startling statistics, reliable source ***accept the first four answers only.***

d.

- Adjust voice to the acaustics of the room , the size of audience
- Don't speak too loudly of softly
- While speaking, watch the reaction of those farthest from you
- If they look puzzled
- If they look strained in listening .hearing ***accept 3 answers only***

e. cough
Thy
Note

f.

- Shirandula diverts attention from Kombo's concerns
- He has his ownstory ;he's selfish

- He’s insensitive; interrupts Kombo’s speech
- He’s inattentive; doesn’t even realize he’s not listening and that this has offended Kombo.
  identify 1mrk
  illustration 1mrk

g. Sentences must be grammatically correct
The word should not be changed.

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

a. The writer believed in abortion on demand before he saw an embryo in the womb through an ultrasound. (He lost faith in abortion since then) √2
b. Because one could not see what he or she was doing. √2
c. Pro-Life. √1
   Pro- Choice. √1
d. Pro- choicers tried to undermine the impact of the silent Scream by disputing whether the foetus feels pain during abortion. √2
e. What I saw shook me to the very roots of my soul. √1
f.
   - the doctor does not see what he is doing
   - he puts an instrument into a uterus
   - he turns on a motor and a suction machine goes in
   - Something is vacuumed out and ends up as a little pile of meat in a gauge bag. (4 x1) 1 mark each

g. (it's not really a debate- we don't debate with each, we scream at one another). (I had my first contact with pro-life movement in 1981 when the then president of the National Right to Life Committee, Carolyn Gerster, had gotten in touch with me). . √2
h. Because the words of the then President of Reagan, musing about how much pain in the foetus feels during an abortion ,lent impetus to the pro- choicers voice. 2
   i. Beliefs/opinions/views
   ii. Intensified/ magnified/ heightened/worsened
   iii. Momentum/ drive/impulsion/propulsion

2. **EXTRACT, *A DOLL'S HOUSE.***

a. Mrs. Linde has just visited Nora. √1/ Mrs linde has just started sewing Nora's dress. √1/ Nora informs Mrs, Linde that Dr. Rank suffers from consumption of the Spine 1/ Nora tells Mrs. Linde that Dr. Rank is Torvalds's most intimate friend/ √1 Nora intimates to Mrs. Linde that Dr. Rank is so absurdly fond of her .(Nora) √1 (Maximum 4 marks)
b. Because Nora seems to be c lose to Dr. Rank . and Mrs. Linde thinks Nora is naïve... Mrs. Linde has experience in such kind of relationship... She cares for Nora ..
c. *Secretive* .... she has never told her husband Torvald that she borrowed money. .
   Deceitful/ dishonest ....Mrs. Linde says Nora seems to be concealing something from her ..
   Manipulative. ..- She manipulates Mrs. Linde to repair her dress.
   Firm/ principled- she did not borrow money from Dr. Rank although she say if she did, he would have definitely lent her. .
   Temperamental .... Nora says she can tear it into a hundred thousand pieces and burn it up- the nasty dirty paper. .
d. They should stop talking too much to each other because Dr. Rank is probably interested in Nora.
e. And can tear it into a hundred thousand pieces and burn it up- the nasty dirty paper; Nora cannot possibly do this. . √1 It means she is very annoyed. . √1
f. Nora request Mrs. Linde to and play with the children ./ She tell Mrs. Linde Anne will help in dressmaking ./ Torvald comes in the room ../Torvald enquires whether that was the dressmaker./ Nora requests Torvald not to dismiss Krogstad .
g.
   i. a rich man/wealthy .
   ii. beat about the bush/ sidestep/dodge/equivocate .
   iii. Hiding/ withholding .

3. **ORAL LITERATURE (20 marks)**

a. ***Why do you think this community makes the choice of a beautiful girl such as Wanjiru to sacrifice to god so as to receive rain?*** (1 mark)

- They give the most beautiful girl so as to appease god. √1

b. ***Which functions does this song serve in this narrative***? (2mark)

- The song is supplication/ prayer√1 In her prayers she says: "Rain fall and make this ridge green. Make this ridge green."
- It serves to show the mental anguish she goes through knowing that she has been picked to be the sacrificial sheep to save the whole community from the debilitating famine. She anguishes: "My father said I should be lost, I should be lost." √
- The song helps enhance the somber mood that engulfs the village. √ (Any 2 points)

c. ***Describe one character trait of the villagers in this narrative***. (2 marks)

- The villagers are pious/ religious√1. They consult from god what they needed to do so as to have rains. √1 They also readily accept to offer the sacrifice prescribed by god. √
- They are decisive√1. They decided to offer Wanjiru as sacrifice to their god. √1

d. ***In point form, list how events follow each other in this story***. (3 marks)

- A severe famine hits the land and a decision to sacrifice Wanjiru is reached. √
- She is taken to a big river where she sings repeatedly as the water as the water level rises. √
- There is a heavy down pour√
- She goes to the spirit world where she is rewarded with many cows and goats and asked to lie down. √
- She wakes up to find herself at the big river. √
- The villagers rejoice greatly. √ (must be in point form if in prose deduct by ½)

e. ***Identify and explain two features of oral narration employed in this narrative***. (4 marks)

- rhetoric questions √1- "What shall we do?" this question helps the readers to understand the magnitude of the dilemma the villagers face. √1
- Opening formula√1 - The story starts with, "Long ago…" signals the start of the story√1
- closing formula √1- The story ends there". This formula signals its end. √1
- elements of fantasy - the river responding to the girl's song,
- the girl going to the world of the spirit,
- the rain falling immediately after that girl is swallowed by the water,
- the girl returning back to life.
- Repetition √1 My father said I should be lost. I should be lost
  My mother said I should be lost. I should be lost√1

f. ***Identify two elements of fantasy in this story***. (2 marks)

- The river responding to Wanjiru's song and rising until they submerge her completely.
- Wanjiru going to the land of spirits and even talking with them.
- Returning back to the land of the living. (1 mark each = 2mrks)

g. ***Describe Wanjiru's tone as she sings***. (3 marks)

- The tone is resigned√2 She is resigned to fate. She feels that there is nothing she can do to overturn her parents' decision to sacrifice her to god√1

h. ***Which social/cultural practices of the Agikuyu are brought out in this narrative***. (2 marks)

- Sacrificing to god so as to appease to give rain.
- Singing of songs at different times in life.

- The community offers prayers/supplications more so when faced with eminent danger.
- They commune/communicate/value the spirits/dead relatives.

i. **What does this phrase mean? “My father said I should be lost.” (1 mark)**

- It means that her father wanted her dead. √1

j. On this land, fell very heavy rains.√1

4. **GRAMMAR**

a.

i. Were it not for Muli’s regular absenteeism, he could have passed the examination/Were it not that Muli was regularly absent from school, he could have passed the examination. √1 (if a comma is missing don’t award/ or spelling mistake.)

ii. Only after signing an agreement with the government did the nurses agree to work. √1

iii. This is the boy whose father is generous . √1

b.

i. despise

ii. surrender

iii. proposed/ suggested// created

c.

i. cruelly √1

ii. agonizingly √1

iii. horribly √1

d.

i. with √1

ii. in √1

e. a √1
a √1

f.

i. The room was already empty. √1

ii. The room which had items was found empty. . (Things had been removed)

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ENGLISH PAPER 3 Marking Scheme - 2019 K.C.SE Prediction Set 2

1.
    a. Expect a story that begins with the input statement. The story should revolve around a candidate's misery after spending five years in high school instead of the usual four years when results are announced then later cancelled.
    b. It must be an expository. If a story deduct (4mks). A candidate should argue exhaustively to leave no doubt about understanding of corruption and its possible solutions.
2. **Blossoms of the savannah**

    Introduction- general or contextual 2mks

    Body

    Oloisudori betrays Ole Kaelo. Though they were close business friends. Oloisudori blackmails Ole Kaelo so that Ole Kaelo has no option but to marry off his daughter to Oloisudori.

    Mama Milanoi who is the mother to Taiyo betrays her by allowing her to accompany three women to take her to Resian only for her to end up being forcefully subjected to F.G.M

    Ole Kaelo, father to Taiyo refuses to allow his daughter Taiyo to travel to Mombasa with the other youth selected by an FM radio station for a music extravaganza. To him participating would be like engaging in prostitution.

    Ole Kaelo also betrays his daughter's ambitions to join Egerton University preferring instead to marry them off to Oloisudori. This shows he is not ready to help them realize their dreams as a father should do.

    Ole Kaelo betrays Resian. He openly shows his resentment to Resian. Constantly rebuking her for even the slightest of mistake she makes. He hates because he expected a boy child not a girl child. This leaves Resian with a low self-esteem and fearful.

    Olarinkoi, who is occasionally accommodated by the Ole Kaelo's and is even though he is not part of their family, later betrays the Ole Kaelo's when he abducts Resian with the intention of eloping with her. This is betrayal to a family that had hosted him.
3.
    a. **The short story 'memories' we lost and other short stories**

    Introduction (2mks)
    Any plausible introduction

    Body (12mks)
    - Getting physically lost; Enebeli had separated for hours during chaos in the market place.
    - Unanswered questions may be demonstrated by the wrong people; Enebeli had to handle them though even when he wasn't the right person to do so.
      Biological developments are not clear thus could have humiliated episodes, the girls first monthly period seeped all through the mattress.
    - It leads to family conflict and disintegrating; Enebeli is always at loggerheads with the wife because of the girl.

- Breakdown of communications eventually sets in between the mother and daughter making a bad situation worse. The girl stopped talking with the mother.
- Relationship with other family members is affected;
  The aunt to the girl
  Conclusion (2mks)
  Acc any valid conclusion
  Language (4mks)

b.

Introduction(2mks)

Expect a contextualized introduction or General

At time looks can be deceiving/ judging things/ people at face value is erroneous.

Body

- The pearl has outward appeal, the promise of riches, and comforts; however it brings miser.
  Leads to death of Coyotito.
- The doctor is supposed to treat Coyotito of the scorpion sting; he instead comes to make him more I'll, want a part of the pearl's good fortune.
- The pearl traders pretend they want the best price for Kino they have however, conspired and agreed on the price. They even dismiss the pearl/ downplay its worth.
- Kino is frustrated by their price; he opts to go to sell in the city.
  Others
  The priest-pretends he has come to bless and celebrate the finding of the pearl.
  Underneath, he is thinking of the repairs that the church need.
  the beggars
  the neighbours
  Any 4 points= 4x3=12 marks
  Conclusion-expect a summary of points or general conclusion (2mks)
  Language (4mks)

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

1. Swali lina pande mbili: Barua rasmi, wasifukazi Azingatie umbo la barua rasmi.
   Azingatie utaratibu wa kuandika wasifukazi.
   - Utangulizi.
   - Mwili.
   - Hitimisho.
2.
   - Ufisadi
   - Siasa
   - Utepetevu.
   - Ukabila.
   - Umaskini.
   - Dini.
   - Vyombo vya habari.
   - Mihadarati.
   - Uchochezi.
3. Kisa kiafiki methali.
4. Usimulizi ubaini namna msimulizi alivyohadaiwa.

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

UFAHAMU

a.
- Uhayawani wa kuua wanyama wa pori ukomeshwe.
- Mauji ya wanyama pori yakomeshwe.
- Neno komesha lihusishwe. *1 x 1 = 1*

b.
- Walikuwa wanajali na kuwalinda wanyama.
- Kulikuwa na utangamano. *1 x 2 = 2*

c.
- Ubinafsi wa binadamu. *al 2*

d.
- Kutepetea na kutojali.
- Kutotengeneza ua. *2 x 1 = 2*

e.
- Wanauawa kwa sababu ya pembe zao
- Kwa dhana kuwa zinatibu magonjwa. *1 x 2 = 2*

f.
- Huwavutia watalii.
- Nchi imepata tuzo za ulinzi wa wamazingira.
- Tamaduni za kikale za jamii zimeendelea kudumu. *2 x 1 = 2*

g.
- Jamii zielimishwe kutangamana na wanyama.
- Kurejelea maisha ya kizamani. *1 x 2 = 2*

8.

i. Kujitia hamnazo - Kutojali, kutojishughulisha.
ii. Kutangamana - Kuishi kwa amani. *2 x 1 = 2*

UFUPISHO

a. **Umuhimu wa biashara za kimataifa**
- Ukuaji wa uchumi
- Kupata bidhaa kutoka nchi nyingine
- Masoko kwa bidhaa yake
- Huduma za kitaluuma
- Hukuza ushirikiano wamataifa
- Hukuza ushindani
- Ushirikiano wa kisiasa **7×1=7+1utiririko =08**

b. **Ujumbe wa aya tatu za mwisho**
- Masoko huru yanayoleta ushindani wa wafanyi biashara wadogo
- Biashara hufungwa
- Uchela waji,wa bidhaa zilizoagizwa
- Bidhaa duni huweza kupenyezwa
- Ulanguzi wa dawa za kulevya **6×1=6+1utiririko =07**

MAJIBU YA SWALI LA TATU

Matumizi ya lugha (al. 40)

a. Kitamkwa cha ufizi , sauti ya nazali . (al.1)
b. Si-ku-m-karib-ish-a (al. 3)
   Si - Kanushi
   Ku - wakati uliopita kanushi
   M - Kitendwa
   Karib - Mzizi
   ish - Kauli/hali
   A - Kiishio
c. Mama alimwita Maria mara mbili kwa kumwambia aende hapo alipokuwa na kumweleza kuwa siku ambayo ingefuata angenda Nairobi siku ambayo hiyo Kisumu na saa hiyo alikuwa akienda sokoni. (al.4)
d. Walimu wetu – KN (1mk)
   Mara kwa mara - KE (1mk)
e. Kutufanya tulie
   Kutufanya tutulie (al. 2)
f. KN - Kundi (N) au Kiwakilishi (W)
   KT - Kundi T.
   Ina maana kamili ya kisarufi. (al. 2)
g. Niliyemsaidia - Nafsi ya kwanza
   Ni - Kitenzi kishirikishi kipungufu
   Simameni - Wingi amrishi
   Uwanjani - Kielezi cha mahali (al.2)
h. Nitaenda mpaka hapo kisha niwahudumie mpaka kesho. (al.2)
i. Mawingu - li-ya
   Cheki - i-zi (al.1)
j. Peka (al. 1)
   Pokelewa (al. 1)
k. Hakuna zile tunazotaka . (al.2
l. Kamau alimjengea baba(kitondo) yake nyumba (kipozi) kwa Matofali(ala) (al. 2)
m. Mizigo hiyo itawekwa kwenye makasha na kupakuliwa taratibu. (al. 2)
n. Nyweni (al. 1)
o. Kiwakilishi nafsi huru huwakilisha nomino kikiwa peke yake kama neno bila kutegemea viambishi ilhali kiwakilishi nafsi tegemezi huwakilisha nomino na lazima kambatanishwe na viambishi vya maneno mengine kuleta maana kamili ya kisarufi . (al.2)
   Yeye - Kiwakilishi nafsi huru
   Ninacheza - Kiwakilishi nafsi tegemezi
p.
   S - KN+ KT KT - T+E (al. 4)
   KN - N + S T - Amekamatwa
   N - Mwizi E - Hatimaye
   S - Aliyetuibia jana
q. Kishazi : ni kifungu kilicho na muundo wa KN (Kiima na KT(Kiarifu) na kiima ndani ya sentensi kuu(ni sentensi ndani ya sentensi) (al. 1)
r. Landa ni kufanana kwa kitu na kingine . Randa ni kuonyesha au kulainisha vitu vya mbao. (al. 2)
s. Fundi ndiye(t) yule na ndiye(Ts) atamjengea (T) (al. 3)

MAJIBU SWALI LA NNE

ISIMU JAMII

a. Sifa 4 za sajili ya siasa. (al. 4)
- Ushawishi - Tafadhali , ninaomba wananchi watukufu , nawategemea.
- Ahadi za uongo - Mkinichagua hakuna umaskini tena.
- Ulumbi - Kuongezea nyimbo na semi-mapambano x2 kitendawili.
- Lugha inayohusisha hadhira au wasikilizaji kupiga makofi na vigelegele .
- Lugha takriri urudiaji
- Kuongea mengi
- Majina ya lakabu
- Kuchanganya na kuhamisha lugha. Zozote 4x1= al. 4) *Lazima atoe mifano ili apate alama.*

b. Lahaja ni kijilugha ndani ya lugha kuu lafudhi ni jinsi mbalimbali binadamu hutamka hudhiririsha athari kubwa zinazotokana na lugha kwanza . (al. 2)
i. Kuchapisha vitabu zaidi vya Kiswahili.
ii. Kiswahili kuwa somo la lazima vyuoni na shuleni.
iii. Wananchi kuenzi Kiswahili.
iv. Urasmishaji wa lugha ya Kiswahili
v. Afrika ya mashariki
vi. Uundaji istilahi mpya za lugha.

