CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

SUBJECTS PREDICTED INCLUDE;

Mathematics, English, Kiswahili, CRE, Geography, History, Biology, Chemistry, Physics, French, Agriculture, Business, Computer,Home-Science.

Series 3 Detailed Possible Cross-Country Predicted Questions by TOP KNEC Examiners to NATIONAL SCHOOLS Sitting in MARCH 2022.

(INCASE PART OF THESE QUESTIONS APPEAR IN KCSE EXAMS ,DO NOT PANIC)

(CONFIDENTIAL)

SERIES 3

FOR MARKING SCHEMES/ANSWERS

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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

NAME……. **INDEX NO……..**

SCHOOL…… **SIGN…….**

DATE……..

231/1

BIOLOGY

(THEORY)

PAPER 1

TIME: 2 HOURS

Instructions to candidates

a) *Write your name and class in the space provided above*
b) *Sign and write the date of the examination in the spaces provided above*
c) *Answer all the questions in the spaces provided*
d) *Candidates should check the question paper to ascertain that all the pages are printed as indicated and no questions are missing.*
e) *Candidate should answer all the questions in English*

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1- 32	80	

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Answer all the questions in the spaces provided.

1. Identify the following. **(2mrks)**

(a) Type of movement in cells.

……....

(b) Arrangement of leaves on a plant.

……

2.

(a) Explain how adequate water supply increases the rate of glucose formation in plants. **(1mrks)**

……

……

(b) Name the element obtained from insects by insectivorous plants. **(1mrk)**

……

3.

(a) A mushroom research station would like to employ a researcher. Which scientist is most appropriate. **(1mrk)**

……..

(b) Name the branch of biology that deals with phylogenetic relationship between organisms. **(1mrk)**

……..

4. State the role of the diaphragm.

(a) In the light microscope. **(1mrk)**

……

……

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(b) During ventilation in man. **(1mrk)**

……

……

5. Explain why plants absorb water in waterlogged soil but not mineral salts. **(2mrks)**

……

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6. A biological washing detergent removes stains like oils from cloths.

(a) Name the enzyme that it contains. **(1mrk)**

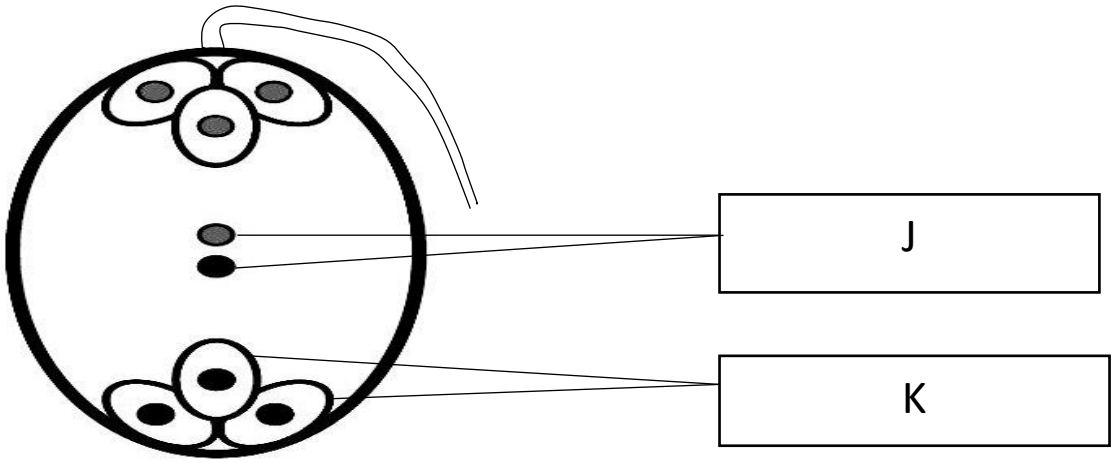
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(b) Explain why the stains would be removed faster with the detergent in water at 35°c rather than at 15°c. **(1mrk)**

……

……

7. Below is a diagram of an embryo sac.



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Identify the structures labelled. **(2mrks)**

J-……

K-……

8. Explain why low temperature will cause seed dormancy by not very high temperatures.

(1mrk)

……

……

9.

a) Explain why the average length of the chicken egg is 6cm while that of a human is 0.1mm.

(1mrk)

……

……

b) Identify two features that enable mammalian fallopian tubes perform their function.

(2mrks)

……

……

……

10.

(a) State a limiting factor of using a potometer to measure the rate of transpiration. **(1mrk)**

……

……

(b) Name the tissue that transports hormones in plants. **(1mrk)**

……

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11. To control the spread of malaria, fish are introduced into water bodies near residential area.

(a) Name this method of population control. **(1mrk)**

……

(b) State an advantage of the above method. **(1mrk)**

……..……..

12. Apart from vaccination, state two ways of controlling highly infectious disease among animals. **(2mrks)**

……

……

……

13.

(a) Name the enzyme that breaks down hydrogen carbonate ions in mammalian blood to release carbon (IV) oxide. **(1mrk)**

……..……..

(b) Explain why obligate anaerobes die in presence of oxygen. **(1mrk)**

……

……..…..

14.

(a) Name the group of sporangia born on fern leaves. **(1mrk)**

……

(b) Why are fruits not produced in gymnosperms? **(1mrk)**

……

……

15.

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(a) Explain why lactating mothers need extra energy. **(1mrk)**

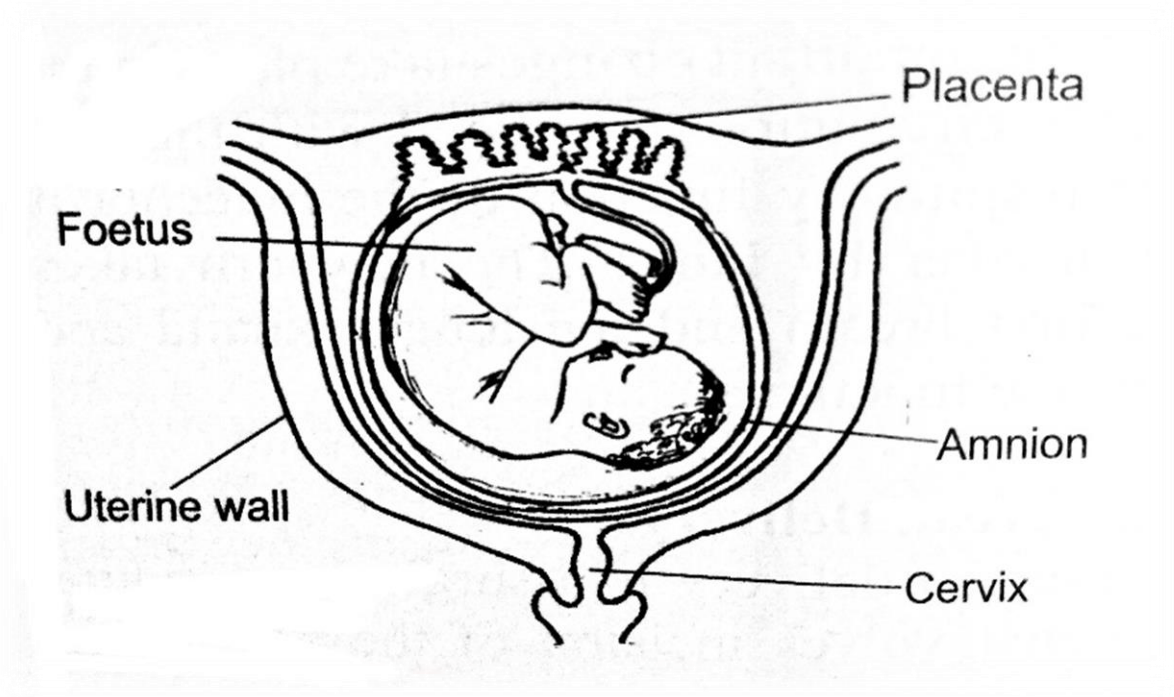
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(b) State the function of interstitial cells found in the testes. **(1mrk)**

……

16. Below is a diagram showing a foetus in the uterus.



State two observations showing that parturition is about to take place. **(2mrks)**

……

……

……

17. The symptoms of typhoid disease include high fever, vomiting and diarrhoea. Explain why they may lead to death if not treated. **(2mrks)**

……

……

……

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18. The table below represents a chromatid which undergoes a mutation, the letters genes.

Before mutation

L	M	N	O	P	Q

After mutation

L	O	N	M	P	Q

a) Name the type of mutation. **(1mrk)**

……

b)

i. Identify the nucleic acid whose base sequence is shown below. **(1mrk)**

G-A-C-U-A-G-A-C-G

……..

ii. If the above strand was involved in protein synthesis, how many amino acids would the protein have? **(1mrk)**

…….....

19. Explain why resistance to antibiotics is considered an example of evolution. **(2mrks)**

……

……

……

20.

a) People are encouraged to take the corona virus disease vaccine. How does it work?

(1mrk)

……..

b) What is the significance of;

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i. Red blood cells lacking mitochondria. **(1mrk)**

……

ii. Xylem vessels being dead. **(1mrk)**

……..

21. Use of fossil fuel as source of energy causes global warming. Governments are being encouraged to use 'clean energy'. State two sources of this energy. **(2mrks)**

……

……

……

22. An athlete training to take part in an international competition moved to a high attitude area to train for 12 days. He took his pulse rate per minute and recorded as shown below.

Day	1	2	3	4	5	6	7	8	9	10	11	12
Pulse rate	72	78	89	92	92	90	86	80	77	74	72	72

Account for the change in the pulse rate from.

i. Day 1-5. **(2mrks)**

……

……

……

……

ii. Day 6-12. **(2mrk)**

……

……

……

……

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23. A patient complained of frequent thirst. A sample of the patient's urine was found not to have any sugar.

i. Name the hormone the person was deficient of. **(1mrk)**

……

ii. Name the gland that secretes the above hormone. **(1mrk)**

……

24.

a) The paddles of a whale and fins of a fish adapt them to aquatic habitat.

i. Name the evolutionary process that may have given rise do these structures. **(1mrk)**

……

ii. What name is given to such structures? **(1mrk)**

……..

b) State two advantages of natural selection. **(2mrks)**

……

……

……

25.

a. Explain why ingestion of salty food may reduce the amount of water passed out in urine. **(2mrks)**

……

……

……..……..

b. Explain why small birds puff their features when cold. **(2mrks)**

……

……

……..……..

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26.

a. Explain why halophytes have pneumatophores. **(1mrk)**

……

……

b. Explain how the following features adapt root hairs cells to absorption

i. Large sap vacuole. **(1mrk)**

……

……

ii. Numerous mitochondria. **(1mrk)**

……

……

27. A certain metabolic pathway takes place following sequence.

J-K-L-M-N

An inhibitor was added to the reactants during an experiment. At the end of the experiment, there was more K and little L, M and N.

a. At what stage of the sequence was the inhibitor added. **(1mrk)**

……

b. Briefly explain how the inhibitor affected the reaction. **(2mrks)**

……

……

……

28.

a. Suggest a change in the diet of a person whose liver is damaged. **(1mrk)**

……

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b. State the importance of caecum in herbivores. **(1mrk)**

……

c. Name the polysaccharide that offers mechanical support in;

i. Arthropods **(1mrk)**

……

ii. Plants. **(1mrk)**

……..

29.

a) Explain why an effective respiratory system is associated with the circulatory system. **(2mrks)**

……

……

……..……..

b) Distinguish between haemoglobin and myoglobin. **(2mrks)**

……

……

……..……..

30.

a. New born babies have a higher heart beat than adults. Explain why? **(2mrks)**

……

……

……..…..

b. What Is the advantage of oxyhaemoglobin over carboxyhaemoglobin? **(1mrk)**

……

……

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31. Explain why;

i. Fish pass a lot of water over the gills frequently. **(1mrk)**

……

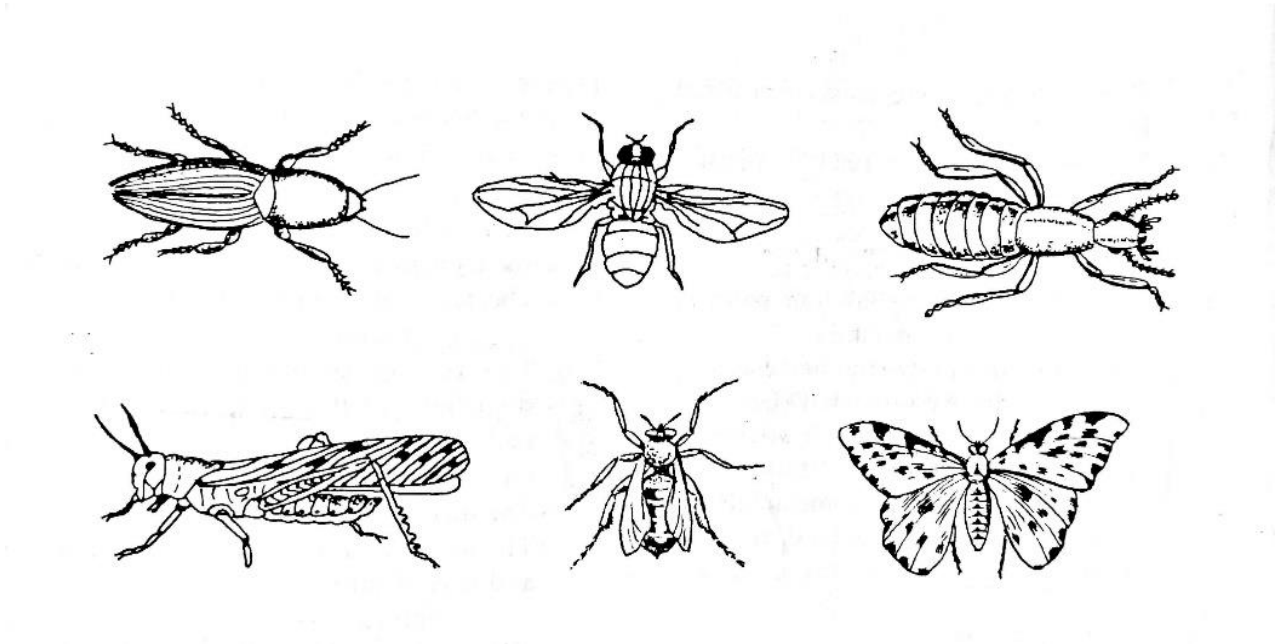
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ii. Lack of magnesium leads to yellowing of leaves. **(1mrk)**

……

……

32. The organisms below belong to kingdom Animalia.



a) Name the phylum and class where they belong. **(2marks)**

i. Phylum……

ii. Class ……

b) Give a reason for placing the organisms in the class in (**a(ii)** above. **(1mrk)**

……

……....

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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

NAME……. **INDEX NO……..**

SCHOOL…… **SIGN…….**

DATE……..

231/2

BIOLOGY

(THEORY)

PAPER 2

TIME: 2 HOURS

Instructions to candidates

1. *Write your **name, index number** and the **name** of your school in the spaces provided above.*
2. ***Sign** and **write** the **date** of examination in the spaces provided above.*
3. *Answer **all** questions in this question paper.*
4. *Answers to **all** questions **must** be written in the spaces provided in this booklet.*

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SECTION	QUESTION	MAX.SCORE	CANDIDATES SCORE
A			
B	6 7 8	20 20 20	
TOTAL		80	

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SECTION A (40MKS)

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

1. A student boiled some water in a boiling tube and before it cooled down, she covered the surface with a layer of oil. With the water maintained at 37° C. She introduced a mixture of glucose and yeast into the boiling tube. Corked it and fixed a delivery tube, the other end of the delivery tube was immersed into lime water that had been put in a test tube. The set up was left maintained at 37 °C for 30 minutes within which observations were made.

(a) What was the aim of the experiment? **(1 mark)**

……

……

b) Why was it important to boil the water at the start of the experiment **(1mark)**

……

……

c) Write down three observations made within the 30 minutes time. **(3 marks)**

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……

d) Account for the observations made in (c) above. **(3 marks)**

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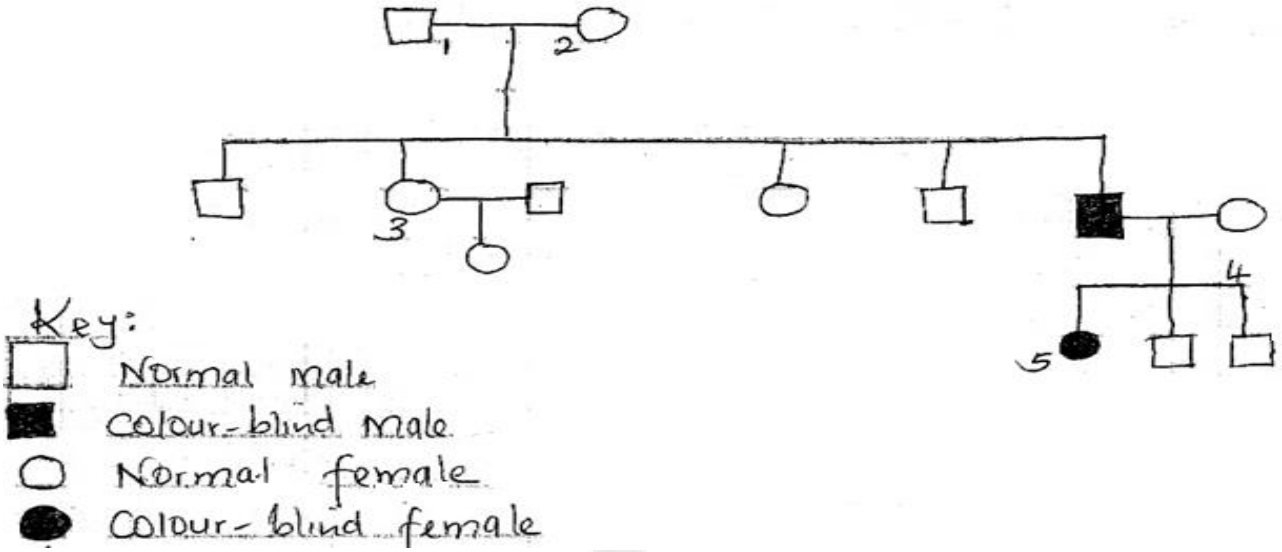
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2. The pedigree diagram shows the inheritance of colour blindness (Daltonism) in a family. Colour blindness is sex-linked and is caused by a recessive allele (d). The ability to see colour normally is caused by a dorminant allele (D)



a) How many of the male offspring of parents 1 and 2 were normal? **(1mk)**

……

b) State the genotype of:

i) Individual 2 **(1mk)**

……

ii) Individual 5 **(1mk)**

……

c) A person with a recessive allele for colour-blindness may not be colour blind. Explain why males with allele for colour-blindness are always colour-blind. **(1mk)**

……

……

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d) If individual 5 marries a normal male, what percentage of their daughters will have an allele for colour-blindness but will not be colour-blind? Show your working. **(4mks)**

3. The following table gives information about concentration of substances in samples of blood plasma, filtrate from the glomerulus and urine.

Substance	**Concentration in sample (g/100cm^3)**		
	Blood plasma	**Glomerular filtrate**	**Urine**
Glucose	0.10	0.10	0.00
Protein	8.00	0.00	0.00
Salts	0.90	0.90	2.70
Urea	0.03	0.03	1.80

a) Protein is not filtered out of blood plasma

i) Use evidence from the table to support this statement. **(1mk)**

……

ii) Explain why protein is not filtered out of the blood plasma. **(1mk)**

……

……

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b) The table shows that glucose is present in the filtrate from the glomerulus but not in the urine. Explain why glucose is not present in the urine. **(1mk)**

……

……

c) Urea is formed by the deamination of excess amino acids. Describe how deamination occurs **(5mks)**

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……

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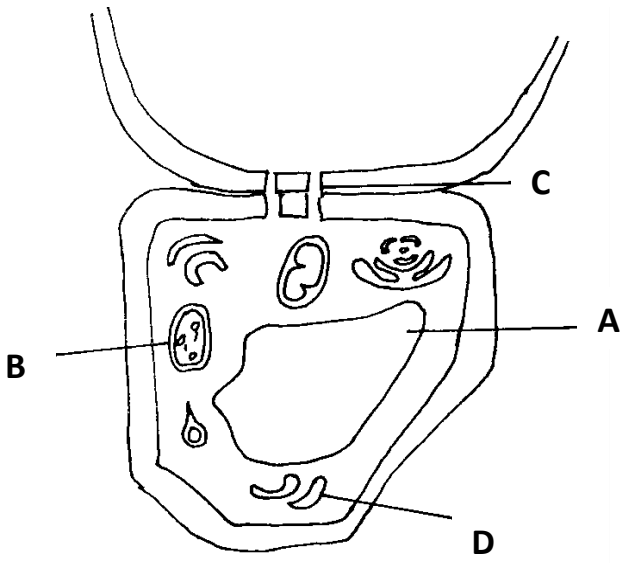
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4. The diagram below represents a generalized cell structure as seen under an electron microscope.



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(a) Name the structures labeled A,B and C **(3mks**

A

B

C

(b) How is the structure labeled B adapted to its function **(2mks)**

……

……

(c) What difference would be observed between electron micrograph obtained from cheek cell of a frog and the one above **(3mk)**

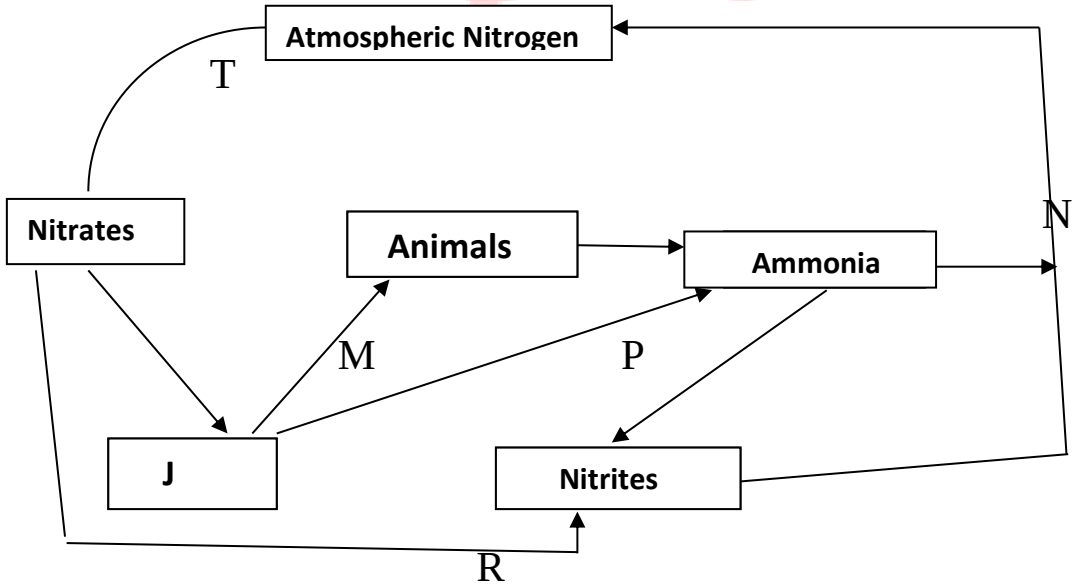
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5. The diagram below represents a nitrogen cycle



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a) Name the groups of organisms represented by J **(1mk)**

……

b) Name the process represented by R, P M and N **(4mks)**

R :……..……..

P :……..

M :……..……..

N :……..……

c) Name one process represented by T **(1mk)**

……

d) i) Name a structure in roots involved in process M **(1mk)**

……

ii) State one adaptation of structure named in (d) (i) above to its function **(1mk).**

……

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SECTION B (40 MARKS)

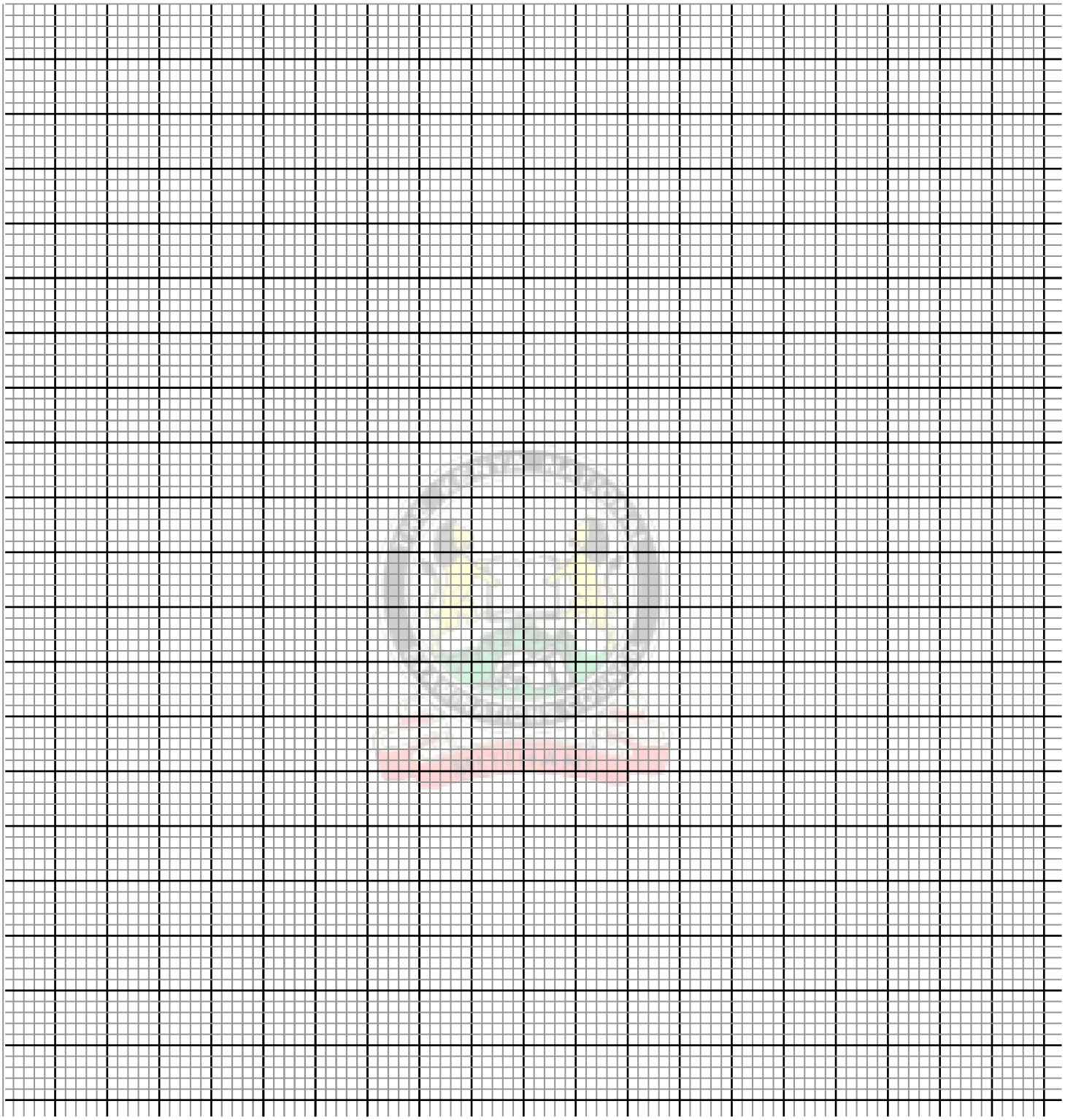
Answer question 6(compulsory) and either question 7 or 8 in the spaces provided after question 8

6. In an experiment, the population growth of yeast cells in a Petri dish was determined over a period of 75 minutes. The results below were obtained.

TIME IN MINUTES	NUMBER OF YEAST CELLS
0	4
5	6
10	8
15	10
25	30
30	50
35	80
40	120
45	140
50	150
55	160
65	166
75	166

(a). Using a suitable scale , plot a graph on the grid provided of number of cells against time in minutes **(6 marks)**

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(b). Name the type of the curve you have drawn. **(1 mark)**

.....

(c) Determine the number of yeast cells after 37 minutes. **(1 mark)**

.....

.....

(d) After how long was the population of yeast cells 144? (**1 mark)**

.....

.....

(e). Work out the rate of cell division between 32 minutes and 42 minutes. **(2 marks)**

.....

.....

.....

(f). Account for the shape of graph between 45th minute and 60th minute. **(3 marks)**

.....

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.....

(g). In a field study to estimate the population of grasshoppers in the school field of $4km^{2,,}$ 60 grasshoppers were caught using sweep nets, marked with red paint and released back to the field. The following day students went back with their sweep nets and caught 100 grasshoppers, in which 20 were found to be already marked.

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(i)Calculate the population size of grasshoppers in the field. **(2 marks)**

.....

.....

.....

(ii). Calculate the population density of the grasshoppers in the field. **(2 marks)**

.....

.....

.....

(iii) What factors would maintain the population of grasshoppers and yeast cells at the carrying capacity. **(2 marks)**

.....

.....

.....

.....

7. a) Describe the process of fertilization in a flowering plant. **(15mks)**

b) State the changes that take place in a flower after fertilization **(5mks)**

8 (a) Describe the adaptation of hydrophytes to their photosynthetic function. **[10mks]**

(b) Explain how mammalian ileum is adapted to perform its function. **[10mks]**

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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

SCHOOL…… **SIGN…….**

DATE……..

231/3

CONFIDENTIAL

INSTRUCTIONS TO SCHOOLS;

Provide The Following:

(a) Source of heat
(b) Iodine solution
(c) **specimen K** –Gymnospermae with cones
(d) **SPECIMEN L** -Angiospermae with flowers eg *Lantana camara L*
(e) Substance Y -yeast scoop
(f) Solution X- lime water
(g) 1-testtube
(h) 1 boiling tube
(i) Thermometer
(j) Measuring cylinder
(k) Delivery tube corked with the BT
(l) Water bath
(m) Access to light microscope (label Low power objective as **A** and revolving nose piece as **B**
(n) **Access** to stain iodine or methylene blue
(o) Petri dish
(p) Scalpel
(q) White tile
(r) Source of heat

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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

NAME……. **INDEX NO……..**

SCHOOL…… **SIGN…….**

DATE……..

231/3

BIOLOGY

Paper 3

(PRACTICAL)

1 ¾ hours

Instructions to Candidates

(a) *Write your name and admission number in the spaces provided above.*
(b) *Sign and write the date of examination in the spaces provided above.*
(c) *Answer **all** the questions in the spaces provided.*
(d) *You are required to spend the first 15 minutes of the 1 ¾ hours allowed for this paper reading the whole paper carefully before commencing your work.*
(e) *Additional pages must **not** be inserted.*

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Question	Maximum score	Candidate's score
1	14	
2	13	
3	13	
Total Score	40	

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1. You are provided with 10% glucose solution and substance **labeled Y**. Also provided is a solution labeled **X.** You are to investigate the reaction between the glucose solution and **substance Y**. Measure 20.00cm^3 of the glucose solution and transfer it to the boiling tube provided. Transfer all the **substance Y** provided into the solution in the boiling tube. Tightly fit the rubber bung carrying a delivery tube to the boiling tube. Place the boiling tube in a water bath kept between 35 – 40^0 c. Measure about 1.0. cm3 of **solution X** and transfer to a test tube. Connect the delivery tube so that the open end enters the **solution X**. Allow the set – up to stand for about 30 minutes and during this time observe the changes occurring in the boiling tube and in the test tube having **solution X.**

a) Fill the table below **(2 marks)**

Tube	Observations
Boiling Tube	
Test Tube	

b) What conclusions can your draw from your observations in the test tube? (**2 marks)**

……

……

……

……

c) Name the process that took place in the test tube (**1 mark)**

……

……

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d) Shake the contents of the boiling tube and using a dropper remove a little of the contents. Transfer a drop to a glass slide; add two drops of methylene blue stain. Cover with a cover slip and observe using a microscope of x10 or x15 eye piece lens.

(i) Draw and label the **substance Y** which is in the slide **(2 marks**)

ii) What is the possible identity of **substance Y** **(1 mark)**

……

……

e) Why was the temperature of the water bath kept between 35 – 38^0c **(1 mark)**

……

……

f) If the experiment was done under the following conditions, suggest, giving reasons the expected results.

(i)Water bath was kept at 100^0c

Observations **(1mark)**	Reasons **(1mark)**

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g) From the microscope

(i) Name the part **labeled A.** **(1 mark)**

……

……

(ii) Give the function of part **labeled B.** **(1 mark)**

……

……

h) Name the form in which **substance Y** stores its excess glucose **(1 mark)**

……

……

2. You are provided with **specimen K** and **specimen L**, use them to answer the questions that follows.

a) State with reasons the sub divisions to which the specimens belong.

	Sub division (2 mark)	**Reason** (2 mark)
K		
L		

b) State two reasons that proofs specimen **L** is more advanced compared to specimen **K.** in plant Kingdom **(2 marks)**

……

……

……

……

……

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c) Name the likely habitat of specimen K and give an adaptation that suit K to its habitat

(2 marks)

……

……

……

……

d) Describe the leaf of specimen L **(3 marks)**

……

……

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……

e) Study the stem of specimen L.

i) State the structural modification observed **(1mark)**

……

……

……

ii) What is the importance of this modification? **(1mark)**

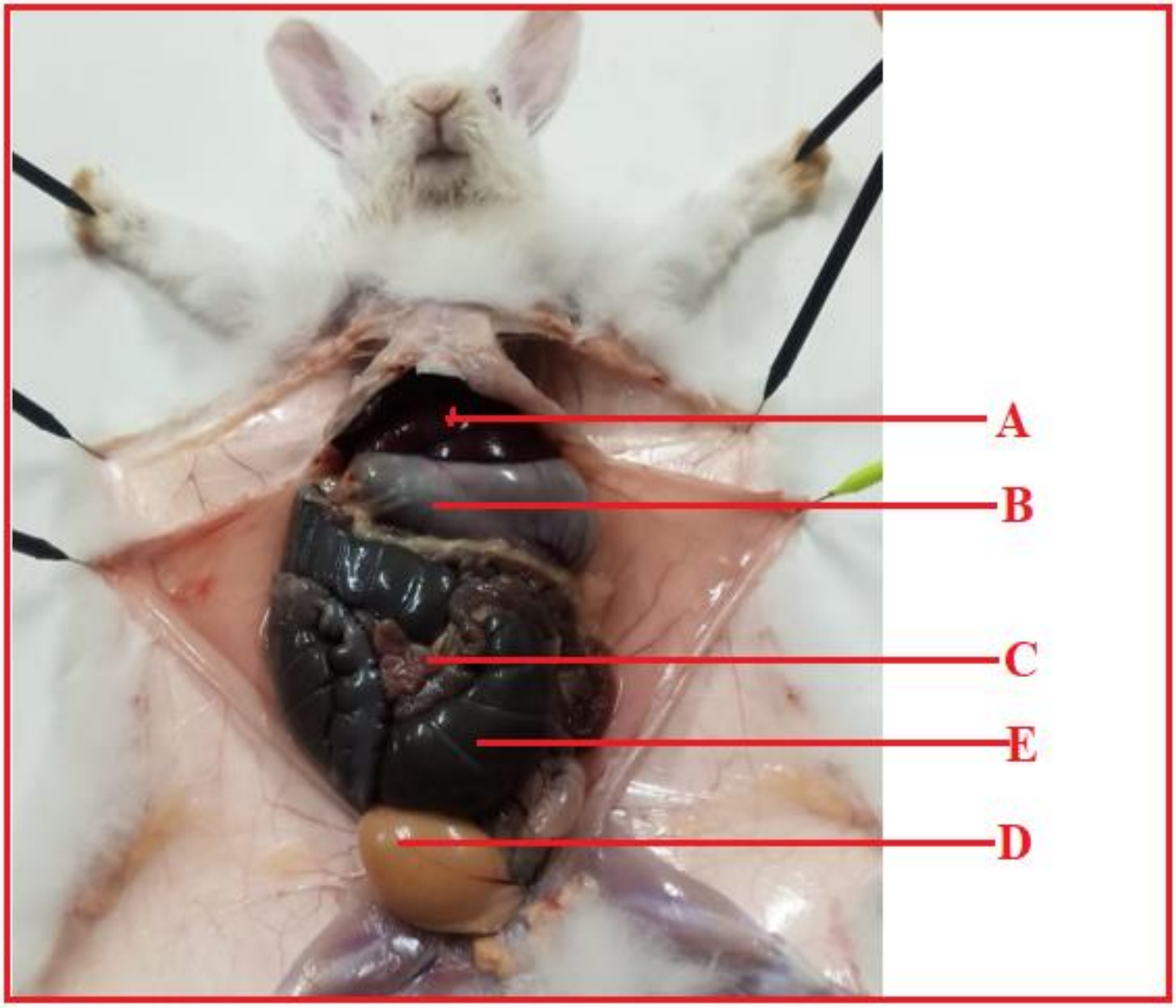
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3. You are provided with the following illustration, use it to answer the questions that follow.



a) Name the parts labeled C and E **(2marks)**

……

……

……

b) Classify the organism into Phylum **(1mark)**

……

……

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c) With reason identify the Class of the organism **(2marks)**

Class	Reason

d) State the digestive function of the part labeled B **(2 marks)**

……

……

……

……

e) State two adaptation of the part labeled C **(4 marks)**

……

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f) State two homeostatis function of structure labeled A **(2marks)**

……

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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

NAME……. **INDEX NO……..**

SCHOOL…… **SIGN…….**

DATE……..

233/1

CHEMISTRY

THEORY

Paper 1

2 Hours

INSTRUCTIONS TO CANDIDATES

(a) *Write your name and Index Number in the spaces provided above.*
(b) *Sign and write date of examination in the spaces provided above.*
(c) *Answer **all** questions in the spaces provided in the question paper.*
(d) *KNEC Mathematical tables and silent non-programmable electronic calculators may be used.*

For Examiners Use Only

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16

17	18	19	20	21	22	23	Grand Total	

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1. Silicon and carbon are both group IV elements. Silicon (IV) oxide is a solid at room temperature which melts at 1973K while carbon (IV) oxide is a gas and melts at 217K. In terms of structure and bonding, explain the difference. **(2 marks)**

……

……

……

……

2. When sodium carbonate is added to a solution containing $Al^{3+}_{(aq)}$ ions, effervescence is observed. Explain **(2 marks)**

……

……

……

3. An element Q can be represented as $^{40}_{20}Q$ (Q is not the actual symbol of the element)

(a) Write the electron configuration of Q **(1 Mark)**

……

(b) To which group and period does Q belong? **(1 Mark)**

……

(c) Write the formula of the ion of Q. **(1 Mark)**

……

4. (a)Sketch a graph demonstrating Charles' law. **(2 Marks)**

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Volume

Temperature/^{0}C

(b) A fixed mass of a gas has a volume of 250cm^3 at a temperature of 27^{0}C and 750mmHg pressure. Calculate the volume the gas would occupy at 42^{0}C and 750mmHg. **(2 Marks)**

……

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……

5. The table below shows the trend in ionization energy for elements M, N and L. Use it to answer the questions that follows.

Element	First Ionization energy (kJ)
M	494
N	519
L	418

(a) Define ionization energy. **(1 Mark)**

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……

……

……

(b) Which element has the smallest atomic radius? **(1 Mark)**

……

……

(c) Which is the most reactive element? Explain. **(2 Marks)**

……

……

……

6. Identify acids and bases in the following reaction using Bronsted-Lowry theory. **(2 Marks)**

$NH_4^+{}_{(aq)} + OH^-{}_{(aq)} \rightleftharpoons NH_{3(aq)} + H_2O_{(l)}$

Acids: ……

Bases: ……

7. (a)State Graham's law of diffusion. **(1 Mark)**

……

……

……

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(b) $50cm^3$ of oxygen gas diffused through a porous plug in 80 seconds. How long will it take $100cm^3$ of carbon (IV) oxide gas to diffuse through the same plug? **(3 Marks)**

……

……

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……

……

8. When hydrogen sulphide gas was bubbled into an aqueous solution of iron (III) chloride, a yellow precipitate was formed.

(a) State another observation that was made. **(1 Mark)**

……

……

(b) Explain the observation above. **(1 Mark)**

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(c) Write an equation for the reaction that took place. **(1 Mark)**

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9. Using equations, explain the observations made at the electrodes when an electric current is passed through molten Aluminium oxide. **(3 Marks)**

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10. In a titration experiment, a student was provided with the following:-

- **Solution R** which was 0.408M HCl
- **Solution S** containing 6.9g of a metal carbonate $\mathbf{M_2CO_3}$ in $250cm^3$ solution

Upon titration, $24.5cm^3$ of solution R was required to completely neutralize $25cm^3$ of solution S. Determine the following.