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KISWAHILI KARATASI YA 3 Marking Scheme - 2019 K.C.SE Prediction Set 2

1. **RIWAYA (LAZIMA)**
   a.
      - Maneno ya Tetei, Mwanaharakati
      - Anawaambia wananchi/wapiga kula.
      - Baada ya mwekevu kutawazwa/ Kiogozi mwanamuke
      - Watu walishukuwa silaha kupigania uhuru wao.

   b.
      - Watu walishukuwa silaha kupigania uhuru wao.
      - Mlio ya buduki ilisikika.
      - Vilio vilijaa hewani.
      - Vyombo vya dola vilitumwa kudumisha amani.
      - Msafara ya watu ilionekana ikimaha kwao.
      - Mazao yalichomwa mashambani
      - Majumba yalichomwa
      - Watu waliuliwa. Zozote nne (1 x4)

   c.
      - Nyumba ya Ridhaa inateketezwa
      - Luga anafutwa kazi bila sababu.
      - Mwanaheri kunajisiwa
      - Fumba kuringa mwanafunzi wake mamba
      - Familia ya ridha kuteketezwa majirani.
      - Pete kuozwa
      - Subira kubaguliwa Kwa sababu za kiukoo.
      - Naomi kuwatelekeza wanawe.
      - Uharibifu wa mazingira – serikali inakata miji.
      - Chandachema chema anadhumiwa kimapenzi na mwalimu wake fumba.
      - Shamba lao shamusi linanyakuliwa.
      - Pete anakeketwa.
      - Ndoa za mapema/pete
      - Uuzaji wa pombe haramu
      - Ulaguzi wa madawa ya kulevya
      - Ulaguzi wa watoto.

      TANBIHI Kadiliria jawabu la mwanafunzi zozote kumi na mbili. (12x1)

2. **KIGOGO**

   Ufisadi

   - Wafanyabiashara wanalazimishwa kutoa hongo kombe anasema lazima tutie tonge kinywanina tuwape wenye nchi kitu kidogo
   - Mapendeleo ya kinasaba
   - Majoka anamteua Kenga binamuye kuwa mshauri wake mkuu (maneno ya sudi uk 9)
   - Majoka anapanga kumtambulisha Ngao Junior kama mrithi wake (uk 36)
   - Usaliti/ukiukaji wa majukumu
   - Watawala wanasaliti wapiga kura kuwa kutotokeleza majukumu yao. Soko linanuka uvundo kutokana na maji machafu ya taka. Wanachojua viongozi ni kukusanya kodi

(uk2) hawatekelezi majukumu yao ya kusafisha soko
- Udhalimu/ukatili
- Viongozi kutumia vitisho na kuwanyang'anya wafanyabiashara kilicho chao (sudi anasema katika uk 3)
- Vijana watano waliokuwa wakifanya maandamano wanauawa na wachuuzi sokoni wanaumia uk 16
- Chuki za kikabila
- Vijikaratasi vinaenezwa kuwatia woga watu kutoka kabila Fulani. Wanaambiwa kuhama (uk.51-52)

Unafiki

- Majoka anasema kuwa wanasagamoyo wasiruhusu watu wachache waliojazwa kasumba za kiloloni kuwarejesha katika utumwa. Pia anadai kuwa hatuwezi kukubali kutawaliwa tena yeye anatenda mambo yayo hayo anaokashifu.
- Ubadhirifu
- Serikali inakopa pesa nyingi na kuziweka katika miradi isiyofaa (pesa inakopeshwa na kutumiwa katika mradi wa kuchonga kinyago cha hayati Marala Bin Ngao
- Unyakuzi wa ardhi ya umma
- Ardhi ya soko inanyakuliwa na majoka anajenga hoteli ya kifahari katika ardhi hiyo na kuwagawia wendani wake kama vile kenga baadhi ya sehemu ya ardhi hiyo
- Matumizi mabaya ya mamlaka Kenga anamshauri majoka kutumia uwezo wake kuharamisha maandamano na kuwaamuru maafisa wa polisi watumie nguvu zaidi kuwatawanya waandamanaji (uku 34)
- Dawa za kulevya na pombe haramu Tunu anasema kuwa juzi walizika watu waliokufa kutokana na pombe haramu. Wengine wamegeuka kuwa vipofu (ku 63
- Umaskini umekidhiri katika jamii hii wafanyabiashara katika soko la sagamoyo ni watu wenye elimu na talanta kochokocho kama vile Sudi. Wangali wanaishi katika umaskini licha ya bidii zao. Boza anasema kijirununu cha pesa nene.. maskini akipata (uk 7
- Vijana wanatumiwa kumvamia Tunu na wapinzani wengineo (zozote (alama 20)
- Tamaa, Majoka ana tamaa ya mali ya umma kwa sababu analifunga soko la chapakazi ili ajenge hoteli ya kifahari. Vilevile yuko na tama ya wake za wengine m.f Ashua
- Uozo, Mamapima anapewa kibali na serikali ya majoka kuwauzia watu pombe haramu inayowaua na kuwafanya vipofu. Vilevile majoka yuko na kampuni kubwa ya uzalishaji sumu ya nyoka barani (dawa za kulevya) ambayo inauzwa katika shule ya majoka na majoka academy
- Ubarakala: Kuna vibaraka ambao wanamshauri Majoka isivyofaa m.f. Kenga anamshauri Majoka kulipiza kisasi kwa Ashua.
- Tenga Utawala: Majoka anawatenga wasiomuunga mkono k.v. Tunu na Sudi na kuwaleta karibu wanaoukubali ungozo wake m.f. ni mama pima na Ngurumo na pia Kenga.
- Matumizi ya vyombo vya dola: Polisi wanatumika kuwatawanya wananchi kutumia vitoza machozi. Hali hii inwafanya wanasagamoyo kufa na wengine kuwa walemavu.
- Kuotkuwa na uhuru wa vyombo vya habari: Majoka anasema Sagamoyo kitabaki kituo kimoja tu Sauti ya Mashujaa.
- Hali ngumu ya maisha: Wananchi wanoishi katika mazingira machafu, Kombe anasema wamegeuza soko kuwa uwanja wa kemikali na taka. Wanasagamoyo wengine hawana hata chakula.
- Ukosefu wa uwajibikaji: mama pima anawauzia watu pombe haramu licha ya kuwa ni kinyume cha sheria. Pombe hiyo inawaua watu na kuwapofusha vilevile mama pima anamgawia Ngurumo uroda ili amsaidie kupata kandarasi ya kuoka keki ya uhuru.(20)

3. **KIGOGO**

a.

- maneno ya Tunu
- anamwabia majoka
- ofisini mwa majoka
- Ashu alikuwa gerezani

b.

- Sifa za Tunu
- Mwanamapiduzi
- Msomi
- Mtetezi wa haki
- Jazili
- Mzalendo
- Mwajibikaji
- Mzindushi
- Mwenye mhawalaka mwema

c. Thibitisha kwa kutoa mifano kuwa Maisha ya Majoka yametawaliwa na dhuluma.

- Dhuluma ni kitendo cha kumnyima mtu haki au stahiki yake; ni uonevu, ni tendo lisilo la haki. Majoka alidhihirisha dhuluma maishani mwake binafsi na katika uongozi mwake.
- Serikali yake hutoza wanabiashara kodi lakini wanafanyia kazi katika mazingira machafu. Uvundo umekithiri. Sudi anasema. “Ni jukumu lao kuhakikisha soko ni safi si kukusanya kodi pekee..... (uk 3).
- Bali na kulipa kodi isiowaletea huduma yoyote wafanyakazi wa soko wanalalamika kuwa wanadaiwa pesa zaidi. Kombe asema kuwa ni lazima wpate chakula na pia wawape wenye nchi kitu kidogo.
- Shua asema mahali wanapofanya kazi wanadaiwa kitu kikubwa au kitu chote.
- Utawala wake unawanahangaisha wafanyakazi, hawafanyi kazi kwa amani Ashua asema “...na kuhangaishwa na wenye nguvu ndiyo hewa tunayopopumua...” (uk2). Sudi anathibitisha hilo anapolalamika kwamba, “si haki kuchukua kilicho chetu na kututishatisha”(uk3).
- Anadhulumu raia kwa kutumia raslimali za Sagomoyo kujinufaisha pamoja na wachache, wanaomunguka. Wao ndio hula ile keki kubwa, huku raia wakitaabika. Sudi anamwambia Boza, “Hapo basi – kijikeki. Kwa nini wewe upate kidogo? Sagamoyo ni kwenu, shrehe ni zenu.. na keki kubwa ni ya kina nani”(uk 14)
- Ni dhuluma pia kwa serikali ya majoka kufunga soko la Chapakazi mahali ambapo watu wengi hufanya biashara ili kupata chakula chao cha kila siku.
- Katika kiwanda chake wafanya kazi wanapujwa. Soko la Chapalazi lilipofungwa bei ya chakula kwenye kioski cha kampuni ya Majoka and Majoka ikapanda maradufu. Wafanyakazi hawawezi kugharimia chakula. Hii ni dhuluma dhidi ya wafanyakazi. Majoka kuendelea kujitajirisha huku wafanyakazi wake wakiumia (uk 17)
- Maandamano yanayokumba jimbo la Sogamoyo si walimu, si wauguzi, si wafanyakazi wa kampuni, si wafanyakazi wa soko ni ithibati tosha kuwa watu wanadhulumiwa.
- Ni dhuluma pia kuwaua watu.
- Alimuua Jabali kuwa mshindani katika siasa.
- Wale vijana watano wa Majoka and Majoka Company waliuawa wakidai haki yao kwenye maandamano.
- Tunu alikuwa auawe kwa kukashifu vitendo vyake vya kidhalimu.
- Kingi alionywa kuwa angevunjwavunjwa na chatu kwa kukaidi amri ya Majoka ya

kuwapiga watu risasi.

- Majoka anawaua hata washirika wake wa karibu akihofia kuwa wangetoa siri zake. Kwa mfano Ngurumo aliuawa ilhali alikuwa mfuasi wake sugu. Chopi alipangiwa kuuawa pia kwa kijua 'mengi'. Hii ni dhuluma iliozidi. Majoka anasema anaona ziwa kubwa ajabu lililofurika damu... kuna kilio cha ndani kwa ndani na machozi mengi humo yasiyoonekana... (uk 73) na kwamba mikono yake ilikuwa imefungwa nanga humo damuni. (uk 73).
- Serikali yake imewahini wananchi raha, wanaishi kwa hofu. Heshima anakiri kwamba yeye na Tunu wake wanaishi kwa hofu nyingi. Wanaogopa kwamba wanaweza kuvamiwa wakati wowote hasa akitilia maanani kuwa mwanawe nusura auawe. Tunu anapopiga nduru kwa kuota mamake anafikiri wameshambuliwa.
- Isitoshe serikali ya Majoka inawahangaisha watu kuwatupia vijikaratasi vya kuwashurutisha wahame Sagamoyo si kwao. Siti anasema, "Jana walitutupia vijikraratasi... Tuhame Sagamoyo si kwetu" (Uk 52-53).
- Anaamuru polisi kusambaratisha kikatili maandamano raia ambao hawakuwa na hatia. Walikuwa wakidai haki yao tu.
- Anwawadhulumu raia waliochagua kwa kutowapa huduma muhimu kama vile hospitali, barabara, maji safi, vyoo, nguvu za umeme, elimu na hata ajira kwa vijana waliokamilisha masomo. Viogozi wasiowajibika hawatilii maanani mahitaji ya umma.

4. **HADITHI FUPI.**

Kwa kurejelea hadithi ya mapenzi ya kifaurongo onyesha jinsi jamii imegawika kitabaka kuegemea

a. Uchumi
b. Kazi
c. Elimu

Tabaka ni kundi la watu katika jamii linalojitofautisha na kundi jingine kwa misingi ya kiuchumi, kielimu, kikazi n.k. katika hadithi hii matabaka haya yamedhihirika.

a. Kiuchumi, kuna tabaka la juu matajiri na la chini la maskini. Watu wenye fedha nyingi wanaweza kununua magari makubwa ya kibinafsi, kujenga majumba ya ghorofa, kununua matatu na mabasi.
    - Matajiri wanaweza kuwapeleka watoto wao shule za mikoa na kitaifa maana wanau wezo wa kulipa karo ya huko.
    - Watoto wa matajiri wakifuzu kwenda chuo kikuu wanahahikisha wanaishi maisha ya kifahari. Mavazi yao ya kutoka nchi za nje wamenunuliwa simu za bei ghali, vipakatalishi na Ipad
    - Wazazi hawa ni msaada kwa watoto wao, wanawapa pesa za kutosha za matumizi chembilecho Penina, babake humtumia elfu tano kila wiki.
    - Watoto wa matajiri hawasumbuki hata baada ya kufuzu vyuoni na kukosa kazi. Penina analipiwa kodi na wazazi wake na nyumbani mwake mna runinga na kochi. Bila shaka amenunuliwa na wazazi wake.
    - Utajiri wa wazazi ndio unawafanya baadhi ya wanafunzi wa chuo cha kivukoni kutokuwa makini sana. Masomo yakiwa magumu, wengine wanahiari kuyaacha. Wanajua wanaweza ungana na wazazi wao katika biashara zinazowaletea mapato makubwa, kwa mfano magari ya uchukuzi na nyumba za kupanga.
    - Shakila anatafutiwa kazi na mamake kwa sababu ana cheo kikubwa kazini mwake. Ni mkurugenzi mkuu.
    - Tabaka la maskini linawakilishwa na Dennis na wazazi wake. Dennis mara nyingi

anabaki kutamani/kumezea mate magari makubwa yanayoendeshwa na wenye pesa.

- Dennis anakiri kuwa “kwetu tunapigania mikono ielekee vinywani.” (uk 20) Haya ndio maisha amezoea”Dennis, hata chuoni anakosa chakula, anakosa pesa za kununua na anakosa kwa kukopa,asema, pesa zangu zimekwisha na sina kwingine ninakoweza kukopa kwa”(uk 18.)
- Maisha ya watu maskini ni ya hadhi ya chini; ya kunywa uji mweupe bila sukri, mavazi ya bei ya chini yakilinganishwa nay a matajiri ambayo ni ya kutoka nchi za nje.
- Chumba cha Dennis kinaonyesha anatoka katika tabaka la chini. Hakina vitu vya thamani. Kuna kijiredio ambacho kinaimba kwa sauti ya chini, shuka za kitandani ni kuu kuu zimechanikachanika n.k. hakika kuna utengano wa wazi kati ya maskini na matajiri.
- Watoto kutoka jamii maskini wanasomea shule za hadhi ya chini, shule za vijijini. Watoto kama vile Dennis huishi wakiwazia umaskini wao katika jamii uliowakossha nafasi ya kusomaa katika shule za kifahari.
- Tabaka la maskini hufikiri kuwa elimu ni njia moja ya kuwanasua kutoka umaskini. Dennis anasoma kwa bidii ili awe daktari, mhadhiri, mtangazaji au mwandishi msifika.
- Anatamani kuwa ataweza kununua gari kubwa na hata kuwasaidia wazazi wake. Anawaza moyoni hivi, “Maskini nitawalipaje wazazi wangu wema wlionitendea? Nani atawafidia nguvu na jasho lao…uk 25. Kwa hivyo ni jambo la kutamausha mno Dennis anaposaka kazi kwingi na anakosa. Miaka mitatu baada ya kufuzu chuoni na bado alikuwa akifanya ‘tarmacking’ yaani kutafuta kazi.
- Watoto kutoka jamii maskini hawapati msaada wa kupata ajira kutoka wazazi. Maasa wazazi hawajulikani na hawana uwezo. Hii ndio sababu Shakila anapata kazi katika kampuni ambamo mamake anafanya kazi naye Dennis anakosa.

5. **LAZIMA: SHAIRI**

a.

i. Kujitahadhari na vyote vinavyong`ara sababu zitawadhuru
ii. Kujiepusha na zinaa
iii. Wasiandame baa.
iv. Wasifikirie wanaovalia kinadhifu na kujipondoa ndio wazuri na kuwaandama.
v. Wasiandame/ wasipapie anasa
vi. Kumcha Jalia
vii. Kuvumilia na kujikaza Zozote 4 x 1 = 4

b.

i. Tabaini – si hayati si mamati ub 1
ii. Msemo - makaa kujipalia ub 2
kaza kamba.
iii. Methali - si mlamgo nyumba nzuri…ub 4
iv. Tashbihi- wamepita ja umeme ub 5
kufa kama nyani ub 6 Zozote 2 x 1 = 2

c.

i. Mathnawi – migao miwili kila mshororo.
ii. Ukara – vina vya ndani vinatofautiana lakini vya nje vinafanana kila ubeti. (2 x 1= 2)

d.

i. Tabdila - huno - huo ubeti 1

ii. Inkisari – mkamba - mkaamba ubeti 1
juta – kujuta ubeti 1
alo – aliye ubeti 8
ngia – ingia ndani
iii. utohozi - sitoria ub 5
iv. Lahaja -hino – hiyo ubeti 1
v. kuborogha sarufi – makaa kujipalia
Madhara kukadiria zozote 2 x 1= 2

e.
i. Ingawa vitu vitaonekana bora na kuvutia machoni.
ii. Dunia ina udhaifu na maovu mengi.
iii. Vijana ninawasarifu / nawasihi iwapo mtanisikia.
iv. Tahadhari na vyote vinavyong`ara kwani vinaweza kukudhuru. 4 x 1= 4

f. Toni ya ushairi- mshairi anawashauri vijana dhidi ya kutotahadhari na ya dunia. 1x 1= alama 1

g. Nafsi neni – mshauri/ mzazi/ mhenga alama 1
Nafsi pokezi – vijana alama 1

h.
i. Balagha – wawapi leo madume, anasa walopapia?
Umuhimu – kuibua hisia za nafsi nenewa kuhusu kupapia anasa na raha.
ii. Bora/ zuri (alama 2)

FASIHI SIMULIZI

6.

a. Miviga ni sherehe za kitamaduni ambazo hufanywa na jamii yoyote katika kipindi maalumu cha mwaka. *(1x2=alama2)*

b. Sifa za miviga
- Miviga huandamana na matendo Fulani k.m kucheza ngoma, kupioga magoti
- Huongozwa na watu mahususi k.m kuna wanaongoza kafara
- Huandamana na utoaji mawaidha/ulumbi
- Maleba huvaliwa na wanaohusika
- Hufanyiwa katika mazingira maalum
- Huambatana /hufungamna na utamaduni wa jamii husika
- Hufanya katika kipindi/wakati maalum
- Huwa na kutolewa kafara
- Sadaka hutolewa
- Kuna kula viapo – wahusika huweka ahadi kutenda wema *(zozote 5x1=alama5)*

c. Udhaifu
- Husababisha kudorora kwa maendeleo
- Huleta utengano kati ya jamii/majirani
- Huasi mabadiliko ya kiwakati (nyingine zimepitwa na wakati)
- Madhara yaweza kutokea hasa vifaa butu vinapotumika
- Huleta utengano wa kijinsia, kumtukuza mwanaume na kudunisha mwanamke k.m jando na unyango *(zozote 3x1=alama3)*

d. Umuhimu wa ngomezi
- Ni njia ya kuwasiliana katika jamii husika
- Hudumisha usiri wa jamii husika
- Hutumiwa kutangaza matangazo muhimu kuhusu shughuli maalum
- Huendeleza utamaduni wa jamii
- Huisaidia jamii kuionea fahari historia yao

- Hutahadharisha kuhusu matokeo ya dharura
- Hudhihirisha ufundi wa kisanaa (kutumia zana Fulani za muziki)
- Hutekeleza majukumu ya maandishi katika jamii zisizojua kuandika
- Huburudisha *(zozote 6x1 = alama 6)*

e. Vizingiti

- Mwingiliano wa makabila tofauti hauruhusu tena matumizi ya ngomezi
- Maendeleo ya teknolojia hayaruhusu ngomezi k.m barua, simu
- Watu wamekuwa wabinmfsi – hawawezi kuitika ngoma ikipigwa
- Ukosefu wa usalama – watu kushambiliwa wakiitikia wito wa ngomezi *(zozote 2x1=alama 2)*

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

1.
   a. **what is a planet?**
      - This is a celestial / heavenly body that rotates on its axis and orbit around the sun.

   b. **Characteristics of planets**
      - They orbit / revolve around the sun
      - Some have satellites
      - Each moves on its own orbit
      - They are at equidistanc

2.
   a. **Main features of the mantle.**
      - Made up of rocks which are fluid /semi solid
      - The density of rocks range from 3.0 to 3.39m/cc
      - The rocks are hot with Temperature ranging from 1000^0c – 3000^0c
      - Thickness of 2900km

   b. **Reasons why the crustal rocks are solid**
      - The crustal rocks are exposed to the atmosphere therefore cool
      - The crustal rocks are hot under pressure/ no overlying material hence cool
      - They cooled faster and therefore solidified

3.
   a. **What is river Rejuvenation**
      - This means renewal of the river's erosive activities / processes due to Eustatic and dynamic changes

   b. **Four ways in which rivers erode**
      - Through Abrasion / corrosion – where the river uses its load to smoothen
      - Solution / corrosion where the river solves soluble rock minerals and carries them in solution
      - Hydraulic where the river exerts pressure in the cracks forcing the rocks to crumble

4.
   a. **Mts. in East Africa with glaciers**
      - Kenya
      - Kilimanjaro
      - Ruwenzori max 2 = 2marks

   b. **Difference between Nunataks and pyramidal peaks**
      - Nunataks are mountain peaks that project through the sheet while pyramidal are glaciated/eroded mt. peaks Mark as a whole 2mks

5.
   a. **what is Biological weathering**
      - This refers to the disintegration of rocks / breakup of rocks with the influence of living organisms.

   b. **Block disintegration**
      - This occurs in jointed rocks
      - Changes in temperate (cooling/heating) makes the rocks to expand and contract
      - The joints will enlarge
      - The rocks will break in blocks (rock blocks) hence block disintegration.*(Must be mentioned to score max 3 marks)

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SECTION B

6.

a.

i. Bridge / mc call's bridge
All weather road loose surface (2 marks)

ii.

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.

ii.
- Forest
- Scrub
- Woodland
- Scattered trees
- Thicket

d.

i.

ii. **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)

7.

a.

i. **what is a rock?**
- this is an aggregate of one or more minerals/it is an aggloramation of minerals.

ii. **Characteristics of minerals**
- they have specific colour
- they have a luster-ability to reflect light
- they vary in hardness
- they have specific cleavage-ability to break a long a preferred direction
- they have the ability to break (fracture) when not controlled by cleavage
- they have specific density
- they have different rates of transparency/translucent/opaque

b.

i. **Rocks marked X, Y, Z**
X – Sedimentary rock
Y – Igneous rock
Z – Metamorphic rocks

ii. **Why rocks X are common at the coast**

- the rocks are sedimentary
- coastal region is a lowland hence is deposition
- coastal is close to the Indian ocean-common marine deposition

c.

i. **What is metamorphism?**
- this is an internal process where the existing rocks are forced to change/transform to new different rocks due to great heat and pressure or both.

ii. **Three processes of metamorphism**
- thermo metamorphism – great heat due to intrusion of volcanic rocks will force the original rocks to change e.g. sandstone change to quartzite.
- Dynamic metamorphism – great pressure due to compression/sheering forces rocks to change to new rocks.
- Thermo-dynamic metamorphism- caused by both great heat and pressure to make rocks change s e.g. granite to Gneiss or clay to slate
- Meta somatic metamorphism – where hot gases force rocks to change.

d. **Economic importance of rocks**
- Some rocks contain vulnerable minerals which are mined and minerals are used for varies purposes by purple
- Some rocks like trachyte, elonolite or marble are used by people for building purposes
- Some rocks form unique features which attract tourists e.g. granite
- Rocks weather/break down to form soil which is used for various agriculture purposes
- Some rocks (impermeable) store water as underground water which is used for industrial/domestic purposes.

8.

a.

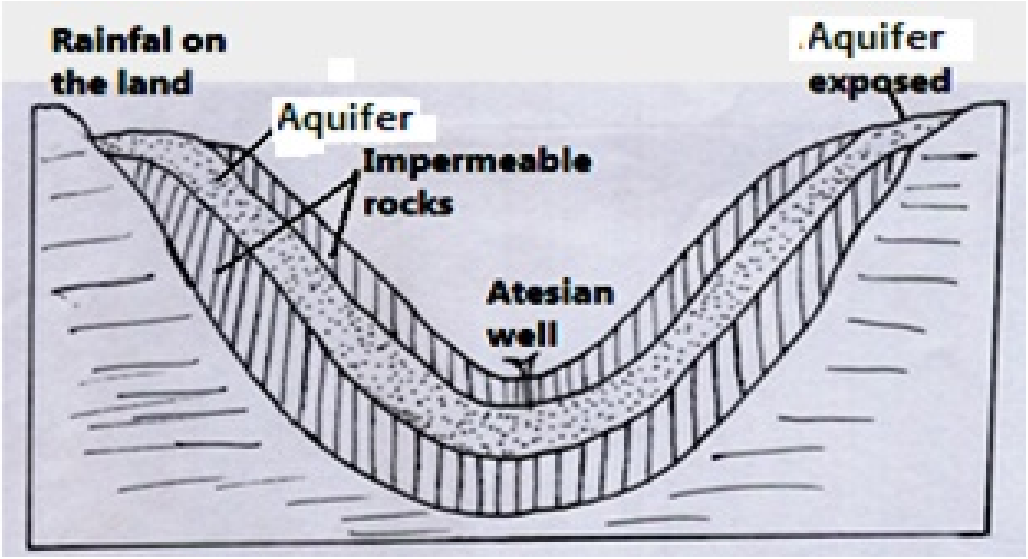
i. **What is a desert?**
- this is a land surface area that is void of/or has minimal vegetation due to insufficient precipitation/minimal rainfall.

ii. **Desert surfaces**
- Reg
- Erg

b.

i. **Reasons why wind is an effective agent of erosion in hot deserts.**
- winds are strong in hot deserts due to variation of pressure gradients
- the absent vegetation makes winds to be more effective
- wind is the dominant agent in hot deserts do not exist

ii. **Formation of an artesian well.**
- The acquifer rocks is sandwiched between the impermeable rocks
- Due to compression, this rocks and folded to form a basin.
- The acquifer rocks are exposed to the surface in the highland where there is rainfall.
- Water will seep from highland to the basin
- Wind erosion/ drilling expose the saturated aquifer rocks at the basin and form a well.
  Diagram – 1
  Explanation – 5



c.

i. **parta of the diagram**

A – Zone of the non – saturation

B – Zone of intermittent saturation

C – zone of the permanent saturation

ii. **Four ways in which underground water influences human activities**

- Springs/well as a source of clean water attract human settlement
- Underground water is used for industrial and domestic purposes
- Geysers/stream jets are harnessed for geothermal production used in industries/ homes
- Geysers/hot springs attract tourists
- Underground water is used for irrigation in deserts, semi – deserts for agricultural production.
- Some hot springs (Spas) are used for medicinal purposes.

9.

a.

i. **What is volcanicity**

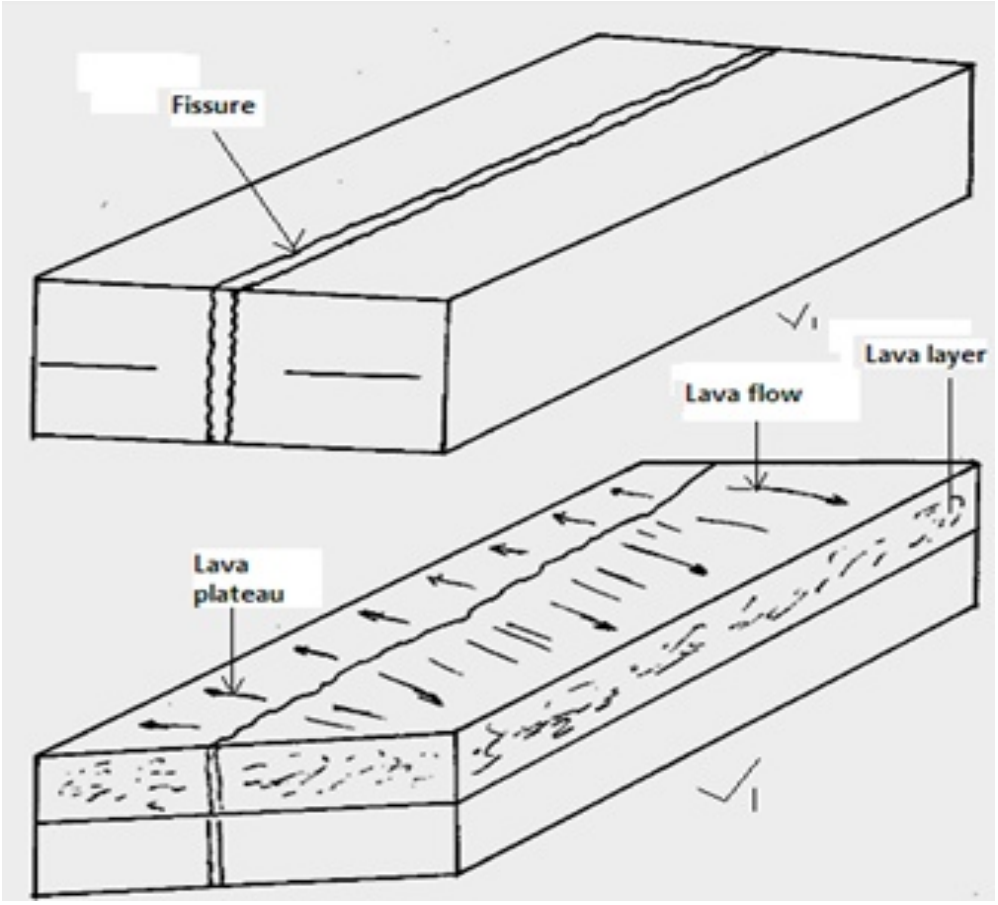
- This is an internal land forming process where gaseous, liquid and solid materials are forced on to the earth surface or into the crustal rocks due to great heat and pressure.

ii. **Characteristics of basin lava**

- they contain 45-52% of silica
- it is very fluid
- It flows for a long time before they solidify (low viscosity)
- It is very mobile.

b. **Formation of lava plateaus**

- formed when ultra-basic lava is extended on the earth surface
- the lava is extruded through the cracks or fissure
- the basic lava will spread over long distances before it solidifies
- successive eruption will from layers of lava that will make the land level/plain



c.

i. **Differences between lapoliths and phacoliths**
- A phacolith is a sourcer shaped volcanic strata in a syncline while phacolith are horse-shoe shaped lava strata in the anticline

ii. **Economic importance of batholiths**
- Some batholiths are exposed on the earth surfaces as granite rocks which are unique and attract tourists.
- Batholiths formation may lead to formation of metamorphic rocks rich in valuable minerals which are mined
- When batholiths are exposed on the earth's surface, they are varried to provide building materials
- Batholiths rocks are weathered to form soils used for agriculture.

d.

i. **Use of the hypothesis**
- it is used as a guide in their research
- it is an operational principle for their research

ii. **Preparation for fieldwork with their teacher.**
- preparation of the objectives/questionnaire
- making a pervist/reconnaissance
- formation of discussion groups
- asking for demission for the head/local administrative
- developing a work schedule.

iii. **Main problems of field study.**
- climbing the steep slopes of the rocks
- dangers from rock fall
- heavy/continuous rainfall disrupted their study
- thicket vegetation on the hills slowed down their study

10.

a.

i. **Climatic region on the map.**

1. Mediterranean climate
3. Arid/semi arid climate
4. Tropical climate
5. Equatorial climate
6. Warm temperature (mountain)

ii. **Characteristics of climate named 5**

This is the tropical equatorial climate with the following characteristics;

- The region expenses very high rainfall above 1500mm
- Rainfall is experienced throughout the year
- Rainfall occurs in two maxima's
- Conventional rainfall is common
- Temperatures are warm-hot 24^0-32^0C
- The region experiences low atmospheric pressure
- There are weak winds (doldrums)
- The area experiences high humidity.

iii. Main factor influenced climate 6.

- altitude

b. **How vegetation has adopted in the hot deserts of Namib/Sahara**

- some plants have long tap roots to reach the deep water table
- some have inverted stomata to reduce water loss.
- some plants have rough backs to avoid water loss and protection
- some trees have succulent trunks/stems/leaves to store water
- seeds of some plants remain until when rare rain occurs
- some plants are thorny to reduce water loss/protection
- some plants/trees are deuduons, most of the year to prevent transpiration

c.

i. **Water towers in Kenya**

- Elgon tower
- Mau tower
- Abadares tower
- Mt Kenya tower
- Cherengany tower

ii. **Measures the government has taken to conserve forest.**

- Encouraging people to plant trees
- Encourage people to change to agro forestry
- Formation of non-governmental groups e.g. green belt group involved in planting trees
- Evicting people who have encroached on forest land
- Protecting forest reserves
- Mass education of importance of forest
- Introduction in the education curriculum e.g. forestry as a discipline up to university

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

1.
   a. **Underground mining methods (2marks)**
      - Shaft
      - Adit
      - Drilling
      - Solution

   b. **A** – Gas
      B – Oil
      C – Solution (3 marks)

2.
   a. **Ways through which tourist attractions in Kenya differ from Switzerland (3marks)**
      - Kenyan culture is more varied than those of Switzerland
      - Kenya's beaches are used throughout the year while in Switzerland has hot summers and cold winters.
      - Kenya has a magnificent Rift Valley whereas Switzerland has glaciated valleys.

   b. **Tourist attractions in the coast (2 marks)**
      - warm climate
      - Sandy beaches.
      - Varied culture
      - Historical sites e.g. Fort Jesus.
      - Hospitality of the coast people.
      - Sporting activities in the ocean.
      - Coast and coastal features.