(a) Molarity of **s**olution S **(2 Marks)**

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(b) Formula mass of $\mathbf{M_2CO_3}$ **(2 Marks)**

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(c) Relative atomic mass of **M** **(1 Mark)**

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11. Compounds A and B have the same molecular formula $C_3H_6O_2$. Compound A liberates carbon (IV) oxide gas on addition of aqueous sodium carbonate while compound B does not. Compound B has a pleasant smell. Name and draw the structural formulae of A and B. **(4 Marks)**

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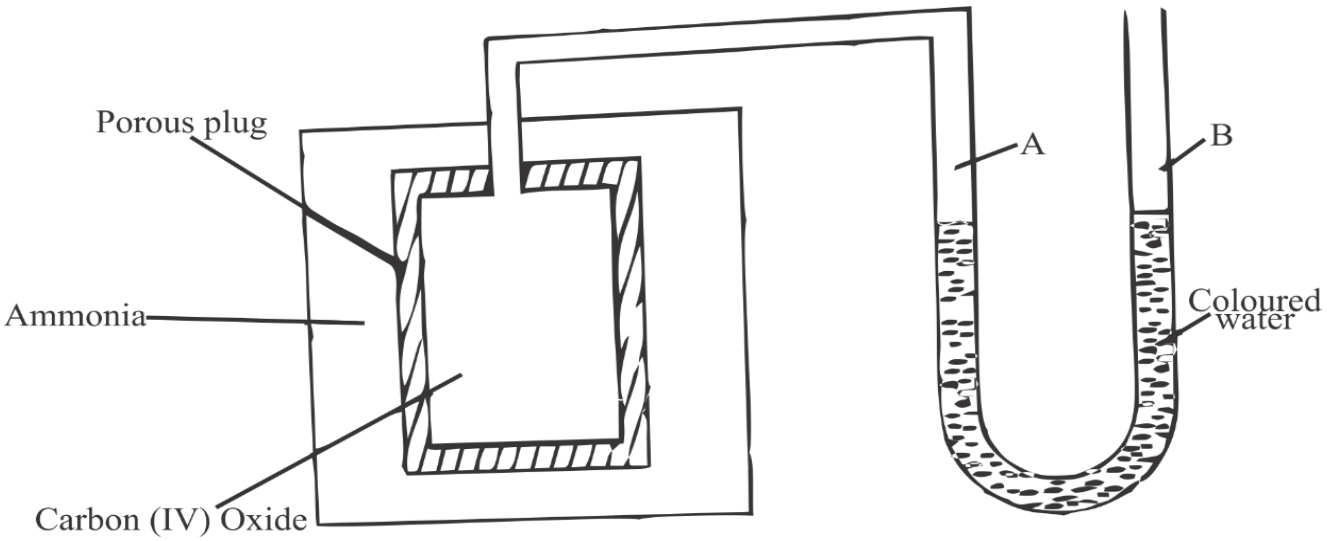
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12. The set up below was used by a form 3 student to study the difference in rates of diffusion between ammonia (NH_3) and carbon (IV) oxide(CO_2) gases. Study it and answer the questions that follow.



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State and explain the observation made on the level of coloured water in the arms A and B on the U tube as the experiment progressed. **(3 Marks)**

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13. 2.1g of a compound of carbon and hydrogen burns to form 6.6g of carbon (IV) oxide and 2.7g of water.

a) Determine the empirical formula of this compound (C=12, H=1, O=16) **(2 Marks)**

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b) Given that the molecular mass of the compound is 42, determine its molecular formula **(1 mark)**

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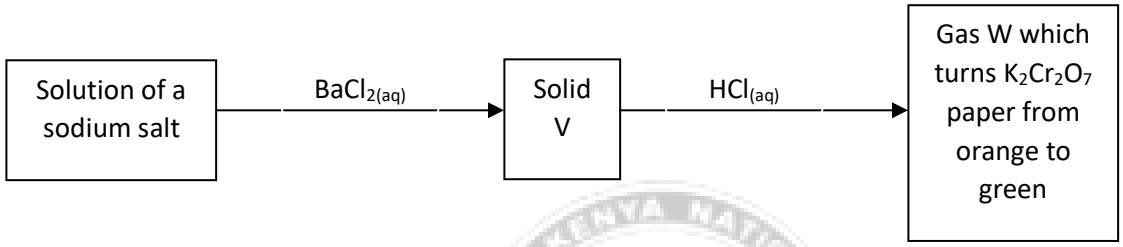
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c. To which group of organic compounds does the compound belong? **(1 Mark)**

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14. Study the diagram below and answer the questions that follow.



(a) Name

i. Solid V …… **(1 Mark)**

ii. Gas W …… **(1 Mark)**

(b) Write an equation for reaction between solid V and dilute hydrochloric acid. **(2 Marks)**

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15. Starting with solid aluminium sulphate, describe how a solid sample of aluminium hydroxide could be prepared. **(3 Marks)**

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16.(a) A burning magnesium ribbon continues to burn in a jar of nitrogen gas but a burning splint is extinguished. Explain **(1 Marks)**

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(b) Using equations explain what happens when concentrated nitric (V) acid is reacted with wood charcoal. **(2 Marks)**

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17. (**a)**State Gay Lussac's law. **(1 Mark)**

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(b) 10cm^3 of a gaseous hydrocarbon were mixed with 33cm^3 of oxygen gas which was in excess. The mixture was exploded and after cooling to room temperature, the residual volume of gas occupied 28cm^3. On adding concentrated potassium hydroxide the volume decreased to 8cm^3.

Work out the molecular formula of the hydrocarbon **(3 Marks)**

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18.(a) What are isotopes? **(1 Mark)**

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(b) Lithium has two isotopes ${}^{7}_{3}Li$ and ${}^{6}_{3}Li$ Determine the number of neutrons in ${}^{7}_{3}Li$.

(1 Mark)

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(c) If the relative atomic mass of lithium is 6.94. Which of the two isotopes is more abundant. Give a reason. **(2 Marks)**

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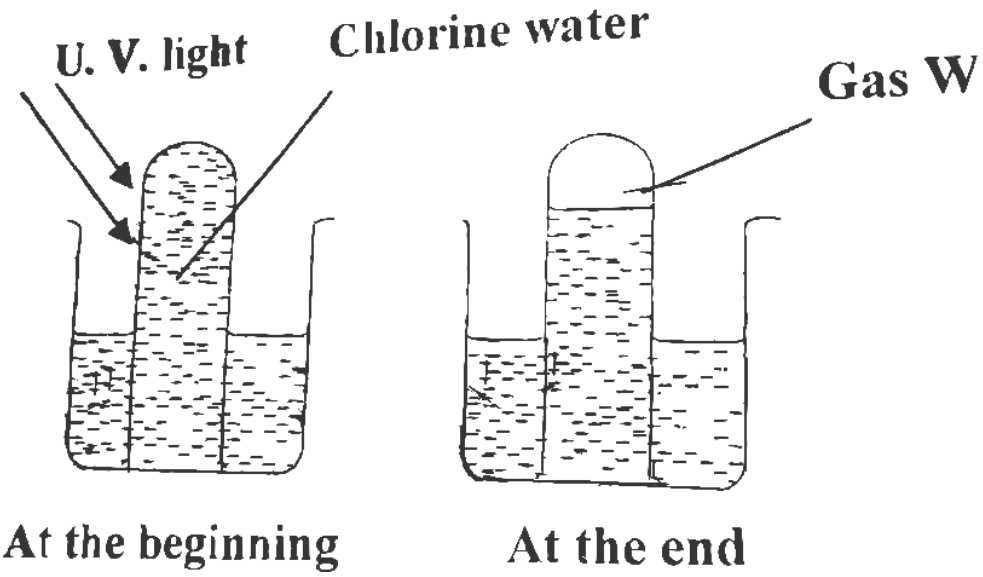
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19. The diagram below represents a set of apparatus used to study properties of chlorine water.

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(a) Name two components of chlorine water. **(1 Mark)**

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(b) Write an equation for the reaction that produces gas W. **(1 Mark)**

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(c) The following test was carried out on chlorine water contained in a test tube. A piece of blue flower was dropped in the test tube. Explain why the flower was bleached. **(2 Marks)**

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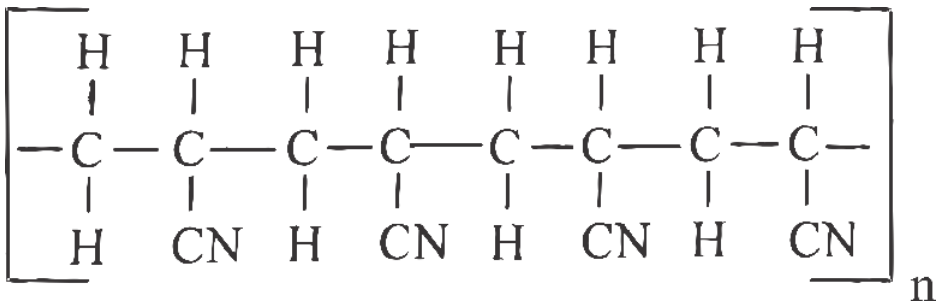
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20. The diagram below shows part of a synthetic polymer. Study it and answer the questions that follow.



(a) Draw the structural formula of the monomer from which the polymer is made. **(1 Mark)**

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(b) A sample of the polymer has a molecular mass of 63600. Calculate the number of monomers in the sample. **(2 Marks)**

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(c) Methanol has molecular mass of 32 while ethane has a molecular mass of 30. The boiling point of methanol is 65°C while that of ethane is -89°C. Explain **(2 Marks)**

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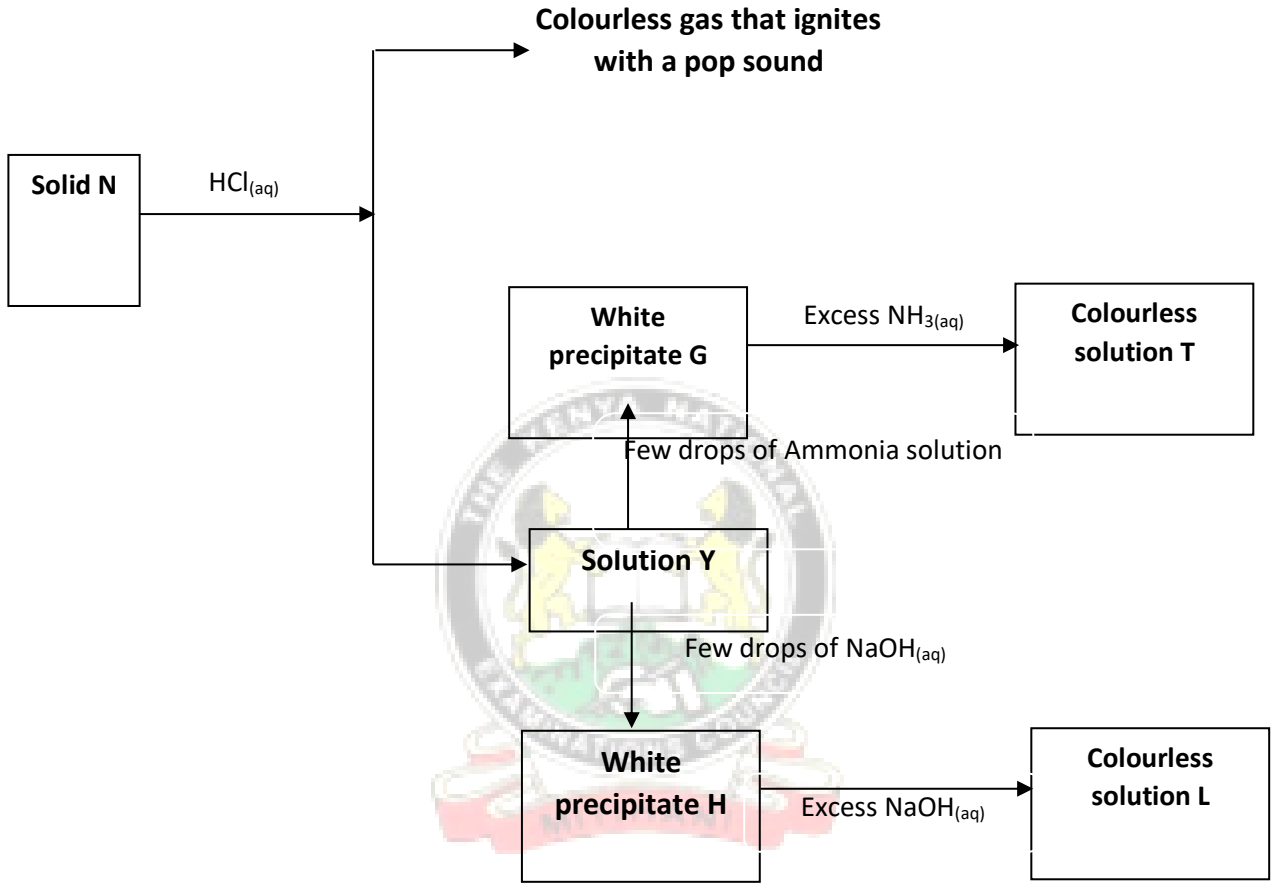
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21. Study the reaction scheme below and answer the question that follows:-



(a) Name solid N. **(1 Mark)**

……

(b) State the observation that would be made if solution Y is mixed with lead (II) nitrate solution.

(1 Mark)

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(c) Write an ionic equation for the formation of the colourless solution T. **(1 Mark)**

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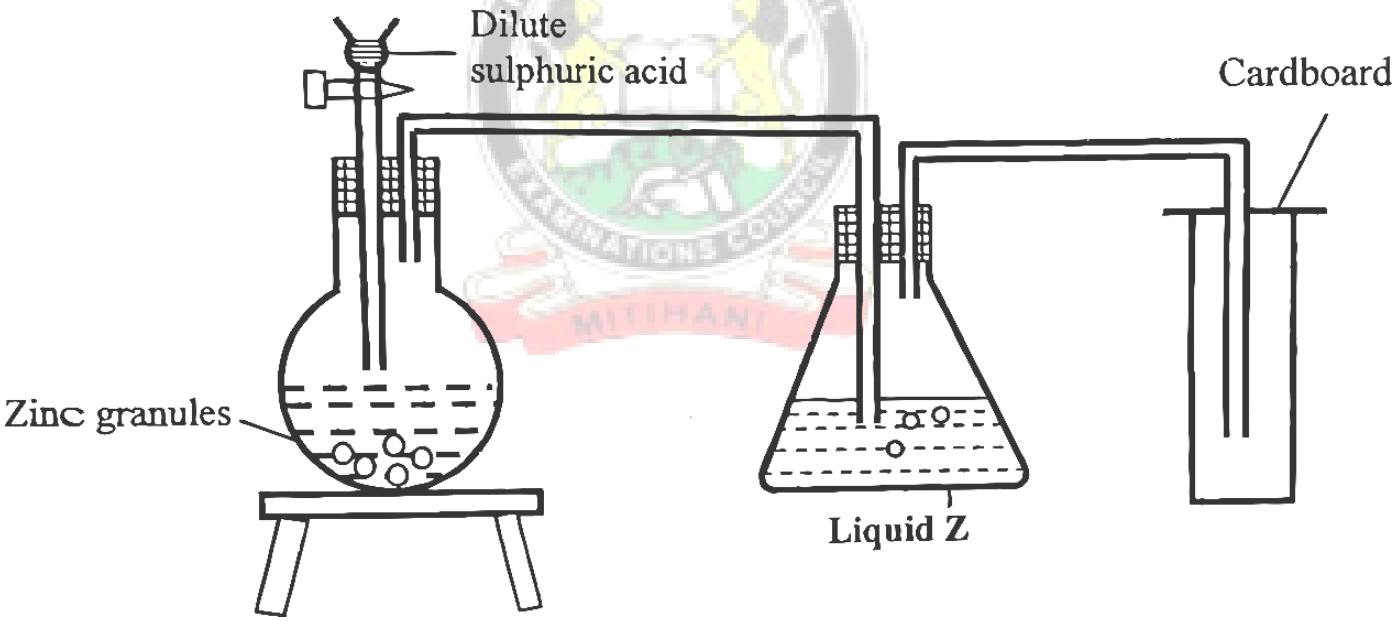
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(d) Name the ion present in colourless solution L. **(1 Mark)**

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22. The setup below was used to prepare dry hydrogen gas. Study it and answer the questions that follow.



(a) Identify one mistake in the setup above. **(1 Mark)**

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(b) What is the role of liquid Z? **(1 Mark)**

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(c) Using an equation give one chemical property of hydrogen gas. **(1 Mark)**

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23.(a) Define solubility. **(1 Mark)**

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(b) In an experiment to determine the solubility of solid W in water at 40°C, the following results were obtained.

- Mass of empty evaporating dish = 36.2g
- Mass of evaporating dish + saturated solution = 52.4g
- Mass of evaporating dish + dry solid W = 40.4g

Use this data to calculate the solubility of W at 40°C. **(2 Marks)**

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CROSSCOUNTRY PREDICTION

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KCSE 2022 SERIES 3

NAME……. **INDEX NO……..**

SCHOOL…… **SIGN…….**

DATE……..

233/2

CHEMISTRY

Paper 2

Time: 2 hours

INSTRUCTIONS TO CANDIDATES

1.*Write your name and admission number in the spaces provided above.*

2*. Sign and write the date of the examination in space provided.*

3.*Answer ALL the questions in the spaces provided in the question paper.*

4. *All working MUST be clearly shown where necessary.*

5. *Mathematical tables and silent electronic calculators may be used.*

FOR EXAMINERS ONLY

QUESTIONS	CANDIDATE'S SCORE

QUESTION 1

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(a) The grid below represents part of the periodic table. Study it and answer the questions that follow: The letters do not represent the actual symbols of the elements.

								A
				B				
	C		**D**			**E**		
	F							

(i) What name is given to the group of elements to which **C** and **F** belong**?** **(1mk)**

(ii) Explain the difference in reactivity between element **C** and **D** **(2mks)**

(iii) Using(.) and cross (x) illustrate the bond between **B** and **E** **(2mks)**

(iv) Write a balanced chemical equation for a reaction between element D and oxygen gas **(1mk)**

(v) On the grid indicate a tick(√) the position of element **G** which is in the third period of the periodic table and forms G^{3-} ions **(1mk)**

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(b) Study the information in the table below and answer the questions that follow: (The letters do not represent the actual symbols of the substance)

Substance	Melting point ^0C	Boiling points ^0C	Solubility in water	Density at room temp in g/cm^3
H	-117	78.5	Very Soluble	0.8
J	-78	-33	Very Soluble	$0.77x10^{-3}$
K	-23	77	Insoluble	1.6
L	-219	-183	Slightly Insoluble	$1.33x10^{-3}$

(i) Which substance would dissolve in water and could be separated from the solution by fractional distillation in the school laboratory **(1mk)**

(ii) Which substance is a liquid at room temperature and when mixed with water two layers would be formed. **(1mk)**

(iii) Which letter represents substance that is a gas at room temperature and which can be collected (density of air is $1.225x10^{-3}$ g/cm^3)

(i) Over water **(1mk)**

(ii) By downward displacement of air **(1mk)**

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QUESTION 2

(a) Propane can be changed into methane as shown below:

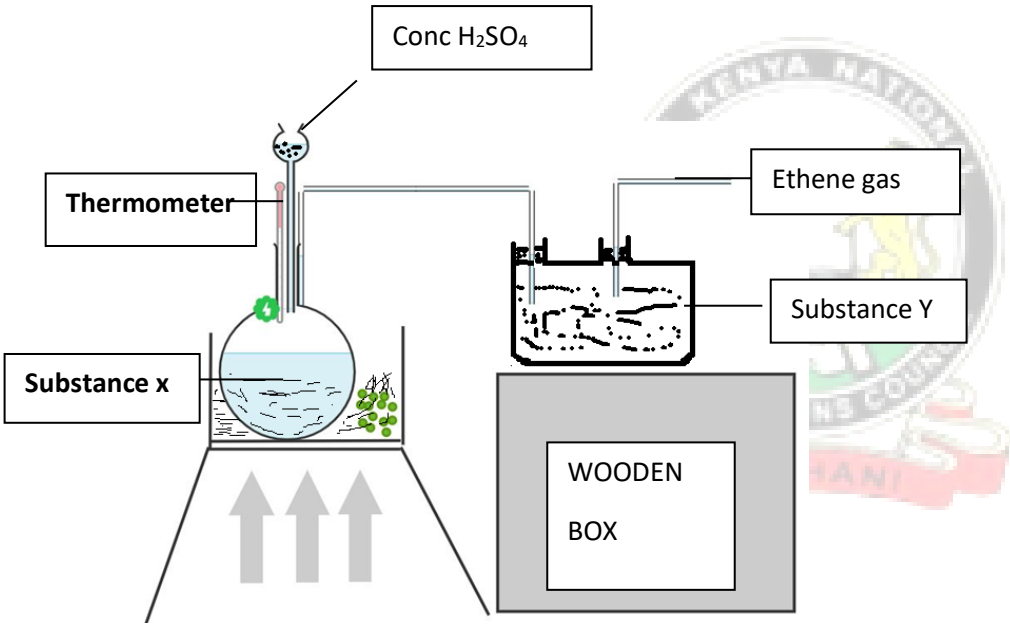
$2CH_3CH_2\,CH_{3\,(g)} \xrightarrow{\text{high temperature}} CH_{4\,(g)} + C_2H_{4\,(g)} + CH_3CHCH2_{\,(g)} + H2_{\,(g)}$

(i) Name the process undergone by propane **(1mk)**

(ii) Write the equation of reaction between ethene and chlorine gas and name the product.

(2mks)

(b) The diagram below shows an incomplete set-up of the laboratory preparation and collection of Ethene gas:



(i) Complete the diagram to show how Ethene gas is collected. **(2mks)**

(ii) Name substances **X** and **Y** **(2mks)**

(iii) Apart from being colourless and odourless, state another physical property of ethene**.**

(1mk)

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(c). The table below gives information about the major components of crude oil. Study it and answer the questions that follow.

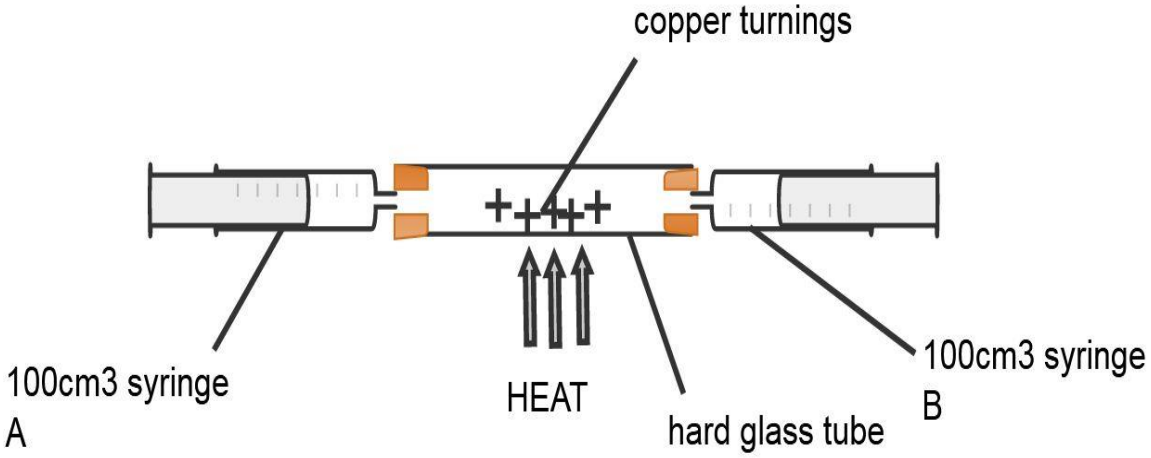
Components	**Boiling points^{0}C**
Gases	Below 40
Petrol	40-175
Kerosene	175-250
Diesel oil	250-350
Lubricating oil	350-400
Bitumen	Above 400

(i) Which of the compounds of crude oil has molecules with the highest number of atoms? Explain. **(2mks)**

(ii) Explain the condition that could cause a poisonous gas to be formed when kerosene is burnt? **(2mks)**

QUESTION 3

(a) Air is a mixture of gases that can be classified as active and inactive part. The diagram below represents an experiment that can be carried out to determine the active part of air.



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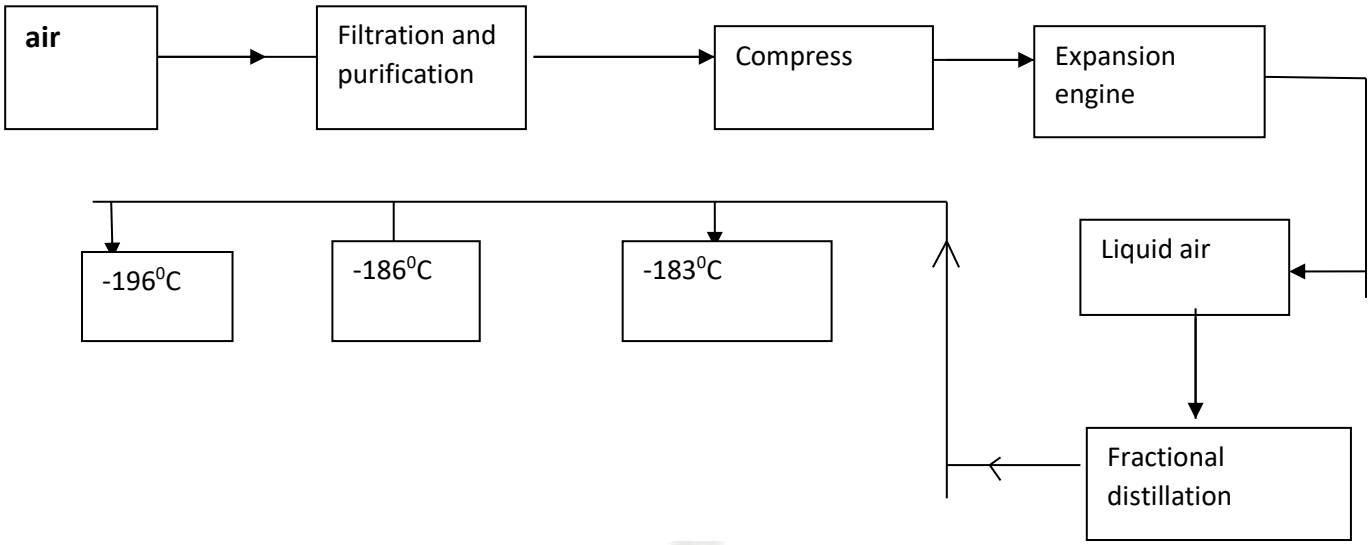
(a) Describe how this set-up can be used to determine the active part of air **(4mks)**

(b) When magnesium ribbon is heated in air the mass of the product is more than the mass of magnesium ribbon used. Explain **(1mks)**

(c) Carbon (IV) oxide and sulphur (IV) oxide are some of the gases that are common pollutant in the atmosphere. Explain two measures that are taken to reduce atmospheric pollution of the two gases. **(2mks**

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(d) Oxygen is obtained on large scale by the fractional distillation of air as shown on the flow chart.



(i) Explain how carbon (IV) oxide and water are removed before liquification of air. **(2mks)**

(ii) Identify the component that is collected at -186^{0}C **(1mk)**

(iii) State one commercial use of oxygen gas apart from its use in hospital by patient with difficult breathing **(1mk)**

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QUESTION 4

(a) Rhombic and Monoclinic are allotropes of sulphur. They are interconvertible as shown below:

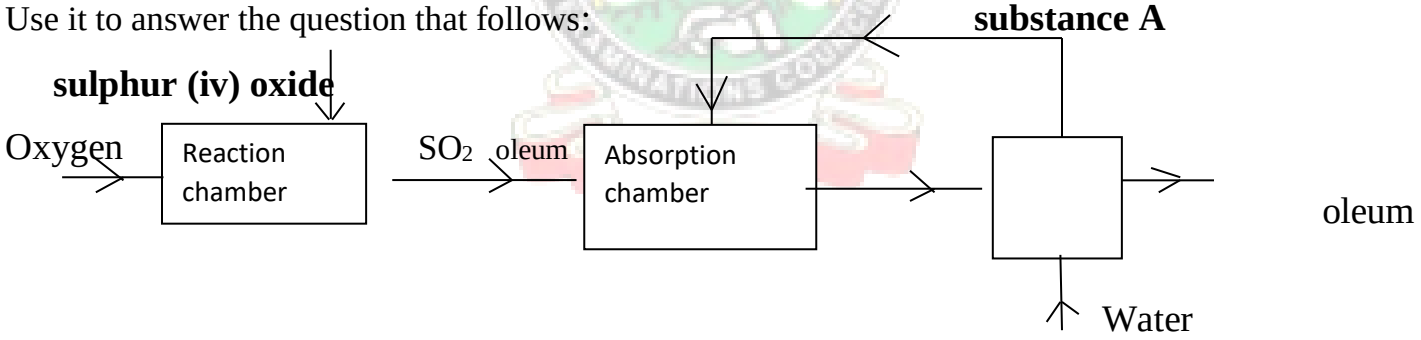
$$\text{Rhombic} \underset{}{\overset{96^0c}{\rightleftharpoons}} \text{Monoclinic}$$

(i) What does the temperature 96^0C represent **(1mk)**

(ii) State the differences in crystalline appearances between rhombic and monoclinic crystals.

(1mk)

(b) The chart below shows some process involved in large scale production of sulphuric (VI) acid. Use it to answer the question that follows:



(**2)(i)** Name substance A **(1mk)**

(ii). Write an equation that takes place in the absorption chamber **(1mk)**

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(iii) Vanadium (V) oxide is commonly used as an catalyst in the contact process:

(I) Name another catalyst that can be used in this process**.(1mk)**

(II) Give two reasons why vanadium V oxide is the commonly used catalyst. **(2mks)**

(III) State and explain the Observation made when concentrated sulphuric (VI) acid is added to crystals of copper (II) sulphate in a beaker**.** **(2mks)**

(v). If 100kg of sulphur(IV) oxide is used in one day by this plant, determine the mass of oleum produced

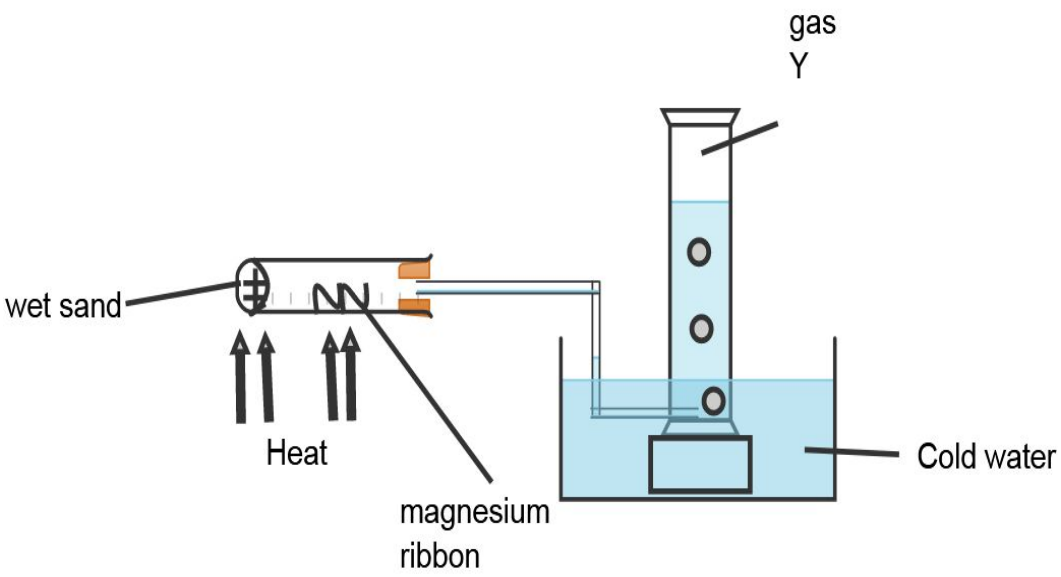
in one day. (S=32. O=16 H=1) **(3mks)**

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QUESTION 5

(a) Draw a well labeled diagram of set-up that can be used to prepare dry hydrogen gas in the laboratory. **(3mks)**

(b) The experiment below was carried out to investigate the reaction between steam and magnesium. Use it to answer the questions that follow:



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(i) Explain why wet sand is heated. **(1mk)**

(ii) State and explain what was observed in the combustion tube. **(2mks)**

(iii) Name the gas Y and state how it is tested in the laboratory. **(1mk)**

(c) Distinguish between:

Drying and dehydration. **(2mks)**

(d). A student found two liquids labeled A and B placed on the bench in the laboratory. The liquids were colourless and did not have a smell. One liquid was water.

Describe a test that you would carry out to determine the beaker that contained water. **(3mks)**

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QUESTION 6

(a) Give the name of the process involved in each of the following:

(i) Crystals of hydrated sodium carbonate($Na_2CO_3.10H_2O$) when left in open air change to white powder. **(1 mk)**

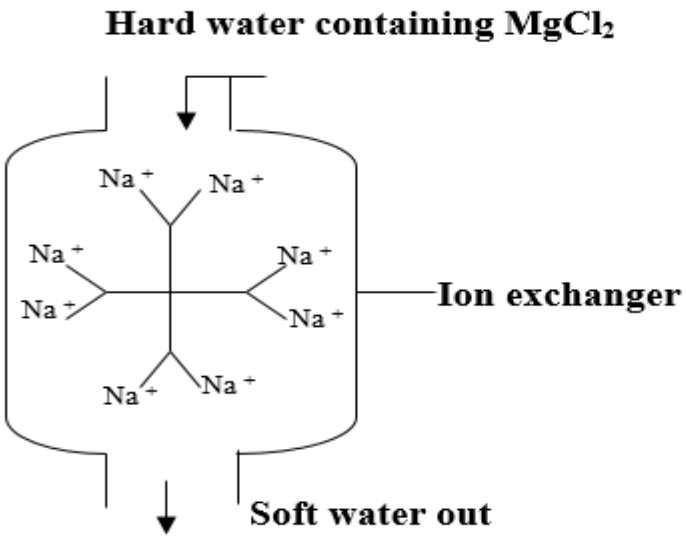
(ii When anhydrous calcium chloride is used to dry hydrogen gas for a long time, it changes to a solution**.** **(1mk)**

(b) Complete the table below by indicating the observations, type of change (permanent or temporary) and name of new compound formed. **(6 mks)**

Experiment	Observations	Type of change	Name of product
(i)Heating solid zinc oxide in a test tube.			
(ii)Anhydrous cobalt (II) chloride is left exposed overnight.			
(iii)Iron wool is soaked in tap water for two days			

(c) The diagram below shows a sample of hard water being passed through a vertical column to remove its hardness.

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(i) Write the formula of the two cations present in the sample of hard water. **(2mks)**

(ii) What name is given to the above method of softening hard water. **(1 mk)**

(iii) Write an ionic equation to show how the hard water is softened. **(1 mk)**

(iv) Study the table below and answer the questions that follow.

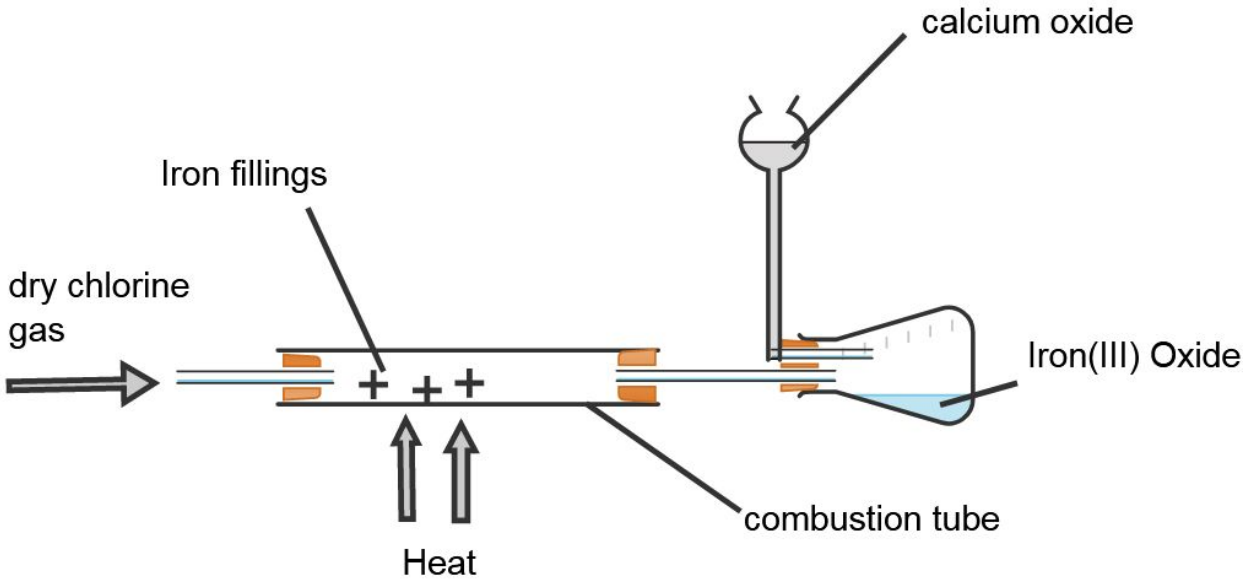
Salt	Solubility (g/100g of water) at 20^0 C	Solubility (g/100g of water) at $50^{0\,C}$
P	10	20
Q	15	12

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A solution 9g of P and 14g of Q in 100g of water at 20^0 C is warmed while stirring up to $5o^0$C. State and explain the observations made. **(2 mks)**

QUESTION 7

(a) A student set out to prepare iron (III) chloride using the apparatus shown in the diagram below:



(i) Explain why

(a) It's necessary to pass chlorine gas through the apparatus before heating begins. **(2mks)**

(b) Calcium oxide is used in the guard tube. **(1mk)**

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(c) The total mass of Iron III chloride formed was found to be 0.5g. Calculate the volume of chlorine gas that reacted with Iron.

(Fe=56.0 Cl=35.5 and molar gas volume at 298k is 24,000cm$^{3)}$ **(3mks)**

(d) What property of Iron (III) chloride makes it possible to be collected as shown in the diagram? **(1mk)**

(e) In the large scale production of hydrogen chloride gas, hydrogen gas burned in chlorine gas. State the source of the two gases. **(1mk)**

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KCSE 2022 SERIES 3

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233/3

CHEMISTRY

CONFIDENTIAL

QUESTION 1

1. *Solid FA1, 3cm length of magnesium ribbon.*
2. *60 cm^3 of solution FA2 - 0.7M HCl.*
3. *80 cm^3 of solution FA3 - 0.05M NaOH.*
4. *1 Burette .*
5. *One 25ml pipette.*
6. *One 100ml plastic beaker.*
7. *One wash bottle with distilled water.*

QUESTION 2

i) 2.20g of solid **BA11**, (Oxalic acid)

ii) Thermometer.

iii) Distilled water.

iv) 100 ml Glass beaker

v) Boiling tube.

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QUESTION 3

1. *0.5g of solid FA5 - Pb $(NO_3)_2$.*
2. *0.1g of solid FA7 - maleic acid.*
3. *0.5g of solid FA6- Na_2CO_3.*
4. *Test tube – rack + 6 test tubes +1 boiling tube.*
5. *One metallic spatula.*
6. *Universal indicator paper*

Access to:

a) *Phenolphthalein indicator.*

b) *0.5 M KI.*

c) *Acidified $KMnO_4$.*

d) *Universal indicator solution +pH chart (full range).*

e) *2M H_2SO_4.*

f) *2M NaOH.*

g) *2M NH_4OH*

h) *Bunsen burner.*

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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

NAME……. **INDEX NO……..**

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233/3

CHEMISTRY

PAPER 3
(PRACTICAL)
TIME: 2HRS 15 MIN

Instructions to Candidates

(a) *Write your* ***name***, ***index number***, ***and class*** *and* ***admission number*** *in the spaces provided on this page above.*

(b) *Sign and write the date of the practical in the spaces provided on this page above.*

(c) *Answer* ***ALL*** *questions in the spaces provided in the question paper after each question.*

(d) *You are advised to take 15minutes at the beginning to read-through the question-paper very carefully and make sure you have* ***ALL*** *the chemicals and apparatus that you may need.*

(e) *Mathematical tables and electronic calculators may be used.*

(f) *All working must be clearly shown where necessary.*

For Examiners Use Only:

Question	Maximum Score	Candidates Score
1	15.0	
2	11.0	
3	14.0	
TOTAL	40.0	

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Q1.You are provided with:

i) Magnesium ribbon, solid FA1.

ii) 0.7 M hydrochloric acid, solution FA2.

iii) 0.05 M sodium hydroxide solution, solution FA3.

iv) Distilled water.

v) Phenolphthalein indicator solution.

You are required to determine the:

i) Number of moles of hydrochloric acid that remain unreacted.

ii) Number of moles of magnesium that reacted.

PROCEDURE I

a) Using a burette, measure 50.0cm^3 of solution FA2 and place it in a 100ml plastic beaker.

b) Put the magnesium ribbon, solid FA1 in the 50.0cm^3 of solution FA2 in the 100ml beaker and allow the reaction to proceed until effervescence stops.

PROCEDURE II

a) Transfer ALL the solution obtained in Procedure I into a 250ml volumetric flask.

b) Top up the solution in the volumetric flask to calibration mark using distilled water. label this as solution FA4.

c) Empty the burette and fill it with solution FA3.

d) Pipette 25.0cm^3 of solution FA4 and place it into an empty 250ml conical flask. Add 3 drops of the phenolphthalein indicator solution and titrate against solution FA3 from the burette. Record the results in Table 1.

e) Repeat the titration of solution FA4 against FA3 two more times in order to complete Table 1.

Table 1.

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Titration	1st	2nd	3rd
Final burette reading, cm^3			
Initial burette reading, cm^3			
Volume of solution FA3 used, cm^3			

(4mks)

Average volume of solution FA3 used = _____ **cm^3**

(1mk)

Calculate the number of moles of:

i) Sodium hydroxide in the average titre volume used. **(1mk)**

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ii) Hydrochloric acid in 25.0 cm^3 of solution FA4. **(2mks)**

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iii) Hydrochloric acid in 250.0 cm^3 of solution FA4. **(2mks)**

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iv) Hydrochloric acid in 50.0 cm^3 of solution FA2**.** **(1mk)**

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v) Hydrochloric acid that reacted with the magnesium. **(2mks)**

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vi) Magnesium that reacted. **(2mks)**

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2. You are provided with:

i). 2.20g of solid **BA11**,

ii). Thermometer.

iii). Distilled water.

iv). 100 ml Glass beaker

v). Boiling tube.

You are required to determine the solubility of compound **BA11** at various temperatures.

Procedure I:

a) Place the whole amount of solid **BA11** supplied to you into a clean, dry boiling tube.

b) Using a burette, add 2.00cm^3 of distilled water into the boiling tube with solid **BA11**.

c) Insert a thermometer into the boiling tube and heat the mixture in the hot water-bath (use the 100ml beaker), while stirring continuously with the thermometer, until the temperature of the mixture is about 80^0C when **ALL** the crystals **JUST** dissolve

d) Remove the boiling tube from the hot water bath and allow the contents to cool slowly while stirring with the thermometer. Note the temperature at which the crystals FIRST form/reappear and record this crystallization temperature, T_c in Table 2

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e) Using the same mixture from (d) above, add 1.00cm^3 of distilled water from the burette into the boiling tube containing the mixture and repeat steps (c) and (d) above. Continue in this way until a total volume of water added to the boiling tube is 7.00cm^3. Complete Table 2 by calculating the solubility of compound **BA11** in water at the different temperatures.

Table 2: **(4mks)**

Total volume of water added (cm^3)	**Crystallization Temperature ,T_C(^{o}C)**	**Solubility of compound BA11 in water (g/100g of water)**
2.00		
3.00		
4.00		
5.00		
6.00		
7.00		

f) On the grid provided plot a graph of solubility of compound BA11 (vertical axis) against temperature. **(3mks)**

g) Using the graph determine:

I. The temperature at which 100.0g compound **BA11** would dissolve in 100g of water. **(1mk)**

……

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II. Solubility of compound **BA11** at 30.0^{0}C. **(1mk)**

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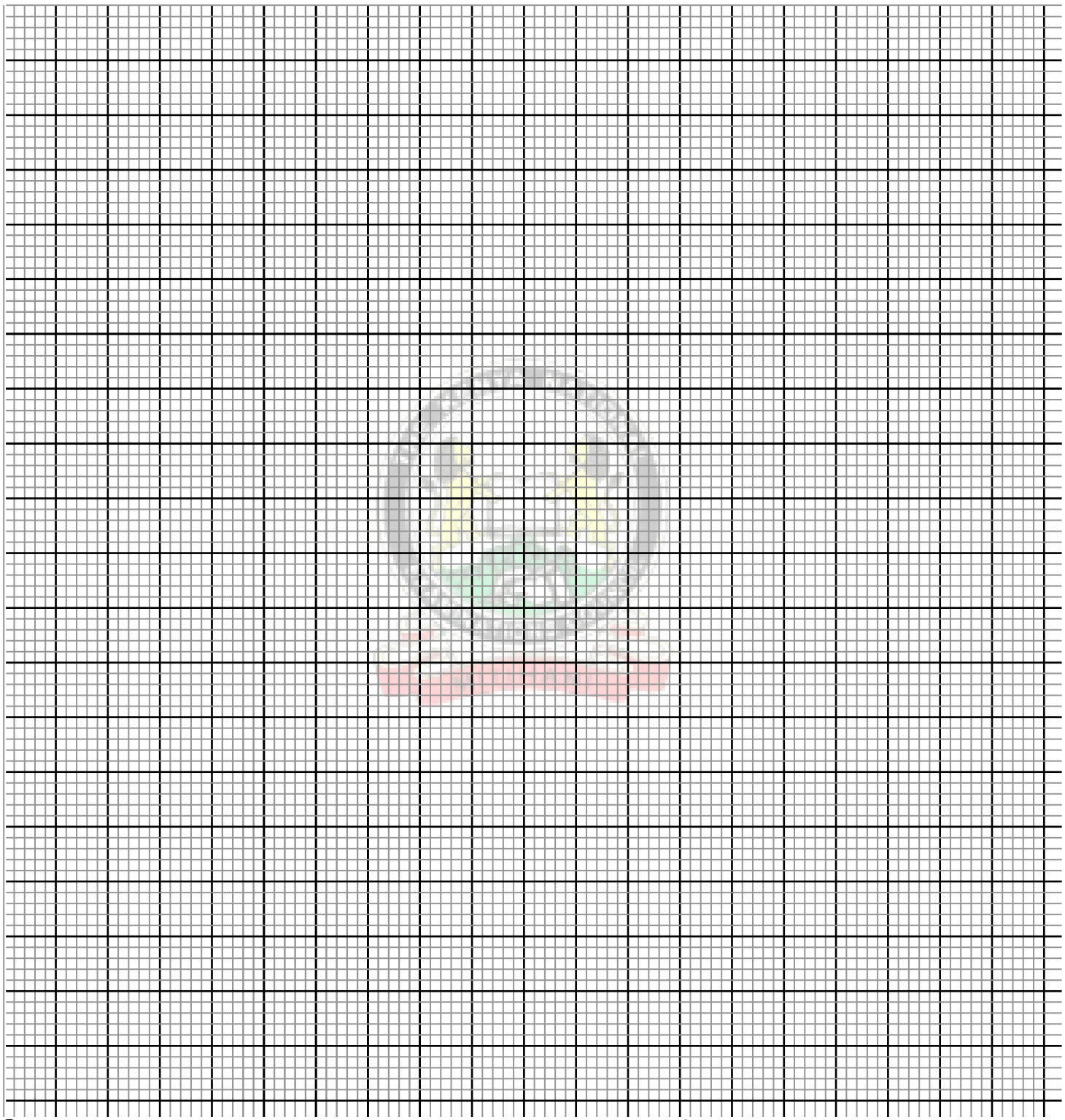
h) A solution containing 100g of **BA11** per 100g of water was cooled to 30.0^{0}C. Determine the mass of crystals formed. **(2mks)**

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3. You are provided with solids FA5, FA6 and FA7. Carry out the following tests and write your observations and interferences in the spaces provided.

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a) Place all of solid FA5 in the boiling tube. Add about 10 cm^3 of distilled water and shake until all the solid dissolves. Label this as Solution FA5.

i). To about 2 cm^3 of Solution FA5 in a test tube, add 2M sodium hydroxide solution drop wise until in excess.

OBSERVATION	INFERENCES
(1mk)	(1mk)

ii). To about 2 cm^3 of Solution FA5 in a test tube, add 2M ammonium hydroxide solution drop wise until in excess.

OBSERVATION	INFERENCES
(1mk)	(1mk)

iii) To about 2 cm^3 of Solution FA5 in the test tube, add 4 drops of 2M sulphuric (VI) acid.

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OBSERVATION	INFERENCES
(1mk)	(1mk)

iv) To about 2 cm^3 of solution FA5 in a test tube, add 2 drops of potassium iodide solution.

OBSERVATION	INFERENCES
(1mk)	(1mk)

b). Place solid FA7 into boiling tube. Add about 10cm^3 of distilled water and shake well. Label this as solution FA7 .Use this solution for the following tests.

i) Place about 2cm^3 of solution FA7 in a test tube and place the universal indicator paper provided into the solution hence determine its pH.

OBSERVATION	INFERENCES

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(1mk)	(1mk)

ii). To about $2cm^3$ of solution FA7 made in (ii) above, add 3 drops of acidified potassium manganate (vii) solution.

OBSERVATION	**INFERENCES**
(1mk)	(1mk)

iii). To the remaining solution FA7 in the boiling tube, add the other half of solid FA6.

OBSERVATION	**INFERENCES**
(1mk)	(1mk)

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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

NAME……. **INDEX NO……..**

SCHOOL…… **SIGN…….**

DATE……..

232/1

PHYSICS

THEORY

PAPER 1

TIME: 2 HOURS

INSTRUCTIONS TO THE CANDIDATES:

- *Write your **name and index number** in the spaces provided above.*
- *Answer **all** the questions both in section **A** and **B** in the spaces provided below each question*
- *All workings **must** be clearly shown; marks may be awarded for correct steps even if the answers are wrong.*
- *Mathematical tables and silent electronic calculators may be used.*

FOR EXAMINERS' USE ONLY

SECTION	QUESTION	MAX SCORE	CANDIDATE'S SCORE
SECTION A	1-13	25	
SECTION B	14	11	
	15	15	
	16	08	
	17	07	
	18	14	
	TOTAL	80	

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SECTION A (25 MARKS)

Answer All Questions In This Section In The Spaces Provided

1. Figure 1 shows an object held between two straight edges. Determine the radius of the object using the meter rule shown in figure 1 below. **(2 marks)**

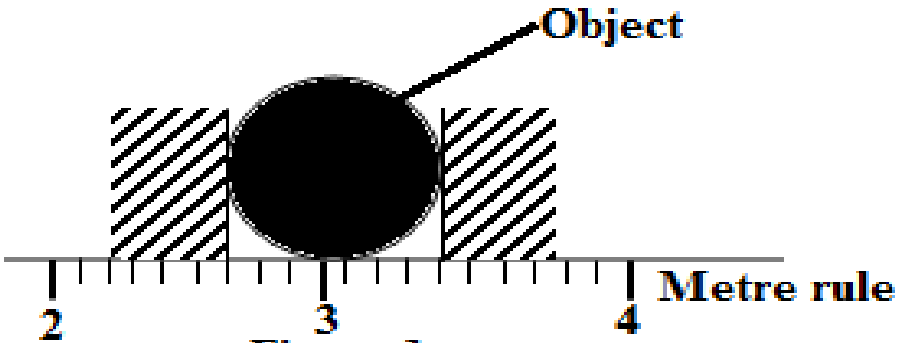


Figure 1

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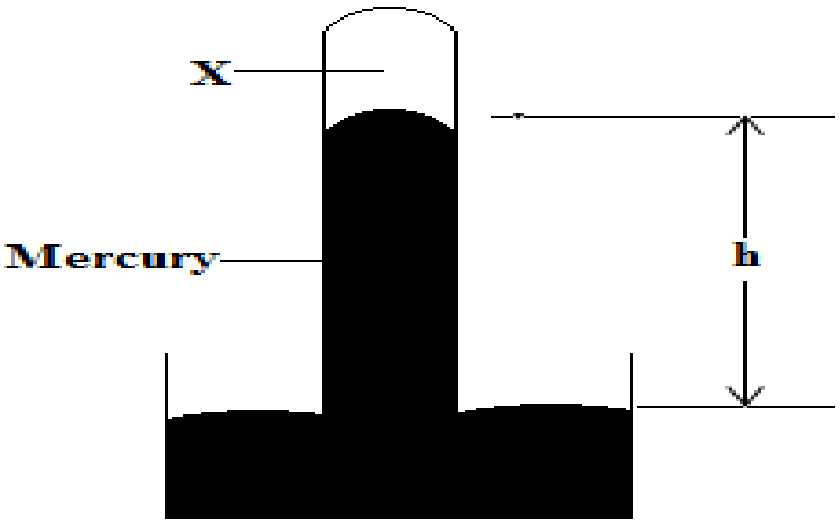
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2. Apart from the size of an object state the other factor to be considered when choosing an instrument for measuring length of a given object **(1 mark)**

……

3. The figure shows the level of mercury in a barometer. Study the diagram and answer the questions that follow



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State and explain the effect on the height h when the atmospheric pressure increases **(2 marks)**

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4. Give a reason why it easier to use a hammer with a long handle to remove a nail from wood than to use another one with a short handle to remove the same nail **(1 mark)**

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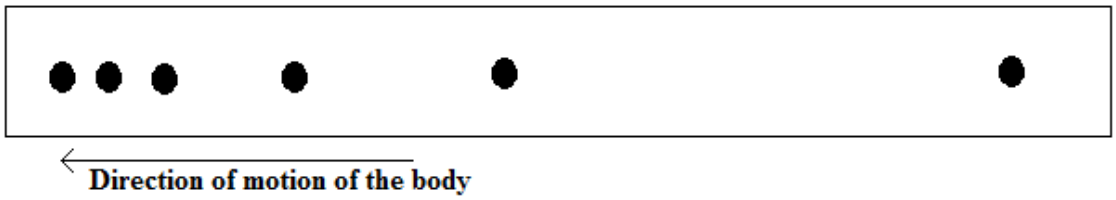
5. When a steel ball is allowed to fall freely in a viscous fluid, it is observed to attain terminal velocity after some time. State the reason why the ball attains terminal velocity **(1 mark)**

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6. The tape in the figure (not to scale) was obtained from an experiment using a timer of frequency 50Hz



State whether the body is decelerating or not the acceleration of the body whose motion is represented in the tape. **(1mark)**

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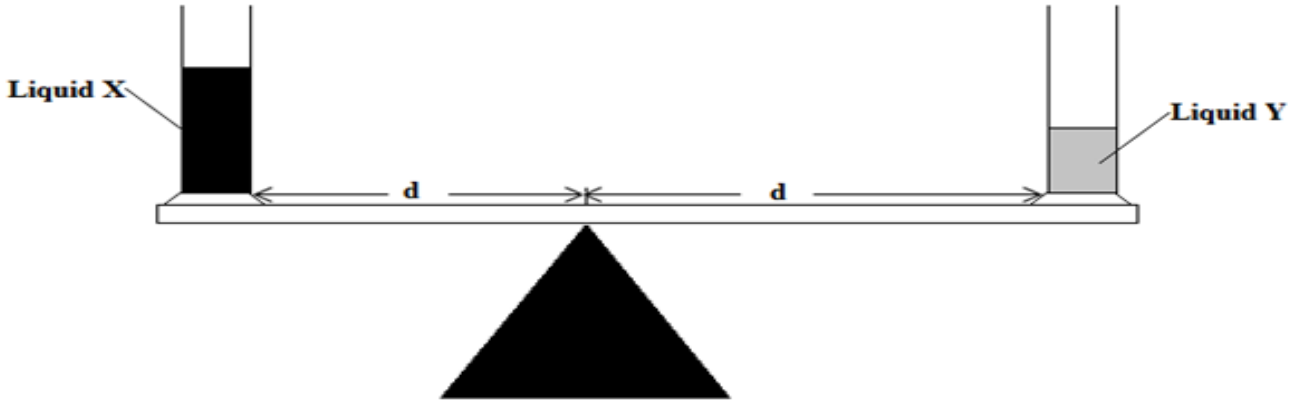
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7. The figure shows two identical measuring cylinder containing different liquids X and Y placed on a weightless simple balance. The system is equilibrium.



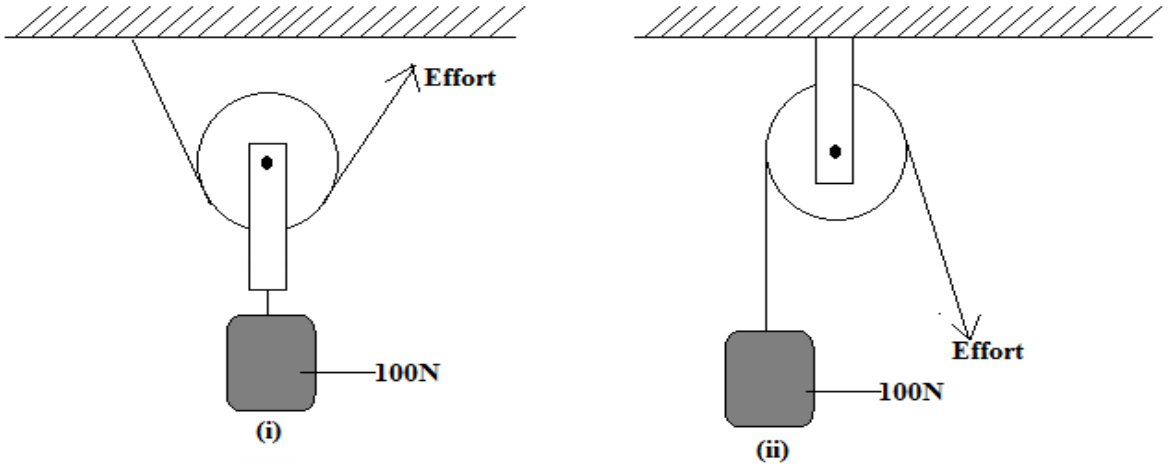
Compare the density of liquid X and that of Y **(2 marks)**

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8. The figures below show an arrangement of two pulleys used to lift same load of 100N



State with a reason the system that is more efficient **(2 marks)**

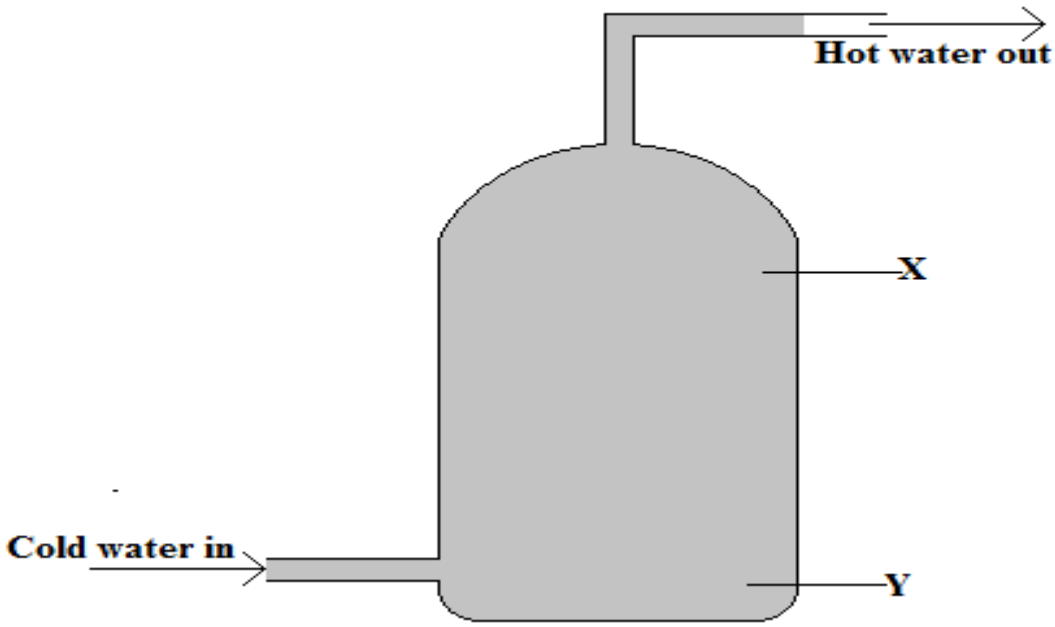
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9. The figure shows a water tank that is used to heat water and supply through taps.



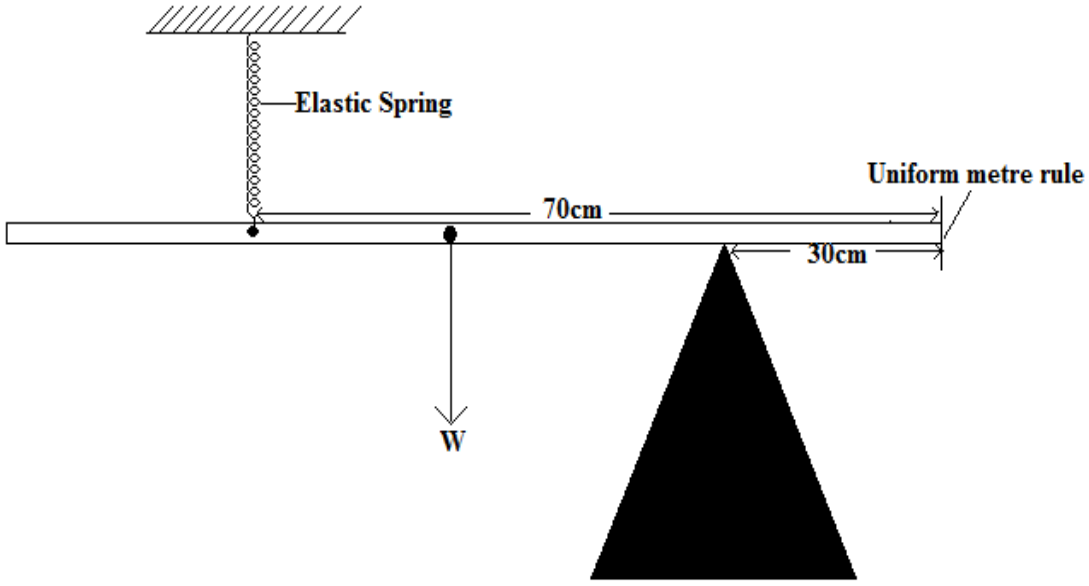
State with a reason whether the appropriate position for a heater is X or Y **(2 marks)**

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10. The figure shows a uniform metre of mass 200g balance by a spring balance placed 70cm form one. The pivot is placed 30cm away from the same end. Study the diagram and answer the questions that follow



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Determine tension T on the spring **(2 marks)**

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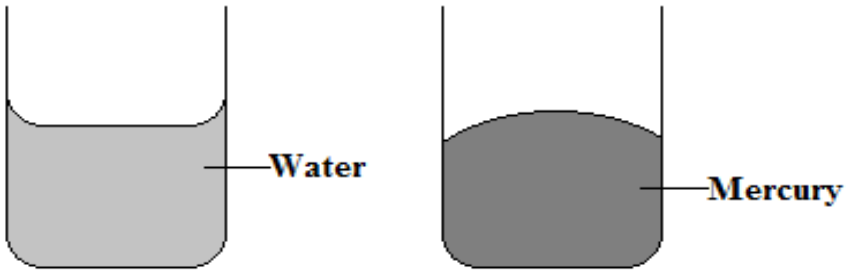
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11. State the cause of random motion of smoke particles as observed in Brownian motion experiment using a smoke cell. **(1 mark)**

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12. The figure shows the level of mercury and water in identical glass beakers



Explain the difference in the shapes of the meniscus **(2 marks)**

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13. A wooden block of mass 2kgs is placed on a horizontal surface. A horizontal force of 12N is exerted on it makes it to accelerate at $5ms^{-2}$. Determine the frictional force acting between the surfaces. **(2 marks**

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SECTION B (55 MARKS)

ANSWER ALL QUESTIONS IN THIS SECTION IN THE SPACES PROVIDED

14.

a) State the two conditions necessary for a system of forces acting on a body to be in equilibrium

(2 marks)

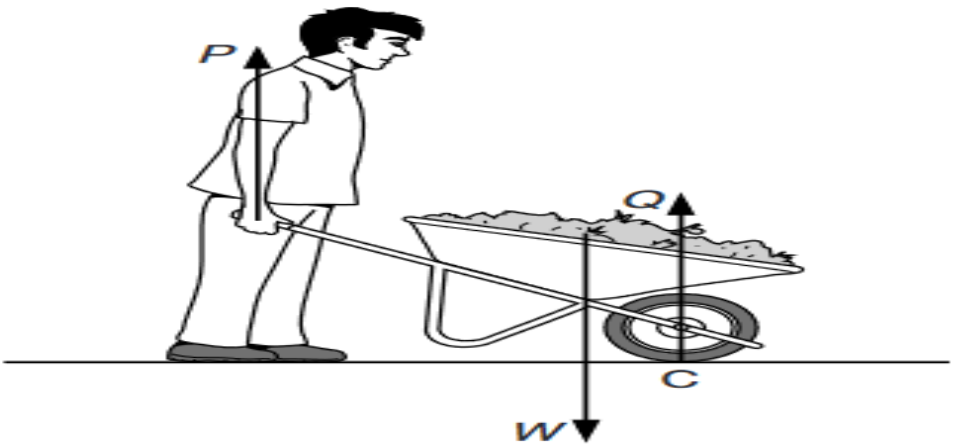
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b) The figure shows a loaded wheelbarrow held in equilibrium by a gardener. The wheel of the wheelbarrow is in contact with the ground at point C



There are three vertical forces acting on the wheelbarrow P is the upward force applied by the gardener. Q is the upward force of the ground on the wheel at point C.W is the weight of the wheelbarrow and its contents. Explain why the force P is less than the force W

i. By considering the forces P, Q and W, **(2 marks)**

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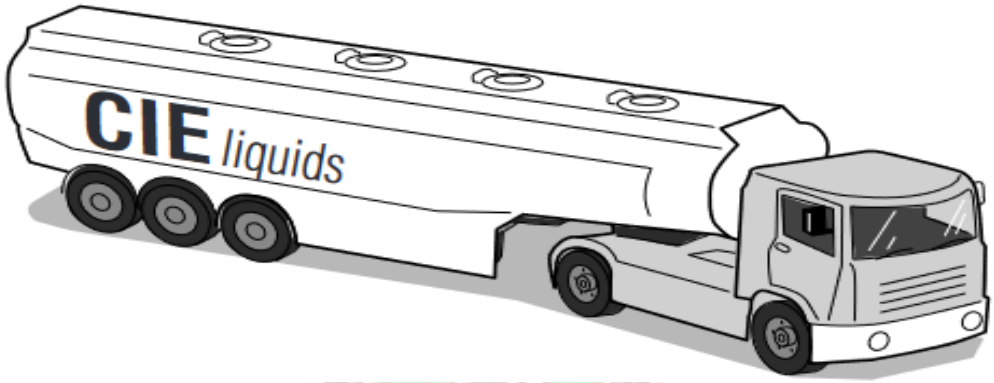
ii. By considering the moments of the forces P and W about point C. **(2 marks)**

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c) The figure shows a tanker lorry full of liquid. Study the diagram and answer the questions that follow



i. The tanker delivers the liquid and drives away empty. Compare the acceleration of the empty tanker with the acceleration of the full tanker for the same resultant force **(2 marks)**

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ii. Given that empty tanker has a weight of 50 000 N. The forward force is 6000 N and the total resistive force is 2000N. Determine the acceleration of the tanker **(3 marks)**

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15.

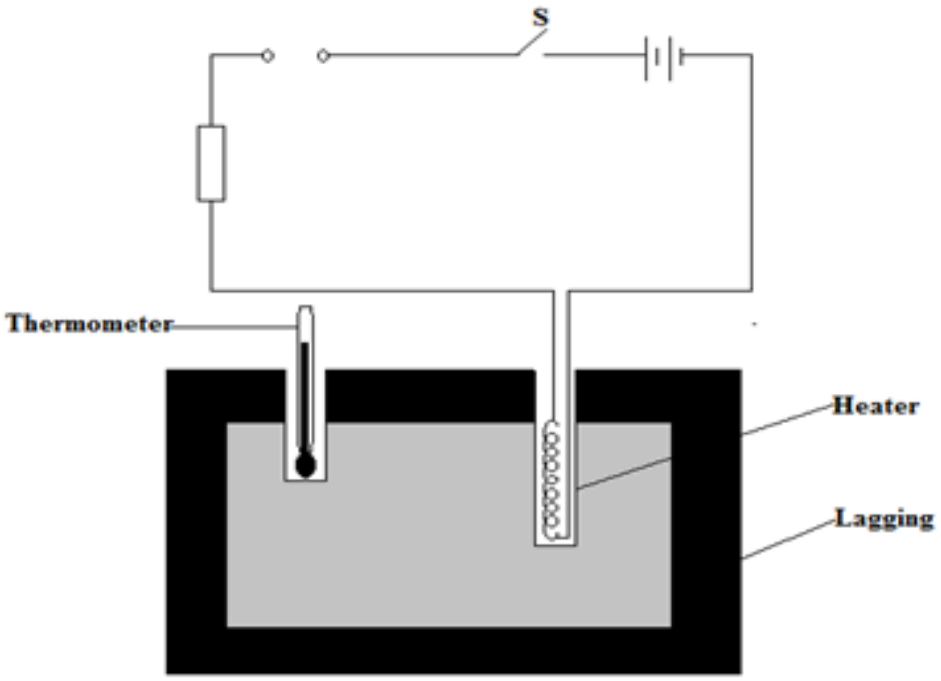
a) A warm bottle of soda placed in ice at 0°C cools faster than when the same soda is placed in water at the same temperature. Explain this observation **(2 marks)**

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b) The figure shows an incomplete circuit set up that can be sued in an experiment to determine the specific heat capacity of a solid block by electric method. Study the diagram and answer the questions that follow



i. State the purpose of the rheostat in the experiment **(1 mark)**

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ii. Complete the diagram by inserting the missing components for the experiment to work **(2 marks)**

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iii. Other than temperature, state three measurements that should be taken **(3 marks)**

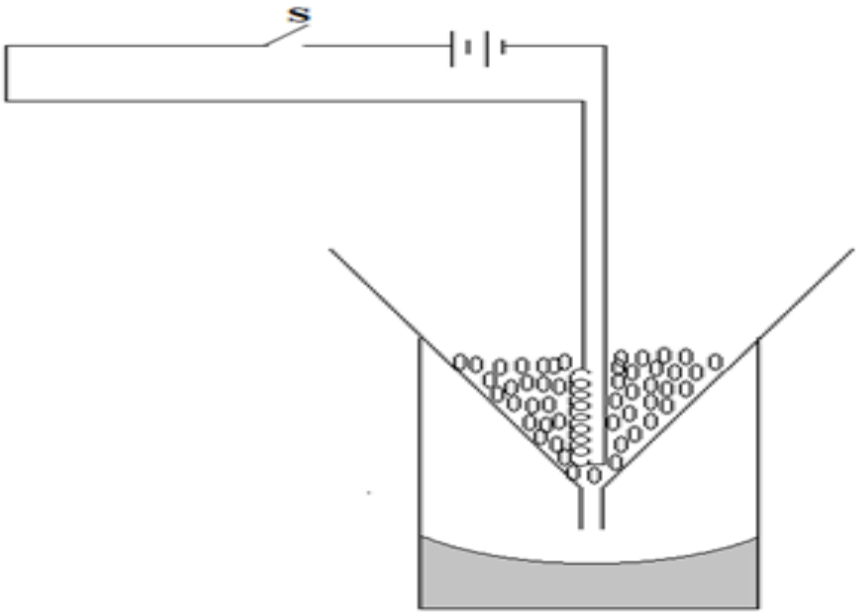
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c) The figure shows a set-up of apparatus used in an experiment to determine the specific latent heat of fusion of ice. Study the diagram and answer the questions that follow



The following readings were noted after the heater was switched on for 10 minutes

- **Mass of the beaker=260g**
- **Mass of the beaker +melted ice =280g**

Determine

i. The energy supplied by the 120W heater in the 10 minutes **(3 marks)**

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ii. The specific latent heat of fusion of the ice **(3 marks)**

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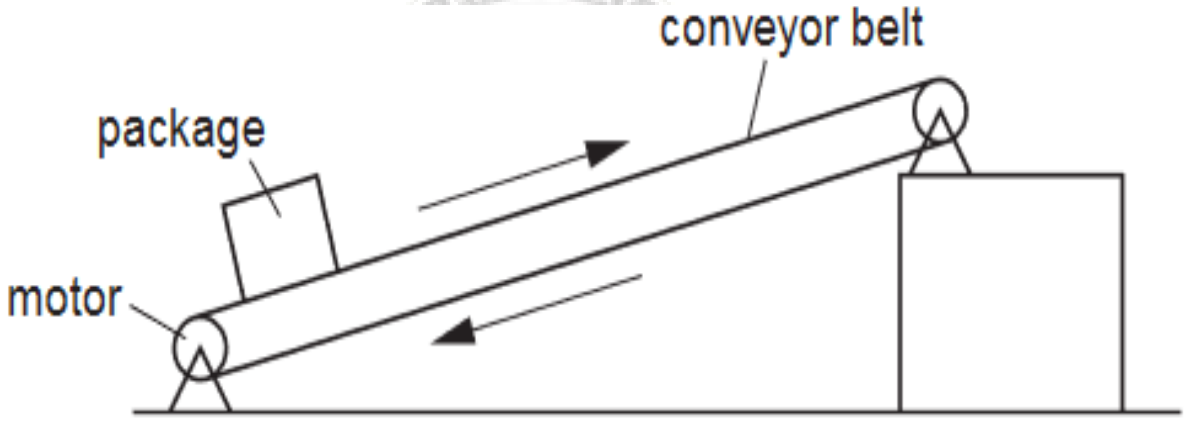
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iii. The experiment value for the specific latent heat of fusion of ice obtained is less than the theoretical value. Give one reason for this observation **(1 mark)**

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16. The figure shows a conveyor belt transporting a package to a raised platform. The belt is driven by a motor.



The mass of the package is 36 kg.

Determine

a) The increase in the gravitational potential energy (G.P.E.) of the package when it is raised through a vertical height of 2.4 m. **(2 marks)**

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b) The power needed to raise the package through the vertical height of 2.4 m in 4 s **(2 marks)**

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c) The electrical power supplied to the motor is much greater than the answer to (b).
Explain how the principle of conservation of energy applies to this system. **(2 marks)**

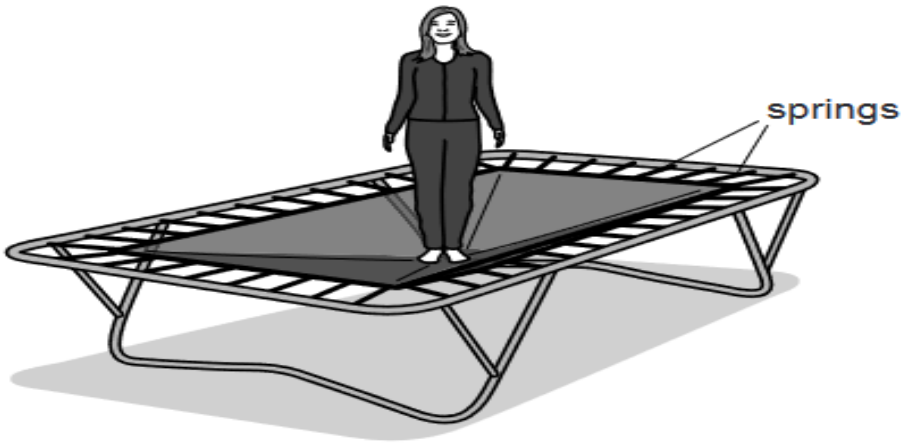
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d) Assume that the power available to raise packages is constant. A package of mass greater than 36 kg is raised through the same height. Suggest and explain the effect of this increase in mass on the operation of the conveyer belt. **(2 marks)**

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17. An athlete of mass 64 kg is bouncing up and down on a trampoline.
At one moment, the athlete is stationary on the stretched surface of the trampoline as shown in the figure below.

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a) State the form of energy stored due to the stretching of the surface of the trampoline. **(1 mark)**

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(a) The stretched surface of the trampoline begins to contract. The athlete is pushed vertically upwards and she accelerates. At time t, when her upwards velocity is 6.0 m / s, she loses contact with the surface. Determine

Her kinetic energy at time t. **(2 marks)**

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(b) The height at which the kinetic energy will be zero **(2 marks)**

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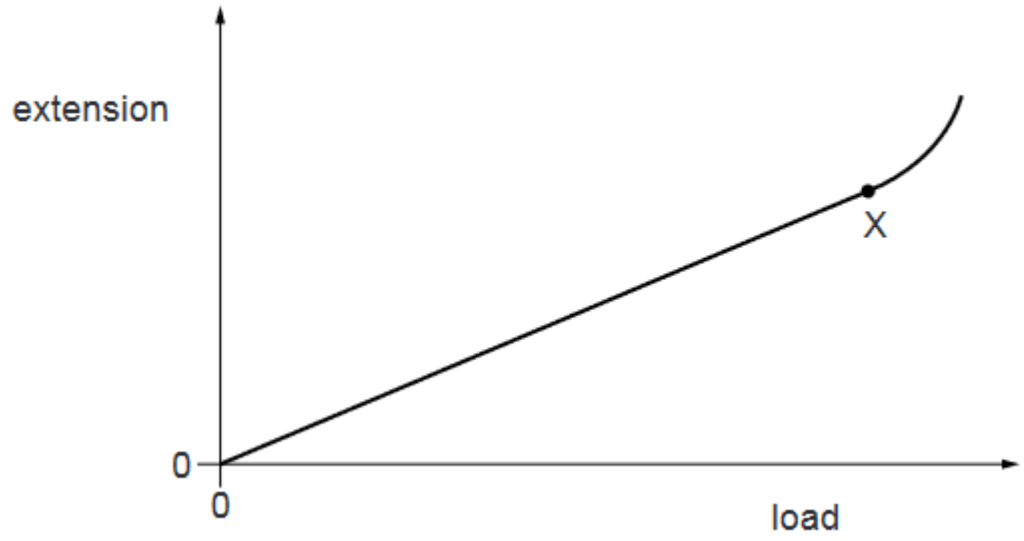
b) In practice, she travels upwards through a slightly smaller distance than the distance calculated in (ii).Suggest why this is so. **(1 mark)**

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c) The trampoline springs are tested. An extension-load graph is plotted for one spring. Fig. 3.2 is the graph.

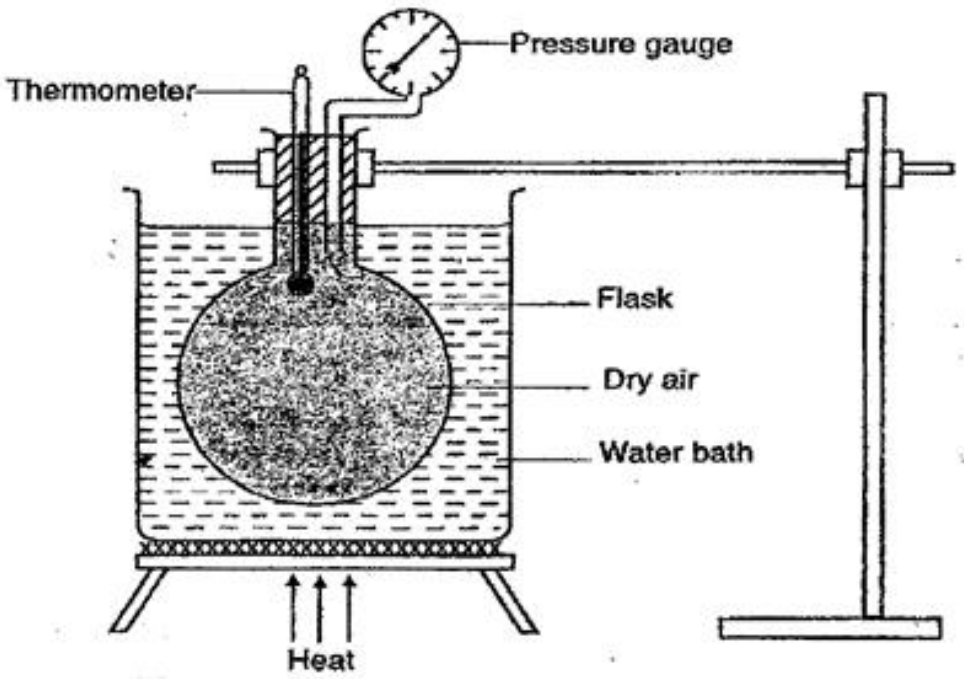


i. On the same axes sketch a graph of another spring whose spring constant is higher than the trampoline springs **(1 mark)**

18.

a) The diagram below shows a set-up used to investigate a particular gas law. Study the diagram and answer the questions that follow

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(a) State with a reason which gas law is being experimented by the set-up **(2 marks)**

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(b) Name the two factors that are held constant in the experimented **(2 marks)**

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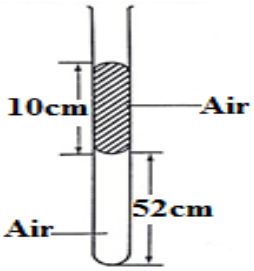
(c) Give the reason why heating is done through a water bath **(1 mark)**

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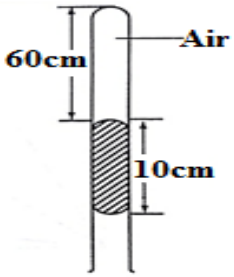
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b) Figure (a) shows 52cm of air trapped by a mercury column of 10cm while figure (b) shows the column of air when the glass tube is inverted

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(a)



(b)

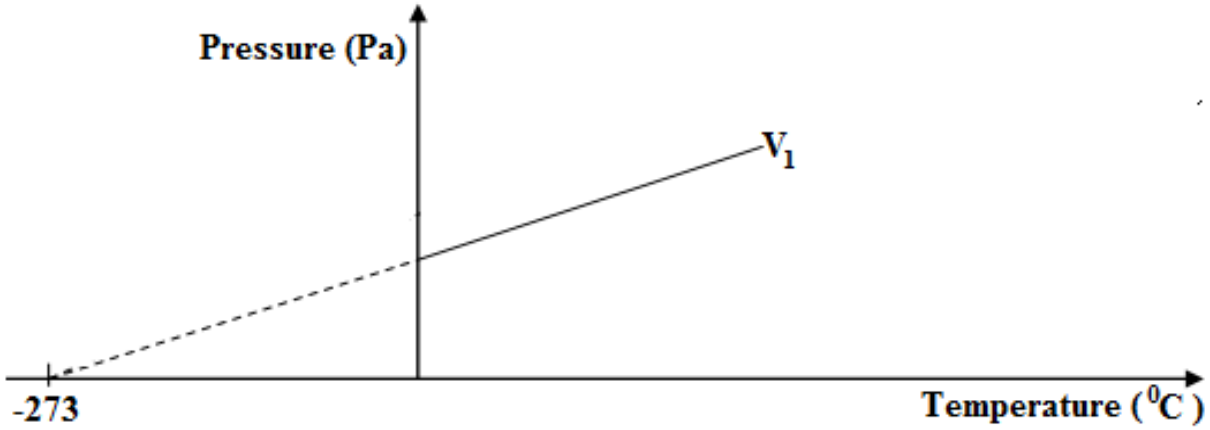
Determine the atmospheric pressure in mmHg **(3 marks)**

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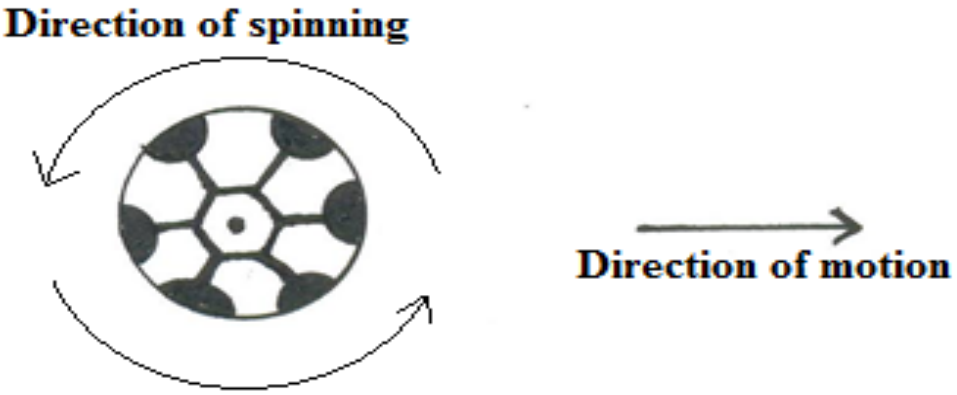
c) The graph below shows the relationship between the pressure and temperature of a gas of volume V_1



On the same axis sketch another graph for a gas of a larger volume. **(1 mark)**

d)

(a) The figure below shows a ball spinning in anticlockwise direction through still air



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The horizontal distance covered by the ball is observed to be longer than when the ball is not spinned. Explain how the spinning increases the range of the ball **(3marks)**

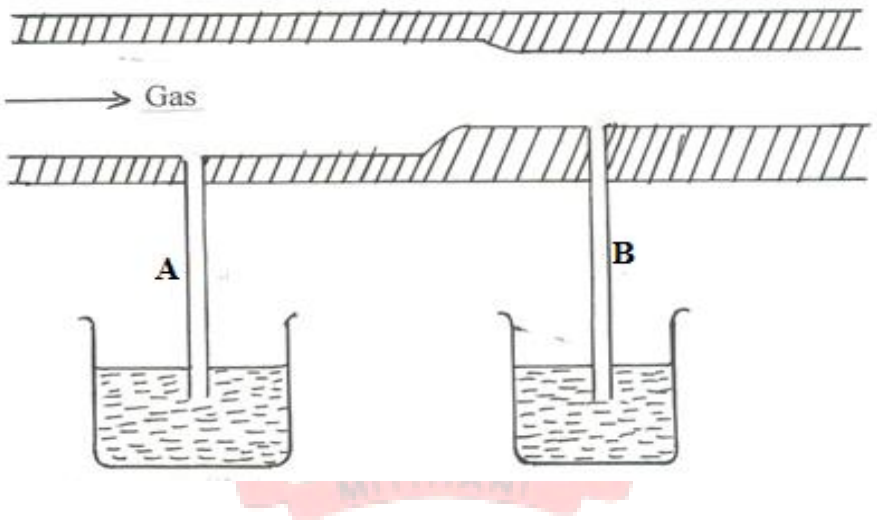
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(b) The figure below shows gas flowing along a pipe of non-uniform cross-sectional area. Two pipes A and B are dipped into liquids as shown below.