3. **Factors which influenced location of Parkerra irrigation scheme (5marks)**
   - Low and unreliable rainfall less than 650MM
   - High temperature throughout the year (over 30^0C) conducive for vegetation and fruit growth.
   - Availability of permanent water from river Perkerra
   - Fertile volcanic soils
   - Gently sloping landscape
   - The area was sparsely populated –idle land for irrigation

4. **Factors that led to location of Mombasa city and port. (5 marks)**
   - Sheltered harbour making it an international sea port
   - Central position making it a focal point of routes / strategic site.
   - Larger hinterland rich agriculture and minerals
   - Development of many industries e.g. tourism oil refinery etc.
   - Development of commercial activities
   - Administrative centre attracting many people
   - Construction of railway and other means of transport

5.
   a. **Areas in Kenya which are being exploited for Geothermal power.**
      - Olkaria
      - Menengai crater region
      - Magadi
      - Eburu
      - Longonot and Suswa

- Turkana
- Lake Bogoria (Any 2x1 = 2marks)

b. **Factors that hinder expansion of geothermal power in Kenya.**

- Inadequate capital for exploitation
- Remoteness of some of the sites in mountainous areas such as Longonot and Suswa.
- Inadequate technology to harness geothermal power.
- Geothermal power areas are not evenly distributed in the country but restricted to the Rift-valley. (Any 3x1 = 3marks)

SECTION B

6.

a.

i. **Other methods used to represent data includes**

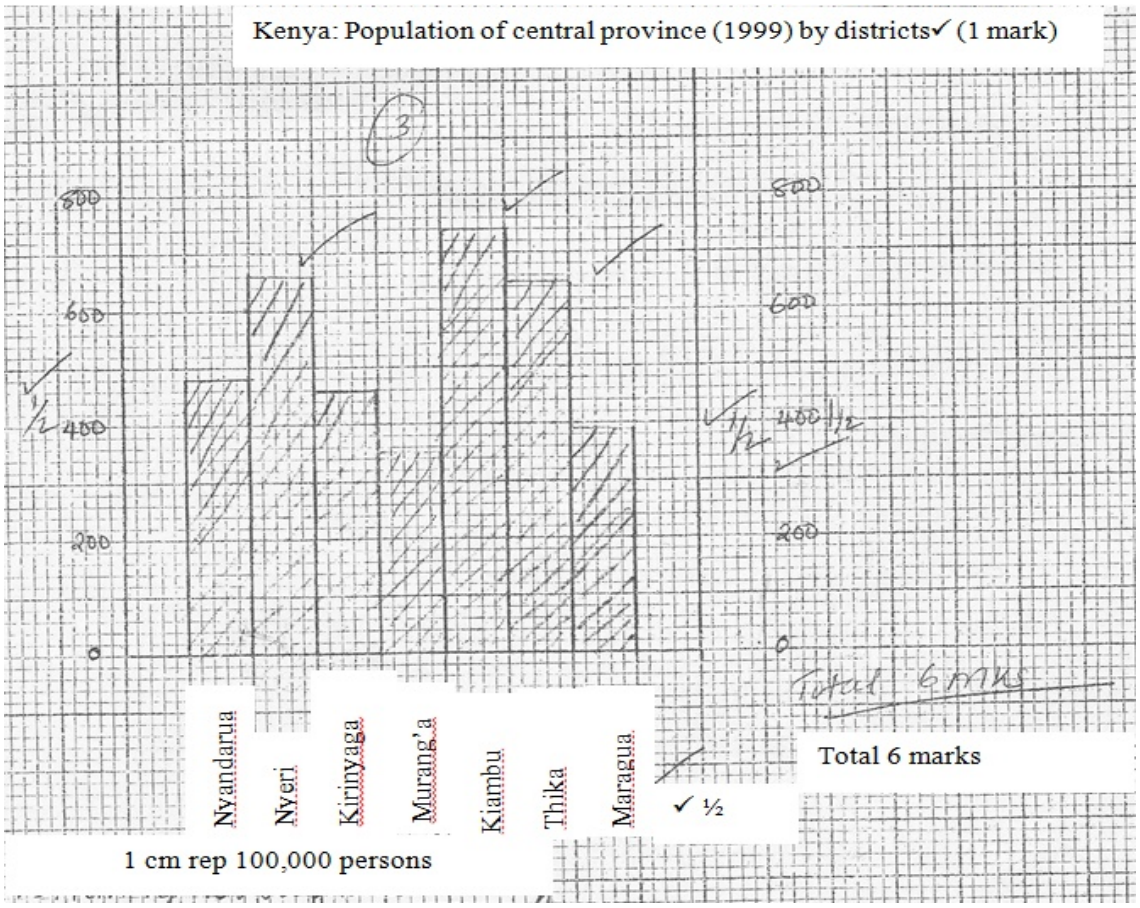
- Divided rectangles
- Proportional circles
- Pie charts (Any 3x1 = 3marks)

ii. **Length of the bars**

Nyandarua = 4.8 cm
Nyeri = 6.6. cm
Kirinyaga = 4.6 cm
Murang'a = 3.5 cm
Thika = 6.5 cm
Maragua = 3.9 cm
Kiambu = 7.4cm

Scale: 1cm represents 100,000 persons

Title – Simple bar graph for population in central province 1999



iii. **Advantages of using bar graphs to represent statistical data.**

- They are easy to construct
- Bars being solid in appearance give the impression of tangible quantities and so suitable to represent population quantities.
- Easy to compare quantities represented as bars stick out prominently against one another.
- Suitable for wide range of data (Any 4x1 = 4marks)

b. **Population density of Kiambu district whose area is 1324Km^2**

Population = 744010

Area = 1324Km^2

Population density = $^{\text{Population}}/_{\text{Area}}$

= $^{744010}/_{1324}$

= 562 persons per square kilometer

c.

i. **Reasons for the high population in Central province of Kenya**

- The province receives high rainfall in most areas which supports agriculture and livestock farming.
- The soils are fertile volcanic type, which favour high agricultural production
- The area has a cool climate which favours the growth of commercial crops like tea and coffee and the rearing of dairy cattle. It also favours settlement.
- There is adequate water supply for domestic use and for irrigation of crops.
- The province has plantations, urban centres, industries and is near Nairobi. All these attract people from other provinces, who settle in the area while searching for jobs or are in employment.
- Availability of health facilities has led to reduced death rates and improved nutrition. This has led to population increase. (Any 5x2 = 10marks)

7.

a. **Distinction between environment and habitat.** (2mks)

- The external conditions that surround a living organism (a plant or an animal)
- Type of environment (home) in which a living organism is found

b. **Reasons why we need to conserve and manage our environment. (4mks)**

- For proper utilization of resources
- Substance of human life
- For economic value
- For aesthetic value
- For protection of endangered species
- For posterity
- To curb global warming 1×4=(4mks)

c. **Causes of environmental degradation in Kenya.**

- Industrial discharge /pollution of the environment by industrial discharge is poisonous to plants and animals in marine environment.
- High population density e.g. central and Western province has more people than the environment can support thus leading erosion and desertification
- Continuous change in weather in Kenya has led to prolonged drought after every 5 years which may cause desertification due to severe shortage of rain leading to hazards
- Overpopulation/over cropping leads to soil erosion hence loss of soil fertility.
- Pests and diseases destroy crops leading to low yields 1×6= 6mks

d. **Measures taken by the Kenyan government to manage and conserve the available natural resources.** (6mks)
- Creating public awareness and education
- Legislation – the government has made laws
- The work of non-governmental organizations (NGOs)
- Setting up recycling factories
- Rehabilitation of derelict land
- Research; on various ways of conserving and managing environment e.g. better methods of utilizing soil, planting disease resistant crops, etc. 1×5 = 5mks

e. **Four ways through which floods are controlled on Kenyan rivers. (8mks)**
- Dykes are constructed on raised banks/levees of rivers to increase their height in order to retain the water within the river's course
- Dredging of river channels to deepen and widen them to make it possible for them to accommodate excess water.
- Dams are constructed across the rivers
- Re-directing/straightening of the river to control its wild flow
- Planting/straightening of the river to surface run-off and increase infiltration
- Diverting tributaries to other rivers to reduce the volume of the main river 4×2

8.

a.

i. **Indiscriminate** fishing is catching of fish including the young and immature ones (2 mks)

ii. **Inland fishing** is the fishing that takes place in all fresh water bodies i.e. lakes and rivers, ponds, etc. (1 mk)
Marine fishing is the fishing that is carried out in the seas and oceans along the coasts. (1 mk)

b.

i. **Physical factors influencing fishing.**
- Availability of plankton; this determines the number of fish in an area
- Ocean currents/convergence of ocean currents. Areas under the influence of warm ocean currents have fewer fish species than those influenced by cold ocean currents. When cold and warm ocean currents meet, the temperature is regulated.
- Nature of the coastline. Intended coastlines are best sites for fish breeding because of the calm waters and anchorage of large ships and development of ports.
- Relief – Rugged landscape in various countries in temperate regions hinder Agricultural activities and thus people turn to fishing as an alternative economic activity.
- Temperature of the water – cool waters of temperate latitudes have abundant fish due to high growth of planktons while tropical latitudes have limited amounts of fish due to inadequate plankton.
- Broad continental shelf along the coastline favors the growth of plankton leading to more fish. 1 × 5 = 5mks

ii. **Benefits of fishing to Kenya.** (8mks)
- Source of income. The fishing industry is an income generating activity through catching, processing, transporting and taxation.
- Source of employment. Creates self-employment to those who are fishing, those employed by the fishermen and others in the fishing-related industries.

- Tourist attraction. Sport fishing along the coast, lake Naivasha and lake Victoria provide recreation facility for tourists earning the country foreign exchange.
- Source of raw material for chemical industry. Fish oil and fat are used in manufacture of soap, cosmetics, medicine and fertilizers.
- Development of related industries. New industries like boat building and net manufacturing, etc. have been established thus boosting industrialization.
- Source of food and medicine. Provides nutrients such as proteins, oil, mineral salts and vitamin A and D.
- Biological control of pests. Fish feed on mosquito larvae. This helps in suppression and control of diseases such as malaria and yellow fever.
- Development of transport systems. Has led to development of feeder roads connecting fishing ground to the markets.
- Development of fishing towns. The fishing industry has led to the growth of fishing towns e.g. Kisumu, Ngomeni, Watamu, Shimoni, etc. 1 x 5 = 5 mks

c.

i. **Problems facing the fishing industry in Japan.**

- Increasing demand for fish both locally and from other parts of Asia. This has led to over fishing problem and depletion of some fish species.
- Water pollution. Due to spillage of oil from the fishing vessels leading to reduction of fish species in the high seas.
- Due to use of advanced technology and modern equipment. 3 × 2 = 6mks

ii. **Reasons why marine fisheries in Kenya are underdeveloped.**

- The Kenya continental shelf is narrow.
- The coastline is fairly straight and has few indentations.
- The waters are relatively warm for growth of plankton on which fish feed.
- Inadequate capital for fishermen to buy and maintain modern equipment.
- Fishermen have inadequate skills.
- There is low local demand for fish.
- Limited market due to competition from the developed countries. 1 × 2 = 2mks

9.

a.

i. **Three Districts in Kenya where beef farming is carried out in large scale**

- Laikipia
- Trans-Nzoia
- Kilifi
- Nakuru
- kajiado
- Kwale (Any 3x1=3marks)

ii. **Name four types of beef cows kept in Kenya.**

- Zebu
- Herford
- Boran
- Aberdeen Argus
- Galloway (Any 4x1 = 4marks)

b.

i. **Problems facing beef farming in Kenya**

- High temperatures which have made it hard to raise cattle in some areas.
- Inadequate rainfall that cannot sustain nutritive pasture lands.

- Infertile soils which do not support quality grass.
- The people belief in keeping large herds of cattle irrespective of quality.
- Pests and diseases particularly tripanosomiasis and rinder pest.
- The high cost of inputs e.g. drugs have made livestock keepers avoid modern technique of treatment of the animals.
- A limited home market caused by the low purchasing power.
- The poor state of transport and network has led to difficulties in accessing markets. Any 4 x 2 = 8 marks

ii. **Measures taken by the government of Kenya to improve beef farming.**

- Pedigree cattle have been cross-bred with indigenous breeds
- The farmers are being encouraged to adopt modern methods of rearing and breeding beef cattle.
- Water has been made available by building dams and reservoirs
- Pasture land has been ploughed and resown with special strains of drought resistant and more nourishing grass.
- Research has been undertaken in animal disease control and management.
- Extension officers are available and offer the necessary advice to the livestock farmers.
- The price of meat products has been decontrolled to give incentives to the livestock farmers. (Any 4x1 = 4marks)

c.

i. **The name given to the temperate grasslands where beef farming is carried out in Argentina**

- Pampas (1x2 = 2mark)

ii. **Factors favouring beef production in Argentina.**

- Fertile soils which give use to natural pasture land.
- Good pasture land consisting of the Alfaalfa grass.
- Moderate rainfall of upto 1000mm which is well distributed throughout the year.
- Average temperatures of about 24^0C in winter.
- Introduction of good quality cattle like the Shrithorn and Hereford from the European countries.
- The large home and foreign market.
- The scientific management of the cattle ranches.
- The elaborate transport network especially the railway which enhances the transportation of beef to the factories and markets.
- Availability of drugs to fight pests and diseases. (Any 4x1 = 4marks)

10.

a.

i. **Examples of extractive industries**

- Tanning - Mining
- Lumbering - Fishing
- Farming (Any 2x1 = 2marks)

ii. **Problems associated with industries in Kenya**

- Concentration of industries in one area leads to noise / water / air / land pollution
- Leads to displacement of people in densely populated areas, causing high cost of compensation
- Causes imbalance in economic development. Roads / social services are concentrated in industries

- Some important sectors are overlooked / neglected leading to problems like food shortage where agriculture is neglected
- Rural-urban migration as most industries are located in the urban areas – leads to shortage of labour in rural areas.

b.

i. **Examples of industries found in the Ruhr region of Germany. (3 marks)**
- Iron and steel
- Textile industries
- Electronics
- Engineering
- Oil refinery
- Service industries – banking
- Chemical industries

ii. **Major reasons for the decline of coal as a major sources of fuel. (6marks)**
- The increased use of other sources of energy as H.E.P, oil and natural gas.
- Rising costs of extracting coal since the mines have become very deep
- Mining of coal leads to environmental degradation
- Coal has low carolific valves compared with other fuels such as oil.
- Steel is increasingly being made from scrap metals.

c. **Factors that have influenced development of electronics and car manufacturer industries in Japan**(8marks)
- Advanced technology / automation has led to the efficient and automated car production.
- Japan produce fuel saving vehicles (cheap)
- Japan has many natural harbours favouring development of large parts making importation of raw materials and exportation of cars possible.
- Technical oriented educational policy has made Japa to develop car and electric industries very fast.
- Has high population with high purchasing power which provide a large market for the goods.
- Her terrain / rugged landscape is not suitable for development of agriculture hence industries provide alternative source of income.
- Japan change of policy from military aggression to economic revolution has led to rapid industrial growth.
- Adequate capita to invest in manufacturing industries.
- Highly developed sources of H.E.P.

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HISTORY & GOVERNMENT PAPER 1 Marking Scheme - 2019 K.C.SE Prediction Set 2

SECTION A

1. **The first place the Oromo settled in Kenya when they arrived in the 16th century.**
   - Eastern shores of Lake Turkana. (1 x 1 = 1mk)
2. **The main benefit of the social political and economic organization of the Abagusii.**
   - They were able to enjoy peace and social stability. (1 x 1 = 1mk)
3. **Two effects of the spread of Islamic culture along the coastal region of Kenya.**
   - Gave rise to construction of stone buildings.
   - Introduction of new way of dressing.
   - Eating habits changed
   - education based on madrasa.
   - Islam spread. (any 2x1 = 2mks)
4. **Two limitations to freedom of expression.**
   - It should not be used to injure the reputation of others.
   - It should not be used to divulge classified information.
   - One should not comment on matters that are already before the court. (any 2x1 = 2mks)
5. **Two communities which were entitled to Kenyan citizenship by the independence constitution of Kenya**
   - All the indigenous Kenyan communities.
   - Migrant Europeans.
   - Migrant Asians. (any 2x1 = 2mks)
6. **One reason why the British didn't have interest in Kenya during the initial stages of her occupation of East Africa.**
   - Kenya was regarded as economically unviable as she did no have popular minerals to be exploited. (1 x 1 = 1mk)
7. **Two operational bases established by the Imperial British East African Company in Kenya.**
   - Fort Hall operational base (Murang'a).
   - Fort Smith operational base (Kabete). (2 x 1 = 2mks)
8. **The person who introduced growing of sisal into the British protectorate.**
   - Richard Hindrof, a German doctor. It was introduced from Tanganyika in 1893. (1x1= 1mk)
9. **The main reason why the Kikuyu Association was not aggressive in demanding African rights.**
   - The association was made up of loyal chiefs who though concerned about Agikuyu problems never wanted to offend the colonial government. (1 x 1 = 1mk
10. **The main reason why the Hilton Young Commission was established in 1927.**
    - To look into the question of forming the East African Federation made up of Uganda, Tanganyika and Kenya. (1 x 1 = 1mk)
11. **Two education bodies that spearheaded the establishment of Independent Schools and churches among the Agikuyu.**
    - Kikuyu Independent Schools Association.
    - Kikuyu Karing'a Educational Association. (2x1 = 2mks)
12. **Meaning of Natural justice.**
    - It's the requirement that those people or bodies that resolve disputes adhere to at least minimal standards of fairness. (1 x 1 = 1mk)

13. **The main function of the County Assembly.**
    - It makes and amends and repeals country laws. (1 x 1 = 1mk)
14. **Two main categories of National Revenue resources.**
    - Domestic revenue sources.
    - External revenue sources. (2 x 1 = 2mks)
15. **Define Civil Service**
    - Civil service is the executive arm of the government that is responsible for the implementation of all government programmes at all levels. (1 x 1 = 1mk)
16. **Two characteristics of African socialism that promote national development in Kenya.**
    - Democracy.
    - Equal opportunities.
    - Respect for human dignity.
    - Mutual social responsibility. (any 2x1 = 2mks)
17. **Two roles played by theatre in Kenya.**
    - Entertainment.
    - Educating people on social issues, policies etc.
    - Creates employment.
    - Uniting Kenyans e.g. people of different ethnic groups, father to watch.
    - Emphasizes the need for good governance. (any 2x1 = 2mks)

SECTION B

18.

a. **Five reasons why the Bantu migrated from their coastal settlement at Shungwaya in the 18th Century**
    - Invasion of the settlement by the incoming cushites.
    - Internal conflicts.
    - Population pressure.
    - Outbreak of diseases / natural calamities.
    - Search for more land for pasture and settlement.
    (any 5x1 = 5mks)

b. **Describe the Political organization of the Maasai during the pre-colonial period.**
    - The Maasai were ruled by the council of elders. The council of elders consisted of ritual leaders, clan heads, and family heads.
    - The council of elders were responsible for maintaining law and order making decisions about ceremonies, declaring wars and settling disputes.
    - The age-set system was an important institution among the Maasai. The age-sets exercised leadership roles in turns.
    - There existed a class of warriors the Morans who were used to carry out raids and also defend the community.
    - There was a ritual head the Oloibon who by the 19th century played important political roles. He advised the community during a crisis. (any 5x2 = 10mks)

19.

a. **Five factors that led to the growth of towns along the coast of Kenya before the 19th Century.**
    - The coming and establishment of settlements along the coast by early visitors.
    - The development of the Indian Ocean
    - Some towns were established on Islands for security reasons.
    - Existence of deep well sheltered harbours.
    - Climatic conditions were favourable.
    - Increase in population due to intermarriages.