Indicate the levels of the liquids in A and B giving a reason for your answer **(2marks)**

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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

NAME……. **INDEX NO……..**

SCHOOL…… **SIGN…….**

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PHYSICS

THEORY

PAPER 2

TIME: 2 HOURS

Instructions To Candidates

- ***(a)*** *Write your name and index number in the spaces provided.*
- ***(b)*** *Mathematical tables and non-programmable calculators may be used.*
- ***(c)*** *This paper consists of section A and section B.*
- ***(d)*** *Attempt all the questions in the spaces provided.*
- ***(e)*** *ALL working MUST be clearly shown.*

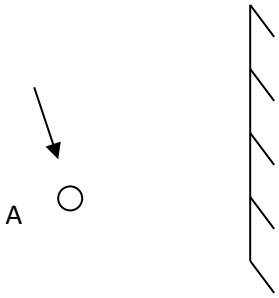
For Examiners Use

SECTION	QUESTIONS	MAX SCORE	CANDIDATE'S SCORE
A	1 – 12	25	
B	13	13	
	14	15	
	15	15	
	16	12	
	TOTAL	**80**	

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SECTION A (25 MARKS)

1. An object pin is placed in front of a plane mirror. The image of the pin is viewed from position A. Draw array diagram to show this image. **(2 marks)**



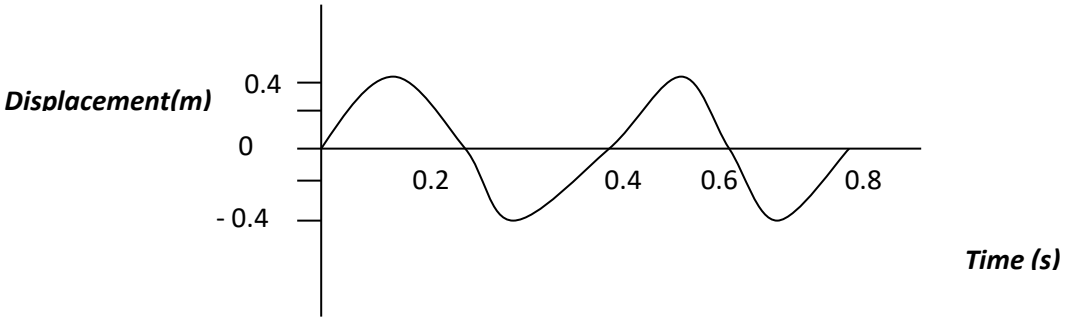
2. You are provided with two rods, a conductor and an insulator. Describe how you would use a charged gold-leaf electroscope to distinguish between the insulator and a conductor. **(2 marks)**

3. A pin-hole camera of length 10 cm is placed 0.5

m away from a goalpost. A sharp image of the goalpost 15 cm high is formed on the screen. Determine the height of the goalpost. **(2 marks)**

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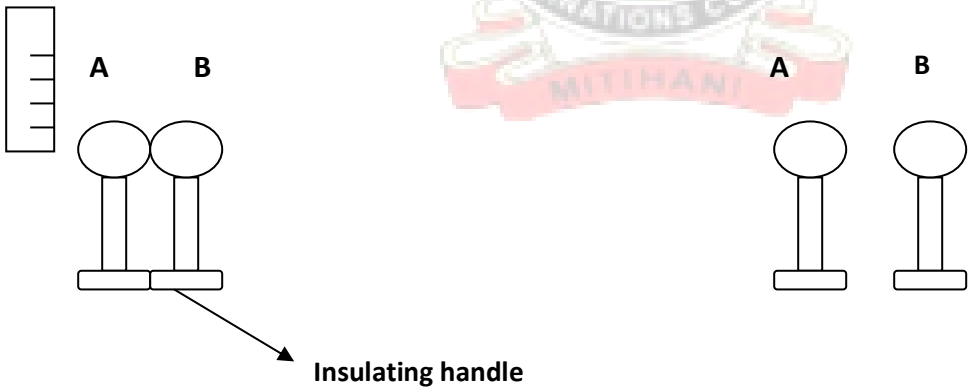
4. The figure 2 below shows a displacement- time graph of a particular progressive wave.



Draw on the same diagram, a wave which passes through the points with double frequency and half amplitude of the first wave. **(2 marks)**

5. Explain how temperature affects the speed of sound is gases **(1 mark)**

6. A polythene charged strip is brought near two spheres A and B that are in contact as shown in figure 3

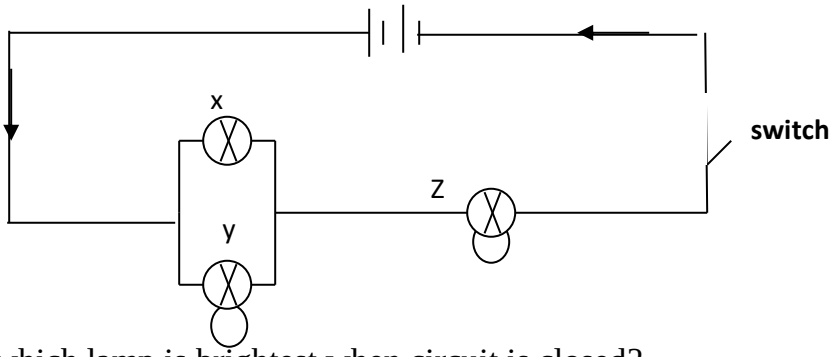


(i) indicate the charge distribution the spheres when negatively charged polythene is brought near A. **(1 mark)**

(ii) draw the charge distribution on A and B shown in (b) when the spheres are separated and immediately polythene withdrawn**.** **(2 marks)**

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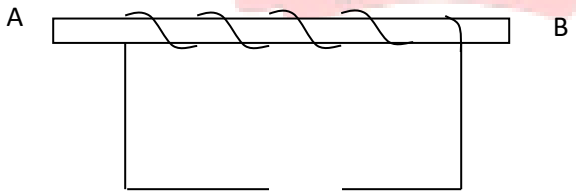
7. Three identical lamps X, Y, Z are connected as in figure 4. The E.m.f applied in the circuit 3.0 volts



(i) State which lamp is brightest when circuit is closed? **(1 mark)**

(ii) Explain your answer in part (i) above. **(2marks)**

8. Figure 5 shows an iron rod on which a wire is to be wound to make an electromagnet.



By drawing, show how two cells are connected so that end A becomes North pole and end B south pole. **(2marks)**

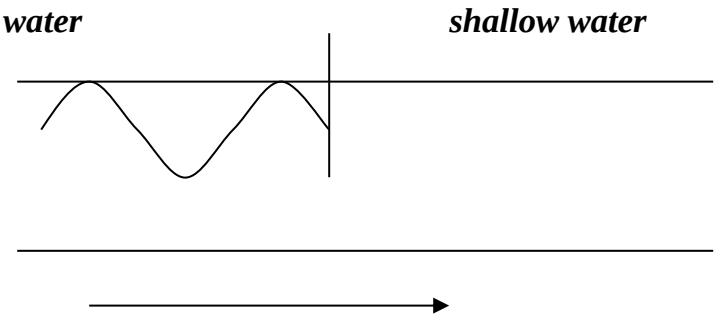
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9. The force on a conductor carrying current in a magnetic field can be varied by changing, among others, the magnitude of the current and magnetic field strength. State two other factors that can be changed to vary the force. **(2marks)**

10. Using domain theory explain the differences between a magnetic material and a magnet

(2marks)

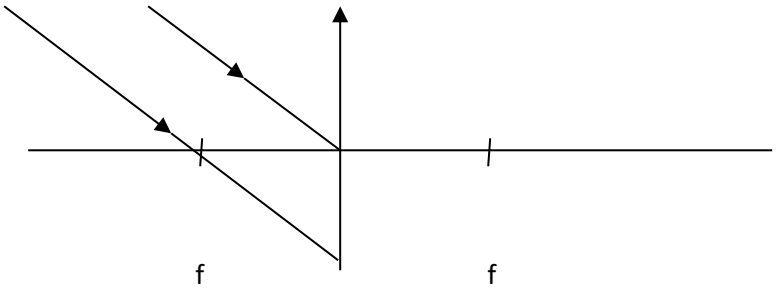
11. Figure 6 shows water waves traveling from deep into shallow water.



Complete the wave front to show how it travels in shallow water **(1 mark)**

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12. Figure 7. Shows two rays incident on a converging lens



(i) Draw the ray after refraction to show positions of the image. **(2marks/)**

(ii) State the application of this arrangement in (i) above **(1 mk).**

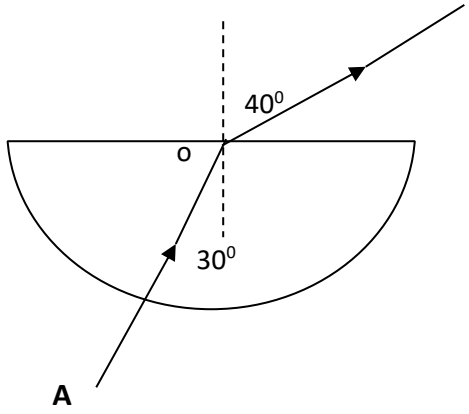
Section B(55 marks)

13. (a) Define refractive index of a material in terms of velocity of light. **(1mark/)**

(b) state the conditions necessary for a total internal refraction to occur **(2marks)**

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(c)Figure 8 shows light ray traveling from air to glass and from glass to air. Ray of Light AO is incident normally on the semicircular glass,



(i) Determine the refractive index of glass with respect to air. **(3 marks)**

(ii) In addition to the circular glass, you are provided with; a ray box (source of light ray), four office pins, soft board, white paper and a protractor, describe how this apparatus may be used to determine the critical angle of the glass. **(4marks)**

(iii) Determine the critical angle of this semicircular glass. **(3 marks)**

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14.(a) You are provided with three resistors 1 Ω, 3 Ω and 6 Ω.

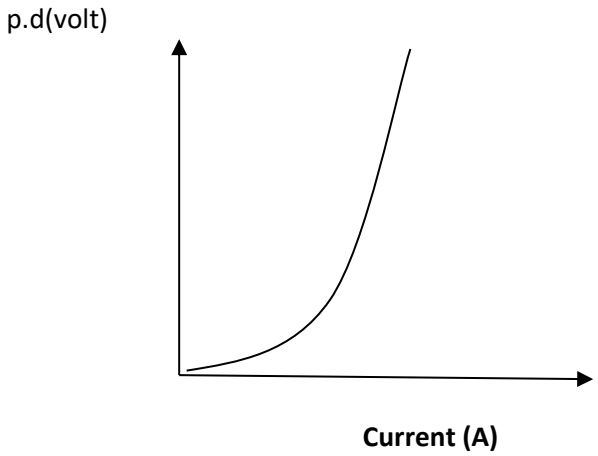
(i) Draw a circuit diagram to show 6Ω and 3Ω resistors in parallel and this combination in series with 2Ω resistor and the 6 V battery. **(2marks).**

(ii) Determine the total effective resistance in the circuit drawn in (i) above **(2 marks)**

(iii) Calculate the p.d across a 2 Ω resistor **(2 marks)**

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(iv) Determine the value of current through the 6 Ω resistor **(3marks)**



(b) Figure 9, shows a graph of potential difference (V) against current (I A) through a filament lamp (bulb)

(i) Draw a well labeled working circuit diagram showing the apparatus that can be used to obtain a set of readings used to draw the graph in (figure9). **(2marks)**

(ii) Explain why the filament lamp does not obey ohm's law **(2 marks)**

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(iii) Explain how resistance of the filament lamp varies as current increases. **(1 mark).**

(iv) State the characteristics of material wire used in the filament lamp. **(1 mark).**

15. (a) Define capacitance of a capacitor. **(1 mark)**

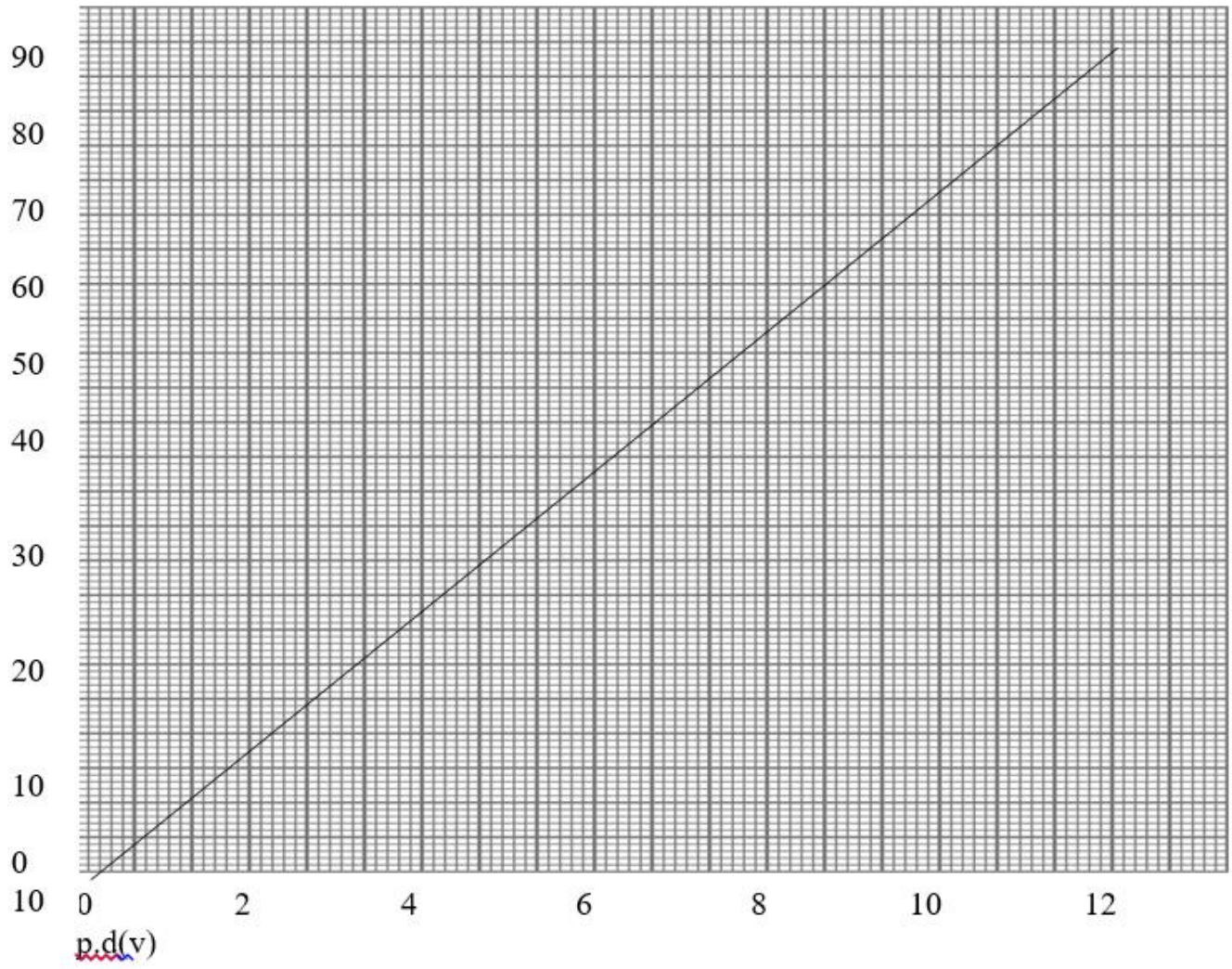
(b) (i) Describe the essential features in the construction of a parallel plate capacitor.

(3 marks)

(iii) Explain how charge is distributed in such parallel capacitor in b(i) above. **(2marks)**

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(c) In an experiment to charge a capacitor, the charge stored was measured for different values of charging potential difference. A graph of charge stored Q (μc) (y-axis) against potential difference p.d (v) was plotted as shown graph 1



(i) List down the apparatus used to perform this experiment **(1 mark)**

(ii) Draw a circuit diagram showing all connections of the listed apparatus in (i) above to perform the experiment of charging a capacitor. **(2 marks)**

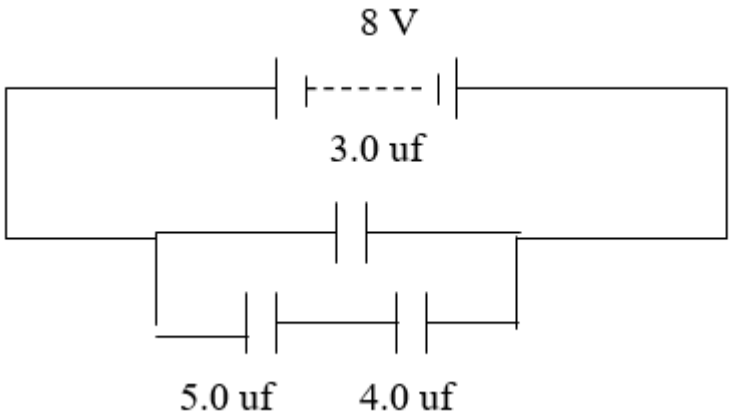
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From the graph

(**ii)** Determine the capacitance of the capacitor used in this experiment. **(3 marks)**

(iii)Calculate the energy stored in this capacitor. **(2 marks)**

(d) Three capacitors are connected a shown in figure 10.



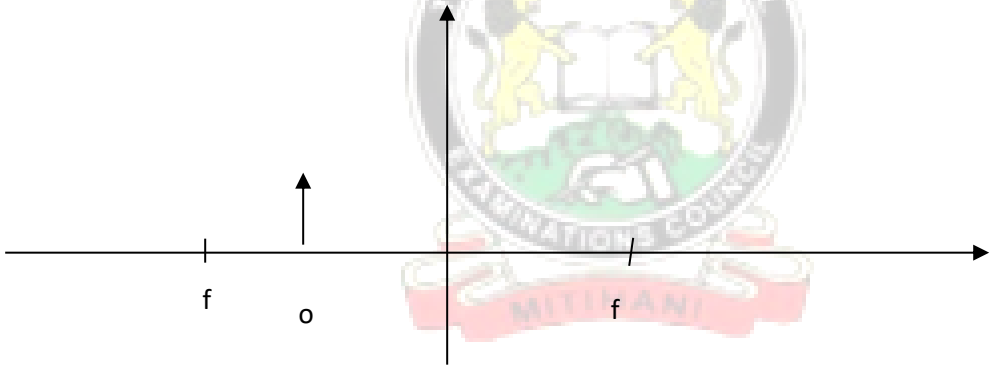
Calculate:

(i) Total effective capacitance in the circuit. **(2 marks)**

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(ii) The charge on a 4.0 μF capacitor. **(2 marks)**

16. (a) Complete figure 11 by drawing two rays to show the final image formed by convex lens of the object O, shown **(2 marks)**



(b) Describe the characteristics of the image formed in 16 (a) above **(3 marks)**

(c) State the optical device that uses the arrangement in (a) above. **(1 mark)**

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(d) A person viewing a near object switches attention to look at an aero-plane far away.

(i) State the change that occurs in his eye in order to see the aero-plane clearly.

(2 marks)

(ii) If this person fails to see the aero-plane clearly, what defect is he suffering from?

(1 mark)

(iii) Explain with a diagram how the defect can be corrected. **(3 marks)**

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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

SCHOOL…… **SIGN…….**

DATE……..

232/3

PHYSICS

CONFIDENTIAL

QUESTION 1

You are provided with the following apparatus:

- *Rectangular glass block two plain papers*
- *Four optical pins*
- *Four paper pins or thumb pins*
- *Protractor*
- *A meter rule*
- *25 cm^3 Measuring cylinder*
- *50g mass*
- *Three threads 15cm*
- *1.6 cm diameter Marble*

QUESTION 2

- You are provided with the following;
- A voltmeter
- Ammeter
- Switch
- 10 Ωresistor

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- A dry cell in a cell holder
- A nichrome wire on a mm scale
- Micrometer screw gauge
- A jockey
- Seven connecting wires

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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

NAME……. **INDEX NO……..**

SCHOOL…… **SIGN…….**

DATE……..

232/3

PHYSICS

PAPER 3

TIME: 2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

(a) This paper consist of two questions and Answer ALL questions in the spaces provided

(b) All workings MUST be clearly shown *Write your name and index number in the spaces provided above.*

(c) *Sign and write the date of the examination paper.*

(d) *Answer **ALL** the questions in the spaces provided in the question paper.*

(e) *ALL working **MUST** be clearly shown where necessary.*

(f) *Mathematical tables and silent electronic calculators may be used.*

FOR EXAMINERS USE ONLY

PART	QUESTION	MAX SCORE	CAND SCORE
I	1a	3	
	1b	14	
	1c	4	
2	2a	**3**	
	2b	**16**	
	total	**40**	

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QUESTION 1

You are provided with the following apparatus:

- Rectangular glass block
  two plain papers
- Four optical pins
- Four paper pins or thumb pins
- Protractor
- A meter rule
- 25 cm^3 Measuring cylinder
- 50g mass
- Three threads 15cm
- 1.6 cm diameter Marble

PART A

PROCEDURE

(i) Trace the outline of the glass block again on the plain paper and label it ABCD as shown in figure 1

(iii) Construct a normal on the side AB approximately 3cm from A and measure angle of incidence i=30^0 (secure the plain paper using paper pins).

(iii) Replace the glass block on the outline and fix pins P_1 and P_2 along the line of 30^0.

(iv) Viewing from the sides CD through the block, fix pins P_3 and P_4 such that they appear in line with the images of P_1 and P_2.

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(v) Join P_3 and P_4 and join x and y.

(vi) Extend the line P_1 and P_2 to obtain lateral displacement as shown in the figure below

Measure the following; **(1mks)**

Angle r ……...

Length d……..cm

Give d= b(sin(i-r)/sin (90-r). calculates the value of b. **(2mk)**

PART B

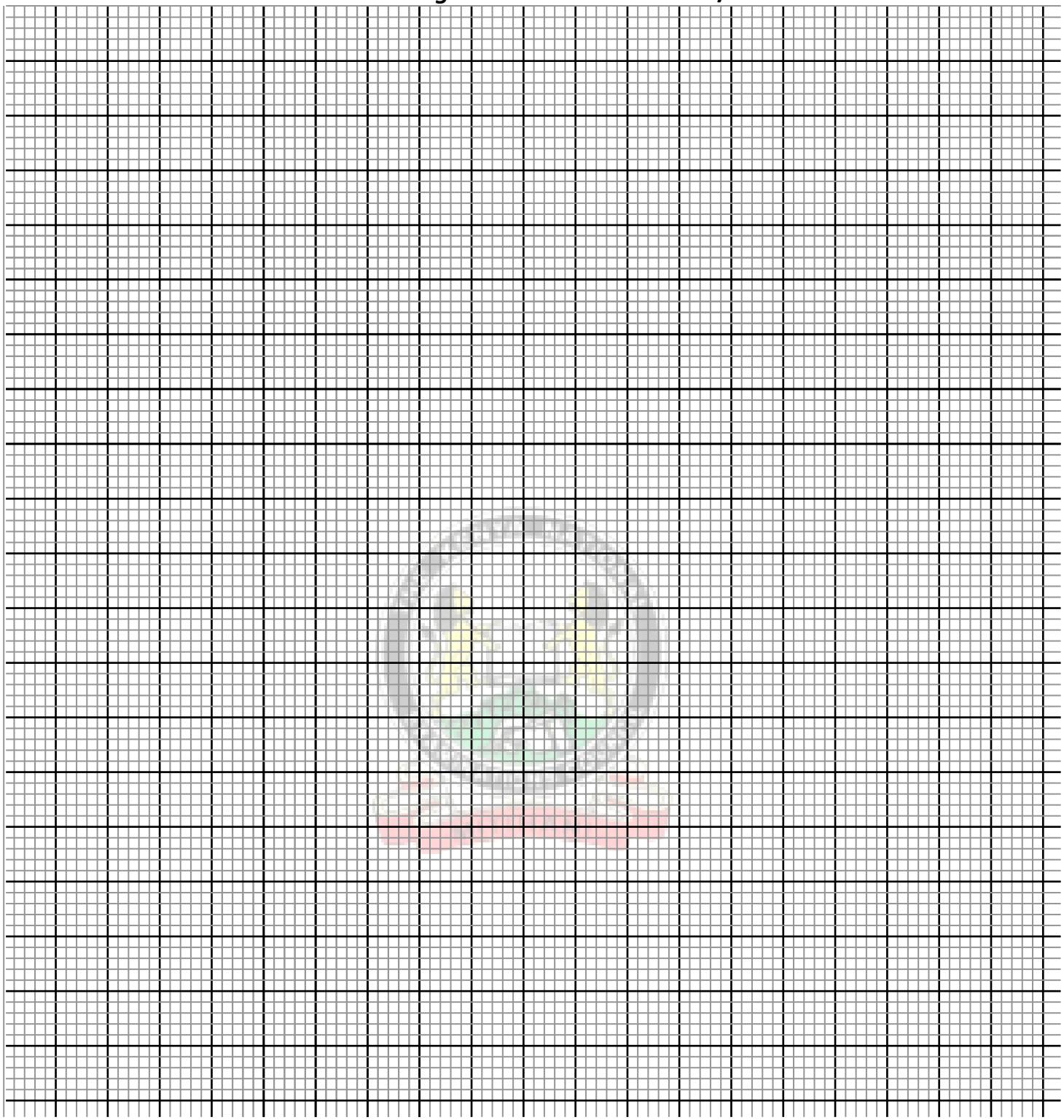
viii) Repeat the procedure in (i) to (v) **BUT NOT** (vi) as shown in the figure 2 below for angles of incidence 40^0, 50^0,60^0 and 70^0

(vii)Tabulate your results. **(5mks)**

i^0	30	40	50	60	70
L (cm)					
S (cm)					
S/L					
SIN i					

(ix)Plot a graph of **sin i** against **s/l** **(4mks)**

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Determine the slope of the graph **(3mks)**

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Given that sine i =(S/L)k . Determine the value of k. **(2mks)**

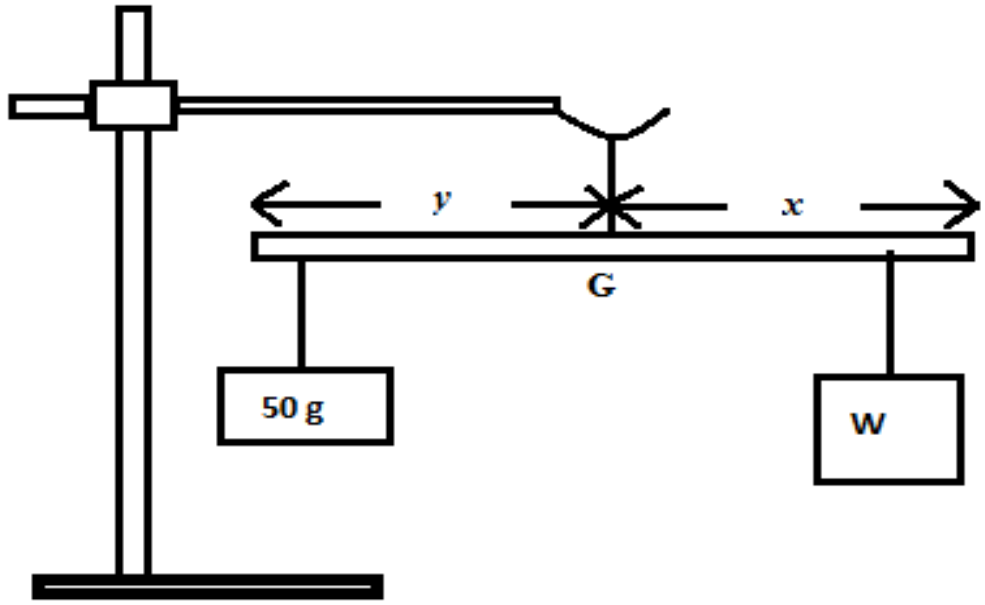
PART C

Procedure:

a. Using a thread, suspend the meter rule from the stand and note down the centre of gravity G. G = _____cm **(1 mark)**

b. Hang the mass labelled W from the 65cm mark. Suspend the 50g mass from the other side and adjust its position till the system is in equilibrium as shown in the figure below. Record the values of:

X = _____m Y = _____m **(1 mark)**



Calculate the mass of m

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Use the measuring cylinder and some water to measure the volume of the ball/calculate its density in SI units. Volume =……. Density **=……. (2mks)**

QUESTION 2

- You are provided with the following;
- A voltmeter
- Ammeter
- Switch
- 10 Ωresistor
- A dry cell in a cell holder
- A nichrome wire on a mm scale
- A jockey
- Seven connecting wires

PROCEDURE

a) Set the apparatus as shown in the diagram above. Take voltmeter readings when the switch is open. E=…… (1/2 mk)

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b) Close the switch and measure the current I (1/2mk)

I=…….

Given that E=IR+Ir where R is 10Ω

Determine the value of r r=……. (2mks)

B

a) Reset your apparatus as shown in the figure 4 below. use micrometer screw gauge to measure the diameter R of the nichrome wire. R=……mm R=…… cm **(1mk)**

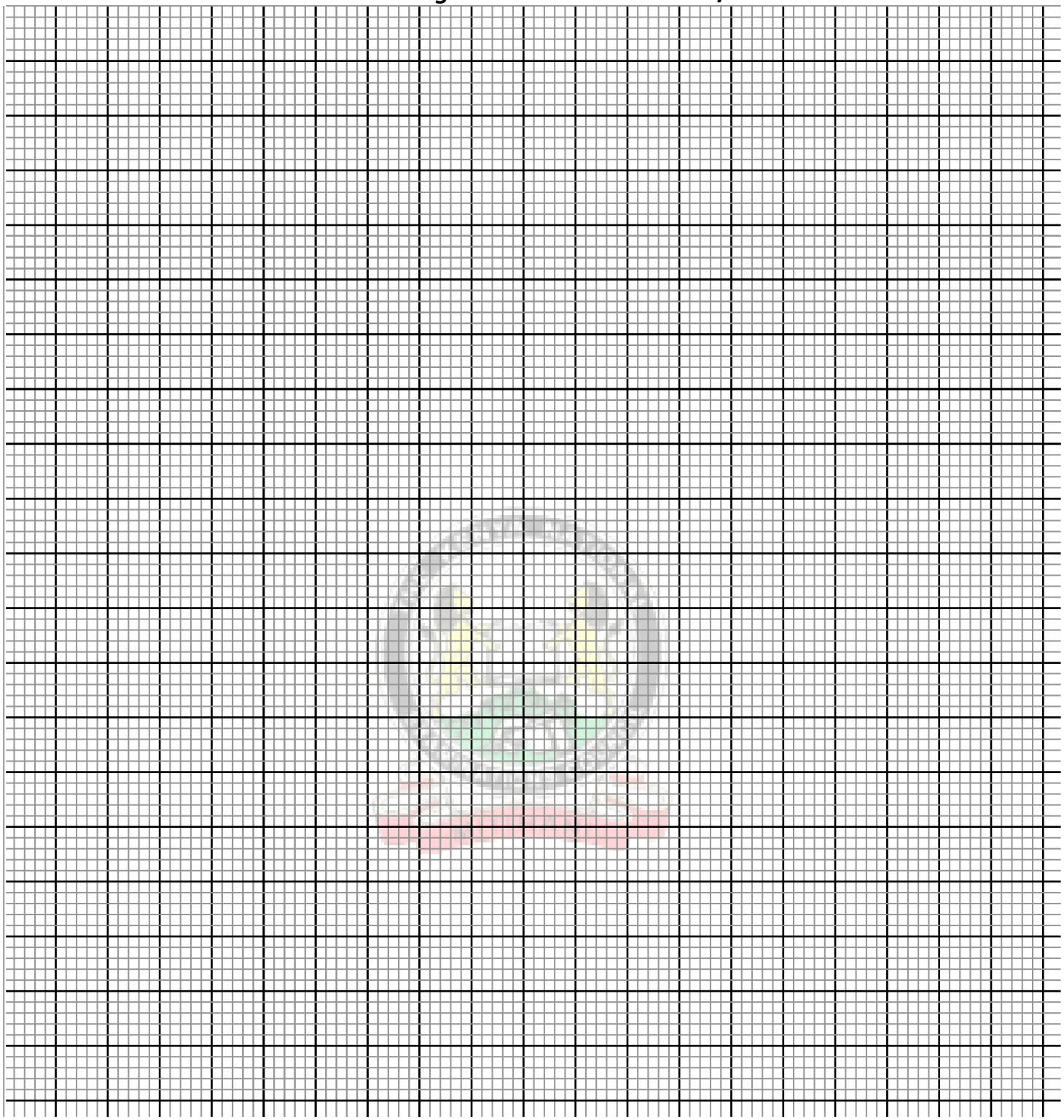
b) Adjust the position of the jockey so that L= 20 cm. close the switch and record the reading of voltmeter.

c) Repeat the procedure (b) for other values of L and complete the table below. (5mks)

Length l (cm)	20	30	40	50	60	70	80
p.d (V)							
1/L							
1/v							

Draw a graph of 1/V (y axis) against 1/L. **(5 marks).**

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Determine the slope S of the graph. **(3mks)**

Given that $\mathbf{S=^{Ar}/_{EP}}$

Where A is the cross-section area of the wire, r is internal resistance of the cell and E is the emf of the cell. Determine the value of P. **(2mks)**

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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

NAME……. **INDEX NO……..**

SCHOOL…… **SIGN…….**

DATE……..

443/2

AGRICULTURE

PAPER 2

Time: 2 Hours

INSTRUCTIONS TO CANDIDATES

1. *This paper consists of three section A,B and C*

2. *Answer **ALL** the questions in section A and B and any **TWO** questions in section C.*

3. *Answers to be written in the spaces provided only.*

FOR OFFICIAL USE ONLY

SECTION	MAX. SC0RE	ACTUAL SCORE
A	30	
B	20	
C	40	
TOTAL	**90**	

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SECTION A - 30 marks

Answer all the questions in the spaces provided

1. State **four** aspects of rainfall that are important in Agriculture**.** **(2 marks)**

_____

_____

_____

_____

2. State **four** factors which determine the depth of ploughing during seedbed preparation. **(2 marks)**

_____

_____

_____

_____

3. Give **four** reasons for subsoiling on a piece of land. **(2 marks)**

_____

_____

_____

_____

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4. Give a reason for carrying out each of the following practices in a vegetable farm.

(i) pricking out. _____ **(½mk)**

(ii) Hardening off _____ **(½mk)**

5. Mention any **four** advantages of land consolidation as practiced in Agriculture. **(2 marks)**

_____

_____

_____

_____

6. State **two** non-chemical methods of controlling storage pests in the granary. **(1 mark)**

_____

_____

7. State **four** precautions that should be taken when harvesting tea. **(2 marks)**

_____

_____

_____

_____

8. List **three** disadvantages of drip irrigation. **(1 ½ marks)**

_____

_____

_____

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9. State **four** characteristic of nitrogenous fertilizer. **(2 marks)**

_____

_____

_____

_____

10. List **four** micro-catchment systems. **(2 marks)**

_____

_____

_____

_____

11. List **three** methods of fertilizer application in crops production. **(1 ½ marks)**

_____

_____

_____

12. State three forms of soil water. **(1 ½ marks)**

_____

_____

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13. State three methods of cutworms control. **(1 ½ marks)**

_____

_____

_____

14. Give four conditions required for settlement scheme to be successful. **(2 marks)**

_____

_____

_____

_____

15. Give **three** reasons for stooking maize. **(1 ½ marks)**

_____

_____

_____

16. State **four** ways in which soil profile influence crop production. **(2 marks)**

_____

_____

_____

_____

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17.(a) State three ways in which inorganic mulch helps to conserve water in the soil. (1 ½ marks)

_____

_____

_____

(b). State two factors that influence wind erosion. **(1 mark)**

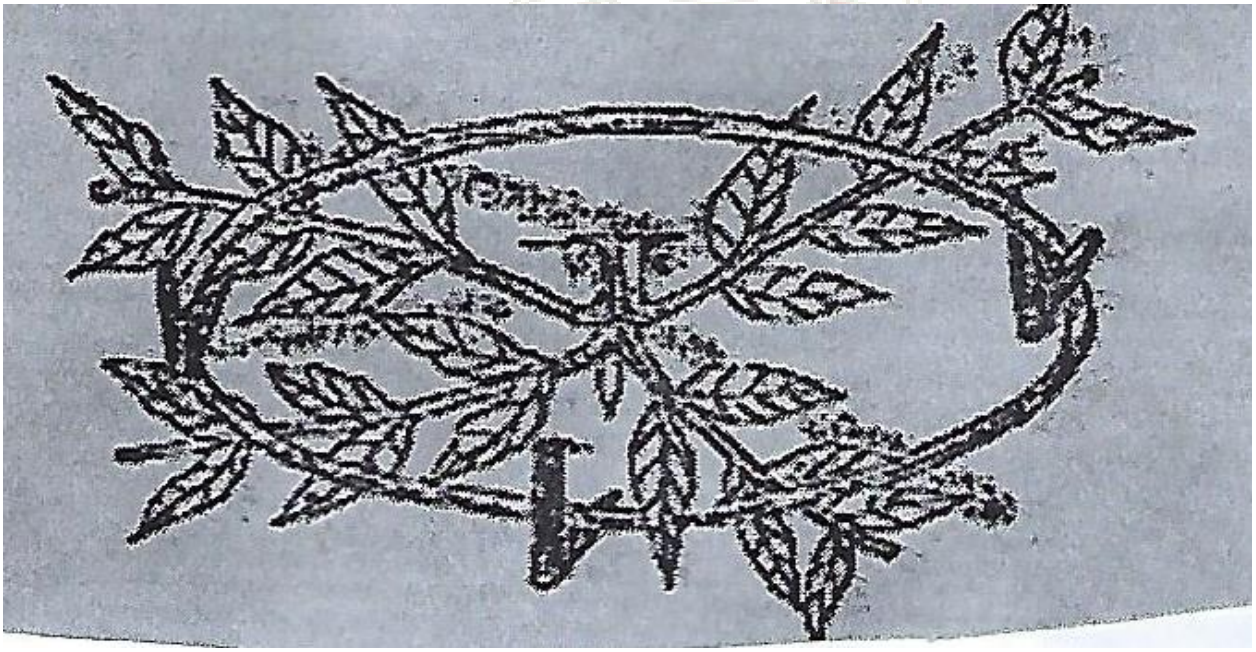
_____

_____

SECTION B (20 MARKS)

Answer all the questions in the spaces provided.