- The settlement of Muslim refugees from Arabia.
- Effective admiration by the rulers of the towns enabled them to expand. (any 5x1 = 5mks)

b. **Five factors which led to the decline of the coastal towns after 1500.**

- Disruption of trade by the Portuguese resulted in loss of revenue.
- Constant warfare and conflict between the Portuguese and the Coastal towns led to the total destruction of some coastal settlements.
- Invasion of coastal settlements by the Zimba led to the disruption of economic activities of the coastal settlement.
- Increased conflict between the city states discouraged traders from the interior to bring trade goods to the coast.
- The drought spell hindered farming activities.
- Conflicts between the Mazrui family and the Al Busaidi family over the control of the coastal settlement. (any 5x2 = 10mks)

20.

a. **Five roles of the political parties in the struggle for independence in Kenya between 1945 and 1963.**

- Political parties united freedom fighters / nationalists in their struggle against colonial rule.
- They prepared nationalists who were to take over the leadership at Independence.
- The parties mobilized mass supports for African nationalists in their struggle.
- They gave moral support to the Mau Mau freedom fighters.
- They presented the grievances of the Africans in international fora and created awareness on the needs of the Africans.
- They pressurized for constitutional changes from the British colonial office to enhance attainment of independence.
- They created awareness among the Africans on their rights and the need to fight for independence.
- They participated in developing the independence constitution / Lancaster house conference.
- They pressurized for the release of the detained nationalists.
  (any 5x1 = 5mks)

b. **Explain the impact of colonial land policies in Kenya.**

- Massive African land was alienated and the Africans were left at the mercy of the colonial government.
- Africans were pushed into reserves which became overcrowded, overgrazed and thus prone to soil erosion.
- Many Africans moved from the reserve and became squatters in European farms where they provided labour, others sought paid employment in towns leading to rural urban migration.
- Land alienation disrupted traditional structures pastoralists could no longer migrate in search of better land and pasture.
- Due to the unwillingness of the Africans to provide labour and the migration of Africans to the urban centres the Kipande System was introduced.
- Taxes were introduced.
- The reserving of the highlands for the Europeans denied the Indians access to arable land. They therefore established residences and businesses in urban centres.
- Land issue became the primary grievance that spurred nationalities activities and eventual struggle for independence. (any 5x2 = 10mks)

21.

a. **Five changes which have taken place in Kenya as a result of the introduction of Multi-party democracy since 1991.**
- Kenyans have been provided with the opportunity to join parties of their choice.
- It has promoted accountability and transparency on the part of the government.
- It has enhanced the implementation of economic reforms in the country.
- It has given the mass media people greater freedom to comment on what it is happening in the country.
- It has created more political awareness and patriotism among the people.
- It has enhanced interaction among Kenyans of different ethnic backgrounds as various political parties compete for support.
- It has enhanced the application of the role of law in the country.
(any 5x1 = 5mks)

b. **Roles which the co-operative movement has played in promoting National Development in Kenya since 1963.**
- Have enabled worker to save and invest their earnings.
- Assist members to market their produce as coffee, tea and sugarcane.
- They create employment opportunities for people.
- They educate members on investment strategies which enhance their participation in national development.
- The government derives income from the co-operatives in form of taxes and shares.
- Co-operatives assist members to acquire property to enhance their economic well being e.g. land.
- They provide dividends to members which enhance their economic status.
- Developing infrastructure e.g. road, storage facilities.
- Banking services. (any 5x2 = 10mks)

SECTION C

22.

a. **Functions of the Director of Public prosecutions in Kenya.**
- He / she exercises state powers of prosecution.
- May take over and continue with a case in court so long as he has permission from the parties involved. This doesn't apply to court martial.
- Can discontinue any criminal case before judgement with permission from the court.
- Can direct the Inspector-General of Police to investigate any criminal case.
- Can institute criminal proceedings against any person before any court. (any 5x1=5mks)

b. **Five functions the Supreme Court in Kenya.**
- Handles presidential election disputes.
- Hearing appeals from the court of appeal, High court or other lower courts.
- Listens to petitions on interpretation or application of the constitution.
- Gives legal advice to National or County Governments.
- It's the highest court in the land and its decisions supersedes those of all other courts.(any 5x2 = 2mks)

23.

a. **Three circumstances under which a Governor may be impeached.**
- Gross misconduct or abuse of office.
- Gross violation of the constitution or any other laws.
- Committing a crime under national or international law.

- Misuse of public funds / misappropriation or embezzlement.
  (any 3x1 = 3mks)

b. **Explain the relationship between the National and County government.**

- The national government should respect the constitution status of the county government.
- The national government should respect the functioning and integrity of the county governments.
- Both should assist, support, consult and implement the legislation of other levels of government.
- Cooperation with the government at the other level in order to exchange information, coordination policies and administration.
- The national government ensures the county government performs its function i.e. the national government intervenes in case the county government fails its functions. (any 6x2 = 12mks)

24.

a. **Functions of the Commission on revenue allocation.**

- Making recommendations on equitable sharing of revenue between national and county governments.
- Making recommendations on other financial matters by county government.
- Defining and enhancing revenue sources of the national / county government.
- Encouraging accountability for public funds.
- Determining, publishing and identifying marginalized areas.
- Reviews the criteria for identifying these areas.
  (any 5x1 = 5mks)

b. **Explain the challenges faced by the government in raising funds.**

- Many people and companies avoid paying taxes.
- People give wrong information about what they earn thus reducing the amount of tax paid.
- Corruption / embezzlement of funds by the government officers.
- Rich Kenyans invest their money abroad instead of locally.
- The stringent / strict donor conditions.
- High interest rates on foreign loans.
- Lending is tied to purchase of goods from the donor / lending countries.
  (any 5x2 = 10mks)

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HISTORY & GOVERNMENT PAPER 2 Marking Scheme - 2019 K.C.SE Prediction Set 2

SECTION A

1. **One advantage of archeology as a source of history.**
   - It provides information on long buried artifacts and remains.
   - It is used in the absence of written record.
   - It verifies through science pre-historic data. (1 x 1 = 1mk)
2. **The title of the tools made by the New Stone Age man.**
   - Microliths (1 x 1 = 1mk)
3. **One urban centre that emerged as a result of early agriculture in Egypt.**
   - Thebes.
   - Memphis. (1x1 = 1mk)
4. **One environmental cause of food shortage in Africa.**
   - Frequent drought.
   - Seasonal floods. (1 x 1 = 1mk
5. **Two challenges faced by space explorers.**
   - Extreme and unfavourable space temperatures.
   - Deadly rays in space which endangers the astronauts lives.
   - Unfavourable environment in space for human life. (2x1 = 2mks)
6. **One use of steel during the industrial revolution.**
   - For making of utensils like pans.
   - For making house roofs.
   - Making farm machinery.
   - Construction of railway lines, bridges and cars.
   - Concrete walls were reinforced using steel. (any 1x1 = 1mk)
7. **One contribution of Robert Koch in the field of medicine.**
   - Discovered isolated bacteria that caused anthrax, cholera and tuberculosis. (1 x 1 = 1mk)
8. **Two factors that enabled West Germany to recover after the Second World War.**
   - West Germany still had a high population which provided sufficient labour.
   - Through the Marshall plan, the USA pumped a lot of money into West Germany which assisted her industries.
   - Good leadership in Germany accelerated the industrialization.
   - German industries were not totally destroyed by the two world wars.
   - Industrial unrest and strikes were not very common in German and therefore industrialization was not interrupted after the two wars.
   - Germany's re-unification in 1990 has continued to promote industrial development. (any 2 x 1 = 2mks)
9. **Two factors that led to the growth of Meroe as an urban centre.**
   - Iron working knowledge.
   - Had good fertile soils hence agriculture.
   - Was an intersection of many trade routes. (any 2x1 = 2mks)
10. **Two importance of Odwira festival in the Asante Kingdom.**
    - Enables the Omanhene to pay allegiance to the Asantehene.
    - To honour the dead.
    - To settle disputes among themselves. (any 2x1 = 2mks)
11. **One way in which public opinion in Europe contributed to the colonization of Africa.**
    - The public urged their states to go for as many colonies as possible and to appease the public, European states scrambled for as many colonies as possible in Africa. (1mk)

12. **Two forms of African reaction to European colonization.**
    - Resistance
    - Collaboration. (any 1x 1 =1mk)
13. **Two differences between British and French administration.**
    - While the British mainly used indirect rule the French adopted the policy of assimilation and later association.
    - While the British allowed traditional rulers to get much powers, the French reduced by undermining African chieftaincy.
    - Under the British colonies were administered separately by the Governor accountable to Britain but the French colonies were regarded as the overseas provinces of France and administered as federation.
    - Under the French, assimilies attained full and equal civil and political rights unlike the British colonies where elites remained subjects.
    - Under the British, indirect rule attempted to preserve African cultures while under the French, assimilation undermined them.
    - The British were keen to appoint the existing traditional rulers as chiefs but the French undermined them by hand picking chiefs from those assimilated.
      (any 2x1 = 2mks)
14. **Two ways in which Mobutu Sese Seko displayed dictatorship in Zaire.**
    - African Nationalism.
    - Afrikanner Nationalism (any 1 x 1 = 1mk
15. **One reason for USA's entry into the Second World War.**
    - Japan's sudden aerial attack of Pearl Harbour on Hawaii Island, the American great naval base.
    - Japan's capture of the French Indo-China in order to acquire materials which threatened the British and the Americans. (1 x 1 = 1mk)
16. **Two reasons why the Manchester Congress of 1945 was unique.**
    - Was dominated by Africans.
    - More radical in its demand.
    - Narrowed itself to African's problems.
    - Attended by trade union representatives. (any 2x1 = 2mks)
17. **Two ways in which the congress checks the powers of the president in the United States of America / USA.**
    - The senate must approve his appointments.
    - Presidents are limited to two four-year terms.
    - The president may be impeached by the congress if his conduct is not satisfactory.
    - Pressure groups also act to check on the president's power and actions.
    - Public opinions normally measured in terms of opinion polls reflect the wishes and feelings of the American people.
    - The congress may refuse to approve expenditure of money on an issue it disagrees on e.g. war. (any 2x1 = 2mks)

SECTION B

18.

a. **Three dating methods used by archaeologists.**
    - Carbon 14 dating
    - Potassium argon/Chemical dating
    - Stratigraphy
    - Fission track
    - Lexico statistic

- Paleomagnetic
- Geological (any 3x1 = 3mks)

b. **Explain the way of life of the early man in the upper Paleolithic period.**

- Made and used tools – microlithic
- Grew food crops and domesticated animals.
- Hunting and gathering became part-time professions.
- Developed crafts
- Developed religious rites.
- Started barter trade.
- Emergence of established forms of government.
- Settled in permanent shelters.
- Began effective division of labour. (any 6x2 = 12mks)

19.

a. **Five roles played by the Tuaregs in the Trans-Saharan Trade.**

- Acted as guides in the desert.
- Provided food and water to the caravans.
- Acted as interpreters between the caravans and West Africans.
- Acted as middlemen in the trade.
- Provided security and protection to traders / Guards the traders.
- Protected the oasis. (any 5 x 1 = 5mks)

b. **Five challenges faced by Trans-Saharan traders.**

- The caravans were attacked by hostile desert communities who stole their goods thus discouraging them.
- The caravans were attacked by desert animals / scorpions and snakes.
- Inter-community wars disrupted their journeys and some lost properties.
- Some got lost in the deserts because the Tuaregs stopped guiding them.
- Communication barrier / lack of a communication language hence difficulties in transactions.
- Extreme desert temperatures i.e. too hot during the day and too cold at night.
- Loss of lives / death due to dehydration in the desert.
- Lack of enough food and water across the desert.
- Some traders suffered sandstorms caused by Harmattan winds buried many traders and camels alive hence killing them.
- Strong rivalry among traders over the control of the trade. (any 5x2 = 10mks)

20.

a. **Three European nations that scrambled for West Africa in the 19th Century.**

- Britain
- France
- Portugal
- Germany (any 3x1 = 3mks)

b. **Six reasons why Samori Toure was able to resist the French for a long time.**

- He used his wealth to pay and enlist many workers and soldiers in his service.
- He had built a large strong standing army of 12,000 soldiers supported by a reserve of 90,000 swift moving men which he effectively used.
- He had his own weaponry manufacturing centre which supplemented imported arms.
- He was a devout Muslim leader who managed to get support to declare a Jihad against the French infidels.
- He applied diplomatic tactics to wade off French annexation by approaching the British for arbitration and intervention.

- He convincingly acquired large arms supply from the British as long as he played them off against the French.
- He organized successful guerilla attacks on French troops.
- He employed the scorched earth policy military tactics to devastate French soldiers.
- His soldiers enjoyed a clear understanding of their area of operation to avoid the French attacks.
- He enlisted local support for a long time for replenishment of food. (any 6x2 = 12mks)

21.

a. **Five disadvantages of using fire and smoke signals in communication.**

- Hard to start during rainy season.
- Could only give one meaning.
- Could not give a private information.
- Could only cover short distance.
- Could become useless if no one on the look out.
- Could not be visible in cloudy or misty weather. (any 5x1 = 5mks)

b. **Five impacts of modern means of communication.**

- Serves as a medium of public education.
- Highly enhanced the level of entertainment,
- Has facilitated space exploration.
- Has encouraged speedy spread of ideas and information across the world.
- Has led to destructive warfare like use of military satellites to direct missiles to their targets.
- May cause noise, pollution e.g. Radio and television.
- Devices such as computers, radio and TV have an addictive effect on users.
- Led to erosion and undermining of cultural values.
- Led to terrorism which threatens peace.
- Led to transmission of pornographic literature hence moral decay.
- Enhanced cultural exchange among people / nations.

- Diseases such as cancer due to prolonged exposure to cell phones which contain radio-active substances. (any 5x2 = 10mks)

SECTION C

22.

a. **Three causes of Second World War**

- Growth of Nationalism.
- Economic depression.
- The Appeasement policy.
- Weakness of the League of Nations.
- Emergence of dictators.
- Alliance system.
- Rise of Hitler and his ambitions.
- Results of the Versailles Treaty. (any 3x1 = 3mks)

b. **Six reasons why the Allies defeated the Axis powers.**

- Allies had many supporters therefore, a large army unlike the Axis.
- Russian attack on Germany following her rearmament and recovery from her losses.
- Allies had more superior weapons unlike the Axis powers.
- Entry of USA on the side of the Allies.