18. The diagram below shows a method of bringing tea into bearing. Study it carefully and use it to answer the questions that follow.



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(i). Identify the method shown in the diagram. **(1 mark)**

_____

(b) Why is it necessary to prune a young tea plant as illustrated in the diagram above. **(1 mark)**

(c) Outline the procedure followed when using the pruning method shown. **(3 marks)**

_____

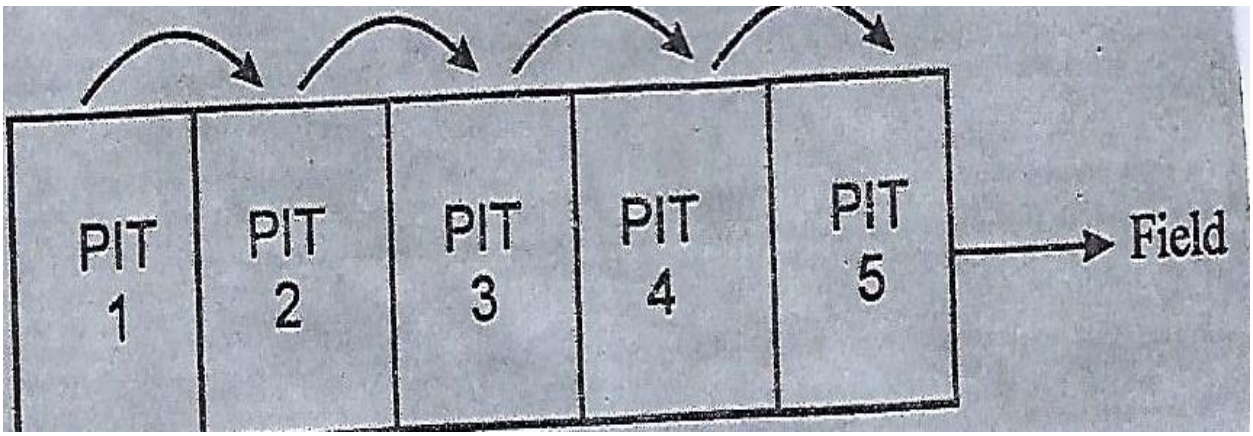
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_____

19. The following diagram shows a method of compost preparation.



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(a) Identify the method. **(1 mark)**

_____

(b). Give four factors that should be considered when siting the compost pit. **(2 marks)**

_____

_____

_____

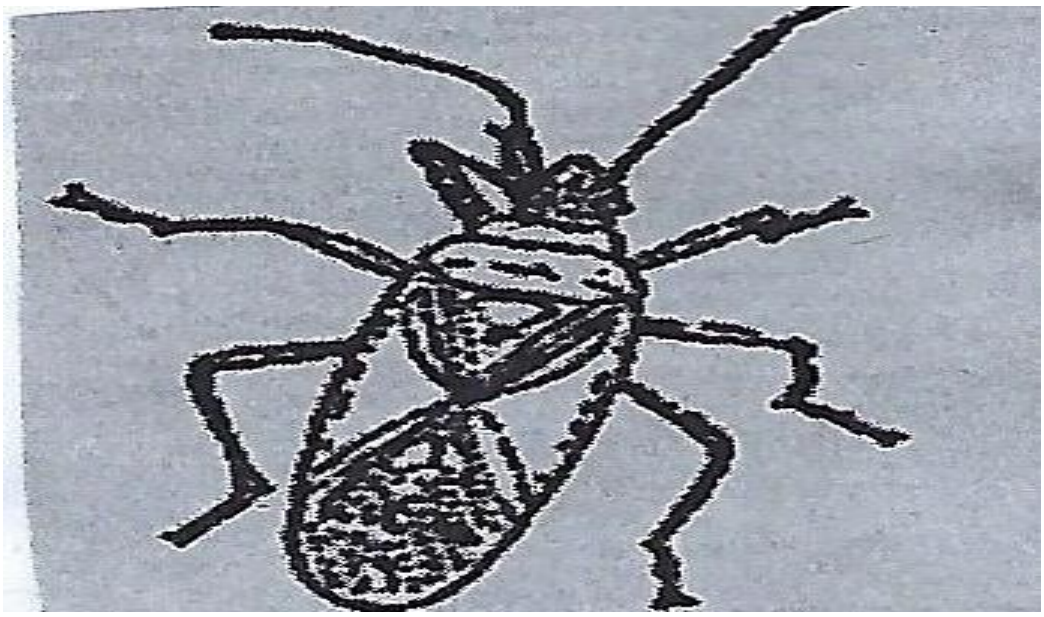
_____

(c) State two factors that determine the time the manure would be ready for use in the field. **(2 mks)**

_____

_____

20. The diagram below shows a field crop pest. Study the diagram and answer the questions that follow.



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(a). Identify the pest. **(1 mark)**

_____

(b) Outline two harmful effects of the pests. **(2 marks)**

_____

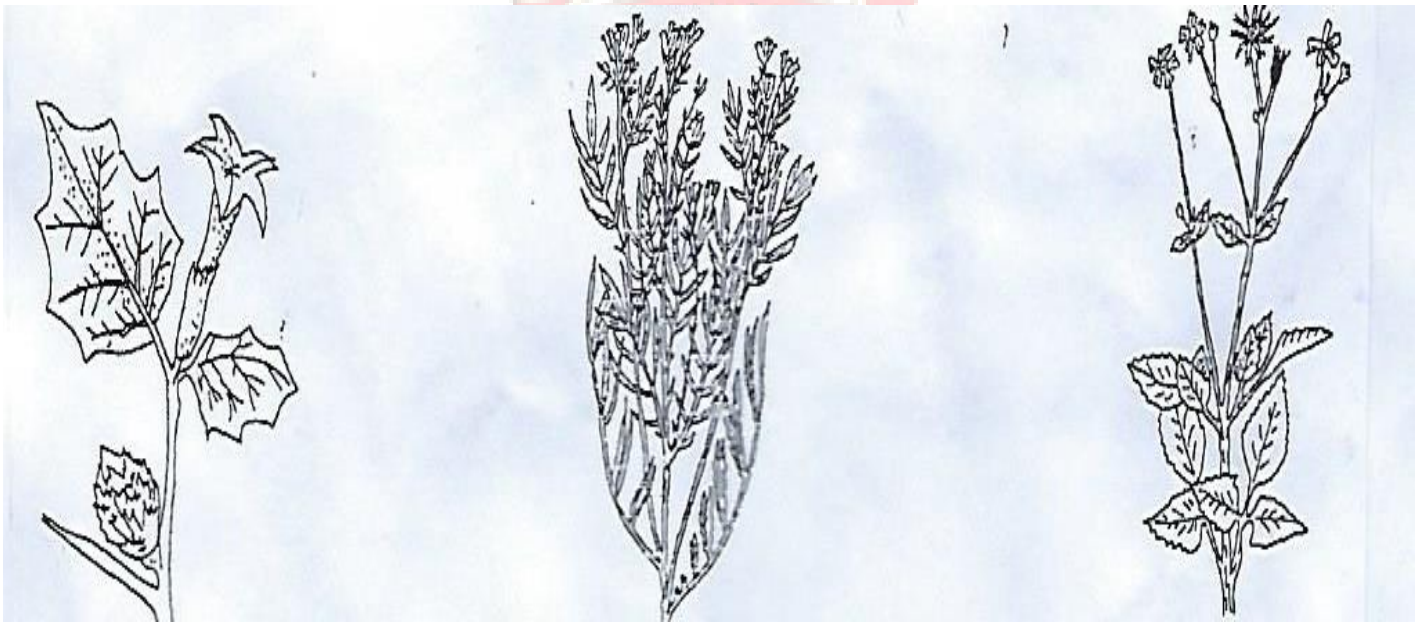
_____

(c) State two methods which are used to control the pests. **(2 marks)**

_____

_____

21. The illustrations labelled E-G below represents common weeds in pasture land. Study them carefully and answer the following questions.



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(a). Identify the weeds labelled E-G . **(1 ½m marks)**

_____

_____

(b). Name the major problems posed by each of the specimen

E – G when in pasture land **(1 ½ marks)**

_____

_____

(c). Give two reasons why the three type of weeds may overtake and smoother pasture species when they are allowed to grow together. **(3 marks)**

_____

_____

_____

_____

SECTION C (40 marks)

Answer any two questions.

22.(a). Describe the production of Napier grass under the following sub-heading;

(a). Varieties **(2 marks)**

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(b). Land preparation. **(4 marks)**

_____

_____

_____

_____

_____

(c) Planting **(2 marks)**

_____

_____

_____

(d) Harvesting **(2 marks)**

_____

_____

_____

(b). State five factors considered when designing a crop rotation programme**.** **(5 marks)**

_____

_____

_____

_____

_____

_____

_____

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(c) State five effects of land fragmentation. **(5 marks)**

23(a) Explains five biological measures used to conserve soil and water in the farm. **(10 marks)**

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(b) State five reasons for carrying minimum tillage. **(5 marks)**

(c) Outline five ways government policy contributes to Agriculture. **(5 marks)**

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24.(a) Explain five cultural measures to control pests. **(10 marks)**

(b) Give four factors influencing timely planting **(4 marks)**

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(c) Explain four methods used to prepare planting material. **(6 marks)**

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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

NAME……. **INDEX NO……..**

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DATE……..

443/2

AGRICULTURE

Paper 2

Time: 2 Hours

INSTRUCTIONS TO CANDIDATES

1. *Write your **name** and **index number** in the spaces provided.*
2. *This paper consists of three sections; **A**, **B** and **C***
3. *Answers should be written in the spaces provided.*

FOR EXAMINER'S USE ONLY

SECTION	QUESTIONS	MAXIMUM SCORE	CANDIDATE'S SCORE
A	1 -15	30	
	16 – 20	20	
B	21 - 23	20	
C		20	
		20	
TOTAL SCORE		90	

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SECTION A (30 MARKS)

Answer all Questions from this section in the spaces provided.

1. Under what condition would a farmer use an ox-cart instead of a tractor drawn trailer?**(l mk)**

……

……

2. State **two** practices that may require special method of handling of a mature fresian cow.**(1)**

……

……

3. State any **two** physiological conditions of livestock that may be assessed to determine the health status of an animal. **(l mk)**

……

……

4. Give any **four** precautions taken when harvesting honey. **(2 mks)**

……

……

……

……

……

5. Name **four** exotic pig breeds reared in Kenya. **(2marks)**

……

……

……

……

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6. A cow gives birth to two offspring in a period of three years. One offspring is a male named Zulo and another, female named Kerio. Two years later Zulo is mated to Keroi and another offspring, called Tedi is given birth to

(i) Identify the specific system of breeding between Zulo and Keroi. **(1 mk)**

……

(ii) Give four disadvantages of such a system of breeding. **(2 mks)**

……

……

……

……

……

7. List **four** ways by which an animal may get infected by a disease from another. **(2 mks)**

……

……

……

……

……

8. Give **one** use for each of the following tools and equipment. **(2 mks)**

(i) Dibber

……

……

(ii) Halter

……

……

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(iii) Bolus gun

……

……

(iv) Shovel

……

……

9. **(a)** State the purpose of dry cow therapy. **(½ mk)**

……

……

……

(b) List **four** factors that affect milk let down process. (2 mks)

……

……

……

……

……

10. List **four** observable features in a cow that may indicate that it's nearing parturition. **(2 mks)**

……

……

……

……

……

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11. **(a)** Give the meaning of the following terms as used in livestock breeds. **(1½ mks)**

(i) Steer

……

……

(ii) Capon

……

……

(iii) Kindling

……

……

(b) Name the exotic beef breed of cattle with the following characteristics;

* White / cream in colour
* Heavily built
* Originated from France **(½ mk)**

……

12. State **two** indicators of prolificacy in pigs. **(1 mk)**

……

……

13. Give **four** reasons for providing high quality ration in the last two weeks to parturition in goats. **(2 mks)**

……

……

……

……

……

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14. Outline **three** reasons why calves should be fed on colostrum. **(1½ mks)**

……

……

……

……

……

15. State **two** ways by which each of the following aspects are achieved in a calf pen.

(a) Proper drainage. **(1 mk)**

……

……

(b) Freedom from draught **(1 mk)**

……

……

16. **(a)** Define Raddling in sheep management. **(1 mk)**

……

……

(b) State **two** reasons for raddling. **(1 mk)**

……

……

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17. Give **two** reasons why concrete floors are recommended for dairy sheds. **(l mk)**

……

……

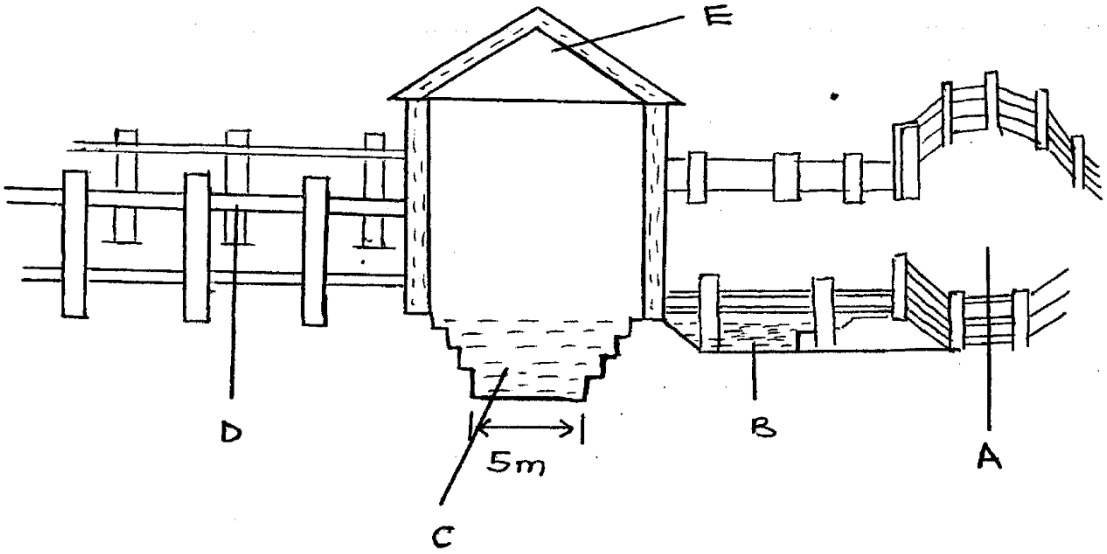
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SECTION B (20 MARKS)

Answer all the questions in this question in the spaces provided.

18. Below is a farm structure. **Study** it carefully and answer the questions below.



(i) **What** is the use of the above structure? **(½ mark)**

……

……

(ii) State **one** management practice carried out on livestock before being led into the structure. **(½ mark)**

……

……

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(iii) State **two** roles played by the part labeled E. **(1 mark)**

……

……

……

(iv) **Give** the role of the parts labeled **A** and **B.** **(1 mark)**

A

……

B

……

(v) State **four** factors to consider when siting the structure in the farm. **(2 marks)**

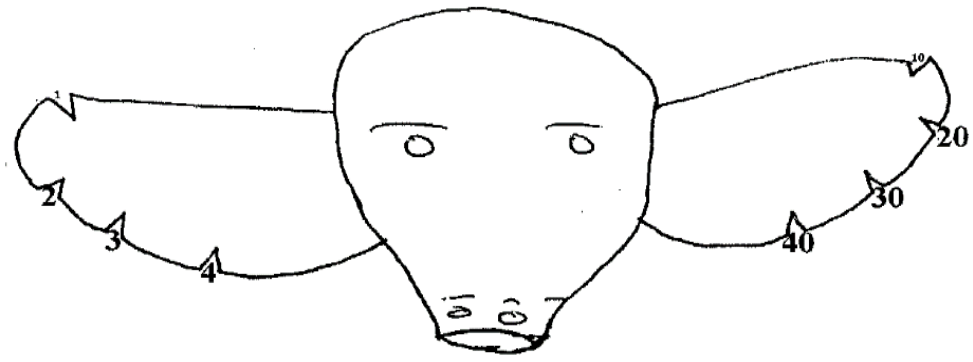
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19. **(a)** Study the diagram below illustrating a method of identifying a farm animal.



Using the above illustration draw and mark number 87 **(2 mks)**

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……

……

……

……

……

(b) **Outline** the procedure of castrating a piglet by use of surgical method. **(4 mks)**

……

……

……

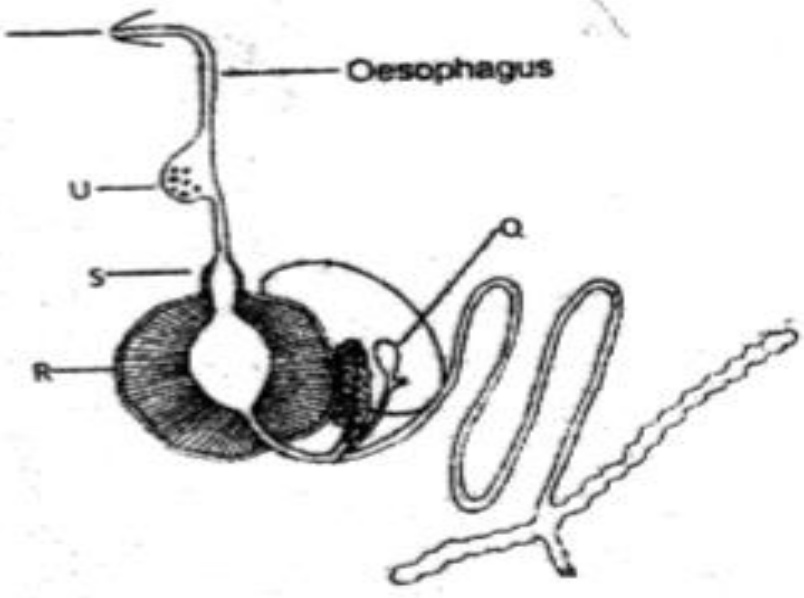
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20. Study the diagram of chicken digestive system below and answer the question that follow.



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(a) Identify the parts labelled Q, R and S. **(1½ mks)**

Q

……

R

……

S

……

(b) Briefly describe the function of parts Q and R. **(2 mks)**

Q

……

……

R

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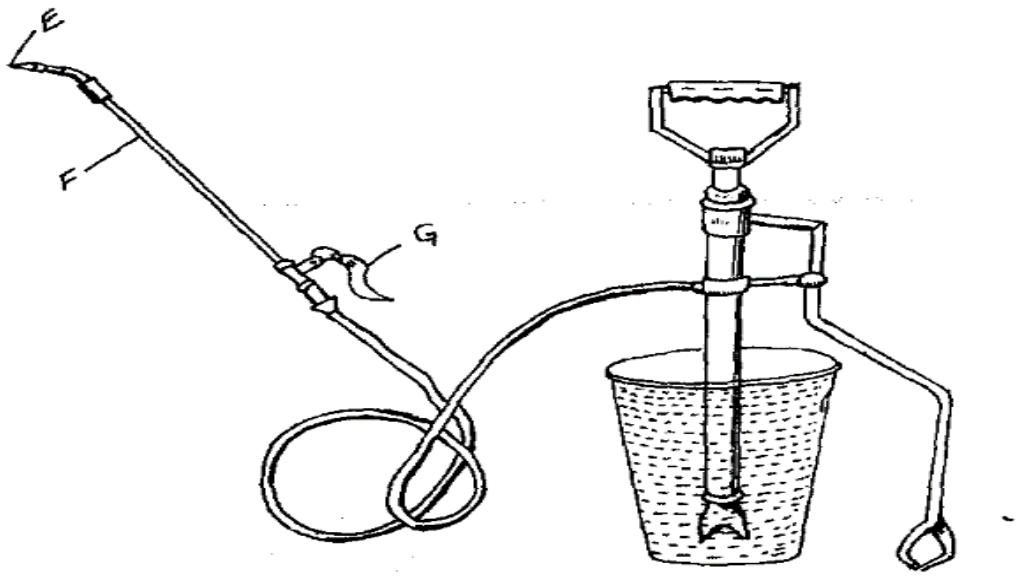
(c) How can a farmer improve on digestion in the structure labelled S. **(½ mk)**

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21. Below is a diagram of a farm equipment. Use it to answer the questions that follow.



(a) Identify the equipment. **(½ mk)**

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(b) State the use of the equipment **(1 mk)**

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(c) Name the parts labelled G,E and F. **(1½mks)**

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(d) Identify **two** draw backs in using this equipment compared to others that may be used for the same purpose. **(2 mks)**

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SECTION C (40 MARKS)

Answer any two questions from this section in the spaces provided at the end of the section

22. **(a)** Discuss mastitis disease under the following subheading:

(i) Specific causal organisms **(2 mks)**

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(ii) Predisposing factors **(5 mks)**

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(iii) Symptoms **(4 mks)**

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(iv) Control and treatment **(5 mks)**

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(b) State **four** ways by which a farmer can identify an animal suffering from worm infestation. **(4 mks)**

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23.(a) Explain the various method of livestock disease control. **(10 marks**

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(b) Explain the predisposing factors to animal disease. **(10 marks)**

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24. **(a)** Discuss the management of layers from one day old to the start of laying in a deep litter system. **(l4 mks)**

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(b) Explain management practices that would improve fish production. **(6 mks)**

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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

NAME……. **INDEX NO……..**

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565/1

BUSINESS STUDIES

Paper 1

Time: 2 Hours

INSTRUCTIONS TO CANDIDATES

- *Answer **all** the questions in the spaces provided.*

For Examiner's Use Only

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14
Marks														

Questions	15	16	17	18	19	20	21	22	23	24	25
Marks											

Total Marks

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QUESTIONS

1. Outline four internal environment factors that may negatively influence the operations of a business. **(4 marks)**

i)_____

ii)_____

iii)_____

iv)_____

2. State the characteristic of human wants that match the descriptions given below: **(4 marks)**

Description	**Characteristics**
a)Satisfaction of one want automatically leads to creation of another	
b)Some human wants are experienced by all human beings	
c) Human wants can never be fully satisfied	
d) After some wants are satisfied, they recur	

3. Give for reasons why direct production is undesirable in a country. **(4 marks)**

i)_____

ii)_____

iii)_____

iv)_____

4. Highlight four reasons why the Kenyan government encourages entrepreneurship in the country. **(4 marks)**

i)_____

ii)_____

iii)_____

iv)_____

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5. State four modern developments in office management. **(4 marks)**

i)_____

ii)_____

iii)_____

iv)_____

6. Give four differences between a Public Limited Company and a Public Corporation. (4 mks)

Public Limited Company	**Public Corporation**
i)	i)
ii)	ii)
iii)	iii)
iv)	iv)

7. Highlight four advantages of mail-order business. **(4 marks)**

i)_____

ii)_____

iii)_____

iv)_____

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8. Give four reasons for the popularity of Mpesa as a means of payment in Kenya. **(4 marks)**

i)_____

ii)_____

iii)_____

iv)_____

9. The following balances were extracted from books Hussein trades on 30th October 2019.

Cash	20,000
Bank	160,000
Premises	200,000
Debtors	40,000
Creditors	95,000
2 years loan	258,000
Stock	210,000

Prepare the balance sheet for Hussein Traders as at 30th October 2019. **(5 mks)**

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10. State four reasons for government involvement in business activities. **(4 marks)**

i)_____

ii)_____

iii)_____

iv)_____

11. Outline four problems associated with boda boda (motor cycle)as a means of transport. **(4 mk)**

i)_____

ii)_____

iii)_____

iv)_____

12. For each of the statements below, state the appropriate term as used in insurance. **(4 marks)**

Statement	
a)Specified amount of money paid at regular intervals by the insured to the insurer for coverage against losses	
b)People employed by an insurance company to compute expected losses and value of premiums	
c)Amount of money refundable to the insured by the insurer in case the former terminates contract before it matures	
d) Loss incurred by a business as a result of disruption of business in the event of the insured risk occurring	

13. Highlight four problems that would be experienced by consumers in the absence of warehousing. **(4 marks)**

i)_____

ii)_____

iii)_____

iv)_____

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14. State four benefits of advertising to a consumer. **(4 marks)**

i)_____

ii)_____

iii)_____

iv)_____

15. Identify the source documents used to record the following transactions in the books of original entry. **(4 marks)**

Transaction	**Source Document**
a) Credit purchases	
b) Sales returns	
c) Cash sales	
d) Cash purchases	

16. Outline four circumstances that may make a producer to bypass the wholesaler when distributing his goods. **(4 marks)**

i)_____

ii)_____

iii)_____

iv)_____

17. Highlight four external economies of scale that a firm may get as a result of growth in the industry. **(4 marks)**

i)_____

ii)_____

iii)_____

iv)_____

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18. Highlight four characteristics of oligopoly market structure. **(4 marks)**

i)_____

ii)_____

iii)_____

iv)_____

19. State the type of unemployment relating to each of the following descriptions: (4 marks)

a) Caused by alternating trading patterns occurring at similar times

_____

b) Arises where workers have more skills and higher qualifications than the job requirements

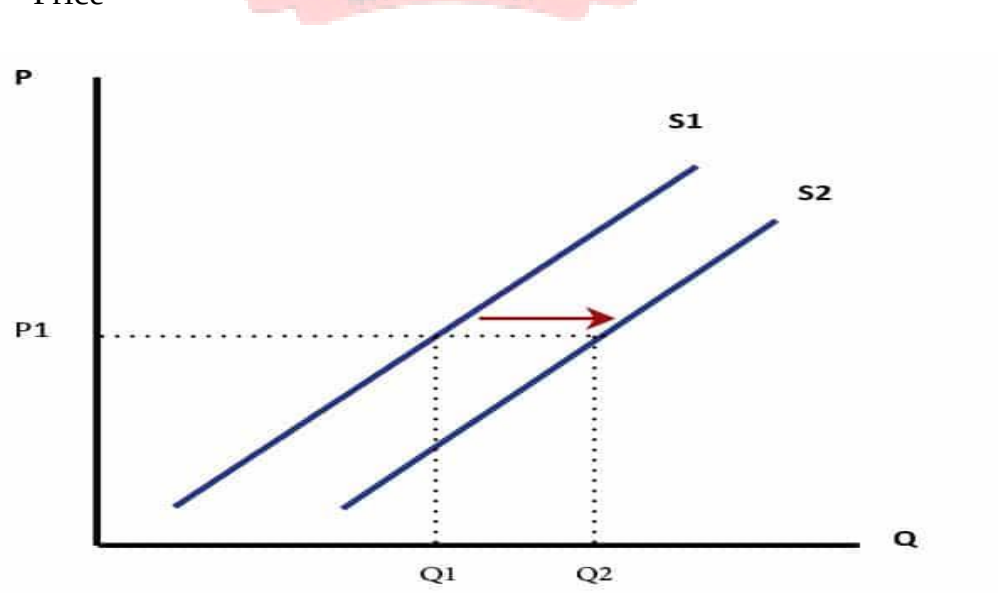
_____

c) Arises out of a mismatch between the skills possessed by potential employees and the location of the jobs available _____

d) Arises when people are unwilling to take up jobs due to low pay

_____

20. The diagram below shows a change in the supply of a product. Outline four factors which may have caused such a change. **(4 marks)**



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Quantity

i)_____

ii)_____

iii)_____

iv)_____

21. The following information relates to Jumbo Traders on 31/12/2020

Details	Shs
Capital (31/12/2020)	940,000
Net loss	20,000
Additional Investments	420,000
Monthly drawings	5,000

Determine the capital as at 1/01/2021 **(3 marks)**

22. Outline four roles played by the Nairobi Securities Exchange in the Kenyan economy. **(4 mks)**

i)_____

ii)_____

iii)_____

iv)_____

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23. Listed below is a set of transaction. In each case state whether the transaction will increase, decrease or have no effect on capital. (4 marks)

	Transaction	**Effect**
a)	Additional cash invested by the owner	
b)	Receiving cash from a debtor	
c)	Losses incurred by a business	
d)	Owner takes some stock for own use	

24. Mention four disadvantages of an ageing population to a country. **(4 marks)**

i)_____

ii)_____

iii)_____

iv)_____

25. Given below is a cash book extract from the books of accounts of Patel Enterprises.

Dr **Cr**

Date	Details	F	Discount allowed	Cash	Bank	Date	Details	F	Discount received	Cash	Bank
2009						2009					
1/12	Bal b/d			1,500	90,000	14/12	Bank	C		30,000	
2/12	Rono		2,000	36,000		20/12	Equipment				80,000
14/12	Cash	C			30,000	30/12	Drawings			7,000	

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In relation to the entries appearing in the cash book extract, state the transactions that took place on each of the following dates. **(4 marks)**

a) 2nd December 2009

b) 14th December 2009

c) 20th December 2009

d) 30th December 2009

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CROSSCOUNTRY PREDICTION

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565/2

BUSINESS STUDIES

PAPER 2

Time: 2 ½ Hours

INSTRUCTIONS TO CANDIDATES.

1. This paper consist of six questions with section a and b.

2. Answer only five questions, both a and b in the writing material provided.

3. Indicate clearly the questions answered

For examiner's use only

QUESTION	1	2	3	4	5	6
SCORE						

TOTAL	

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QUESTIONS

1 .a) There has been rapid rate of unemployment over the years in Kenya. Explain **five** measures the government may put in place to curb this trend**.** **(10 marks)**

b) Explain **five** uses of national income statistics **(10 marks)**

2.a) Explain **five** benefits a country may get by locating industries in different parts of the country **(10 marks)**

b) Explain **five** differences between shares and debentures **(10 marks)**

3.a) Explain **five** principles that guide operation of insurance companies in Kenya.

(10 marks)

b)Explain **five** roles played by non-governmental organizations(NGOs) in protecting consumers

(10 marks)

4.a) Explain **five** factors a business should consider while deciding on the office machine to buy

(10 marks)

b. The following information was extracted from the books of Bondo retailers in December 2019.

Dec 2: Bought a computer worth sh.10, 000 on credit from digital traders.

Dec 5: Bought office furniture worth sh. 5,000 on credit from office suppliers limited.

Dec 11: Settled a debt owed to Kamau, a creditor by giving up stock worth sh. 6,000

Dec 15: Sold a printer worth sh.15,500 for sh 18,000 to Kiamaiko ltd on credit

Dec 23: Settled a debt of sh 200,000 owed to a creditor Omoka by giving up a motor vehicle Worth the same amount

Dec 25. Sold an old set of chairs for sh 53,000 to Milele traders

Dec 27: Sold a motor vehicle worth sh 87,000 for sh 80,000 on credit to Gitau

Dec 30: realized that goods worth sh 10000 sold on credit to Muasya had been recorded in The books of account as sh 1000

Record the information in the relevant book of original entry **(10 marks)**

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5.a) Explain **five** benefits a trader may enjoy by operating a unit shop **(10 marks).**

b. Explain **five** reasons why the demand curve for second hand clothes may shift to the left **(10 marks)**

6.a) Explain **five** circumstances under which a business may decide to offer its customers after sale services **(10 marks).**

b) On 1st May 2020, ,Kihenjo ltd had cash in hand sh.178,000 and a bank overdraft of shs.23,400. During the month, the following transactions took place:

May 3: Cash sales sh 16,500 paid direct into the bank.

May 4: Bought goods for sh.15,000 and paid by cheque.

May 6: Cash sales sh.50, 000.

May 9: Received a cheque for Sh.76, 500 from Mwikali in full settlement of her debts.

May 13: Paid insurance premium sh.16,000 in cash.

May 14: Paid Otieno by cheque Sh.9,700 in full settlement of his account having deducted 3% cash discount.

May 21: Withdrew Sh 30,000 from bank for office use.

May 23: Received a cheque of sh 23,750 from Kimani in full settlement of his account less 5% cash discount.

May 25: Paid wages of shs. 20,000 in cash.

May 26: Cheque received from Mwikali was dishonored, the bank charged sh 350.

May 30: Banked all cash except Sh 3,000.

Prepare a three-column cash book duly balanced. **(10 marks)**

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101/1

ENGLISH

PAPER 1

(Functional Writing, Cloze Test And Oral Skills)

TIME: 2 HOURS.

INSTRUCTIONS TO CANDIDATES

- *Write your name and admission number in the spaces provided.*
- *Answer **ALL** the questions in this question paper.*
- *All your answers must be written in the spaces provided in this question paper.*
- *This paper consists of 9 printed pages.*
- *Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing.*

For Examiners Use Only

Question	Maximum Score	Candidates Score
1	20	
2	10	
3	30	
Total Score	60	

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A. FUNCTIONAL WRITING -20 MARKS.

1. You are the chairperson of The Peer Counsellors club in your school. You have realized that many students have challenges in selecting careers for further studies. You decide to invite three speakers to give a talk on different careers.

(a) Write a memo to the club patron to request him/her to allow you to invite these speakers.

i)Mention each speaker and what they do.

ii) Why you think it is important to invite him /her

iii) The day, the date and time each speaker will come. **(12 marks)**

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(b) One of the speakers was extremely good in the topic of the career that he/she handled. Your patron has requested you to thank the speaker. Write a thank you letter. **(8 marks)**

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B. CLOZE TEXT- 10 (MARKS)

Read the passage below and fill in each blank space with the most appropriate word. (10 marks)

New roads will be built to _____1_____ various parts of Nairobi while _____2_____ ones will be expanded in an ambitious plan to transform it into a modern and attractive city. The plan, which was launched yesterday _____3_____ proposes to demolish old estates in Eastlands suburbs to pave way for highrise buildings where city _____4_____ can work and live. It also proposes to revamp railway _____5_____ to ease the _____6_____ of people into and out of the city in a move that will reduce reliance on matatus and private _____7_____. Under the plan launched yesterday, a special lane will be set _____8_____ for buses in the bold plan to change public transport, one of the biggest challenges _____9_____ the city that is also the national capital. It is expected that vast tracts of land owed by the Kenya railways_____10_____ be used to build a railway city while electricity way -leaves will provide additional land for infrastructure development.

C. ORAL SKILLS. 30 (MARKS)

1***. Read the oral narrative below and answer the questions that follow. (10mks)***

WHY TURTLES LIVE IN WATER.

Story, story!

Turtles used to live on the land, they say, until the time a clever turtle was caught by some hunters. They brought him to their village and placed the turtle before the Chief, who said, "How shall we cook him?"

"You'll have to kill me first, "said the turtle, "and take me out of this shell."

"We'll break your shell with sticks," they said.

"That we'll never work," said the turtle, "why don't you throw me in water and drown me?"

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"Excellent idea," said the Chief. They took the turtle to the river and threw him into the water to drown him.

They were congratulating themselves on their success in drowning the turtle, when two little green eyes poked up in the water and the laughing turtle said," Don't get those cooking pots out too fast, foolish people!" As he swam away he said, "I think I'll spend most of my time from now on, safely in the water."

It has been that way, ever since!

Questions

i) What is the significance of using the words- Story, story! **(2 marks)**

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ii). How would you prepare to perform this narrative to an audience? **(2 marks)**

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iii) Which two devices of performance would you employ to make your narration interesting?**(4 mk)**

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iv) How would you say the following sentences **(2 marks)**

(a) Why don't you throw me in the water and drown me?

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(b) It has been that way ever since!

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2. You are in a supermarket shopping over the holiday and you bump into your desk mate who happens to be your friend too. You start talking about the current affairs. What cues will you employ to ensure that you have a productive conversation? **(3 marks.)**

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3. a) Imagine that you have been given a chance during one of your school assemblies to talk to the rest of the students about peer pressure. How will you introduce your talk? **(4 marks)**

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b) Explain three ways in which you will make effective use of your voice during the talk.

(3 marks)

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4. Underline the odd one out in the following set of words. **(4 marks)**

i) Chef chief sachet

ii) Gateway gesture gel

iii) Whole hole hall

iv) Niche Chick chic

5. Read the following telephone conversation and answer the questions that follow.

Caller: I want to talk to my father.

Secretary: Good morning, may I know who is on the line please. (*Impatient and irritated*)

Caller: (*Impatient and irritated*) You mean you don't know me and my father is your boss?

Secretary: Oh, you are Mr. Baraka's son?

Caller: (*shouting*) Put him on the line now.

Secretary: (*Politely*) I am sorry it is not possible to speak to him now. He is in a...

Caller: It is urgent!

Secretary: Kindly leave a message and he will call you back.

Caller: Nonsense! (*Bangs the phone)*

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Questions

i) Mention three short comings of the caller. **(3 marks)**

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ii) Identify any three areas where the secretary observes telephone etiquette. **(3 marks)**

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CROSSCOUNTRY PREDICTION

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101/2

ENGLISH

Paper 2

(Comprehension, Literary **Appreciation and Grammar**

Time: 2 ½ Hours

Instructions to Candidates

1. *Write your name and index number in the spaces provided above.*
2. *Sign and write date of examination in the spaces provided above.*
3. *Answer all questions in the question paper*
4. *All your answers must be written in the spaces provided in this question paper*
5. *Candidates should check the question paper to ensure that all the pages are printed as indicated and that no questions are missing.*

For Examiner's Use Only

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1	20	
2	25	
3	20	
4	15	
TOTAL SCORE		

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Q1. COMPREHENSION (20 MARKS)

Read the passage below then answer the questions that follow:

My favourite aunt is a woman anyone would admire, both her physical features and character. She is the kind of person you want to be with all the time.

She is the eldest in my father's family but she looks the youngest. Though in her mild-sixties, she looks twenty years younger. It is as if she has signed a contract with perpetual youth. I have heard countless people ask her what her secret is, upon which she readily replies with a winsome smile. "I don't look back in regret or look around in worry. Instead, I always look up in hope." I don't know, but I am tempted to believe that this philosophy has kept away the gnawing tooth of time.

At about five feet, her height wouldn't catch the eye of a basketball coach. However, it goes well with her body on which there isn't an ounce of flabby flesh. Actually, the ravages of multiple childbirth and age have not robbed her of her waistline and shapely figure. For one who has never heard of a gym let alone worked out in one, she is nicely put together.

One grudge that I have against her is that she inherited the very best that her parents had to offer in terms of hair, leaving my dad with stingy strands that you can almost count. No wonder mine defies even the most qualified stylist. When she was younger, my aunt liked to display hers in fancy hair-dos. I have seen earlier photographs in which it is shinny black, shoulder length and full bodied. Today, it has thinned a little and is no longer as long due to breakage. Shy streaks of gray are appearing but if you consider that some people twenty years her junior are already white- haired then you must concede that it is one of her best features. She usually plaits it into two thick knots, one at the front and the other at the back. She then covers it with a headscarf as is required by her denomination.

She denies it but I bet that her face earned her many male stares when she was young. Dark in complexion, it is still smooth and even in tone though edged with tiny lines----- I don't like to call them wrinkles. Her eyes are bright with hope and wisdom. Even when she is sad, they retain their luster and intensity. Her arched bushy eyebrows seem to be guarding these gems zealously. To

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complete the picture, her nose and mouth complement her rounded face perfectly. Her husband, my uncle, often teasingly tells her that her lips are a little too thick. Being one to never lack a quick response or take offense easily, she quips: "Well the thicker the better to declare my overflowing love for you." For me, they are a reflection of her generous spirit.

Although she is not a fashion enthusiast, my aunt knows a thing or two about dressing smartly and elegantly. Her ankle – length pleated dresses are always neatly pressed and matched with the headscarf. She is fussy about who makes her outfits because she wants them to come out just right. I am sure she had sampled several seamstresses before she settled on her current one to whom I have been introduced. Navy blue is her favourite colour. I have heard it said that it is the colour of confidence and if my aunt is anything to go by, I think it is true.

In the entire neighbourhood, she is known as "Mama Safi." A former customer of hers tells me the nickname is two-fold. "years ago, she used to run a shop named so and she grew to become synonymous with it, hence the nickname. But the story doesn't begin there. When she opened the shop, it was simply known as "Duka". She would sweep in front of it every so often and sprinkle water to keep away dust. Inside the items were neatly arranged according to their types and sizes. If she accidently spilt substances like milk and sugar, she would immediately clean up the mess."

Perhaps you are wondering why I like Auntie Joyce so much. Well, we, her nieces and nephews concur that she does many things for us. She spoils us the way only a grandmother can, she advises us the way only an aunt can, imparting **pearls of wisdom** when the girls confide their men's troubles in her; she supports us the way only friends can – listening to our side of the story when our parents fail to.

(Taken from **Secret from Beyond**; Oloo Oliver, unpublished)

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QUESTIONS

a). According to the passage why is the narrator's aunt her favourite. **(2mks)**

_____

_____

b). What is the secret behind the narrator's aunt's youthful appearance? **(2mks)**

_____

_____

c). Why does the narrator begrudge her favourite aunt? **(2mks)**

_____

_____

d). 'Although she is not a fashion enthusiast, my aunt knows a thing or two about dressing smartly and elegantly.' (Rewrite beginning Dressing....) **(1mk)**

_____

_____

e). How can we tell that the narrator's aunt is aging? **(2mks)**

_____

_____

f). Describe the relationship between the narrator's aunt and her uncle. **(2mks)**

_____

_____

_____

g). Explain why 'gym' is mentioned in this passage. **(2mks)**

_____

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_____

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h). What evidence is there in the passage to show that the narrator's aunt wants her to follow in her footsteps. **(2mks)**

_____

_____

i). List why the narrator's favourite aunt is liked by the nieces and nephews. **(2mks)**

_____

_____

j). Explain the meaning of the following expressions as used in the passage. **(3mks)**

i).Signed a contract with perpetual youth. _____

_____

ii). Earned her many male stares. _____

_____

iii). Pearls of wisdom. _____

_____

Q2. Henrik Ibsen, A Doll's House

Read the excerpt below and answer the questions that follow. (25 Marks)

Nora: And I?

Helmer: You too, of course; we are both saved, both you and I. Look, he sends you your bond back. He says he regrets and repents – that a happy change in his life – never mind what he says! We are saved, Nora! – no one can do anything to you. Oh, Nora, Nora! – no, first I must destroy these hateful things. Let me see – (*takes a look at the bond*) No, no, I won't look at it. The whole thing shall be nothing but a bad dream to me. (*Tears up the bond and both letters, throws them all into the stove, and watches them burn.)* There – now it doesn't exist any longer. He says that since Christmas Eve you – These must have been three dreadful days for you, Nora.

Nora: I have fought a hard fight these three days,

Helmer: And suffered agonies, and seen no way out but -. No, we won't call any of the horrors to mind. We will only shout with joy, and keep saying, "It's all over! It's all over" Listen to me, Nora. You don't seem to realize that it is all over. What is this? – such a

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cold, set face! My poor little Nora, I quite understand; you don't feel as if you could believe that I have forgiven you. But it is true, Nora, I swear it; I have forgiven you everything. I know that what you did, you did out of love for me.

Nora: That is true.

Helmer: You have loved me as a wife ought to love her husband. Only you had not sufficient knowledge to judge of the means you used. But do you suppose you are any the less dear to me, because you don't understand how to act on your own responsibility? No, no; only lean on me; I will advise you and direct you. I should not be a man if this womanly helplessness did not just give you a double attractiveness in my eyes. You must not think anymore about the hard things I said in my first moment of consternation, when I thought everything was going to overwhelm me. I have forgiven you, Nora; I swear to you I have forgiven you.

Nora: Thank you for your forgiveness. (*she goes out through the door to the right*)

QUESTIONS

1. We are both saved". What is Helmer referring to?. **(2mks)**

_____

_____

_____

2. Who is the' he' referred to in the excerpt. Explain the happy change that has taken place in his life. **(3mks)**

_____

_____

_____

3. Identify the main issue brought out in this excerpt. **(3mks)**

_____

_____

_____

4. Comment on the dominant mood depicted in this passage. **(3mks)**

_____

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_____

_____

5. Give one character trait of **(4mks)**

i). Norah _____

ii). Helmer _____

6. Comment on any two aspects of style used in the excerpt. **(6mks)**

_____

_____

_____

_____

_____

_____

_____

7. Supply the correct question tag.

The whole thing shall be nothing but a bad dream to me. **(1mk)**

_____

8. Explain the meaning of this phrase as used in the excerpt ...moment of consternation. **(1mk)**

_____

_____

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9. What happens immediately after this excerpt?. **(2mks)**

_____

_____

Q3. Read the following passage and answer the questions that follow. (20 marks)

SEVEN LADIES AND WILD FRUITS

A Taita tale by Mshila Mercy Soko

Once upon a time there lived seven ladies. These ladies were great friends and they lived in the same village. They performed all their chores. They fetched water together, gathered firewood and went to the forest to eat fruits together.

One day they went to the forest to collect wild fruits. Before they began collecting, the fruits they agreed that they were going to pick them with closed eyes, 'Fine' they agreed then they began picking the fruits. Six of them touched each other and they opened their eyes. The seventh girl was not alerted and so she continued picking unripe fruits.

When they had picked enough, they agreed that they shouldn't look at their fruits until they are half way home. When they looked at their fruits, the seventh girl realized she had picked all unripe fruits, but the others had picked ripe ones.

'All my fruits are unripe. What will I do?' she asked 'Go back and pick others, ' they said firmly. The girl decided to go back to the forest and pick some fruits for herself. On her way back before she could reach where the other girls were waiting, she met an ogre.

'Young lady what are you carrying?' it asked. The girl answered 'it's my wild fruits.' 'Give me one I eat.' It ate very fast and asked for more until the girl had nothing to give. Then the ogre asked for the girl's finger, the hand, the leg and finally swallowed the girl. The other girls waited for her until they gave up and went home. When the parents asked them where San was they explained she had gone back to collect ripe fruits and she never returned.

Mwandime her elder brother listened to the story and took his quiver and spear. He went straight to the path they used when they go to the river to drink water. When the first ogre arrived, he asked it ' Who has swallowed San my sister?' It sang. 'The one who has swallowed San is at the far end making noise gwa gwa goat gwa gwa.

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Mwandime let it pass. The second ogre came and he asked the same question and he got the same answer. The third came and the same was repeated until the tenth and the last one came. It was fat and heavy and walked with a lot of difficulty. Mwandime stopped it and demanded to know who had swallowed his sister San. The ogre tried to sing 'The one who swallowed your sister..... the one who has swallowed.....' 'Talk properly, sing properly.' Retorted Mwandime. The ogre was unable to sing because it was the one that had swallowed Mwandime's sister.
Mwandime took out his spear and aimed at the ogre's stomach. The stomach opened and San with the others who had **suffered the same fate** came out. Mwandime took San by the hand and they ran towards home and the other ogres in **hot pursuit** to avenge their friend's death. 'Frog we are being pursued by the ogres can you help us' said Mwandime. 'Come closer. I will swallow you and take you home and the ogre wont get you and take you.' Replied the frog.

So the frog swallowed San and Mwandime took them to the other side of the river and hoped towards their home. On the way, it met a chameleon and the frog sang.

Don't push me
I am taking San home
San has some wood
San has some sugarcane
It passed. When it came to San's home, women were pounding maize. 'How come this Frog is so fat' remarked one. 'Push it away.'

Mm mm don't push me
I am taking San home
San has some wood
San has some sugar cane

It vomited San and Mwandime at their home. They came out carrying precious things to the home. The family members and their friends were very happy to receive them home. The ogres were surprised when they came to the river they lost track of these two and so they gave up and went back home. A party was organized by San's family members so that friends and neighbours can make merry and be happy. He was given a bride to marry and he settled down.

My story ends here.

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QUESTIONS

a). What do the ogres represent in the narrative? **(2mks)**

_____

_____

_____

b). Explain the use of fantasy in the narrative. **(3mks)**

_____

_____

_____

_____

_____

c). What is the significance of the song in the narrative? **(3mks)**

_____

_____

_____

_____

_____

d). Explain the meaning of the following expressions as used in the passage. **(2mks)**

i). Suffered the same fate.

_____

ii). In hot pursuit

_____

e). Give one character trait for each of the following.

i). Mwandime - **(2mks)**

_____

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_____

ii). The girls - **(2mks)**

_____

_____

f). Comment on any two features of this sub-genre **(4mks)**

_____

_____

_____

_____

_____

_____

g). Describe two economic activities of the community in the narrative. **(2mks)**

_____

_____

_____

_____

Q4. GRAMMAR (15 MARKS)

a). ***Fill in the blank space with the correct form of the word in blackest.*** **(4mks)**

i. The prices of the items were not_____. (negotiate)

ii. The students were quite_____ to the new teacher. (receive)

iii. The case received a just verdict because the judge is_____. (corrupt)

iv. The students' _____ of staying in school to going home for half term was welcome. (prefer)

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b). Fill in the blank spaces with the correct preposition **(3mks)**

i. We danced_____ the rhythm of their drums.

ii. I have placed the coffee table _____ the shade of that tree.

iii. The thief dashed_____ the house when he saw the police officers.

c). Fill in the blank spaces with a suitable phrasal verb formed from the word in brackets. (3mks)

i. We surely cannot _____such insults. (put)

ii. The captain _____ his crew throughout the trial. (back)

iii. Students have to work very hard to_____ for lost time. (make)

d). *Rewrite the following sentences to have one clear meaning* **(2mks)**

i. I don't like controlling people

ii. The teacher left the class feeling frustrated.

e). Rewrite the following sentences according to the instructions given. (3mks)

i. As soon as the students completed the exams, they returned all the books to the library (Begin: No sooner).

ii. If you invite him, he will come to the party (Rewrite..... unless.....)

iii. My class teacher intervened. I was not sent home (combine into one sentence using 'but for')

_____

_____

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CROSSCOUNTRY PREDICTION

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101/3

ENGLISH

(Creative Composition and Essays Based on Set Texts)

Paper 3

Time: 2 ½ Hours

Instructions to candidates

- ***a)*** *Answer **three** questions only.*
- ***b)*** *Questions 1 and 2 are **compulsory**.*
- ***c)*** *In question **three**, choose only **one** of the optional texts you have prepared on.*
- ***d)*** *Each of your essays must not exceed **450** words.*
- ***e)*** *You must answer the questions in **English.***
- ***f)*** *Candidates should check the question paper to ascertain that no question is missing.*

FOR EXAMINER'S USE ONLY.

QUESTION	TOTAL MARKS	CANDIDATE'S SCORE
1.Imaginative Composition	20	
2.The Compulsory Set Text	20	
3.The Optional Set Text	20	
TOTAL	60	

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QUESTIONS

1. Imaginative Composition (Compulsory) **(20 marks)**

Either

(a) Write a composition beginning:

It seemed like a very ordinary day. In fact, I assumed it would be uneventful. But how wrong I was…

Or

(b) Write a story to illustrate the saying:

Every cloud has a silver lining.

2. Compulsory Set Text

H.R Ole Kulet, *Blossoms of the Savannah*.

In life, one needs to be firm and purposeful in order to succeed. With reference to the life of Resian write an essay in support of this statement drawing your illustrations from *Blossoms of the Savannah.*

3. The Optional Set Text

Answer any one of the following three questions.

Either

(a) The Short Story

Chris Wanjala (Ed.), *Memories We Lost*

Drawing examples from Lidudumalingani Mqombothi's short story "Memories we Lost ''', write a composition on the topic: ''The effects of mental illness on the victim and others.''

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Or

(b) Drama

David Mulwa, Inheritance

'Pretenders are worse than murderers.' Write an essay in support of this statement drawing your illustrations from David Mulwa's Inheritance.

Or

(c)The Novel

John Steinbeck, The Pearl

Society has always presented women as emotional rather than reasonable. Using the life of Juana for illustrations, show that this presentation of women is not always true

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102/1

KISWAHILI

Karatasi ya 1

(INSHA)

Muda: saa $1\frac{3}{4}$

Maagizo

(a) Andika insha ***mbili****.*
(b) Insha ya kwanza ni ya ***lazima*** *kisha chagua insha nyingine moja kati ya hizo tatu zilizobakia*
(c) Kila insha isipungue maneno ***400***
(d) Kila insha ni alama 20
(e) Kila insha ***lazima*** *iandikwe kwa lugha ya Kiswahili*

Kwa matumizi ya mtahini pekee

Swali	Upeo	Alama
1	20	
	20	
Jumla	40	

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MASWALI.

1. Wewe ni mwandishi wa habari. Umemwalika mwenyekiti wa tume ya utangamano na uwiano wa kitaifa nchini studioni ili kuangazia kwa kina swala la ukabila ambalo limekita mizizi katika taifa. Andika dayolojia kati yenu.

2. Nchi imekubwa na mizozo mingi ya kijamii hivi karibini. Huku ukipendekeza suluhisho, jadili vyanzo vya mizozo hiyo.

3. Andika kisa kitakachodhihirisha maana ya methali: Nyumba njema sio mlango, ingia ndani uone.

4. Tunga kisa kitakachoanza kwa maneno yafuatayo: Giza lilikuwa limechukua milki ya viumbe wote duniani. Nyota zilitoa mwanga hafifu na mwezi ulikuwa ushatua. Katika giza hilo la kaniki…

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102/2

KISWAHILI

Karatasi ya Pili

LUGHA

Muda: Saa 2 ½

Maagizo

- ***a)*** *Andika jina lako na nambari yako katika nafasi ulizoachiwa hapo juu.*
- ***b)*** *Weka sahihi yako na tarehe ya mtihani katika nafasi ulizoachiwa hapo juu.*
- ***c)*** *Jibu maswali yote.*
- ***d)*** *Majibu yote yaandikwe katika nafasi ulizoachiwa katika kijitabu cha maswali.*
- ***e)*** *Majibu yote lazima yaandikwe kwa lugha ya Kiswahili*

Kwa Matumizi Ya Mtahini Pekee:

Swali	Upeo	Alama
1	15	
2	15	
3	40	
4	10	
Jumla	80	

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1. UFAHAMU

Soma kifungu kifuatacho kisha ujibu maswali

Ikolojia ni elimu ya kisayansi inayohusu uhusiano wa kimazingira kati ya vitu vyenye uhai (mimea na wanyama) na visivyokuwa na uhai (hali ya hewa na udongo.)Sayansi ya ikolojia ipo katika mfumo wa elimu ya mazingira. Mfumo huu umegawanyika katika sehemu mbili: mfumo wa mazingira ya nchi na mfumo wa mazingira ya majini (bahari, maziwa, mito na madimbwi)

Viumbe wamejirekebisha kulingana na mazingira yao. Kwa mfano, samaki wana matamvua yenye uwezo na kusharabu hewa ndani ya maji. Ng'ombe wana mapafu ya kuvuta hewa katika nchi kavu. Sehemu za mvua ya kawaida zina mimea yenye majani makubwa ili iweze kuhifadhi maji nyakati za shida. Mimea ,wanyama,udongo na viathiri vingine vya hali ya hewa vinahusiana sana kimazingira. Mimea huota kutegemea hali ya nchi, umbo au sura ya ardhi na aina ya udongo.

Hali ya nchi ni wastani wa hali ya jotoridi, wastani wa mvua, unyevunyevu hewani, upepo, msukumo na mwanga kwa muda wa miaka thelathini. Dunia imegawanyika katika kanda mbalimbali. Kila kanda ina mimea na wanyama wa aina yake kutegemea hali ya nchi. Ukanda wa istiwai una joto, mvua na unyevunyevu mwingi. Miti ya ukanda huu hufanya misitu minene, yenye miti mirefu. Miti hii ni mirefu kwa sababu ya msongamano unaofanya miti igombanie mwanga wa jua kwa kurefuka. Katika misitu hii, ipo mimea ya kangaga inayotambaa na kukwea miti mingine. Katika ukanda wa Savanna hali ya joto na mvua si kubwa kama katika ukanda wa istiwai. Kwa sababu hii, sehemu nyingi ni vichaka na nyika zenye uwezo wa kuota nyasi zisizohitaji mvua.

Upepo una faida na hasara katika mazingira. Upepo husaidia kusukuma mawingu yaletayo mvua. Upepo unapozidi hudhuru mimea na wanyama kwa sababu hukausha maji ardhini, huvunja na kuharibu mimea, huleta vifo kwa wanyama na pengine kuharibu mazingira ya watu. Mimea katika mazingira hutegemea sana nuru ya jua ili kutengeneza chakula chake. Kiasi cha mwanga upatikanao mahali fulani huathiri mimea na wanyama wapatikanao katika mazingira yale.

MASWALI

(a) Eleza dhamira ya mwandishi katika taarifa uliyoisoma **(alama 2)**

_____

(b) Eleza maana ya Ikolojia **(alama 2)**

_____

_____

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_____

_____

_____

(c) Kwa nini wanyama huwa na sifa mbalimbali za kimaumbile? **(alama 2)**

_____

_____

_____

_____

(d) Ni kawa vipi Ukanda wa istiwai unatofautiana na ukanda wa Savanna? **(alama 2)**

_____

_____

_____

_____

(e) Ni kwa namna gani upepo unaweza kuwa na athari mbaya kwa mazingira? **(alama 4)**

_____

_____

_____

_____

_____

_____

_____

(f) Eleza maana ya msamiati huu kama ulivyotumika katika kifungu. **(alama 3)**

i. Matamvua_____

ii. Kusharabu hewa_____

iii. Istiwai_____

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2. UFUPISHO

Dhuluma kwa wanawake sio matokeo ya siasa baada ya uhuru, bali ni matokeo ya hali iliyokuwepo tangu enzi za mababu zetu; kabla ya ukoloni. Kubaguliwa na kudhulumiwa kwa wanawake kisiasa kunaoana na kunyonywa kwake kijamii kunakoshuhudiwa siku nenda miaka rudi.

Elimu ya jadi ilimwandaa mwanamke kuwa chombo kitiifu cha mwanamume. Mwanamke aliandaliwa katika unyago na katika mfumo mzima wa malezi kuwa chombo cha kutumikia mwanamume-kumstarehesha, kumfariji, kumlisha na kumzalia watoto. Mwanamke tangu jadi hakuruhusiwa kushiriki katika shughuli za kisiasa na utawala wala hakuna mtu aliyeamini kwamba mwanamke angeweza kushikilia wadhifa wowote wa uongozi.

Demokrasia ya jadi naihusudu sana; ambapo wazee walikaa chini ya mbuyu na kuamua mambo ya jumuiya. Mahakama ya kijiji ilikuwa aghalabu ni ya wazee na ya wanaume pekee yao. Hakukuwa na mwanamke aliyeshirikishwa, hata kama alikuwa ajuza. Sifa waliyokuwa nayo wanawake ni ile ya usihiri na uganga. Mwanamke yeyote aliyezeeka alidhaniwa kuwa bingwa wa uchawi, ulozi na ushirikina. Kwa hivyo, wanawake ndio waliokuwa washirikina wakubwa, maana fursa ya kupata elimu pana zaidi hawakuwa nayo. Si ajabu kuwa mwanamke alipojitokeza na kusema jambo la busara, alipuuzwa na pengine kutukanwa hadharani.

Kwa bahati nzuri, kumezuka mwamko uliotuingiza katika enzi mpya. Vita vya wanawake vya kujihami na kujiendeleza katika ulimwengu unaotawaliwa na wanaume vimetapakaa kote katika kila sehemu ya dunia. Wanawake wengi wamekiuka misingi na mizizi ya utamanduni na kung'oa asasi za kijamii na itikadi ambazo daima zimeendelea kumyanyasa na kumuumbua utu mwanamke tangu jadi. Watetezi wa haki za wanawake zamani walilaumu suala la serikali za mataifa mwaka hadi mwaka. Huku masuala ya wanawake ya kijamii, utu na utamaduni yakishangiliwa kupitishwa, watetezi wameeleza wasiwasi wao ikiwa kupitishwa kwa maazimio kutasaidia kuleta maendeleo ya haraka kwa wanawake kimataifa au katika nchi moja. Fauka ya hayo, baadhi ya wachunguzi wanaonelea kuwa maazimio mengi hayadokezi hatua za kufikiwa haki za wanawake.

Maazimio mengine yanazungumzia juu ya kuondolewa kwa ubaguzi dhidi ya wanawake, kushiriki kwao katika uendelezaji wa amani ya kimataifa na ushirikiano wa kimataifa, majukumu yao katika jamii, mfumo wa Umoja wa Mataifa wa wanawake na kuimarisha hadhi ya wanawake katika sekretariati ya Umoja wa Mataifa miongoni mwa shughuli nyingine katika mkabala huu.

Wanawake wameonyesha vipaji vyao katika nyanja mbalimbali za maisha; siasa, uchumi, utawala na kadhalika. Wanawake wamejikakamua na kudhihirisha kuwa wao pia wana jukumu muhimu la kutekeleza ili kuyaongoza maisha yao na ya watu wengi. Wadumishaji wa dhuluma za kijinsia hawana budi kusalimu amri na kuukubali ukweli huu, wapende wasipende. Mtazamo juu ya haki sawa unatokana na kukubaliwa na kuondolewa kwa aina zote za ubaya dhidi ya wanawake wanaojitolea mhanga kutetea hadhi yao pamoja na ya wanyonge wengine. Wao huonekana kama waasi, wapinga mila na watovu wa utii.

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MASWALI

a) Bila kubadilisha maana asilia, fupisha aya tatu za kwanza. (Maneno 45-55) **(Alama 6)**

Matayarisho

_____

_____

_____

_____

_____

_____

_____

_____

_____

Jibu.

_____

_____

_____

_____

_____

_____

_____

_____

_____

b) Kwa kurejelea aya tatu za mwisho, pambanua hoja muhimu zinazoguziwa na mwandishi. (Maneno 60-65) **(Alama 9)**

Matayarisho

_____

_____

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Jibu

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3. MATUMIZI YA LUGHA (Alama 40)

(a) Andika neno lenye sauti zifuatazo**:** **(alama 1)**

Kipasuo hafifu cha midomo, irabu ya mbele wastani, kikwamizo sighuna cha ufizi, irabu ya kati chini.

_____

(b) Tunga sentensi moja moja yenye aina zifuatazo za vishazi: **(alama 2)**

(i) Cha nia

_____

_____

(ii) Kitegemezi cha wakati

_____

_____

(c) Andika maana ya maneno yaliyopigiwa mstari. **(alama 2)**

Wali<u>sita</u> kufanya kazi hiyo baada ya saa <u>sita</u> usiku.

_____

_____

_____

(d) Tia shadda: **(alama 2)**

i. pekee

ii. alinyongwa

(e)Huku ukitoa mfano, onyesha miundo mitatu ya maneno katika ngeli ya U-I **(alama 3)**

_____

_____

_____

_____

_____

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f) Tunga sentensi yenye vijisehemu vifuatavyo vya sarufi: **(alama 2)**

Kiambishi kiwakilishi cha kiima

Kiambishi kiwakilishi cha wakati

Yambwa

Mzizi - dhiki

Kauli ya kutendesha

Kiishio

_____

(g) Tumia neno dhahiri kama: **(alama 3)**

i. Kitenzi_____

ii. Kivumishi_____

iii. Kielezi_____

(h) Huku ukitoa mifano, eleza miundo mitatu ya silabi za Kiswahili. **(alama 3)**

_____

_____

_____

_____

(i) Tofautisha mzizi na shina kwa mifano. **(alama 2)**

_____

_____

_____

(j) Nyambua ziba katika kauli ya kutenduka kisha utungie sentensi. **(alama 2)**

_____

_____

_____

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(k) Bainisha hali zinazorejelewa katika sentensi hizi. **(alama 3)**

(i) Mwangeka hufika kituoni mapema._____

(ii) Mgonjwa angetibiwa angepona._____

(**ii)** Umekuwa nanasi, kutagia mibani?_____

(l) Andika katika udogo wingi. **(alama 2)**

Ugwe ulipitishwa juu ya ukuta uliomea uyoga na kufungiwa kwenye makuti.

_____

_____

_____

(m) Onyesha kiarifu katika sentensi hii**.** **(alama 1)**

Kilimia kimechomoka angani.

_____

(n). Changanua kwa kielelezo cha mstari. **(alama 3)**

Ndege aliruka angani ghafla.

(o) Ainisha Virai vinne katika sentensi ifuatayo. **(alama 2)**

Kicha cha funguo kilikuwa kimepotea jana nikicheza kandanda.

i_____

ii_____

iii_____

iv_____

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(p) Tunga sentensi kuonyesha matumizi mawili ya nukta mkato. **(alama 2)**

_____

_____

_____

_____

(q) Andika methali yenye maana sawa na jivu usilolilala usilipigie Jibwa. (**alama 1)**

_____

_____

(r) Andika upya sentensi ifuatayo ukianza kwa shamirisho kitondo. **(alama 2)**

Kaizari amewakatia ng'ombe majani kwa muundu.

_____

_____

(s) Damka ni kwa rauka, wakati ni kwa_____oa ni kwa taliki uza ni kwa_____

(alama 2)

4. ISIMUJAMII (ALAMA 10)

Tamu sana! Very sweet! Very nutritious! Onja ujionee! Nunua. Nunua leo. Usikose mummy. Mchukulie mtoto. Fifty na Fifty! Hamsa. Fifty. Bure kwa bure! Bei ya starehe! Burudika.

(i) Tambua sajili hii. _____ **(alama 1)**

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ii) Eleza sifa tisa za sajili hii kwa kurejelea kifungu. **(alama 9)**

i_____

_____

_____

_____

ii_____

_____

_____

_____

iii_____

_____

_____

iv_____

_____

_____

v_____

_____

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vi_____

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vii_____

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viii_____

_____

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ix_____

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102/3

KISWAHILI

KARATASI YA 3

FASIHI

MUDA :2½

MAAGIZO

a) *Andika jina lako na nambari ya utahini katika nafasi ulizoachiwa hapo juu.*
b) *Jibu maswali manne pekee.*
c) *Swali la kwanza ni la lazima.*
d) *Maswali hayo mengine matatu yachaguliwe kutoka sehemu zilizobaki ; yaani,* ***Tamthilia, Hadithi Fupi, Riwaya na Ushairi.***
e) *Usijibu maswali mawili kutoka sehemu moja.*
f) *Majibu yote lazima yaandikwe kwa lugha ya Kiswahili*

Kwa matumizi ya Mtahini Pekee.

Swali	Upeo	Alama
1	20	
	20	
	20	
	20	
	Jumla	

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SEHEMU YA A : FASIHI SIMULIZI (ALAMA 20)

SWALI LA LAZIMA

1. a) Fafanua sifa za nyimbo za watoto. **(alama 5)**

b) Eleza maana ya; **(alama 5)**

- **i.** Vitanza ndimi
- **ii.** Tarihi
- **iii.** Vivugo
- **iv.** Matambiko
- **v.** Maapizo

c) Jadili mifano mitano ya ngomezi za kisasa. **(alama 5)**

d) Eleza tofauti kati ya vitendawili na methali. **(Alama 5)**

SEHEMU YA TAMTHILIA (ALAMA 20)

2. ‘ Wanaishia kuwa makabeji kwa kudungana sumu ya nyoka.’

a) Eleza muktadha wa dondoo hili. **(alama 4)**

b) Eleza sifa za msemaji wa maneno haya. **(alama 4)**

c) Thibitisha jinsi mwandishi wa tamthilia alivyofaulu kutumia mtindo wa kinaya. **(al 8)**

d) Eleza changamoto zinazoikumba elimu**.** **(alama 4)**

AU

3. a) Tamthilia ya Kigogo ni taswira halisi ya matatizo yanayokumba mataifa mengi barani Afrika.Thibitisha. **(alama 10)**

b) Huku ukitoa mifano, angazia nafasi chanya alizopewa mwanamke katika Tamthilia ya Kigogo. **(alama 10)**

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SEHEMU C:HADITHI FUPI (ALAMA 20)

Alifa Chokocho (Tulipokutana Tena)

4. "Ile haikuwa ziara ya muda mfupi … palikuwa jahanamu kwangu."

a) Eleza muktadha wa dondoo hili. **(alama 4)**

b) Eleza sababu iliyomfanya mzungumzaji kuenda katika "ziara". **(alama 2)**

c) Kwa kutolea hoja zozote kumi na nne, fafanua vile mzungumzaji alipitia "jahanamu".

(alama 14)

SEHEMU YA D : USHAIRI (ALAMA 20)

Jibu swali la 5 au 6

5. SIPENDI KUCHEKA

Pana jambo nanatukiya, kwangu hilo ni muhali
Kitenda naona haya, kujishusha yangu hali
Sipendi unipe hidaya, sipendi kutenda hili
Sipendi mimi kucheka

Sipendi mimi kucheka , kuchekea mawa
Sipendi ya dhihaka, kwangu nyemi hiwi
Sipendi kwa hakika, mwovu kistawika
Halafuye nikacheka!
Maskini akiteswa
Yatima akinyanyaswa
Mnyonge naye akinyonywa
Sipendi hata ikiwa
Unazo nguvu najuwa
Ni hili sitatekezwa

Mbona lakini nicheke, kwayo furaha?
Na wewe ukajiweke, uli na siha
Na yatima pweke, wa anahaha?
Amenyimwa haki yake, hanayo raha!
Na moyo wangu ucheke, kwa ha! ha! ha!
Kucheka kwa kuchewa mimi katu sitacheka.

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a) Hili ni shairi la aina gani? Thibitisha jibu lako kwa kutaja mifano miwili. **(alama 3)**

b) Kwa nini mshairi hataki kucheka. **(alama 3)**

c) Eleza umbo la ubeti wa tatu wa shairi hili. **(alama 4)**

d) Tambua nafsineni katika shairi hili. **(alama 2)**

e) Tambua toni ya shairi hili. **(alama 1)**

f) Dhihirisha matumizi ya uhuru ufuatao katika shairi hili. **(alama 2)**

i. Tabdila

ii. Kuboronga sarufi

g) Andika ubeti wa pili kwa lugha ya nathari. **(alama 3)**

h) Eleza maana ya misamiati ifuatayo kama ilivyotumika katika shairi hili. **(alama 2)**

i. Hidaya

ii. Nyemi

6. Soma shairi lifuatalo kisha ujibu maswali.

Naingia ukumbini, nyote kuwakariria,
Ushairi niwapeni, hoja nitawaachia,
Mnipe masikioni, shike nachoeleza,
Taifa sio taifa, pasi kuwa maadili.

Naanza kwa uzalendo, nchi yetu tuipende
Yadhihirishe matendo, nchi yetu tuipende,
Wa kila mtu mwendo, usije kawa mpinde,
Taifa sio taifa, pasi kuwa maadili.

Linda demokrasia, uongozi tushiriki,
Haki kujielezea, wachotaka na hutaki,
Changu naweza tetea, demokrasia haki,
Taifa sio taifa,pasi kuwa maadili.

Tuwe na uadilifu, twache tamaa na hongo,
Tusiwe na udhaifu, wa kuwa watu waongo,
Tukomeshe uhalifu, kisha tuache maringo,
Taifa sio taifa, pasi kuwa na maadili,

Ubinafsi si adili, ila ni kusaidia,
Ukiwa nayo mali, asiye nacho patia,

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Kama mtu mswahili, ubinafsi mtu achia,
Taifa sio taifa , pasi kuwa na maadili.

Na inavyoelezea,katiba ni kielezi,
Tutii kwa mazoea, hadi kijacho kizazi,
Kwa hayo nitamwachia, hiyo ya ziada kazi,
Taifa sio taifa, pasi kuwa maadili.

a) Eleza mambo yoyote manne ambayo mshairi anashauri taifa lifanye ili kuwa na maadili. **(alama 4)**

b) Eleza mtindo wowote ule uliotumika katika shairi hili. **(alama 2)**

c) Ainisha shairi hili kwa kuzingatia vigezo vifuatavyo: **(alama2)**

i. Mpangilio wa vina
ii. Vipande katika mshororo.

d) Bainisha nafsi neni katika shairi hili. **(alama 2)**

e) Eleza toni ya shairi hili. **(Alama 2)**

f) Eleza umuhimu wa aina mbili za uhuru wa kishairi zilizotumiwa katika ubeti wa nne. (alama 4)

g) Andika ubeti wa pili kwa lugha tutumbi. **(alama 4)**

SEHEMU YA E: RIWAYA: CHOZI LA HERI (alama 20)

7. 'Tawala Wahafidhina tawala, Mwanzi wetu tawala…. '

a) Eleza muktadha wa dondoo hili . **(alama 4)**

b) Ni mbinu gani imetumika hapa. **(alama 2)**

c) Eleza makosa saba ya maneno haya. **(alama 14)**

AU

8. a) Jadili dhana ya **Chozi** katika riwaya ya Chozi laHeri. **(alama 10)**

b) Riwaya ya Chozi la Heri imejaa aina mbalimbali za migogoro. Jadili. **(alama 10)**

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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

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313/1

CHRISTIAN RELIGIOUS EDUCATION

PAPER 1

TIME: 2 ½ HOURS

INSTRUCTIONS:

1. *There are **six** questions in this paper.*
2. *This paper has **two** pages.*
3. *Answer any **five** questions.*
4. *Each student must verify that all pages and questions are present in the paper.*
5. *All answers must be in the answer sheets provided.*
6. *All answers must be in English.*

FOR EXAMINERS' USE ONLY

Question	1	2	3	4	5	6	TOTAL
SCORE							

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QUESTIONS

1.a) Explain how the study of Christian religious education in schools promotes international cooperation. **(7 marks)**

b) Give **six** reasons why the Bible had to be compiled into its present form by the early Christians. **(6 marks)**

c) State **seven** factors that discourage Christians from reading the Bible in the church today. **(7 marks)**

2.a) With reference to Genesis 12:1 – 9 outline seven promises given to Abraham by God at the time of his call. **(7 marks)**

b) Give **seven** reasons why God renewed the Covenant with the Israelites during the time of Moses (Exodus 34:1 – 35). **(7 marks)**

c) State **six** attributes of God as shown in the celebration of Jewish Passover. **(6 marks)**

3.a) Outline **seven** duties performed by Prophet Samuel in Israel. **(7 marks)**

b) Why did the people of Israel demand for an earthly King from Prophet Samuel? **(7 marks)**

c) Outline **six** factors that have affected the true worship of God today. **(6 marks)**

4.a) Describe the social-economic background of Prophet Amos. **(8 marks)**

b) Outline eight reasons why Israel would face God's judgement according to the teachings of Prophet Amos. **(8 marks)**

c) State **six** reasons why Christians repent their sins. **(6 marks)**

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5.a) Give **any seven** religious challenges that Nehemiah faced in Judah. **(7 marks)**

b) Explain **four** reasons that made Nehemiah to rebuild the wall of Jerusalem. **(8 marks)**

c) What **five** lessons can a Christian learn from Nehemiah's reforms. **(5 marks)**

6.a) Explain **four** factors that contribute to harmony and mutual responsibility in Traditional African Communities. **(8 marks)**

b) Explain Traditional African view on land. **(6 marks)**

c) Outline **six** ways in which Traditional African communities showed respect to their dead. **(6 mks)**

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313/2

CHRISTIAN RELIGIOUS EDUCATION

PAPER 2

TIME: 2 ½ HOURS

Kenya Certificate of Secondary Education

INSTRUCTIONS:

1. *There are **six** questions in this paper.*
2. *This paper has **two** pages.*
3. *Answer any **five** questions.*
4. *Each student must verify that all pages and questions are present in the paper.*
5. *All answers must be in the answer sheets provided.*
6. *All answers must be in English.*

FOR EXAMINERS' USE ONLY

Question	1	2	3	4	5	6	TOTAL
SCORE							

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QUESTIONS

1. **a).** Basing your answer on the infancy narratives in Luke 1:5-56, describe what took place when Mary visited Elizabeth. **(6mks)**

   b). Identify six lessons that Christians learn from the lives of Zechariah and Elizabeth. **(6mks)**

   (c). State eight ways through which Christians in Kenya express their joy for the birth of Jesus. **(8mks)**

2. **(a).** Describe the incident when Jesus was rejected at Nazareth (Luke 4:16-30**)** **(7mks)**

   (b). Give four reasons why Jesus faced opposition from the Pharisees in Galilee **(Luke 5: 12-6: 11)** **(8mks)**

   (c). Mention five ways Christian leaders should respond to those who oppose them in their work **(5mks)**

3. **(a).** Describe the triumphant entry of Jesus into Jerusalem (Luke 19:28-40 **(6mks)**

   b). Outline the events that took place from the time Jesus was arrested up to the time he was sentenced to die. **(7mks)**

   c). State seven lessons Christians learn from the suffering and death of Jesus. **(7mks)**

4. **(a)** Explain how Peters life was transformed on the day of Pentecost **(6mks)**

   (b) Describe unity of believers expressed in the concept of the body of Christ **(7mks)**

   (c) Outline sevens in which the gifts of the Holy Spirit are misused in church today. **(7mks)**

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5. **(a)** Identify seven causes of premarital sex among the youth today **(7mks)**

(b) Highlight the importance of children in traditional African communities. **(7mks)**

(c) Give six reasons why young people are choosing to remain unmarried in Kenya today.

(6mks)

6. **(a)** State seven similarities in the traditional African view of work and Christian view of work

(7mks)

(b) Give seven reasons for the importance of manual work in Kenya today **(7mks)**

(c) Identify ways in which the church is helping to reduce the rate of unemployment

(6mks)

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311/1

HISTORY AND GOVERMENT

PAPER 1

TIME: 2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

- ***a)*** *This paper consists of* ***Three*** *sections* ***A***, ***B*** *and* ***C***
- ***b)*** *Answer* ***ALL*** *the questions in Section* ***A*** *and* ***Three*** *questions from Section* ***B*** *and* ***Two*** *questions from Section* ***C***
- ***c)*** ***ALL*** *answers should be in English*

FOR EXAMINERS USE ONLY

SECTION A	SECTION B				SECTION C		
QUESTIONS (1-17)	18	19	20	21	22	23	24

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SECTION A (25 MARKS)

Answer all questions in this section

1. Identify two ways through which archaeologists obtain information on the history of Kenya. **(2mks)**

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2. What was the original homeland of the Eastern Cushites. **(1mk)**

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3. Give two reasons why Kenyan communities fought against each other during the Pre-colonial period. **(2mks)**

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4. State the role of the age set among Kenyan communities. **(1mk)**

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5. State the main reason why slaves were on high demand along the East African coast in the 19th century. **(1mk)**

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6. State two reasons for the coming of Christian missionaries in East Africa in the 19th century. **(2mks)**

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7. State two ways in which the Constitution can be amended in Kenya. **(2mks)**

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8. Give two functions of the Legislative Council (Legco) during the colonial period**.** **(2mks)**

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9. State two functions of the African welfare organizations in urban centres during the colonial period **(2mks)**

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10. Mention one contribution of Daniel Arap Moi towards Nations Building. **(1mk)**

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11. One parliamentary election held in Kenya **(1mk)**

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12. State two ways in which the government has promoted the culture of the people of Kenya since independence**.** **(2mks)**

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13. What is the main purpose for the establishment of the equalization fund in Kenya **(1mk)**

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14. State one way through which the opposition political parties in Kenya check on the government's excesses. **(1mk)**

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15. State two feature of African socialism in Kenya **(2mks)**

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16. Name the education commission that recommended the introduction of 8.4.4 education **(1mk)**

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17. Identify one type of public revenue expenditure by the national government **(1mk)**

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SECTION B: (45 MARKS):

ANSWER ANY *THREE* QUESTIONS IN THIS SECTION.