- Failure of Germany to control her conquered territories effectively giving room for them to support the Allies due to liberation.
- Axis powers did not have enough raw materials for military purposes.
- Axis powers made serious military mistakes e.g. Japan only concentrated in producing battleships rather than aircraft carries while Germany failed to prepare adequately for the Russian winter.
- Hitler's concentration in manufacturing V-Rockets rather than jet aircrafts. (any 6x2 = 12mks)

23.

a. **Five characteristics of commonwealth member states.**

- Members maintain cultural ties.
- Have a common language – English.
- Have similar education system.
- Members recognize the Queen of England as the head of the Commonwealth.
- Have a similar military tradition based on the British system.
- Share common democratic institutions e.g. parliamentary systems. (any 5x1 = 5mks)

b. **Five challenges facing the commonwealth.**

- Dominance by some nations especially Britain undermines decisions and policy matters.
- Political instability i.e. in Africa and Asia.
- Ideological difference – some members are pro-capitalism while others communism.
- Personality differences e.g. South Africa withdrew her membership when some members rejected her apartheid policy.
- Nations are more concerned in internal challenges / affairs.
- Inadequate funds to run its activities.
- Divided loyalty, some members are also members of other organizations.
- Withdrawal of some members like South Africa in 1961 and Pakistan 1972.
- Lack of executive authority to enforce, its decision.
- Colonial rivalry where the colonizers were fighting for colonies / Neocolonism.
- Race / colour discrimination e.g. where free movement of members is restricted by new visa rules. (any 5x2 = 10mks)

24.

a. **Three ways in which one can become a member of the House of Lords in Britain.**

- Through appointment by the monarchy.
- Through hereditary.
- Appointment by virtue of one's position in the society. (any 3x1 = 3mks)

b. **Six functions of the Federal government in USA.**

- Levying and collecting taxes.
- Payment of government debts.
- Handles foreign policy.
- Admitting new states into the union.
- In charge of the federal postal system.
- Give grants and monitors the members states.
- Resolve disputes involving different states.
- Regulates trade with foreign countries and the states.
- Making federal laws – establishes federal courts.
- Common defence of the United States and their general welfare.
- Raising and supporting armed forces and declares war. (any 6x2 = 12mks)

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

1.

a. **Describe the first Biblical creation account (Genesis 1) (8 mks)**

- God created the world in six days
- On the first day God created light
- He separated light from darkness and named Light(Day) and darkness(Night)
- On the second day, he divided waters above from waters below by mean of firmament. He called it Sky
- On the third day God divided dry land from the water/Thus he created the seas and all kinds of vegetation
- On the fourth day, God created the Sun, moon and stars
- On the fifth day, he created the birds of the air and fish
- He commanded them to be fruitful and fill the earth
- On the sixth day, God created all kinds of animals
- He completed His work by creating human being in His own image and likeness
- God was pleased with his work and He saw that it was good
- On the seventh day, God rested after completing his work of creation

b. **Mention six relationships between human beings and God in the second Biblical account of creation (6 mks)**

- Human beings were created by God from dust
- Human beings have the spirit of God in them
- Human beings are to obey God
- Human beings get their provision from God
- They are to take care of God's creation

c. **Give lessons to Christians from the fall of Adam into sin in Genesis 3 (6 mks)**

- Shame a product of sin
- They should not hide from God
- They should be open to God
- They should repent their sins
- They should not shift blame to others
- They should accept God's punishment for sin
- They should obey God's commandments

2.

a. **Outline six importance of the Abrahamic covenant (6 mks)**

- Showed Abraham's faith in God
- Demonstrated Abraham's obedience to God
- Abraham was assured of God's protection
- It shows God's commitment to the fulfillment of the promises he made
- God revealed to Abraham that he would have a son
- It bring out the importance of concept of faith
- It reveals God's serious intention to have a close relationship with human beings/bring salvation
- God was in control of Abraham's life

b. **What were the physical effects to the Egyptians when Pharaoh refused to release the Israelites (7 mks)**

- River Nile turned into blood causing a foul smell
- Frogs came out of the river and covered everywhere
- Grants invaded the land
- Great swam of biting flies invaded the land

- Death of Egyptian animals
- Thunder/hailstorms
- Terrible diseases killed the Egyptians
- Locust invaded the land
- There was thick darkness
- Death of Egyptian first born sons

c. **State lessons to Christians from the breaking of Sinai covenant (7 mks)**

- God is the only one to be worshiped
- Christians should have faith in God
- God should not be represented by images
- Christians should not be swayed by others
- They should read the Bible
- God hates sin
- They should resist temptations to worship modern idols
- God is all knowing

3.

a. **Identify five problems encountered by the Israelites while settling in Canaan (5 mks)**

b. **Write down failures of King Saul (7 mks)**

c. **State activities that describe Elijah as a man of God (8 mks)**

4.

a. **Outline five differences between the Old Testament Prophets and African Seers (5 mks)**

- Old testament prophets emphasized covenant way of life while African Seers targeted the entire social well-being of the society
- The OT prophets were nor accepted by their own people while the traditional steers were highly regarded in the community
- OT prophets have been recorded and preserved while traditional prophets have been passed on through oral tradition
- OT prophets worshiped in temples while traditional seers worshiped in shrines
- OT prophets emphasized on monotheistic religion while traditional seers recognized and worshiped ancestral spirits
- OT prophets were chosen by God while traditional seers either inherited the work or were chosen by the community

b. **Describe the vision of the Plumb-line as revealed to Prophet Amos during his call (Amos 7:7-9) (8 mks)**

- Amos saw the Lord standing beside a wall that had been built with the help of a plumb line
- God was carrying a plumb line in the hand
- The Lord asked Amos "What do you see?"
- God said that He is using the plumb-line to show that his people are alike a crooked wall
- The Lord said that he will punish the Israelites
- The places where Isaac descendants were staying will be destroyed
- The holy places of Israel will be left in ruins
- God will bring the dynasty of King Jeroboam to an end

c. **State lessons to Christian from Amos teaching on Israel Election (7 mks)**

- God chooses Christians from many other
- God protects them from enemies
- Christians are the people of God, the new Israel- They should be faithful/obedient

- It is God who chooses them
- God will punish unrepentant Christians
- They should always repent

5.

a. **Identify teaching of Prophet Jeremiah on idolatry (6 mks)**
   - He claimed idolatry/reminded the people that idols by pointing out that they were powerless
   - Idolatry defiled the holy land
   - Idolatry was a rebellion against Yahweh
   - Judah will be utterly destroyed because of Idolatry
   - the people had become worthless because of worshiping worthless gods
   - To Jeremiah, idolatry was like prostitution
   - Idolatry were placed on hill tops
   - Altars were built for pagan gods

b. **Explain the significance of Jeremiah's symbolic act of buying linen waist cloth (Jeremiah 13) (8 mks)**
   - line cloth symbolized Israel holiness
   - The fact that the linen garment was not washed symbolized sinfulness
   - The wearing of the linen cloth shows that God wants bhis people to remain loyal to Him
   - The spoilt cloth shows that the Israelites were now spoilt good for nothing
   - The city of Jerusalem will be destroyed/people taken to exile

c. **Mention six sufferings of Jeremiah during his ministry (8 mks)**
   - Suffered from loneliness/did not marry
   - Was imprisoned by King Zedekiah
   - Was rejected by his own family
   - Was threatened with death
   - His message was rejected
   - He was mocked'
   - Was arrested/put on trial
   - Some people plotted to kill him
   - Was thrown into a deep pit

6.

a. **What were the roles of Rainmakers in Traditional African Communities (7 mks)**
   - pray fro rain
   - Predicts rain/drought
   - Offers sacrifice to ancestors to provide rain
   - Act as intermediaries between God and the people
   - Keep and maintain a shrine when rain performing activities take place
   - Advice on the time to plant
   - Predict the future
   - Plead with God to stop rain when there is floods
   - Interest the signs of animals behavior to foretell weather

b. **State occasions when services of the herbalist were required in African Communities (5 mks)**
   - During sickness
   - During initiation
   - When a person required charms for protection
   - During calamities
   - To dispel witchcraft

- In case of impotence/barrenness
- Before important undertakings e.g. marriage

c. **Identify traditional African practices undermining the dignity of women (7 mks)**

- Clitoridectory
- Polygamy,y
- Early marriage
- Wife inheritance
- Discrimination on inheritance of land
- Definition of diet on gender line
- Wife beating
- Being treated as sex objects/avenues for procreation

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C.R.E PAPER 2 Marking Scheme - 2019 K.C.SE Prediction Set 2

1.

a. **Describe the concept of the Messiah in the New Testament (7 marks)**
- He is from the lineage of David
- His kingdom is expected to last forever
- Spiritual ruler
- He is a servant of God
- Brought/ushered the kingdom of God
- Regarded as the savior
- Known as Emmanuel
- Born in Bethlehem
- Born of a virgin
- Performed miracles
- Was the son of God
- Was crucified for sinners

b. **Outline the activities that took place when Mary visited Elizabeth. (Lk 1:39-56) (7 marks)**
- Mary entered Zachariah's house
- She greeted Elizabeth
- When Elizabeth heard the greeting of Mary, the bay leaped in her womb
- Elizabeth was filled by the Holy Spirit
- Elizabeth exclaimed with a loud voice/cry
- Elizabeth then said "blessed are you among women"
- She then asked Mary why God had allowed the mother of the Lord to come to visit her
- Elizabeth revealed that when Mary greeted her, the baby in her womb leaped with jpy
- Mary sang the magnificent
- She then stayed with Elizabeth for three months/returned home

c. **Identify six ways in which Christian youths should show gratitude to God (6 marks)**
- through preaching
- Giving offerings in church
- Helping the needy
- Repenting/confessing sin
- Visiting/healing the sick
- Acting as role models
- Getting baptized
- Condemning evil in society
- Praying

2.

a. **Relate the story of the healing of a man with a withered hand (Lk 6:6-11) (8 marks)**
- On one sabbath Jesus was teaching in the synagogue
- There was a man whose right was withered
- Jesus knew their thoughts
- He said to the man ''Get Up''
- The man came/stood in the middle
- Jesus asked if it was lawful to do good or harm

- He asked the man to stretch out his hand
- His hand was instantly healed/restored
- The teachers of the law were filled with fury/discussed what they might do to Jesus

b. **Explain the teachings of Jesus from the parable of the Sower (4 marks)**

- The seed is the word of God
- The ones along the path are those who have heard, then the devil comes and takes it away from their hearts
- Those that fell on the thorns are those who hear but as they go on their way they are choked by the cares/riches/pleasures of life
- Those in good soil are those who hear the word of God, hold it fast in an honest/good heart and bring forth fruit with patience

c. **Write down eight ways in which churches are assisting the sick (8 marks)**

- Praying for them
- Miracles healing
- Providing guiding and counselling services
- Providing preventive/curative drugs
- Paying for medical expenses
- Disseminating literature on health issues
- Preaching against evil
- Providing clothing/food
- Training medical personnel
- Educating them through seminars

3.

a. **Give reasons why Jesus was arrested (6 marks)**

- breaking the strict regulations of sabbath
- Opposing payment of taxes
- Eating and associating with tax collectors and sinners
- Perverting/misleading the nation\
- Claiming to be the king of the Jews
- Claiming to have power to forgive sins
- Claiming to be the Son of God
- Inciting people to revolt against the emperor

b. **Describe an incident when Jesus was questioned about his authority during Jerusalem ministry (Lk 20:18) (6 marks)**

- One day Jesus was in the temple teaching the people/preaching the good news
- They asked Him "tell us what right do you have to do these things"
- Jesus asked them about the authority of Jon the Baptist
- They started to argue among themselves what they will say
- They answered, "we don't know where it came from"
- Jesus said to them "neither will I tell you, then by what right I do these things"

c. **Outline the importance of Easter holiday to Christians (8 marks)**

- They remember how Jesus offered Himself as a sacrifice for the forgiveness of sins as a sacrifice for the forgiveness of sins
- They remember the death of Jesus
- It is an occasion for tanking God
- it is an occasion to demonstrate God's love for humanity
- It is a time when Christians get an opportunity to repent
- It unites the believers
- signs of obedience to Christ
- Signifies the victory of Jesus over death

4.

a. **Mention St. Paul's teachings on how the gifts of the Holy Spirit should be used in the church**
   - Should be used for the common good of all
   - Should be used to strengthen/encourage/comfort members
   - There is need to respect/appreciate all the gifts
   - Should be use in an orderly way/no confusion
   - Should be used in love
   - There is need to have interpretation of tongues for them to be meaningful
   - Prophecies should be carefully evaluated

b. **Explain the New Testament teachings on Christian unity (6 marks)**
   - Refers to oneness of those who have faith in Jesus
   - They are united through baptism
   - They are people of God
   - They believe in the same God
   - They are members of one body
   - Christians are the veins and the branches
   - 'They are the assembly of God/church

c. **State six challenges that Church ministers face today (6 marks)**
   - inadequate funds
   - Hostility from the people
   - Insecurity in some parts
   - Influence from cultural traditions
   - competition among themselves
   - Invasion/burning of churches
   - Language barriers
   - Stress/depression from their work

5.

a. **How did the African community view marriage? (7 marks)**
   - It's a stage every man and woman must go through
   - It binds a woman and a man as husband and wife
   - It is a communal affair
   - Husband is considered superior to wife
   - Marriage is meant for procreation
   - It sustains life in a community
   - Polygamy is emphasized
   - It improves on individual status
   - Payment of bride wealth is a necessary requirement
   - A wife belongs to the entire community
   - Premarital pregnancies are discouraged
   - Marriage does nit end with death of a husband
   - Choice of marriage partner is approved by the senior member of the family
   - Wife is subordinate to the husband but has her established rights

b. **Give seven circumstances under which divorce is allowed in Traditional African Community (7 marks)**
   - if either the wife or husband is proved to be a wizard
   - Barrenness
   - If a man fails to pay dowry/bride wealth
   - If a woman/wife commits adultery
   - If the man/woman fails to undergo initiation

- If either partners develop serious diseases
- If marriage was contrary to customary law
- if the man is unable to support the family

c. **How is the Church encouraging the youth to prepare for marriage? (6 marks)**

- Prays for guidance in getting a partner
- identify the person to marry
- Inform the parents about the person to marry
- Proposed to the wannabe spouse
- They should inform attend seminars or counselling season in marriage
- They should make arrangements to give dowry
- Arrange with the church when the marriage can take place
- They should identify marriage weakness
- Should ensure the is availability of finance

6.

a. **State ways in which the Church can help reduce poverty in Kenya (6 marks)**

- Advocate for the equitable distribution of resources
- Condemn unfair treatment of workers
- Support employment
- Educate people on the importance of sharing resources
- Encourage self employment
- Preaching against idleness
- Provide shelter for homeless
- 'Praying for the poor to receive blessings

b. **Why is the Church against death penalty as a form of punishment? (7 marks)**

- It is a violation to the right to life
- Only God gives life, sustains for it and is the only one who should take it away
- It causes psychological torture to the family
- Violate human dignity
- Punishment is supposed to reform the offender/death penalty does not reform a person
- An innocent person can be killed yet it is nit reversible
- It is against the ten commandments

c. **Suggest ways in which order may be created in the modern society (6 marks)**

- Imposing severe punishment on wrong doers
- Tightening the laws governing the society
- Educating people on their rights
- Sharing of national resources
- Imposing sanctions against unjust regime
- Guidance and counselling
- Praying for peace
- Creating employment
- Condemning evil

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

1.
   - Competitive-when wants compete for attention such that each one of them yearns to be satisfied first
   - Repetitive –when a particular want demand to be satisfied over and over again because wants are not fully satiable.
   - Habitual- when an individual has developed a taste for a given product they tend to use it over and over again thereby becoming a habitual user
   - Complementary- when satisfaction of want create a need , a second want derived from the first.
2.
   - It is man-made
   - It is a basic factor of production
   - It is subject t depreciation eg through wear and rear
   - Can be improved through technology
3.
   - His ability to manage people
   - Proper location /availability of customers
   - Availability of stock
   - Adequate finance
   - Lack of competition
   - His commitment to the business
   - Proper management of finances
   - Good public relation
   - Being creative and innovative
   - Proper market research
4.
   - Simplicity
   - Compactness
   - Suitability
   - Elasticity
   - Safety
   - Accessibility
   - Economical
5.
   - Processing
   - Manufacturing
   - Construction
   - Commercial services
6.
   - Access to large market
   - A fast way of doing business
   - Reduces paper work since many work dealings are online
   - Saves on cost of sending, receiving and storing information
   - One can access important business information which would be used to enhance running of business
   - Large and small business can transact business without discrimination

7.
- Owned by the government
- Formed by an act of parliament
- Not necessarily profit motivated
- Initial capital provided by the government
- Directors are appointed by government

8.
- Political interference
- Scaring away of investors
- Loss making corporations are financed through taxpayer's money
- Corruption and embezzlement of funds
- Government corporations require heavy capital investment

9.
- When goods are urgently needed
- If value of property is high
- When transporting perishable products
- When security is necessary
- If other means are not available

10.
- Network for cellular communication have not yet reached all corners of the country
- Landlines are more convenient for organisations since they can be fitted with extensions
- Not all people can afford mobile phones
- People owning landline phones are reluctant to change to mobile phones

11.
- Ensure steady supply of goods
- Ensure stable prices
- Goods are kept safe
- Stored goods can be prepared for sale
- May improve the quality of goods
- Enables trader to look for market
- Ensures continued production of goods

12.
- Enables company to create a common pool of funds
- Enables the company to indemnify those who suffer a loss
- Enables the company to spread risks
- Company can invest the surplus funds
- Enables the company to meet running costs from the fund
- Earns profits, which are distributed as dividends
- Enables the firm to determine premiums to be paid

13.
- Customer can compare various products before buying
- Sales people can demonstrate and explain features of a product
- Organisation can get immediate feedback
- Enables the organisation to assess the market potential

14.
- Price mechanism
- Haggling/bargaining
- Auction
- Tendering

- Price control

15.

- Reduce risks associated with terrorism, wars, earthquakes e.t.c
- Providing employment opportunities to people within affected areas
- Reducing rural-urban migration
- Encouraging balanced regional development
- Providing market for locally produced raw materials
- Providing finished goods to local communities

16.

- There are many buyers and sellers of product, who act independently
- The product from different producers either vary in quality or a product is a group of products are close substitutes of each other
- No barriers to entry or exit exist
- There is perfect knowledge of market for both sellers and buyers

17.

- Different currencies
- Different types of products
- Disparity in distribution of income
- Different needs and tastes

18.

- Rapid population growth
- Inadequate co-operant factor input
- Inappropriate education system
- Seasonality in production
- Lack of market for the product
- Use of inappropriate technology

19.

=8421
=27920
=121410
=264560

20. Closing capital=opening capital + profit + investment – drawings
CC=OC+P+I-D
OC= CC-P-I+D
OC=120000=56000-38000-50000
=SHS. 88000

21.

- **Account (DR)** **Account (CR)**
  Cash capital
  Bank debtor
  Office equipment bank
  Creditor cash

22.