18. (a) Outline five reasons for the migration of the Luo form their original homeland. **(5mks)**

(b) Describe the political organization of the luo during the pre-colonial period. **(10mks)**

19.(a). State three terms of the Anglo-German Agreement of 1886. **(3mks)**

(b). Explain six problems experienced by the imperial British East Africa company to establish colonial rule in Kenya **(12mk)**

20. (a) Give five factors that undermined the activities of the Kenya African union in the struggle for independence **(5mks)**

(b) Describe five political roles played by African elected members of parliament during the struggle for independence **(10mks)**

21. (a) State three challenges that hinder government effort to eradicate illiteracy in Kenya **(3mks)**

(b) Explain six factors which have undermined the provision of the health services by the government of Kenya **(12mks)**

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SECTION C (30 MARKS)

Answer Any Two Questions From This Section

22. (a) Give three circumstances in which ones right of life may be taken away **(3mks)**

(b) Explain six civil responsibilities of Kenya citizen **(12mks)**

23. a). Give three reasons why elections are regularly held in Kenya. **(3mks)**

b). Describe the process of law-making in Kenya. **(12mks)**

24 .a). State three roles of the Commission on Revenue Allocation (CRA) **(3mks)**

(b) Explain six ways in which the county government raise their revenue **(12mks)**

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311/2

HISTORY AND GOVERNMENT

PAPER 2

TIME: 2½ hours

Instructions to Students

(a).*This paper consists of three sections: A, B and C.*

(b) *Answer ALL questions in section A, THREE in section B and TWO in section C*

(c*). Answers to the questions must be written in the answer booklet/sheets provided.*

(d). *Students should check the question paper to ascertain that all the pages are printed as indicated and no questions are missing.*

FOR EXAMINERS USE

SECTION	**A**	**B**				**C**			**GRAND SCORE**
QUESTION NO.	1-17	18	19	20	21	22	23	24	
MAX. SCORE	**25**	**15**	**15**	**15**	**15**	**15**	**15**	**15**	
ACTUAL SCORE									

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SECTION A (25 MARKS)

Answer ALL the questions in this section

1. Give **two** types of monarchical government **(2marks)**

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2. Name the earliest ancestor of man whose skull was discovered in the Fayum valley in Egypt **(1mark)**

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3. State the **main** reason why agriculture developed in Egypt **(1mark)**

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4. Identify **one** invention that revolutionilised food preservation in the 19th century **(1mark)**

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5. What was the **main** item of trade during the Trans-Saharan trade? **(1mark)**

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6. Identify **two** historical documents that are sources of the British constitution **(2marks)**

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7. Give the **main** contribution of William Morton to surgical science **(1mark)**

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8. Name the founders of the early urban centre of Kilwa? **(1mark)**

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9. State **one** problem that the city of London experienced in the pioneering years **(1mark)**

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10. Give **one** non-peaceful method used by Europeans to occupy Africa **(1mark)**

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11. Name **two** African countries that were under Italian colonial rule **(2marks)**

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12. Identify **two** characteristics of the French policy of assimilation **(2marks)**

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13. State **two** external factors that facilitated the growth of African nationalism. **(2marks)**

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14. Give **one** way in which colonial rivalries between European nations contributed to outbreak of world wars. **(1mk)**

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15. State **two** political functions of the Kabaka before the 20th century **(2marks)**

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16. Identify **two** treaties signed by Lewanika of Lozi that permitted British occupation of Lozi territory **(2marks)**

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17. Identify **two** European powers that participated in World war I on the side of the Central powers **(2marks)**

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SECTION B (45 MARKS)

Answer any THREE questions in this section

18. (a)State **three** ways employed by the early man to domesticate animals. **(3marks)**

(b) Explain **six** problems associated with open field system of farming **(12marks)**

19. (a) Identify **five** disadvantages of human porterage **(5marks)**

(b) Explain **five** impacts of telecommunication to the growth of the social-economic sphere of life **(10marks)**

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20. (a) Give **five** reforms introduced by the Germans in Tanganyika after the Maji Maji rebellion. **(5marks)**

(b) Explain **five** reasons for the failure of the Maji Maji uprising **(10marks)**

21.(a) State **three** factors that enabled European powers to colonise Africa in the late 19th century. **(3marks)**

(b) Explain **six** political effects of the partition of Africa to the African people **(12marks)**

SECTION C (30 MARKS)

Answer any TWO questions in this section

22.(a) State **three** reasons why the British used direct rule in Zimbabwe. **(3marks)**

(b) Describe the structure of British colonial rule in Northern Nigeria. **(12marks)**

23.(a) State **three** economic reasons for the rise of nationalism in Ghana. **(3marks)**

(b) Discuss **six** factors that favoured FRELIMO in the war against colonial government **(12marks)**

24.(a) State **three** reasons for the entry of U.S.A in the world war I. **(3marks)**

(b) Explain **six** reasons why the Allied won the World War I. **(12marks)**

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312/1

GEOGRAPHY

PAPER 1

TIME: 2 ¾ HOURS

INSTRUCTIONS TO CANDIDATES:

- *This paper consists of **two** sections: **A** and **B***
- *Answer **all** the questions in section **A***
- *Answer question **6** and **any two** questions from **section B***

FOR EXAMINER'S USE ONLY

QUESTION	MARKS
1-5	
6	
7	
8	
9	
10	
TOTAL	

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SECTION A

Answer All The Questions In This Section

1.a) Name two layers of discontinuity that are part of the interior of the earth. **(2mks)**

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b) State the characteristics of the outer core in the interior structure of the earth. **(3mks)**

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2.a) What is a lake? **(2mks)**

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b) Give three ways in which water weeds have affected lakes in Kenya. **(3mks)**

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3.a) Name two types of faults associated with faulting. **(2mks)**

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(b) State three effects of faulting on drainage of an area. **(3 marks)**

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4. a) i) What is a soil profile? **(1mk)**

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ii) Name two components of soil. **(2mks)**

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iii) Differentiate between soil structure and soil texture. **(2mks)**

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5. (a) Differentiate between secondary vegetation and planted vegetation. **(2mks)**

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(b) State three characteristics of Mediterranean type of vegetation. **(3mks)**

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SECTION B

Answer Question 6 And Any Other Two Questions From This Section

6. Study the map of **Kijabe 1:50 000** (sheet 134/3) provided and answer the following questions.

(a) (i) What is the approximate height of Kijabe Hill? **(1mk)**

(ii) Measure the length of Narok all weather-Bound surface road (B3) from grid reference 2690 to the junction of road A104 at grid reference 3191.

Give your answer in kilometers and meters. **(2 mks)**

b) Explain three ways on how relief has influenced settlement in the area covered by the map .

(6 marks)

c) Describe the drainage of the area covered by the map. **(4mks)**

d) i) Using a vertical scale of 1cm to represent 40 meters ,draw a cross section from grid reference 280910 to grid reference 330940. **(5 mks)**

ii) On the cross-section mark and label the following

- Thicket.
- River.
- Power line. **(3 mks)**

iii) Identify three social services offered in the area covered by the map. **(3mks)**

iv) Identify two methods used to present relief on the area covered by the map. **(2mks)**

7.a) i) Distinguish between weather and climate. **(2mks)**

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ii) State three conditions that are necessary for sitting a weather station. **(3mks)**

b) Explain how the following factors influence climate.

i) Aspect. **(2mks)**

ii) Ocean currents. **(2mks)**

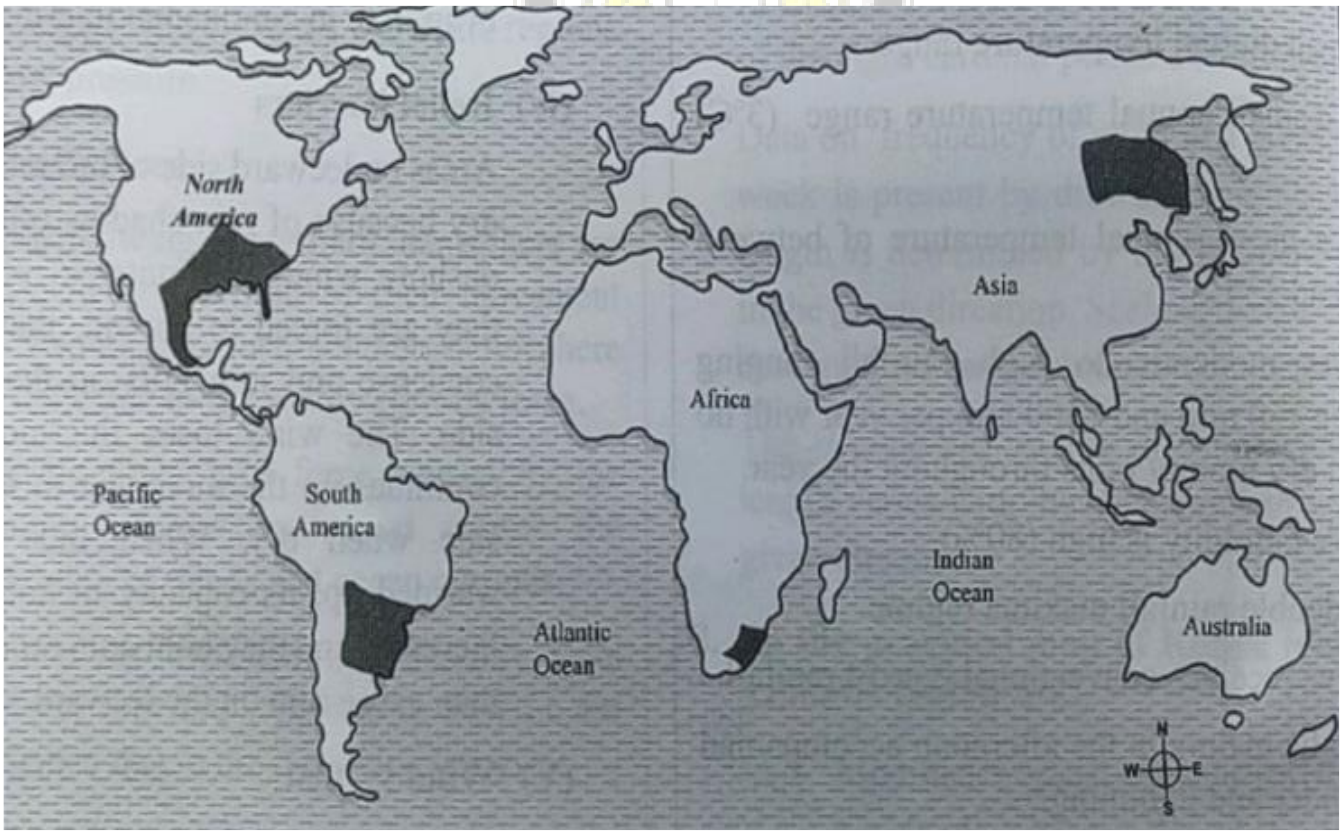
a) The table below shows rainfall and temperature for a station in Africa.Use it to answer the questions that follows.

MONTH	J	F	M	A	M	J	J	A	S	O	N	D
TEMPERATURE	27	28	27	26	23	21	21	21	23	25	26	27
RAINFALL(MM)	232	250	219	107	60	32	27	26	22	37	90	210

i)Calculate the annual range of temperature. **(2mk)**

ii) Describe the annual rainfall pattern of the station. **(4mks)**

d) The world map below shows a certain climatic region .Study it and answer the following questions.



i) Identify the climate experienced in the shaded region. **(1mk)**

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ii) Describe the characteristics of the climate named above**.** **(4mks)**

e) Distinguish between aridity and desertification. **(2mks)**

ii) State three human activities that contribute to aridity and desertification. **(3 mks)**

8. (a) (i)Name three types of hot desert landscape. **(3mks)**

ii) State two reasons why wind erosion is very effective in hot deserts**.** **(2 mks)**

b i)) Apart from Yardangs name three features that results from wind action in deserts.

(3 mks)

i) Using well labelled diagrams, describe how Yardangs are formed. **(7mks)**

i) Explain how the following processes of wind erosion occur in the desert areas.

i) Saltation. **(2mks)**

ii) Surface creep. **(2mks)**

j) You intend to carry out a field study in an arid area near your school.

i) State two reasons for carrying out a pre-visit. **(2mks)**

ii) State four positive effects of desert features to man that you are likely to identify.

(4 mks)

9. a) i) Differentiate between a rock and a mineral. **(2mks)**

b) Describe the following characteristics of minerals.

i) Color. **(2mks)**

ii) Hardness**.** **(2mks)**

C. i) What are igneous rocks? **(2mks)**

ii) State three notable differences between plutonic and volcanic rocks. **(3mks)**

d)Describe the formation of the following rocks.

i) Mechanically formed sedimentary rocks. **(3mks)**

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ii) Chemically formed sedimentary rocks. **(3mks)**

k) i) Identify the missing type of rocks. **(3mks)**

Original rock	**Metamorphic rock**
Limestone	(i)
(ii)	Graphite
Granite	**(iii)**

Supposing you were to carry out a field study on rocks at the Kenyan coast.

i) State two reasons as to why you would ask for permission from the school administration. **(2mks)**

ii) What reasons would you give for the widespread of sedimentary rocks at the coastal plain. **(3mks)**

10. (a) (i) Differentiate between a spring and a well **(2 marks)**

ii) State four conditions favoring formation of artesian well. **(4 marks)**

b). (i) What is a Karst scenery? **(2 marks)**

(ii) Name five features formed on the surface in a Karst area. **(5 marks)**

c). With the aid of a well labeled diagram describe how a limestone pillar is formed. **(6 marks)**

d) Explain three significance of Karst scenery to human economic activities. **(6 marks)**

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312/2

GEOGRAPHY

PAPER 2

TIME: 2 ¾ HOURS

INSTRUCTIONS TO CANDIDATES:

- *This paper consists of **two** sections: **A** and **B***
- *Answer **all** the questions in section **A***
- *Answer question **6** and **any two** questions from **section B***

FOR EXAMINER'S USE ONLY

QUESTION	MARKS
1-5	
6	
7	
8	
9	
10	
TOTAL	

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SECTION A

Answer all questions in this section

1. a) Define the term "derelict land". **(1mk)**

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b) State **three** ways in which mining can pollute the environment. **(3mks)**

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2. a) State **two** causes of food shortage in Kenya. **(2mks)**

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……

b) State **three** social factors affecting agriculture in Kenya. **(3mks)**

……

……

……

3. a) Name the **three** main towns that form the cocoa triangle in Ghana. **(3mks)**

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……

……

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b) State **three** physical conditions favouring cocoa growing in Ghana. **(3mks)**

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……

……

4. a) Name **two** varieties of coffee grown in Kenya **(2 marks)**

……

……

b) Explain how the following factors favour coffee growing in the central Highlands of Kenya. High Altitude **(2 marks)**

……

……

……

High Population **(2 marks)**

……

……

5. a) State **two** physical factors influencing beef farming in Argentina. **(2mks)**

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b) State **two** differences between beef farming in Argentina and Kenya. **(2mks)**

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……

……

SECTION B

Answer question 6 and any other two questions in this section

6. Study the photograph shown below and use it to answer the following questions.



a) i) Identify the type of the photograph shown above. **2mks**

ii) Identify **one** characteristic of the photograph shown above. **2mks**

iii) Give **three** parts of a photograph. **3mks**

b) Name the type of mining method shown above. **2mks**

c) Explain how the method named above (b) is carried out. **6mks**

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d) Explain **three** negative effects of the above method of mining on the environment.

6mks

e) Draw a sketch diagram to represent the photograph shown above. **4mks**

7. (a) Differentiate between land reclamation and land rehabilitation. **(2mks)**

(b) (i) List **three** ways in which tsetse fly menace has been controlled in the Lambwe Valley**.**

(3mks)

(ii) Name **two** areas in Kenya where swamps have been reclaimed. **(2mks)**

(iii) State **four** factors which influenced the establishment of Perkerra Irrigation Scheme.

(4mks)

(c) You intend to carry out a field study on Budalangi Flood control.

(i) Name **two** methods that have been used to control flooding in Budalangi. **(2mks)**

(ii) Give **three** reasons why flood control in Budalangi is important. **(3mks)**

(iii) List **three** activities that you would undertake prior to the study. **(3mks)**

(iv) Explain **three** methods that you would use to present your findings after the study.

(6mks)

8. a) (i) Differentiate horticulture from market gardening. **(2mks)**

(ii) State **three** features of horticulture. **(3mks)**

(b) Explain **three** differences between horticulture in Kenya and Netherlands. **(6mks)**

c) (i) Give **three** livestock breeds of beef cattle found in Kenya. **(3mks)**

(ii) Explain **three** human factors that favour beef production in Argentina. **(6mks)**

d) Give **five** steps that the government of Kenya has taken to improve beef farming. **(5mks)**

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9 a) (i) Name **two** types of fishing. **(2mks)**

(ii) State **three** factors that influencing fishing. **(3mks)**

b) Explain **three** reasons why the North East Atlantic fishing ground is extensively and highly developed. **(6mks)**

c) (i) What is fish farming? **(2mks)**

(ii) Describe harpooning as a method of fishing. **(4mks)**

d) (i) State **two** problems facing fishing in Japan. **(4mks)**

(ii) Explain **two** similarities between fishing in Kenya and Japan. **(4mks)**

10. a) (i) Define a forest. **(2mks)**

(ii) State any **four** characteristics of Tropical Hardwood forests **(4mks)**

b) Explain how each of the following factors influence the distribution and types of natural forests.

(i) Soils **(2mks)**

(ii) Altitude **(2mks)**

c) (i) State **five** importance of forest products in Kenya. **(5mks)**

(ii) List **four** measures that have been taken to conserve forests in Kenya. **(4mks)**

d) Compare softwood forests in Kenya and Canada under the following sub-headings

(i) Tree species **(2mks)**

(ii) Processing **(2mks)**

(iii) Marketing **(2mks)**

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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

NAME……. **INDEX NO……..**

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121/1

MATHEMATICS

PAPER 1

Time: 2 ½ Hours

INSTRUCTIONS TO CANDIDATES.

- ***(a)*** *Write your name and admission number in the space provided at the top of this page.*
- ***(b)*** *This paper consists of two sections; **section I** and **section II***
- ***(c)*** *Answer **ALL** questions in sections I and only **FIVE** sections in section II*
- ***(d)*** *Show all the steps in your calculations; giving your answers at each stage in the spaces provided below each question.*
- ***(e)*** *Marks may be given for correct working even if the answer is wrong*
- ***(f)*** *Non-programmable silent electronic calculators and KNEC mathematical tables may be used.*

For examiners use only

Section I

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total

Section II

17	18	19	20	21	22	23	24	Total		Grand total

SECTION I (50 marks)

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

1. Evaluate $\frac{-4\{(-4+-15\div5)+-3-4\div2\}}{84\div-7+3--5}$ **(3 marks)**

2. Simplify completely the expression: $\frac{6x^2y^2-20xy+16}{2x^2y^2-8}$ **(3 marks)**

3. Given that $\cos\theta = \frac{3}{5}$, find $\sin\theta - \tan(90^0 - \theta)$ without using tables or calculator.

(2 marks)

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4. Under an enlargement, the images of points A(3,1) and B(1,2) are $A^1(3,7)$ and $B^1(7,5)$. Without construction, find the centre and the scale factor of enlargement. **(4 marks)**

5. List all the integral values of x that satisfy the inequalities; **(3 marks)**

$$x - \frac{3}{2} \leq 2x + 1 < 5$$

6. A bus travelling at an average speed of x km/h left station at 8.15 am. A car, travelling at an average speed of 80km/h left the same station at 9.00 am and caught up with the bus at 10.45 am. Find the value of x. **(3 marks)**

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7. The interior angle of a regular polygon with 3x sides exceeds the interior angle of another regular polygon having x sides by 40^0. Determine the value of x. **(3 marks)**

8. Use squares, cubes and reciprocals tables to evaluate, to 4 significant figures, the expression:

$$\frac{\mathbf{1}}{\sqrt[3]{\mathbf{27.56}}} + \frac{\mathbf{3}}{(\mathbf{0.071})^{\mathbf{2}}}$$ **(3 marks)**

9. From a point 20m away on a level ground the angle of elevation to the bottom of the window is 27^0 and the angle of elevation of the top of the window is 32^0. Calculate the height of the window. **(3 marks)**

10. Solve for x in the equation: $\mathbf{5^{3y+3} + 5^{3y-1} = 125.2}$ **(4 marks)**

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11. Mr. Kanja, Miss Kanene and Mrs. Nyaga have to mark a form three mathematics contest for 160 students. They take 5 minutes, 4 minutes and 12 minutes respectively to mark a script. If they all start to mark at 9.00 am non-stop, determine the earliest time they will complete the marking. **(4 marks)**

12. Evaluate $\mathbf{4.\dot{4}\dot{1} - 0.\dot{2}\dot{1}}$ **(2 marks)**

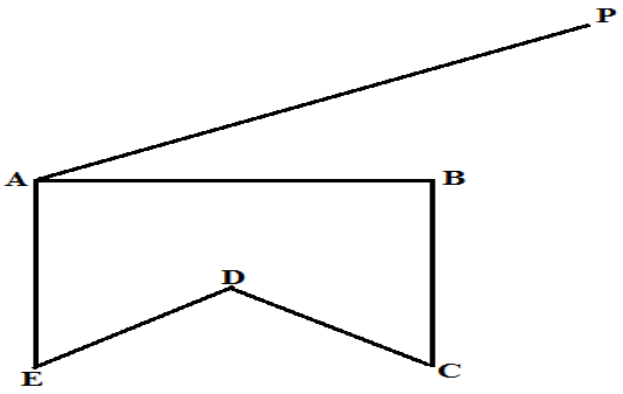
13. Two similar cylinders have diameter of 7cm and 21cm. If the larger cylinder has a volume of $6237cm^3$, find the heights of the two cylinders. (take $\pi = \frac{22}{7}$) **(3 marks)**

14. The cost of providing a commodity consists of transport, labour and raw materials in the ratio 8:4:12 respectively. If the transport cost increases by 12%, labour cost by 18% and raw materials by 40%, find the percentage increase of producing the new commodity. **(3 marks)**

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15. Given that $4\boldsymbol{p} - 3\boldsymbol{q} = \begin{pmatrix} 10 \\ 5 \end{pmatrix}$ and $\boldsymbol{p} + 2\boldsymbol{q} = \begin{pmatrix} -14 \\ 15 \end{pmatrix}$, find value of **p** and **q** **(4 marks)**

16. In the figure below ABCDE is a cross-section of a solid. The solid has a uniform cross-section. Given that AP is an edge of the solid, complete the sketch showing the hidden edges with a broken lines. **(3 marks)**

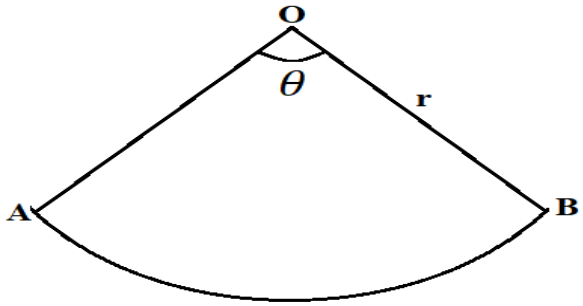


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SECTION II (50 Marks)

*Answer any **five** questions from this section in the spaces provided.*

17. The figure below represents a sector of a circle radius r units. The area of the sector is 61.6 cm^2 and the length of the arc AB is one tenth of the circumference of the circle from which the sector was obtained. (Take $\pi = \frac{22}{7}$)



a) Calculate;

i) the angle θ subtended by the sector at the centre. **(2 marks)**

ii) The radius r of the circle. **(3 marks)**

b) If the sector above is folded to form a cone;

i) Calculate the base radius of the cone. **(2 marks)**

ii) The volume of the cone**.** **(3 marks)**

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18. Two factories A and B produce both chocolate bars and eclairs. In factory A, it costs Kshs x and Kshs y to produce 1 kg of chocolate bars and 1 kg of eclares respectively. The cost of producing 1 kg of chocolate bars and 1 kg of eclairs in factory B increases by the ratio 6:5 and reduce by the ratio 4:5 respectively.

a) Given that it costs Kshs 460 000 to produce 1 tonne of chocolate bars and 800kg of eclares in factory A and Kshs 534 000 to produce the same quantities in factory B, form two simplified simultaneous equations representing this information. **3 marks)**

b) Use matrix method to find the cost of producing 1 kg of chocolate bars and 1 kg of eclaires in factory A. **(5 marks)**

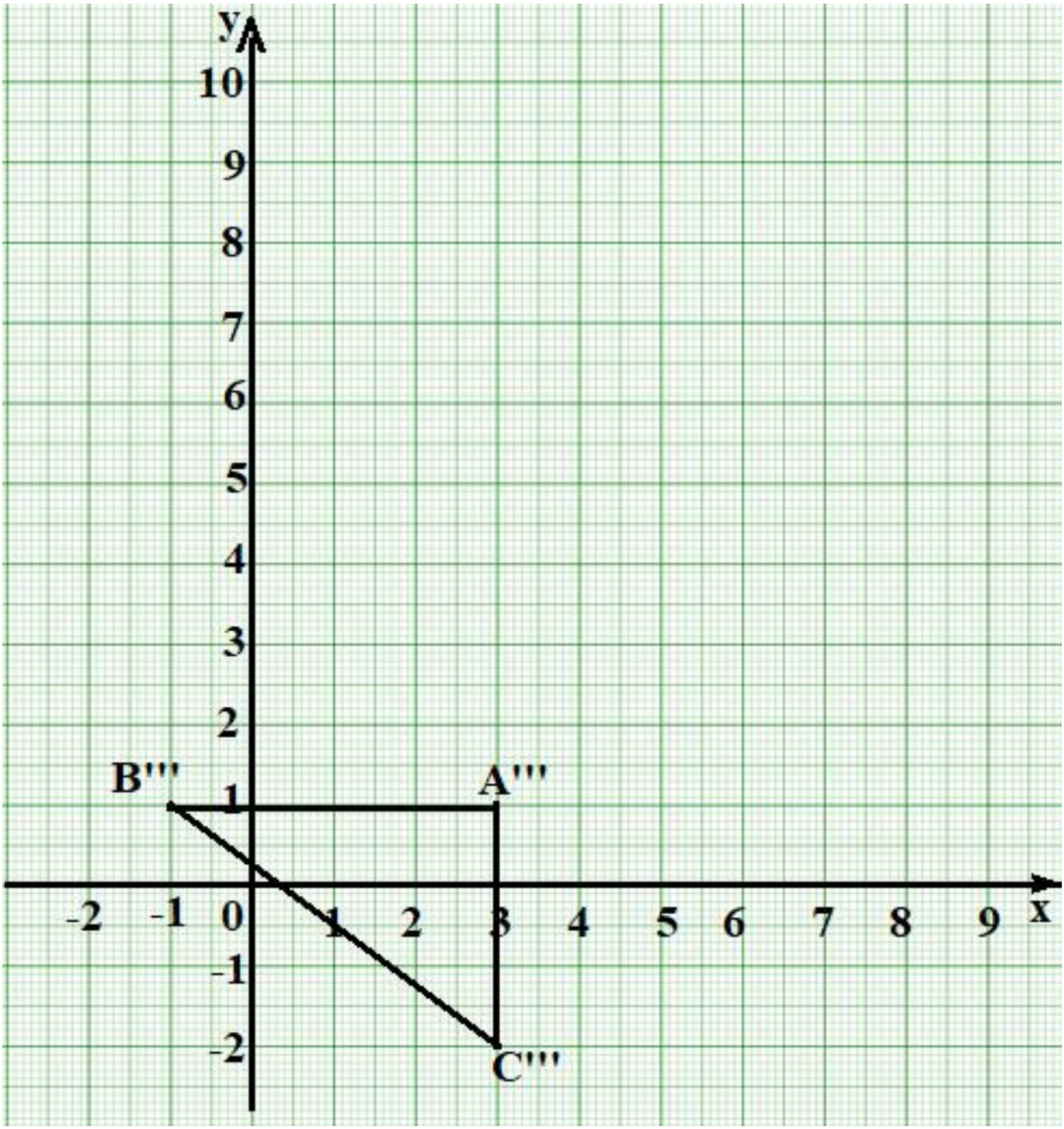
c) Find the cost of producing 100 kg of chocolate bars and 50 kg of eclaires in factory B.

(2 marks)

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19. The vertices of triangle ABC are A(6,2), B(8,2) and C(6,0).

a) On the grid provided below, draw triangle ABC. **(1 mark)**



b) Triangle A'B'C' is the image of triangle ABC under a reflection in the line $y = x$. On the same grid draw triangle A'B'C' and state its coordinates **(2 marks)**

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c) Triangle A"B"C" is the image of triangle A'B'C' under and enlargement scale factor 2 about the centre (-1,9). On the same grid, draw triangle A"B"C" and states its coordinates. **(2 marks)**

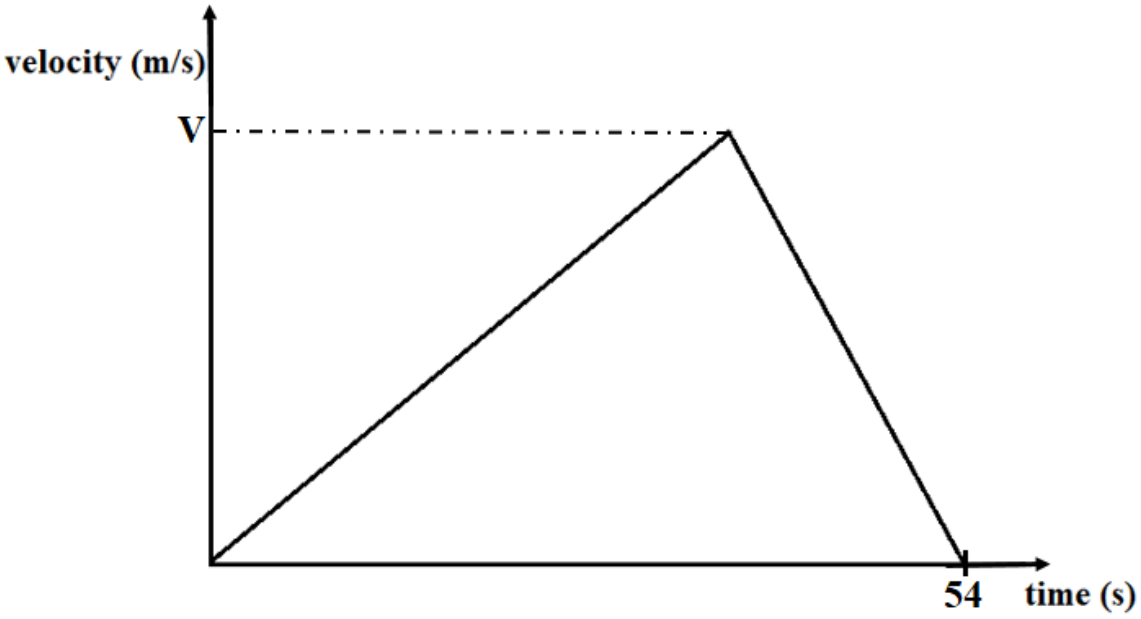
d) By construction, find and write down the co-ordinates of the centre and angle of rotation which can be used to rotate triangle A"B"C" onto triangle A'''B'''C''' shown on the grid above. **(3 marks)**

e) State any pair of triangles that are:

i) Oppositely congruent. **(1 mark)**

ii) Directly congruent. **(1 mark)**

20. The figure below shows a velocity-time graph of an object a which accelerates from rest to a velocity of V ms^{-1} then decelerated to rest in a total time of 54 seconds.



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a) If it covered a distance of 810 metres;

i) Find the value of V. **(2 marks)**

ii) Calculate its deceleration, given that its initial acceleration was $1\frac{2}{3}ms^{-2}$ **(2 marks)**

b) A bus left town X at 10.45 am and travelled toward town Y at an average speed of 60 km/h. A car left town X at 11.45 am on the same day and travelled along the same road toward Y at an average speed of 100km/h. The distance between town X and town Y is 500km.

i) Determine the time of the day when the car overtook the bus. **(3 marks)**

ii) Both vehicles continued towards town Y at their original speeds. Find how long the car had to wait in town Y before the bus arrived. **(3 marks)**

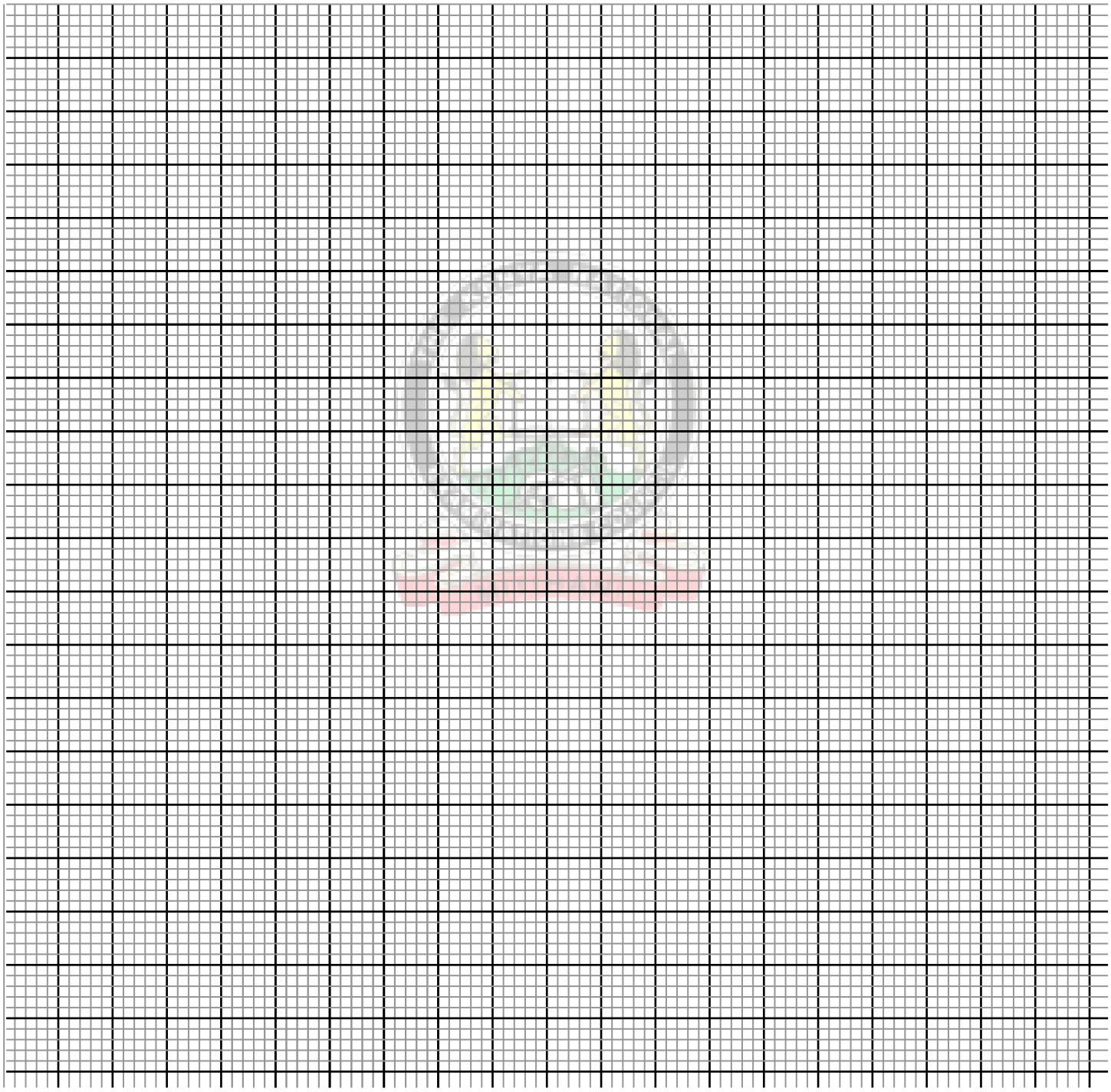
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21. The masses to the nearest kilogram of some students were recorded in table below.

Mass(kg)	41-50	51-55	56-65	66-70	71-85
Frequency	8	12	16	10	6
Height of rectangle					0.2

a) Complete the table above to 1 decimal place. **(2 marks)**

b) On the grid provided below, draw a histogram to represent the above information. **(3 mks)**



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c) Use the histogram to:

i) State the class in which the median mark lies. **(1 mark)**

ii) Estimate the median mark. **(2 marks)**

iii) The percentage number of students with masses of at least 74kg. **(2 marks)**

22.(a) a straight line L_1 whose equation is $9y - 6x = -6$ meets the x-axis at Z. Determine the coordinates of Z. **(2 marks)**

(b) A second line L_2 is perpendicular to L_1 at Z. Find the equation of L_2 in the form $ax + by = c$, where ,b and c are integers. **(3 marks)**

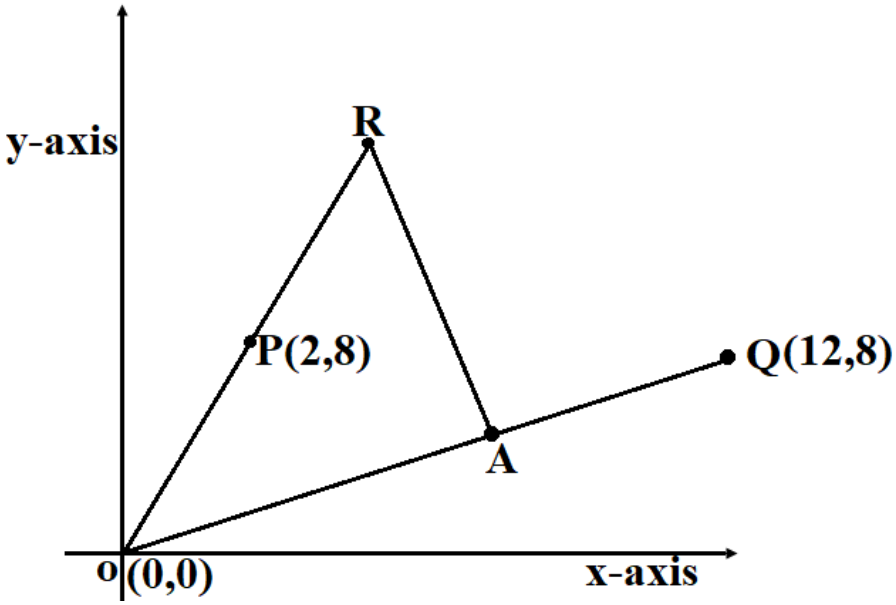
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(c) a third line L_3 passes through the point (2,5) and is parallel to L_1. Find:

i) The equation of L_3 in the form $ax + by = c$, where a, b and c are integers. **(2 marks)**

ii) The coordinate of point R at which L_2 intersects L_3. **(3 marks)**

23. In the diagram below, the coordinates of points O, P and Q are (0,0), (2,8) and (12,8) respectively. A is a point on **OQ** such that 4**OA**=3**OQ**. Line **OP** produced to R is such as **OR**=5**OP**.



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a) Find vector **RA**. **(3 marks)**

b) Given that point L is on **PQ** such that **PL**: **LQ**=12:5, find vector **RL**. **(4 marks)**

c) Show that R, L and A are collinear. **(2 marks)**

d) Find the ratio of **RL**:**LA**. **(1 marks)**

24. Five points, P, Q, R, V and T lie on the same plane. Point Q is 53km on the bearing of 055^0 of P. Point R lies 162^0 of Q at a distance of 58km. Given that point T is west of P and 114km from R and V is directly south of P and S40^0E from T.

a) Using a scale of 1:1,000,000, show the above information in a scale drawing. **(3 mks)**

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b) From the scale drawing determine:

i) The distance in km of point V from R. **(2 marks)**

ii) The bearing of V from Q. **(2 marks)**

iii) Calculate the area enclosed by the points PQRVT in squares kilometers. **(3 marks)**

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CROSSCOUNTRY PREDICTION

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121/2

MATHEMATICS

PAPER 2

TIME: 2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

- ***a)*** *Write your name and index number in the spaces provided above.*
- ***b)*** *This paper consists of **TWO** sections: **Section I** and **Section II.***
- ***c)*** *Answer **ALL** the questions in **Section I** only **five** questions from Section II.*
- ***d)*** ***Show all the steps in your calculations, giving your answers at each stage in the spaces provided below each question.***

For Examiner's Use Only

Section I

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	Total

Section II

17	18	19	20	21	22	23	24	Total

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SECTION 1 (50 MARKS)

1. Evaluate using squares, cubes and reciprocal tables **(4 marks)**

$$\left[\frac{1}{\sqrt[3]{27.56}} + \frac{3}{(0.071)^2}\right]^{-2}$$

2. Make x the subject in $\frac{x^4 - 4}{x^2 - 2} = K$ **(3 marks)**

3. Ali deposited Ksh.100,000 in a financial institution that paid simple interest at the rate of 12.5% p.a. Mohamed deposited the same amount of money as Ali in another financial institution that paid compound interest. After 4 years, they had equal amounts of money. Determine the compound interest rate per annum to 1 decimal place. **(3 marks)**

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4. Simplify **(3 marks)**

$$\left(\frac{a^3 - ab^2}{a^4 - b^4}\right)^{-1}$$

5. Expand $(1 - 2x)^4$, hence find the value of $(1.02)^4$ correct to 3 significant figures.

(3 marks)

6. If $\sin x = 2b$ and $\cos x = 2b\sqrt{3}$, find the value of b **(3 marks)**

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7. Find the relative error in $\frac{a + b}{c - d}$ given that $a = 77ml$, $b = 23ml$, $c = 36ml$, and $d = 16ml$. **(3 marks)**

8. Without using a calculator or mathematical tables, express $\frac{\sqrt{3}}{1 - \cos 30°}$ in surd form and simplify. **(3 marks)**

9. The equation $3x^2 - 8px + 12 = 0$ has real roots.
Find the value of P. **(2 marks)**

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10. A construction company employs 200 artisans and craftsmen in the ratio 1:3 every week. An artisan is paid 2 ½ times as much as a crafts man. At the end of 3 weeks the company paid ksh 1485000 to those employees. Find how much each artisan and each craftsman is paid. (a working week has six days) **(3 marks)**

11. A dam containing $4158m^3$ of water is to be drained. A pump is connected to a pipe of radius 3.5cm and the machine operates for 8 hours per day. Water flows through the pipe at the rate of 1.5m per second. Find the number of days it takes to drain the dam. **(4 marks)**

12. Two brands of coffee Arabica and Robusta costs sh.4,700 and sh.4,200 per kilogram respectively. They are mixed to produce a blend that costs shs.4,600 per kilogram. Find the ratio of the mixture. **(3 marks)**

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13. Under a transformation represented by a matrix $\begin{pmatrix} 5X & 2 \\ -3 & X \end{pmatrix}$, a triangle of area 10cm^2 is mapped onto a triangle whose area is 110cm^2. Find x **(3 marks)**

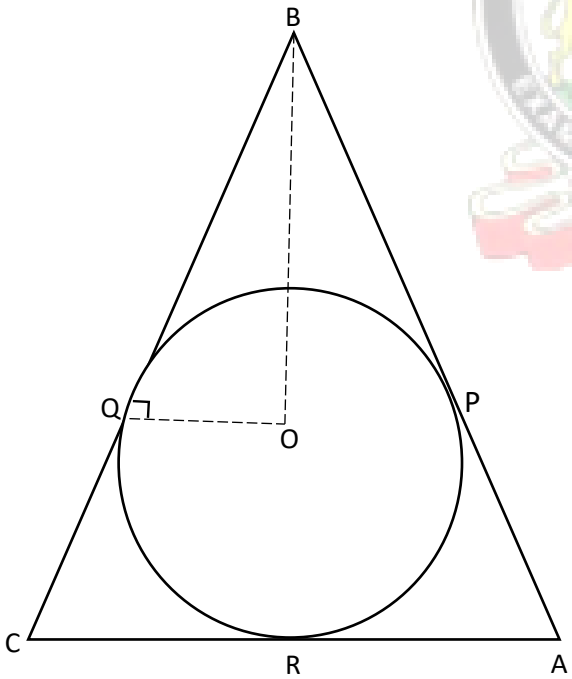
14. Find the distance between the centre 0 of a circle whose equation is $2x^2 + 2y^2 + 6x + 10y + 7 = 0$ and a point $B(-4,1)$. **(3 marks)**

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15. Solve for x in the equation:

$(\log_2 x)^2 + \log_2 8 = \log_2 x^4$ **(4 marks)**

16. The figure below shows a circle inscribed in an isosceles triangle ABC. If Q, P and R are the points of contact between the triangle and the circle, O is the centre of the circle, $BO = 19.5cm$ and $BQ = 18cm$. Find the radius of the circle and hence the length of the minor arc PQ. **(3 marks)**



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SECTION II (50 MARKS)

Answer Only Five Questions

17. (a) Mr. Mackey pays a tax of Kshs.5,800 per month according to the income tax table given below. He is married and entitled to a family relief of K 420p.a.