- Is a ledger because it contains the cash and bank accounts
- It is a book of original entry because it has discount allowed and discount received columns.

23.

- To relieve the ledgers of too many details
- Journals contain details not found in other ledger accounts
- They are maintained by different people from those maintaining ledgers hence minimising

chances of fraud and promoting efficiency
- Journals facilitate tracing errors
- They contain information useful when preparing control accounts whose balances can be used to prepare interim final accounts.

24.

Kagwiria

Profit and loss account

For the year ended 31st Dec 2005

Expenses		gross profit b/d	130000
Salaries and wages	80000	rent received	20000
Insurance	8000	discount received	3000
Discount allowed	1000		
Carriage on sales	9000		
Power and lighting	5000		
Net profit	50000		
	1530000		1530000

25.

- Offer adversary services to their clients in matters such as business opportunities available, how to operate their businesses and record keeping
- Encourage clients to carry out business activities. They give small amount of a loan on condition that loanee would get a bigger amount if she/he invest small loan wisely
- They encourage savings by advancing a loan to an individual member of a certain group depending on amount of money he/she has saved in the group
- They supervise and monitor people to whom they have given loans

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

1.

a. **Functions of money**

- Used / serves as a medium of exchange
  Money may be exchanged for goods / services.
  Can be used to buy goods / services as it is generally accepted as a medium of exchange
- Measure of value – Value of goods / services can be computed or estimated or calculated using money
- Store of value – value of goods / services can be stored in form of money.
- Standard for deferred payments – money assist to conduct business on credit where payments is made later / at a future date
- Unit of account - Value of goods / services are recorded in terms of money 5 x 2 = 10mks

b.

Public Limited Company	**Partnership**
Minimum membership is 7 shareholders	Minimum membership is 2 partners
no maximum memebership	maximum of 20 for business and 50 for professional
shareholders have limited liability	Parteners have unlimited liability
Capital raised from sale of shares from general public	Capital raised from memebers contribution
Managed by a board of directors	Managed by partners themselves / active partners
Has perpetual continuity	Has no perpetual continuity
Shares can be quoted in stock exchange	Shares can’t be quoted in stock exchange
Owned by shareholders	Owned by partners
Formed under company Act.	Formed under partnership Act
Mandatory by law public financial statements	Not mandatory by law to publish financial statements

2.

a. **Principles of taxation**

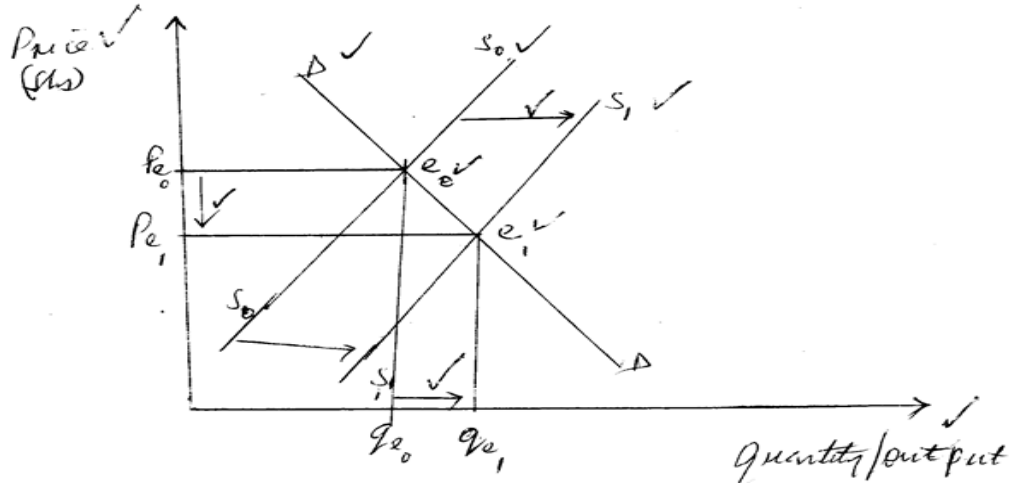
- Equity – The tax should be charged according to ability to pay
- Certainty – The tax to be paid should be clearly defined / the tax payer should be

informed about the rate of the tax / time of payment and amount to pay
- Convenience – Collection and payment of tax should not be cumbersome mode of payment and collection should be comfortable to tax payer and tax collector
- Economy – Administration cost of the tax should not exceed revenue from the tax / lower cost of collection compared to amount collected from the tax.
- Flexibility – It should be possible to revise / vary / change / adjust the tax easily to be in line with changing economic situations / prevailing conditions.
- Diversity – There should be a wide variety of taxes applied to yield enough / sufficient revenue / cover entire (taxable) population / suit different tax payers / ensure equity
- Simplicity – Tax system should be easy to understand / know how it works easy to apply.
- Elasticity – The tax revenue / collected should be able to respond to changes in national income / realist more income when economy is booming 5 x 2 = 10mks

b. **Measures to improve productivity of labour**
- Provision of training / education / capacity building – To improve efficiency of the workers / improve their ability to perform their duties.
- Competitive / increased remuneration / salaries / wages / allowances – to be in line with similar businesses / to cover increased standards of living.
- Provision of efficient / modern tools / equipments / machinery / technology – That leads to improved quality of work / makes work easier / smooth.
- Improving working conditions – That makes working comfortable / enjoyable / workers to produce better goods / services.
- Improving working relations – Amongst the workers between workers and management
- Allowing workers to be part owners – by buying shared / ownership in the business / so as to create interest in the success of the business
- Giving incentive / rewards – That boost the work output / such as paid holidays, certificates / commendation letters, materials / financial rewards etc improved performance. 5 x 2 = 10mks

3.

a. **Effects of increase in supply to the equilibrium price and quantity of a commodity**



Explanation

i. The supply curve shift to the right from S_0 S_0 to S_1 S_1
ii. The equilibrium price decrease from Pe_0 to Pe
iii. The equilibrium quantity increase from qe_0 to qe_1 10 x 1 = 10mks

NB: for effects award ticks on the diagram or at the explanation part

b. **Causes of unfavourable balance of payments**

- Reliance on primary products / raw materials / agricultural produce for export – Which fetch low prices in the international market hence lowering their export receipts
- Heavy / high importation of finished goods – Whose values are high / spend more on imports
- Rely on low levels of technology in production – Which produce poor quality exports lowering their demand / receipts
- Too much reliance on foreign borrowing / aid – Which are repaid with heavy interests i.e. loans
- Unfavourable world economic orders / policies / low bargaining power – hence end us earning less on experts and spending more on imports
- Decrease in demand for exports – hence lowering their country's earnings
- Preference for goods from foreign countries (developed) in the belief that they are of better quality hence end up spending more on imports
- Political instability / insecurity – which may interfere with production activities lowering expert earnings.
- Poor governance / policies / corrupt practices – leading to capital flight / outflows 5 x 2 = 10mks

4.

a. **Factors influencing choice of channel for distributing flowers**

- Nature of the products / flowerers – flowers are perishable therefore need a short / direct channel to safeguard them from damage
- Cost of different channels of distribution should be considered and the cheapest channel used / affordable / cost effective channel is used
- Proximity of the market – if consumers are widespread long channels may be necessity to reach them
- Nature / tastes / preference of consumers – which might require the personal attention of the producer hence use of a shorter / direct channel
- Level of competition (stiff) – the producer will have to close to the consumer hence use a short / direct channel of distribution
- Availability of middlemen / agents / intermediaries – if there are no middlemen then a shorter direct channel is used and if available use long channel
- Government policy – where the government / law required a given cbhannel to be used then the producer will have to comply
- Size of the market / number of consumers – if it is small / few a short / direct channel will be used but if large / many a longer channel may be used 5 x 2 = 10mks

b. **Circumstances that would influence a producer to use wholesalers in distributing farm producer**

- Where the producer requires / lack storage – for safety of goods / to facilitate continous production / save on storage cost
- Where goods required bulk breaking – thus relieving him on cost / burden of breaking bulk
- Where there is used to prepare goods for sale – before they reach the consumers
- Where goods need to be distributed for market is expensive – since the producer may not be able to cover / reach the whole market
- Where the producer would want to engage wholesalers to assist with advertising – so as to save on costs / reach a wider market.

- Where the producer requires ready cash / finance – since wholesalers can buy in cash / pay promptly / to raise working capital
- Where it is a government policy to distribute through wholesalers – then the producer would have no alternative
- Where the marketing risks are many / high the wholesaler can bear some of the risks 5 x 2 = 10mks

5.

a. Msafiri Traders
Balance Sheet
As at 31st December 2014

Fixed Assets			Liabilities		
Buildings	1,200,000		Capital	1,840,000	
Motor vehicles	750,000	1,950,000	+ Net profit	170,000	
			_ Drawings	(100,000)	
Current assets			Closing capital	1,910,000	
Stock	280,000		L.T. Liabilities		
Debtors	190,000		Loan	600,000	
Bank	270, 000		Current liabilities		
Cash	130,000	870,000	Creditors	310,000	
		2,820,000		2,820,000	

i. Mark- up = $^{\text{gross profit}}/_{\text{Cost of sales}}$
Where gross profit = Net profit + expenses
= 170,000 + 100,000
= 270,000
Cost of sales = opening +Purchases + carriage in – returns – closing outwards stock
= 230,000 + 900,000 + 150,000 – 50,000 – 280,000
= Kshs. 670,000
Therefore mark-up = $^{\text{gross profit}}/_{\text{Cost of sales}}$ x 100 = $^{170,000}/_{2,510,000}$ x 100 = 40.298% 4 x ½ = 2mks

ii. Return on capital employed = $^{\text{Net profit}}/_{\text{Capital employed}}$
Capital employed = Owners capital + L.T. Liabilities
= 1,910,000 + 600,000 = 2,500,000
Therefore Return on capital employed = $^{170,000}/_{2,510,000}$ x 100 = 6.77% or 6.8% or 7.0% 4 x ½ = 2mks

b. **Problems of a sole trader**

- Lack of adequate capital – to operate and expand the business
- Lacks perpetual continuity – the life of the business depends on life of the owner i.e. death, insanity make business to collapse
- Unlimited liability – the liability of the owner is unlimited hence shoulders the business debts
- Suffers losses alone – sole trader bears all the losses alone i.e. no sharing of losses
- No division and specialization of labour – the sole trader do all the work / duties alone be no sharing of duties / work
- Limited management skills – the sole trader lack managerial skills required to operate the business
- Poor decision making – the sole trader does not consult anybody hence decisions made are not good i.e. no exchange of ideas 5 x 2 = 10mks

6.

a. **Limitations of adoption of new technology**

- Insufficient capital – to acquire and maintain the new technology
- Some technologies are advancing very fast requiring continuous updating which becomes expensive / costly
- Adoption of new technology may lead to lay-off of workers as they are replaced by new technology leading to increased unemployment problems
- New technology require hiring new staff or retraining existing ones – which is expensive / costly
- New technology increases costs of goods in the short-run
- Some technologies have side effects e.g. computers affects the eyesight of operator / employees
- Breakdown of some machines – may lead to loss or interruption of business operation
- Some technology may lead to environmental degradation e.g. disposal of waste which causes for measures which are expensive 5 x 2 = 10mks

b. **Ledger accounts**

Equipment A/c

Dr		Cr	
	Sh		Sh.
1.4.15 Balance B/d	200,000	30.4.15 Balance c/d	200,000

Furniture a/c

Dr		Cr	
	Sh		Sh.
1.4.15 Balance B/d	820,000	30.4.15 Balance c/d	820,000

Stock a/c

Dr		Cr	
	Sh		Sh.
1.4.15 Balance B/d	140,000	30.4.15 Balance c/d	140,000

Cash a/c

Dr		Cr	
	Sh		Sh.
1.4.15 Balance B/d	20,000	30.4.15 Balance c/d	20,000

Bank a/c

Dr		Cr	
	Sh		Sh.
4.4.15 Capital	30,000	30.4.15 Balance b/d	30,000

Capital a/c

Dr		Cr	
	Sh		Sh.
30.4.15 Balance c/d	445,000	1.4.15 Balance b/d	415,000
		4.4.15: Bank	30,000
	445,000		445,000

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Mutai (creditor) a/c

Dr			Cr
	Sh		Sh.
19.4.15: Purchases returns	3,000	1.4.15 Balance b/d	27,000
30.4.15 Balance c/d	53,000	10.4.15: purchases	29,000
	56,000		56,000

Purchases return a/c

Dr			Cr
	Sh		Sh.
30.4.15 Trading a/c (Bal c/d)	3,000	19.4.15 Mutai	3,000
	3,000		3,000

Purchases a/c

Dr			Cr
	Sh		Sh.
10.4.15 Mutai	29,000	30.4.15 Balance c/d	29,000
	29,000		29 ,000

Sagana Traders

Trial balance

As at 30.4.2015

Details		Dr	Cr
		Sh.	Sh
Equipments	200,000		
Furniture	82,000		
Stock	140,000		
Cash	20,000		
Bank	30,000		
Mutai (creditor)			53,000
Capital			445,000
Purchases returns			3,000
Purchases	29,000		
	501,000		501,000

30x ½ = 10mks

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

1. Because it involves experimentation and application of scientific knowledge ***(1 x 1 = 1mks)***
2.
   - Shifting cultivation
   - Nomadic pastrolism
   - Agroforestry
   - Organic farming
   - Mixed farming
   - Ranching ***(Any 4 x ½ =2mks)***
3. Soil structure is the physical appearance of soil according to the way individual soil particles are arranged /packed/aggregated while soil texture is the relative proportion of various sizes of the minerals particles of the soil ***(1 x 1 = 1mks) Mark as whole***
4.
   - To increase soil aeration
   - To increase soil volume
   - To raise soil temperature
   - To increase microbial activities
   - To reduce soil erosion
   - To get rid of toxic substances that may be disastrous to good crop performance ***(Any 4 x ½ =2mks)***
5.
   - Lowers the level of water in the Dam and reservoirs
   - Decline in fish production ***(2x ½ =1mk)***
6.
   - It encourages early establishment of crop pasture
   - Saves on the use of commercial fertilizers
   - There is intensive use of land i.e it promoted intercropping /Efficient land use
   - Controls soil erosion due to efficient ground cover ***(Any 3 x ½ =1½mks)***
7.
   - It encourages seed germination
   - Promotes microbial activities
   - Improves quality of crop produce
   - Enhances vigorous growth and development
   - Enhances high yields
   - Minimises incidences of certain pests and diseases ***(Any 4 x ½ =2mks)***
8.
   a. Suckers
   b. Suckers/slips/crowns
   c. Stemtubers
   d. Splits ***(Any 4 x ½ =2mks***
9.
   - Reduces land disputes
   - It acts as security of land ownership
   - Can be used as security for loan
   - Encourages farmers to carry out long term investment on land ***(4 x ½ =2mks)***
10.
    - Crop rotation – Growing of crops of different families on the same piece of land in an orderly sequence (***1mks)***

- Mulching – covering of ground around a growing crop with organic material or artificial sheets (***1mks)***

11.

- Seed impurity
- Low – germination percentage
- Close spacing
- More seeds per hole / Broadcasting
- Early planting /Dry Planting ***(Any 4 x ½ =2mks)***

12. **Role of Nitrogen**
    - Constituent of chlorophyll
    - Promoted crop vegetative growth
    - Protein synthesis
    - Regulates availability of phosphorous and potassium in the soil
    - Improves the quality of leafy crops ***(Any 3 x ½ =1½mks)***

13.

- Training
- Giving incentives /improving terms and conditions
- Farm mechanization
- Labour supervision
- Proper payment / Renumeration
- Assigning tasks or duties according to skills ***(Any 4 x ½ =2mks)***

14.

- To raise the PH of the soil
- To improve fertility of soil
- To improve the structure of the soil
- To improve the process of nodulation in Legumes ***(4 x ½ =2mks)***

15.

- Organic mulch
- Crop residue /animal remains
- Green manure
- Farm yard manure
- Compost manure ***(Any 3 x ½ =1 ½ mks)***

16.

- Drying
- Threshing /shelling
- Winnowing
- Dusting
- Sorting out
- Packaging
- Processing ***(Any 4 x ½ =2mks)***

17.

- Plants morphology and anatomy
- Stage of plant growth
- Weather conditions
- Formulation
- Concentration
- Method of application
- Type of weeds
- Weed metabolic factors ***(Any 3 x ½ =1½ mks)***

18. Act of deciding on how to allocate available scarce resource to alternative uses based on farmer's interest ***(1 x 1=1 mk)***

SECTION B (60MKS)

19.

a. Blossom End Rot ***(1 x 1=1 mk)***

b.

- Irregular application of water /water stress;
- Excessive application of Nitrogen in early stages
- Deficiency of calcium – reject lack of calcium ***(3 x 1 =1 mks)***

20.

a. Army worm ***(1 x 1=1 mk)***

b. Mode of feeding – Biting & chewing ***(1 x 1=1 mk***

c.

- Damage the leaves thus reducing Photosynthesis area
- Damage the stem thus interfering with transport system
- Injure and cause wound on plants exposing them to secondary infection ***(3 x 1 = 3mks)***

21.

a. Ridging ***(1 mk)***

b.

- Dig soil in a continuous lines
- Soil is heaped on one side for form a ridge and a furrow
  (2mks)

c. Advantages

- Enhances expansion of tubers
- Makes harvesting of root crops easy
- Prevents soil erosion
- Conserves soil moisture ***(Any 2 x 1=2 mk)***

22.

a. Per capita income = $^{\text{Gross Domestic product}}/_{\text{Population}}$
Country A = $^{1800}/_{36}$ = 50
Country B = $^{1200}/_{15}$ = 80 ***(3mks)***

b. Country B is more developed ***(1mk)***

c. Has higher per capita income ***(1mk)***

d. By creating employment , developing industries , increasing production. ***(Any 2 x 1=2 mk)***

SECTION C (40mks)

23.

a.

i. Selection and preparation of planting materials

- Beans are established from seed
- Select seeds to discard damaged and wrinkled ones
- Dress seeds with appropriate chemical to control soil borne pests .
- Innoculate seeds with right strain of Rhizombium bacteria ***(Any 3 x 1 = 3mks***)

ii. Planting

- Plant at the onset of rain

- Plant 2 -3 seeds per hole at a spacing of 30-45 cm by 15cm
- Apply DAP fertilizer during planting
- Plant at the depth of 4cm ***(Any 3 x 1 = 3mks***)

iii. Disease control

- control haloblight by rogueing , crop rotation and spraying with appropriate fungicide
- Control bean anthracnose by spraying with appropriate fungicide planting resistant varieties ***(Any 2 x 1 = 2mks***)

b.

- Soil type
- Soil moisture content
- Type of germination
- Size of seeds ***(Any 4 x 1 = 4mks***)

c. Advantages of mixed grass legume mixture Over pure grass

- Its more paratable
- Farmers has security against total loss due to attack by pests, diseases or bad weather
- Mixed pasture yields more per unit area than pure grass pasture
- Mixed pasture make maximum use of soil nutrients
- Mixed pasture has better weed control effects
- Mixed pasture increases soil fertility because of Nitrogen fixation
- There is economy in use of fertilizers in mixed pasture .
- There is better distribution of growth in a mixture of early and late maturity species ***(Any 8 x 1 = 8mks)***

24.

a.

- Ability to produce large quantities of viable seeds e.g. pigweed and blackjack.
- Weeds seeds remain viable in the soil for a long time waiting condusive germination conditions
- Most weeds seeds are easily and successfully disposed
- Some weed seeds have ability to propagate vegetatively eg. Couch grass
- Some have elaborate or extensive root system useful in supporting the plant in nutrient absorptions of water upatake
- Ability to survive in soil with low nutrient supply
- Have short life cycles hence reaching maturity early. ***(7 x 1 = 7mks)***

b.

- Capital availability
- Type of soil
- Topography
- Type of crop to be irrigated
- Water availability ***(5 x 1 = 5mks)***

c.

- Good drainage
- It is well aerated
- Good depth
- Good water holding capacity
- Adequate supply of nutrients
- Correct soil PH
- Free from soil borne pests and diseases ***(Any 5 x 1 = 5mks)***

d.

- Superflous water
- Capilary water
- Hygroscopic water ***(3 x 1 = 3mks***)

25.

a.

- They are highly volatile
- They are highly soluble in water
- They are highly hygroscopic
- They are easily leached
- They have a scorching / burning effect
- They are highly corrosive
- They “cake” easily
- They have a short residual effect ***(Any 5 x 1 = 5mks)***

b.

- Include a grass ley in the programme whereby crops are alternated with certain grass to improve soil structure
- Crops of the same family should not follow one another Deep rooted crops should be alternated with shallow rooted crops
- Crops that are difficult to weed should alternate with those that are easy to weed
- Crops that requires a lot of nutrients (heavy feeders) should come first followed by light feeders
- Leguminous crops should be included in the cycle to improve soil fertility
- Crops associated with certain weeds should alternate with those that are not ***(Any 5 x 2 = 10mks***)

c.

- Excess seedlings can be sold to earn income
- It facilitates production of many seedlings in a small area
- Routine management practices are easily and timely carried out than in the main seedbed
- Facilitates planting of small seeds
- It ensures transplanting of only healthy and strong seedlings
- The crops takes a shorter time in the field
- Tender seedlings are given maximum attention
- Gives a higher germination percentage hence a lower seed rate is used ***(Any 5 x 1 = 5mks)***

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

1. Angora ***(½ x 1 = ½ mk)***
2.
   - Age- Genetic status
   - Species – Animal population
   - Sex – Physiological status
   - Body conformation
   - Colour – Physical injuries ***(Any 4 x ½ =2mks)***
3.
   - Ambient temperature rej temperature alone
   - Type of feed eaten by the animal
   - Species of the animal
   - Level of production
   - Amount of work done by the animal
   - Weight/body size of the animal ***(Any 4 x ½ =2mks)***
4.
   - Testes – site for sperm production ***(1mk)***
   - Epididymis – Stores sperms ***(1mk)***
   - Penis – Is an ejaculatory structure or penetrates the vagina depositing sperms during mating ***(1mk)***
5.
   - Crutching - is the cutting/trimming of wool around the reproductive system of an ewe to facilitate mating
   - Ringing – Is the cutting of wool around the reproductive system of a ram to facilitate mating ***(2x½ =1mk) (mark as a whole (Any 4 x ½ =2mks)***
6. Is the practice of infusing antibiotics into the udder of a dried off cow through the teats canal during the late gestation to reduce the incidence of mastitis (***2mks)***
7.
   - Should be clean
   - Should be free from internal abnormalities
   - Should be fertilized
   - Should be smooth shelled without cracks
   - Should be oval shaped
   - Should be of medium size (55-60g)
   - Should not be more than 10 days old ***(Any 4 x ½ = 2mks***
8.
   - Inadequate laying boxes
   - Presence of broken eggs and egg shell in the poultry house
   - Bright light in the laying nests
   - Idleness amongst birds
   - Delayed collection of eggs
   - Deficiency of minerals eg calcium
   - Inadequate feeding
   - Inadequate laying nests/boxes ***(Any 4 x ½ =2mks)***
9.
   - Availability of the materials
   - Cost of the material
   - Skill of the farmer

- Workability of the material
- Durability of the material
- Strength of the material
- Suitability of the material ***(Any 4 x ½ =2mks)***

10.

a.

- Bacterial diseases
- Viral diseases
- Protozoan diseases
- Nutritional disorders ***(Any 4 x ½ =2mks)***

b.

- Fever (high fever over 40°c
- Blood stains in faeces and milk
- Extensive bloat of the stomach after death
- Carcasses lack rigor mortis
- In dead animals a tar –like watery blood comes off the body oriticesl (openings)eg nose , Anus , mouth .
- Swelling of underside of the body
- Difficulties in breathin
- Sudden death of the animal ***(Any 3 x ½ =1½mks)***

11.

a. Duroc jersey pig – black
b. Saanen – white
c. Darper sheep breed -white with black head (***½mk)***
d. Light Sussex poultry breed –white plumage (***½mk)***

12.

- Working mechanism
- Type of fuel used ***(2 x ½ =1mk)***

13.

- It is possible to implant embryo from high quality female to a less valuable female and hence improve the performance of the offspring
- Stimulates milk production in a female that was not ready to produce milk
- A highly productive female can be spread over a large area to benefit many farmers
- It is easier to transport embryos in test tubes that the whole animal
- Embryos can be stored for long periods awaiting availability of recipient female ***(Any 4 x ½ =2mks)***

14.

- It causes irritation
- They obstruct internal organs
- Transmission of diseases
- Cause aneamia
- They deprive the host animal of its food
- They cause injury and damage to tissues and organs ***(Any 4 x ½ =2mks)***

15.

a. Claw hammer ***(½mk)***
b. Tin snips ***(½mk)***
c. Try square ***(½mk)***
d. Spoke shave ***(½mk)***

SECTION B

16.

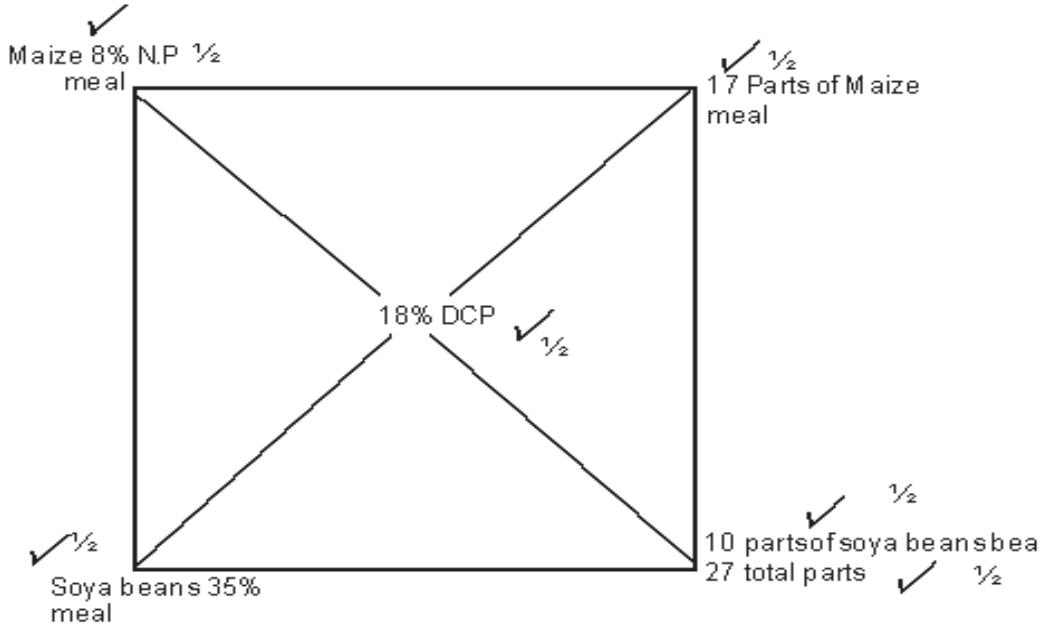
a. R – Pruning saw ***(½mk)***
S – Burdizzo ***(½mk)***
T- Hand drill ***(½mk)***
U – Cold chisel ***(½mk)***

b. R – Pruning or cutting hard branches***(1mk)***
U- Cutting thick metal sheets ***(1mk)***

c.

- Clean after use
- Sterilize after use
- Proper storage
- Lubricate moving parts to reduce friction
- Tightening looses ***(Any 2 ×1 = 2mks)***

17.



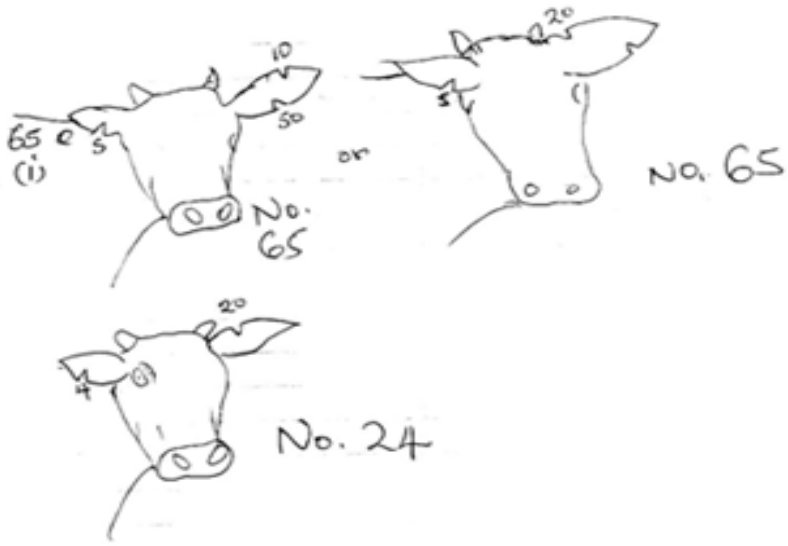
$$\text{Maize meal} = \frac{17}{27} \times 300 = 188.9 \text{ kg} \quad ½$$

$$\text{Soya bean meal} = \frac{10}{27} \times 300 = 111.1 \text{ kg} \quad ½$$

(5mks)

18.

a. Ear notching ***(1mk)***
b.



19.

a. Spray race ***(1mk)***

b.

- It is fast
- Few attendants are needed/less labour required
- Animals cannot swallow the dip wash
- The farmer can spray even small, sick and pregnant animals
- The right concentration of acaricide is maintained
- It avoids wastage of acaricide ***(Any 2 x 1 =2 mks)***

c.

- Plunge dip
- Machakos dip
- Crush ***(Any 2 x 1 =2 mks)***

SECTION C

20.

a.

- Control inbreeding
- Control breeding diseases such as brucellosis
- Semen from one superior bull can be used to serve many cows
- Semen can be stored for a long time
- Sires that are unable to serve cows due to heavy weight or injury can produce semen to serve cows
- Prevents large bulls from injuring small cows
- Reduces the cost of keeping a bull
- Small scale farmers who cannot afford to buy a superior bull can have the cows served at a low cost
- Eliminates dangerous bulls from the farm
- It is a useful research tool in livestock breeding ***(7 x 1= 7mks)***

b.

- Healthy animals grow well and fast enough to reach maturity quickly
- Healthy animals have a longer economic and productive life
- Healthy animals give maximum production
- Healthy animals produce high quality products
- Healthy animals do not spread diseases to other animals or human beings

- Less money is spend on disease treatment
- Healthy animals produce strong and healthy offsprings ***(5 x 1 =5 mks***

c.

- Check the level of the engine oil daily using a deep stick and top up if low
- Check the fuel level and add if necessary
- Check the level of water in the radiator and top up if necessary
- Check the level of electrolyte if below the recommended level top up with distilled water .
- Tighten loose nuts and bolts
- Apply grease through the nipples and using a grease gun to reduce friction
- Remove large sediments from the sediment bowl
- Check the tyre pressure by use of pressure by use of pressure gauge and inflate or deflate where necessary
- Check the fan belt tension and adjust to lie between 1.9 cm to 2.5 cm
- The brake shaft bearing should be greased to reduce friction
- Ensure the brake fluid level is maintained at the recommended level **(*Any 8 x 1 = 8 mks)***

21.

a.

- Age of the animal – The older the animal the lower the butterfat content and the younger the animal the higher the butter fat content
- Breed of the animal – jersey breed has the highest butter fat content while fresian breeds has the lowest butter fat content
- Type of food eaten by the animal /nutrition quantities of roughages produce milk with high butter fat content, protein and lactose
- Time of milking - Milk has a high butter fat content in the morning than in the evening
- Condition of the animal - Sick , pregnant and emaciated animals produce milk with low butterfat content
- Season of the year - Butterfat content decreases during the cold season ; due to fat being used in the formation of adipose tissue to insolate against heat loss from the body
- Stage of gestation and lactation - At the initial stage of lactation milk nutrient is low , the nutrient content rises at the middle phase of lactation and declines from the sixth month of gestation when demand for nutrients by developing foetus gets higher
- Completeness of milking - The last drawn milk from the udder has 10% of the total fats percentage in the milk ***(Any 5 x 2 =10 mks)***

b.

- Use of pit latrines for disposal of human excreta
- Eating well cooked beef or pork
- Inspect beef or port properly
- Use of prophylactic drugs in pigs and appropriate drenching in cattle
- Rotational grazing to interrupt the tapeworms life cycle
- Observe high level of hygiene in animal houses
- Burning infested pasture during the dry season
- Ploughing infested pasture to destroy developmental stages of tapeworms ***(Any 5 x 1 = 5mks)***

c.

- They have a hump to store fat which is broken down into energy in times of

starvation
- Have high tolerance to high temperature due to presence of dewlap and thick hides
- Have high tolerance to tropical diseases such as trypanosomiasis, East cost fever
- They have a slow growth rate which lead to late maturity.
- They have a long calving interval
- They can walk for long distances in search of water and pasture without serious loss of body weight
- Low production of both meat and milk due to inheritance of poor characteristics
- Mature animals are small in size ***(Any 5 x 1 = 5mks)***

22.

a.

- Tools should always be left in a safe place after use
- Use of the tool for the correct job
- Tools should be maintained and serviced to remain in good working condition and last long .
- Tools should be handled correctly when in use to avoid damage to the tool and injury to the user.
- Use of safety devices to reduce accidents and to maintain a safe working environment
- All tools should be stored properly in tool cabinets or racks ***(Any 4 x 1 = 4mks)***

b.

- They prevent crops from being damaged by livestock and wild animals
- They provide privacy to the farms
- They improve aesthetic value of the farm
- They are used to mark farm boundaries
- They enable to carrying out of mixed farming
- Facilitate undertaking of rotational grazing
- Allow isolation of sick animals from healthy ones
- Help to control spread of parasites and diseases
- Provide security in the farm by keeping away intruders
- Movement of animals and people within the farm is controlled , avoiding creation of un necessary paths
- Live fences act as wind breaks
- They enhance controlled mating
- Live fences act as sources of livestock forage ***(Any 8 x 1 = 8mks)***

c.

- Oxytocin ***(1mk)***
- Adrenaline ***(1mk***

d.

- Appropriate milking technique
- Cull affected animals regularly and those that do not respond to treatment
- Apply udder infusions
- Treat any wounds on the udder
- Practice milking hygiene / separate udder cloth should be used for each animal
- Test for mastitis using a strip cup and treat accordingly
- Remove sharp object from the grazing fields and milking areas
- Carry out dry cow therapy
- House lactating animal in a clean and dry houses / sheds ***(Any 6 x 1 = 6mks)***