Taxable income (K p.a.)	**Rate (Ksh per K)**
1 – 9,600	2
9,600 – 19,200	3
19,201 – 29,800	5
29,801 - 38,400	7
38,401 - 47,200	9
Over 47,200	10

Calculate Mackey's gross annual salary in K **(6marks)**

(b) The difference between compound interest and simple interest on Kshs.P over a duration of 36 months at the rate of 15% p.a. is Kshs.52,477.50. Calculate the value of P. **(4 marks)**

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18. (a) Complete the table below for $y = x^3 + 4x^2 - 5x - 5$ **(2 marks)**

X	-5	-4	-3	-2	-1	0	1	2
y			19			-5		

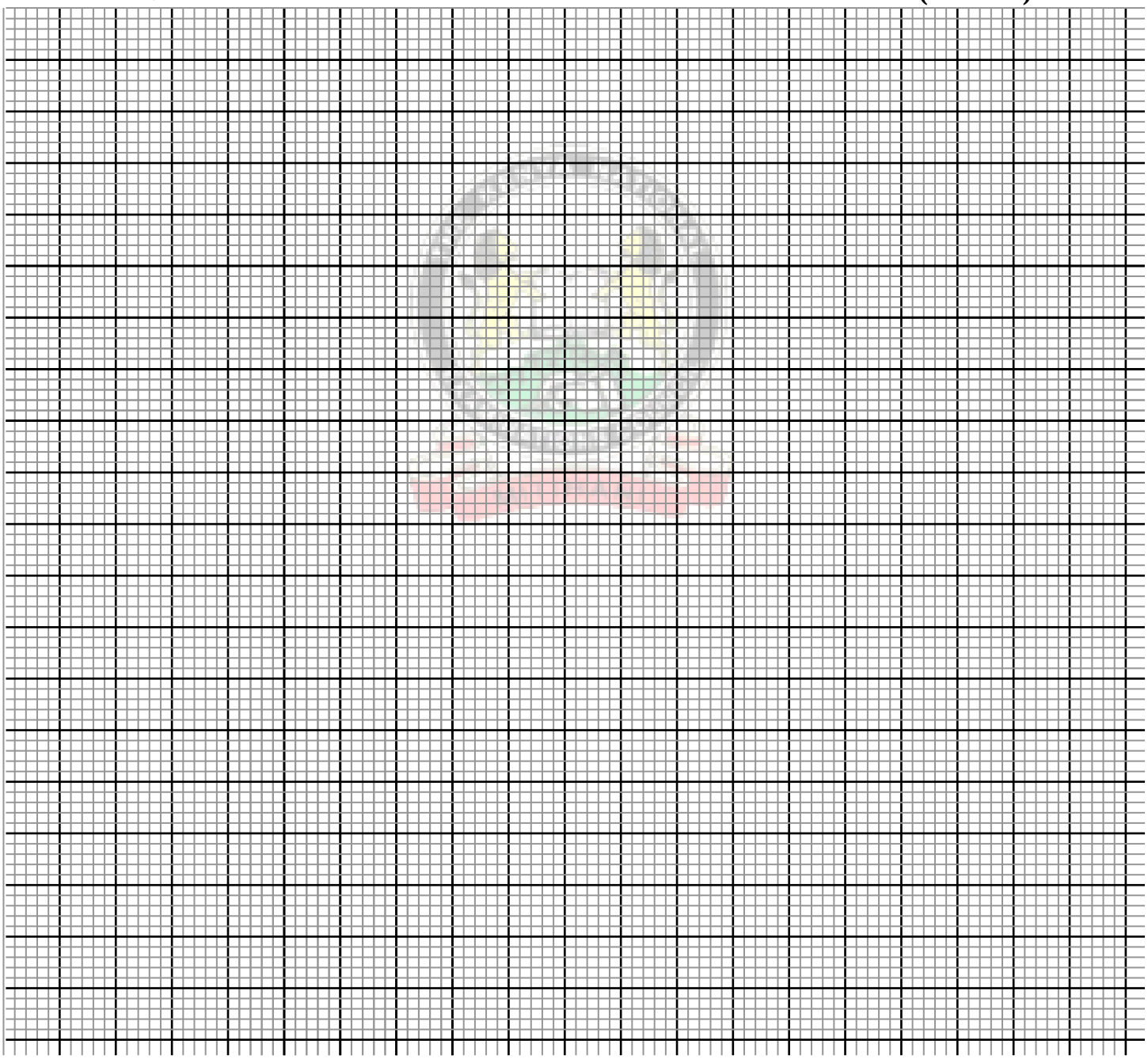
(b) On the grid provided, draw the graph of $y = x^3 + 4x^2 - 5x - 5$ for $-5 \leq \times \leq 2$ **(3 marks)**

(c) i) Use the graph to solve the equation

$x^3 + 4x^2 - 5x - 5 = 0$ **(2 marks)**

ii) By drawing a suitable straight line on the graph, solve the equation

$x^3 + 4x^2 - 5x - 5 = -4x - 1$ **(3 marks)**



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19. OPQ is a triangle in which OP=P and OQ=q. x is a point on OP such that OP:XP=5:2 and y is another point on PQ such that PY:YQ=1:2. Lines OY and XQ intersect at T.

(a) Express the following vectors in terms of P and q

(i) PQ **(1 mark)**

(ii) OY **(1 mark)**

(iii) OX **(1 mark)**

(b) If $OT = kOY$ and $QT = hQX$ express OT in two different ways. Hence or otherwise find the values of h and k. **(6 marks)**

(c) Determine the ratio OT:TY **(1 mark)**

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20. If $(x - 1\,{}^{1}/_{8})$, x and $(x + {}^{3}/_{2})$ are the first three consecutive terms of a geometric progression;

(a) Determine the values of x and the common ratio. **(4 marks)**

(b) Calculate the sum of the first 6 terms of this progression. **(3 marks)**

(c) Another sequence has the terms

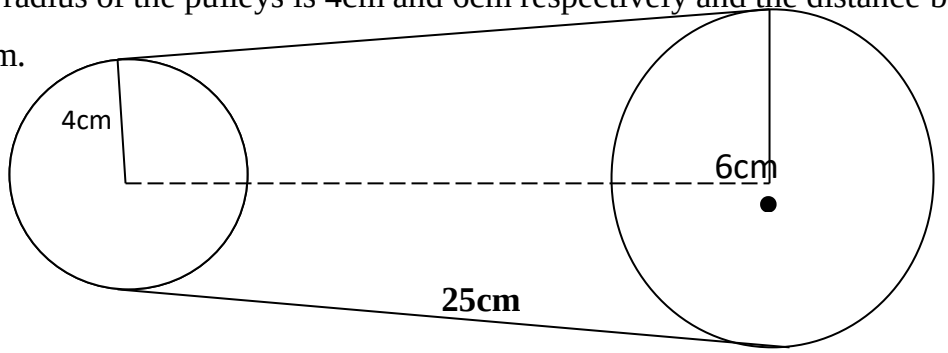
-13, -16, -19, ……-310.

Find the sum of this sequence. **(3 marks)**

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21. The figure below shows a belt passing round two pulleys of centres A and B.

The radius of the pulleys is 4cm and 6cm respectively and the distance between the centres is 25cm.



Calculate the length of the belt used for the pulley system. **(10 marks)**

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22. The points P(2,1), Q(4,1) R(4,3) and S(3, 3) are coordinates of a quadrilateral.

(a) Plot the quadrilateral PQRS on the grid provided. **(1 mark)**

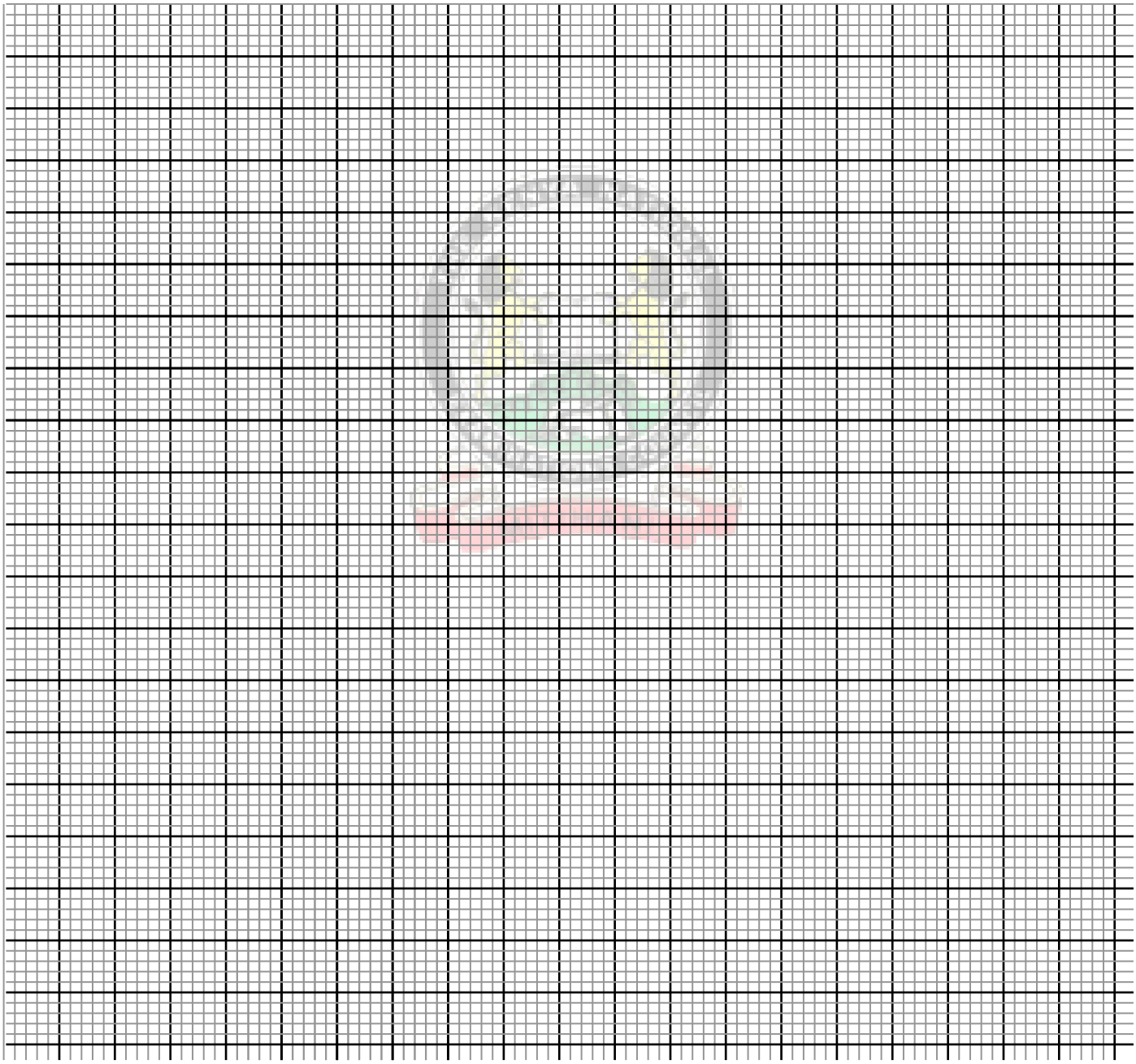
(b) Find the coordinates of $P^1Q^1R^1S^1$ the image of PQRS under the transformation represented by the matrix $M = \begin{pmatrix} 1 & 1 \\ 2 & 0 \end{pmatrix}$ **(2 marks)**

(c) Draw and label $P^1Q^1R^1S^1$ on the same grid.

(d) Find the coordinates of $P^{11}Q^{11}R^{11}S^{11}$ on the image of $P^1Q^1R^1S^1$ under the transformation represented by the matrix $N = \begin{pmatrix} -2 & 1 \\ 0 & 1 \end{pmatrix}$ **(2 marks)**

(e) Draw and label $P^{11}Q^{11}R^{11}S^{11}$ on the same grid. **(1 mark)**

(f) Determine the matrix that maps PQRS directly onto $P^{11}Q^{11}R^{11}S^{11}$. **(3 marks)**



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23. The table below shows the ages of people in years who attended a wedding ceremony.

Age in years	10-19	20-29	30-39	40-49	50-59	60-69	70-79
Frequency	2	4	4	8	6	3	2

(a) State the modal class **(1 mark)**

(b) Using an assumed mean of 44.5 calculate

(i) The mean age **(3 marks)**

(ii) The standard deviation **(3 marks)**

(iii) The median age **(3 marks)**

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24. A supermarket is stocked with plates which come from two suppliers A and B. They are bought in the ratio 3:5 respectively, 10% of plates from A are defective and 6% of the plates from B are defective.

(a) A plate is chosen by a buyer at randon.Find the probability that

i) It is from A **(2 marks)**

ii) It is from B and it is defective **(2 marks)**

iii) It is defective **(2 marks)**

(b) Two plates are chosen at random. Find the probability that;

i) Both are defective **(2 marks)**

ii) At least one is defective **(2 marks)**

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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

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451/1

COMPUTER STUDIES

Paper 1 (THEORY)

TIME: 2 ½ HOURS

Instruction to Candidates.

(a) *Write your Name and Index Number in the spaces provided at the top of this paper.*
(b) *Sign and write the date of examination in the spaces provided above.*
(c) *This paper consists of **TWO** sections; **A** and **B.***
(d) *Answer ALL the questions in Section **A**.*
(e) *Answer question **16** and any other **THREE** questions from Section **B**.*
(f) *All answers should be written in the spaces provided on the question paper.*

For Examiner's Use Only.

Section	Question	Score
A	1 - 15	
B	16	
	17	
	18	
	19	
	20	
	TOTAL	

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SECTION A (40 MARKS)

Answer ALL Questions from this section

1. State three reasons why it is difficult to control, detect and prevent computer crimes (**3marks)**

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2. Mr. Kala wants to buy a printer to use in his automobile workshop for printing sales orders in duplicates. He has approached you for advice. What printer should he buy? **(1 Mark)**

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Give a reason for your answer. ..... **(1mark)**

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3. Last year 2020 when corona virus was declared a pandemic internationally most companies allowed employees to telework or work at home and communicate with the office using the Internet. List the hardware, software and services required to access and use the Internet.

(3 Marks)

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4. Using a well labelled diagram, describe the fetch and execute cycle. **(3 Marks)**

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5. Ventilation is an important practice in the computer lab because it enhances proper circulation of air. Outline **three** ways in which air is regulated in the computer room.**(3 mks)**

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6. Differentiate between COM ports and LPT ports. **(2 marks)**

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7. State any two advantages of the artificial intelligence. **(2 Marks)**

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8. (a) The word COM appears several times in an essay. Jane would like to change the word to COMPUTER. Advise her on how she can accomplish this task using a word processor.

(2 Marks)

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9. Anita was working on her computer studies project. She was worried of the media to use for storing her data. She settled on a media that used serial file organization. How are files organized on a storage medium using this method? **(1 mark)**

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(b) List two advantages offered by this type of file organization. **(2marks)**

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10. (a) Rose wants to send an email to Jack. Explain two items that must be present for the mail to be sent. **(2 Marks)**

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(b) (i) Define the term network protocol **(1 Mark)**

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(ii) Name any **two** examples of network protocols **(1 Mark)**

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11. (a) What is the importance of layering in DTP? **(1 Mark)**

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(**b)** Distinguish between column guides and margin guides as used in DTP. **(2 Marks)**

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12. Study the work sheet below and answer the questions that follow:

	A	B	C	D	E	F
1						
2	**MWALIMU PUBLISHERS MIXED HIGH SCHOOL**					
3	**ADM. NO**	**NAME**	**MATHS**	**ENGLISH**	**AVERAGE**	**RANK**
4	1001	Akinyi	78	85		
5	1002	Kamau	89	77		
6	1003	Leila	45	46		
7	1004	Taita	67	69		
8	1005	Mosomtany	98	67		
9	**Highest Score**					
10	**Lowest Score**					
11	**Average Score**					

(a) Write a formula that would be entered in cell E4 to compute the average score for Akinyi.

(1 Mark)

.....

(b) Write down a formula that used to return the rank of Leila based on average score.

(1 Mark)

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(c) Write down a formula that would return the number of students whose score in English is below 70. **(1 Mark)**

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13. The manager of a company wants to improve the security of the computer network. She has decided to use authentication techniques so that employees can identify themselves to the system. Name **two** authentication techniques and describe how each technique would help keep the data more secure. **(3 Marks)**

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14. Mary who works as a systems analyst for JeroKin investments has produced documentation for a newly developed system. State three reasons why both user and technical documentation are needed. (**3 Marks)**

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15. Environmentalists plan to test a fast flowing river for pollution. State two advantages of using a computer to do this rather than doing it manually. **(2 Marks)**

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SECTION B (60 MKS)

Answer question 16 (Compulsory)and any other THREE questions from this Section.

16. To maintain a strategic fit Safaricom is introducing a tariff called the mega tariff that will lower costs to Safricom to Safaricom calls and calls to other networks. Calls to Safaricom networks will be charged according to the time of the day as listed below:

-Between 8am to 12 noon – 6 Ksh

-Between 12 noon to 2pm-0.8 Kshs

-Between 6 to 1 am -4Kshs

-between 1 am t 8am- 1Kshs

Internal calls to other networks are charged at a fixed rate of 7 Kshs between 8am to 8pm and to while international calls are charged at a rate of 25 Kshs between 8am to 8pm and Kshs 35 for the rest of the day. All calls are charged per minute usage.

Mr. Wasswa Bbaale a business man who makes both internal and internal calls would like to make maximum use of this of this tariff.

a) Write a pseudo code that would show him know the charges of calls with an appropriate label when he the inputs type of call and the time where appropriate. Use a 24 hour clock. **(8mks)**

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b) Design a flowchart for the pseudo code in 16(a) above **(7mks)**

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17. a) Explain how an operating system controls I/O devices. **(2marks)**

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b) Maintaining security is one of the functions the operating system. Explain how the operating system maintains security **(2marks)**

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c) Distinguish between Indexed sequential and direct file organizations **(2marks)**

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d) i) Using appropriate examples, differentiate between distributed and centralized processing modes **(3marks)**

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ii) State one advantage and one disadvantage of distributed processing modes in **17(d) (i) (2marks)**

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e) i) With reference to an operating system, differentiate between formatting and partitioning.

(2marks)

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ii) List any **TWO** types of user interface. **(2mark)**

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18.

a) Using eight bits and twos complement, subtract 78_{10} from 17_{10}. Give your answer in decimal notation

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(3marks)

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b) Convert 11011011111.1111_2 to:

i) Octal **(2marks)**

ii) Hexadecimal **(2marks)**

iii) Decimal **(2marks)**

c) State any **Two** methods used to gain illegal access to a computer system **(2marks)**

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d) **i)** Distinguish between peer-to-peer and client –server LANs. **(2marks)**

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ii) Atieno was very happy when she bought a Safaricom 2G modem for she was able to easily connect her computer to the Internet. After six months she noticed it was taking her too long to connect to the Internet. State two possible causes of the problem. **(2marks)**

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19. a) i) Explain any **two** causes of system change. **(2marks)**

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ii) Explain any **THREE** causes of system maintenance. **(2marks)**

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b) i) Use of questionnaire is one of the most popular fact finding method. State any **TWO** advantages and **TWO** disadvantages of using this method to gather data. **(2marks)**

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ii) Explain the importance of requirement specification phase of Systems development**.(2marks)**

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c) Explain **TWO** reasons why a new system is tested before implementation. **(2marks)**

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d)i) State two duties performed by a system administrator. **(1mark)**

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ii) The principal of a school is attempting to convince his staff to us CAL and CAI software. State one benefit and one limitation of using such software. **(2marks)**

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e) State one advantage and one disadvantage of using expert systems in medicine **(2marks)**

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20.a) Explain three types of communication links that may be used to get an Internet connection**(3m)**

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b) Differentiate between the Internet and World Wide Web. **(2marks)**

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ii) Technology has been blamed for polluting the environment.

Explain how computer technology has contributed to this. **(2marks)**

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c) A Company that makes and sells vehicles receives orders from various clients. The company wants to enter their orders into a database. Study the table structure below and answer the questions that follow.

Field Name	Data Type	Field Size
Order Number	Number	Long Intenger
Order Date	Date/Time	
Supply Date	Date/Time	
Product code	Tex	5
Customer ID	Number	Long Integer
Delivery address	Text	30
Product Type	Tex	15
Product Name	Tex	10
Quantity Ordered	Number	Long integer
Product Prize	Number	Long Integer

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i) Split the above structure into **THREE** tables and for each table identify an appropriate primary key. **(5marks)**

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ii) Design well labeled tables structures and identify foreign keys **(3marks)**

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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

NAME……. **INDEX NO……..**

SCHOOL…… **SIGN…….**

DATE……..

451/2

COMPUTER STUDIES

Paper 2 (Practical)

TIME: 2½ HOURS

INSTRUCTIONS TO CANDIDATES

1. *Write your name and index number in the spaces provided above.*
2. *Write the name and version of the software used for each question attempted in the answer sheet.*
3. *Answer all questions.*
4. *All questions carry equal marks.*
5. *Hand in all the printouts and the soft copy of your work on **CD**.*

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QUESTIONS

1. (a)(i) The extract below shows a spreadsheet used to compute the toll charges for a highway based on the type of vehicle, tonnage and charge per kilometer for usage.

	HIGHWAY TOLL CHARGES					
Registration	**Vehicle Type**	**Weight**	**Distance**	**NormalCharge**	**Penalty Charge**	***Total***
KCY 789 M	**PickUp**	**6**	**12**			
KCR 769 L	**Car**	**4**	**40**			
KCF 724 C	**PickUp**	**6**	**32**			
KCM 737 N	**Truck**	**12**	**25**			
KCA 745 W	**Lorry**	**20**	**28**			
KCP 756 H	**Truck**	**10**	**12**			
KCU 778 J	**Car**	**4**	**8**			
KCZ 701 A	**PickUp**	**8**	**25**			
KCB 781 E	**Car**	**6**	**4**			
KCV 743 H	**PickUp**	**4**	**20**			
KCQ 735 X	**Truck**	**8**	**32**			
KCT 721 K	**Lorry**	**10**	**25**			
KCD 792 V	**Truck**	**12**	**28**			
KCZ 784 P	**Car**	**6**	**12**			
KCB 756 C	**Truck**	**10**	**8**			
KCE 734 D	**Car**	**4**	**25**			
KCF779 E	**PickUp**	**6**	**32**			
KCG 700 F	**Lorry**	**12**	**25**			
KCH 723 K	**Truck**	**20**	**28**			
KCJ 711 W	**PickUp**	**10**	**12**			

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KCR 712 D	**Car**	**4**	**8**			
KCD 774 B	**PickUp**	**8**	**25**			
KCS 756 M	**Truck**	**6**	**4**			
KCA 745 W	**Car**	**4**	**20**			
			Total			

(ii) Create a workbook and save the workbook as toll. **(2 Marks)**

(iii) Fill the data in the worksheet1 and rename the worksheet as tollOriginal. **(14 Marks)**

(b)(i) The NormalCharge column is calculated based on the table below.

Vehicle Type	Max AllowedWeight(Tns)
PickUp	**6**
Car	**4**
Truck	**8**
Lorry	**10**

(ii) The PenaltyCharge column is calculated based on the table below. The penalty is based on any weight above Maximum allowed weight for a vehicle type for every kilometer of the the usage. **(8 Marks)**

Vehicle Type	Penalty Charge (Ksh)per Km
PickUp	**10**
Car	**5**
Truck	**15**
Lorry	**20**

(iii) The TotalCharge is based on summation of NormalCharge and PenultyCharge . Create a column TotalCharge and use a function to Calculate the Total Charge **(2 Marks)**

(iv) Create the Running Totals for Normal Charge,Penulty Charge And Totalcharge **(4 Marks)**

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(b)(i) Copy The data in the OriginalToll to another worksheet rename the workshhet as Sorted(1 Mark)

(ii)Sort the Data is ascending order of Vehicle type Sorted worksheet. **(4 Marks)**

(iii) Create subtotals based on the vehicle Type **(4 Marks)**

(iv) Draw a column chart based on The Vehicle Type subtotals and Total Charge **(8 Marks)**

2. a) Create a database called **Aberdare bottles ltd** and create the following tables **(15 marks)**

Table 1: Employee

Employee_ID	EmployeeName	Department	YearOfEmployment
101	Kibet Arap Kamau	Human resource	1985
102	Janet Atieno	Procurement	1990
450	Kimani Koigu	Accounts	2000
891	Moraa Kerubo	Human resource	2010

Table 2: Sales

ProductName	Employee_ID	ProductID	SalesAmount	Salary
Tea leaves	101	Xc101	5000	
cocoa	102	Xp105	15500	
coffee	450	Xvb11	9500	
Chocolate	891	X56po	30000	

Table 3: Department

Employee_ID	Department_Name	HeadOfDepartment	NoOfEmployees
101	Human resource	B.N. Komu	52
102	Procurement	J.K. Wanjiru	12
450	Accounts	P.G. Otindo	20
891	Human resource	M.M. Jerotich	10

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i) Create **relationship** among the tables **(2 marks)**

ii) Create **three** input screens **(forms)** and use them to enter the data into the tables above **(6 marks)**

iii) Create a query called **Start_K** and use it to display **EmployeeName** that start with letter **K** **(3 marks)**

iv) Display the **no of years** an employee has worked given that the current year is 2018. Save **the report** as **AGE.** **(3 marks)**

v) Create a query called **Yote** to display the following fields **(2 marks)**

- **Employee_ID**
- **EmployeeName**
- **Department_Name**
- **ProductName**
- **Salary**
- **HeadOfDepartment**

vi) Copy Yote query (**in v above**) and save the new query as **MPYA**:- **(1 marks)**

Use MPYA query to

- ✓ Calculate the salary given that: salary is 10% of the S**alesAmount** **(2 marks)**
- ✓ Display salary in ascending order **(2 marks)**
- ✓ Display employees from **human resource** department whose **SalesAmount** is **greater than 12000.** **(2 marks)**

vii) Create a form called **AberdareForm** using **Yote query** (**in v above**) and use it to answer the questions below:-

- ✓ Count no of employees **(2 marks).**
- ✓ Add a title of the form as **"Aberdare bottles ltd-2018"** **(2 marks)**
- ✓ Insert **date and time** on the form header use **(=NOW( ))** **(2 marks)**

viii) **Print** Age, Sales table, and AberdareForm **(3 marks)**

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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

NAME……. **INDEX NO……..**

SCHOOL…… **SIGN…….**

DATE……..

441/1

HOME SCIENCE

PAPER 1

THEORY

TIME: 2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

(a) *Answer all questions in section A in the spaces provided*

(b) *Section B is compulsory*

(c) *Choose any two questions from section C*

(d) ***Do not remove any pages from this booklet.***

(e) ***Answer all questions in English.***

FOR EXAMINERS USE ONLY

SECTION	Question	Maximum score	Candidate's score
Section A	1-39	40	
Section B	40	20	
Section C	41-43	40	
Total score		100	

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QUESTIONS

1. Give **two** uses of fruits in cake making . **(1mark)**

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2. Name **two** types of pleats **(1 mark)**

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3. Name the biological raising agent used in bread making **(1mark)**

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4. List **two** methods of incorporating air into flour mechanically **(1mark)**

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5. Give **two** functions of sebum **(1mark)**

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6. State **two** ways in which a country with home scientists will benefit **(1mark)**

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7. Mention **two** minerals needed for healthy teeth **(1mark)**

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8. List any two ways of finishing wood **(1mark)**

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9. Mention two advantages of charcoal as a fuel **(1mark)**

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10. Define the following terms: **(1mark)**

a) Fixed dirt

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b) Fracture

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11. Identify other two causes of anaemia other than nutritional deficiency **(1mark)**

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12. Give two reasons for food fortification **(1mark)**

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13. Highlight two ways of conserving vitamin C during the storage of kales **(1mark)**

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14. Mention two signs and symptoms of marasmus **(1mark)**

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15. Write the following abbreviations in full **(1mark)**

a) AIDS

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b) TBA

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16. Give two functions of the S and U bend below every sink in the disposal of waste water from the house **(1mark)**

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17. Detergents are classified into two groups .Name them **(1mark)**

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18. Mention two rules to observe in stain removal **(1mark)**

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19. Name two the stain removal agents used in removing a banana sap stain from your t-shirt **(1mk)**

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20. Identify two methods suitable for disinfecting a kitchen towel **(1mark)**

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21. List two ingredients used in the making of laundry blue **(1mark)**

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22. Give two points to observe when taking body measurements **(1mark)**

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23. Name two conspicuous seams used to bring out style features in garment construction **(1mark)**

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24. Give two examples of stitches used to neaten raw edges **(1mark)**

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25. Mention two possible causes of stiches looping when sewing with a sewing machine **(1 mark)**

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26. List two examples of haberdashery /sewing notions in garment constuction **(1mark)**

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27. Give two ways you can identify elastofibres physically **(1mark)**

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28. Outline two examples of synthetic fibers **(1mark)**

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29. Differentiate between aerobic and anaerobic food spoilage **(1mark)**

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30. Apart from kitchen knife ,identify one other type of knife and give its function. **(1mark)**

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31. State two roles of advertisements **(1mark)**

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32. Point out two styles of food service **(1mark)**

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33. Outline two functions of darts in clothing and construction processes **(1mark)?**

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34. List two examples of basic pattern symbols and markings in garment construction **(1mark)**

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35. Identify suitable textile fiber for making lingerie **(1mark)**

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36. Mention two methods of treating water at home **(1mark)**

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37. Give two reasons for cleaning a house **(1mark)**

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38. Outline two advantages of flats/apartments type of houses **(1mark)**

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39. Suggest two ways of managing foreign body in the ear **(1mark)**

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40. Mention two dangers that arise from misuse of cosmetics **(1mark)**

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SECTION B

(Answer all the questions)

41. You are doing thorough cleaning at home on a Saturday morning. Describe how to;

a) Clean a white washable cotton mask you had used the previous day. **(8marks)**

b) Sweep an earthen sitting room floor **(7marks)**

c) Wash a Calabash that had been used to take porridge in the morning for breakfast. **(5 marks)**

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SECTION C

(Answer only two questions from this section.)

42.

a) Explain four factors to consider when planning meals **(4marks)**

b) Explain three merits of credit cards **(3marks)**

c) Explain four importance of immunization **(4marks)**

d) Describe how to make hand worked gathers **(4marks)**

e) State five points on the choice of brooms and brushes **(5marks)**

43.

a) Outline three steps in preparing a budget **(3marks)**

b) Give the importance of table setting **(4marks)**

c) Explain the importance of breastfeeding to a child **(3marks)**

d) Outline four qualities of a well-made stitch **(4marks)**

e) Explain three ways in which detergents aid in removal of dirt **(6marks)**

44.

a) Explain three reasons for making a shopping list prior to the actual buying **(3marks)**

b) Use the following dishes to organize a breakfast menu **(3marks)**

Tea with milk, Fried liver, Boiled arrowroot, Fresh passion juice, Wimbi porridge

c) Explain four ways of handling temper tantrums during habit training **(4marks)**

d) Describe how to make a plain seam on a skirt yoke **(4marks)**

e) Draw six care labels on drying in laundry work and explain the meaning of each

(6marks)

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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

SCHOOL…… **SIGN…….**

DATE……..

441/2

HOMESCIENCE

CLOTHING AND TEXTILES

PAPER 2

PRACTICAL

CONFIDENTIAL

INSTRUCTIONS TO SCHOOLS

The following materials will be provided by the school:

1. *Plain light weight cotton 55 cm long by 70cm wide*
2. *Cotton sewing thread to match the fabric*
3. *Embroidery thread 130cm long*
4. *A4 envelope*

FABRIC IN EXCESS OF THE AMOUNT SPECIFIED MUST NOT BE SUPPLIED TO THE CANDIDATES.

These instructions consist of 1 printed page.

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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

NAME……. **INDEX NO……..**

SCHOOL…… **SIGN…….**

DATE……..

441/2

HOME SCIENCE

(CLOTHING CONSTRUCTION)

PAPER 2

PRACTICAL

Time: 2 ½ hours

INSTRUCTIONS TO CANDIDATES

- *This paper consists of **3** printed pages.*
- *Candidates should check the question paper to ascertain that all pages are printed and no questions are missing.*

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A pattern of a girl's dress is provided. You are advised to study the sketches, instructions and layout carefully before you begin the test.

Materials provided

1. Pattern pieces

A - Dress Front

B - Dress Back

C - Yoke

D - Pocket

2. Plain light weight cotton fabric 70cm wide by 55cm long.

3. Cotton thread to match the fabric.

4. Embroidery thread 130cm long.

5. A4 Envelope

THE TEST

Using the materials provided, cut out and make up the **LEFT HALF** of the dress to show the following process.

1. Cutting out.

2. Working of double pointed dart at the dress back.

3. Preparation and attachment of the patch pocket to include the working of satin stitch to fill "O" on the pocket.

4. Preparation of gathers on the dress front. DO NOT REMOVE GATHERING STITCHES.

5. Joining the dress front to the yoke using overlaid seam.

6. Joining the dress front to the dress back at the shoulder using double stitched seam.

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7. Working the side seam using an open seam.

8. Managing the hem on the lower edge of the dress by;

(a) Holding the hem using even tackings. (DO NOT REMOVE TACKINGS)

(b) Working hemming stitches at the front part of the dress.

9. Presentation.

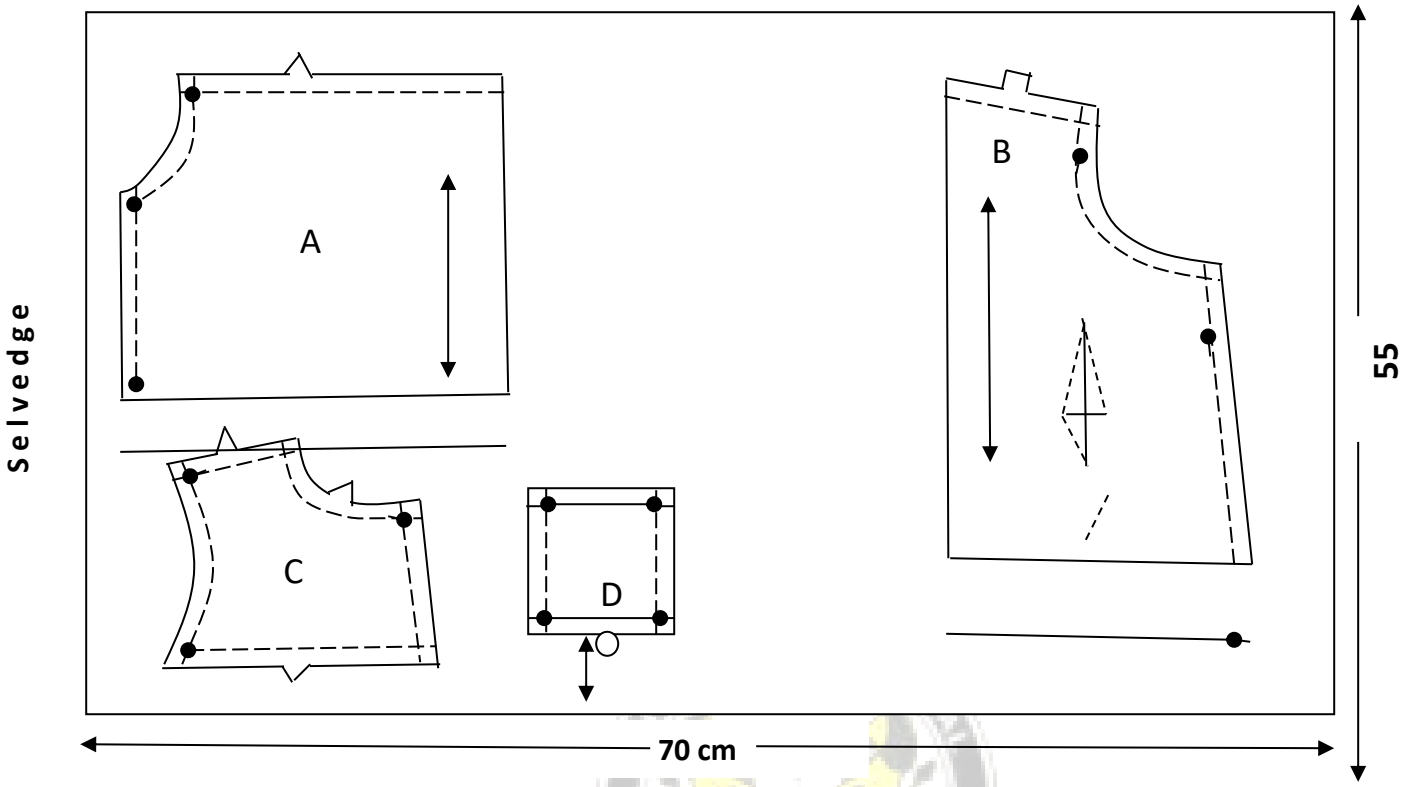
NB:

At the end of the examination, firmly sew on your work on single fabric a label bearing your name, class and admission number. Remove the needles, pins and unnecessary threads from your work. Fold your work neatly and place it in the envelope provided.

DO NOT PUT SCRAPS OF FABRIC IN THE ENVELOPE AND DO NOT SEAL THE ENVELOPE.

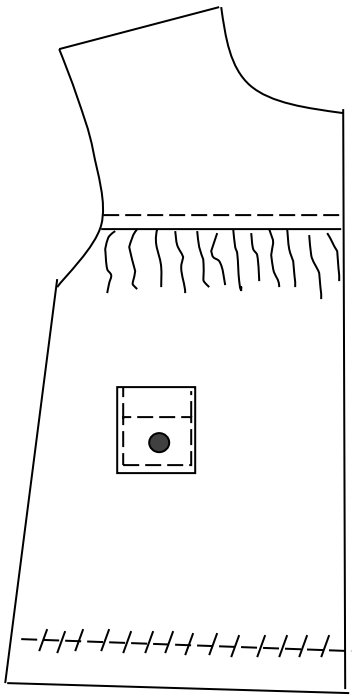
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LAYOUT (NOT DRAWN TO SCALE)

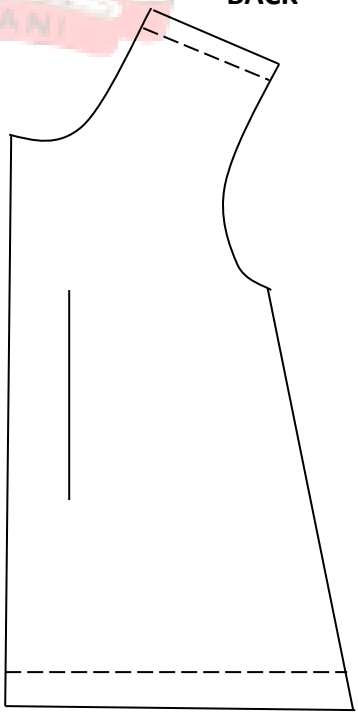


VIEWS

FRONT



BACK



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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

NAME……. **INDEX NO……..**

SCHOOL…… **SIGN…….**

DATE……..

441/3

HOME SCIENCE

(FOODS AND NUTRITION)

Paper 3

(PRACTICAL)

1 ¾ hours

Instructions to candidates

PLANNING SESSION: 30 minutes

PRACTICAL TEST SESSION: 1 ¼ hours

(a) *Read the test carefully.*

(b) *No stationery is provided.*

(c) *Write your name and index number on every sheet of paper used.*

(d) *Textbooks and recipes may be used during the planning session as reference materials.*

(e) *You will be expected to keep your order of work during the practical session.*

(f) *You are only allowed to take away your reference materials at the end of the planning session*

(g) *You are* ***not*** *allowed to bring additional notes to the practical session.*

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THE TEST

You are taking care of your nursing Aunt. Use all the ingredients listed below to prepare, cook and serve;

(i) A beverage with an accompanying snack for her 10 o'clock.

(ii) A one-course lunch for both of you.

Ingredients

Rice

Milk

Capsicum

Sugar

Tomatoes

Green leafy vegetable

Cooking oil

Fat

Salt

Tea leaves/cocoa

Onions

Coriander leaves

Minced beef

Ready-made Bread/Scones

PLANNING SESSION – 30 MINUTES

Use separate sheets of paper for each task listed below and carbon paper to make duplicate copies. Then proceed as follows;-

1. Identify the food items and write down their recipes.
2. Write down your order of work.
3. Make a list of foodstuffs, materials and equipment you will require.

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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

NAME……. **INDEX NO……..**

SCHOOL…… **SIGN…….**

DATE……..

501/1

FRENCH

PAPER 1

LISTENING COMPREHENSION DICTATION AND COMPOSITION

2 hours

Instructions to candidates

a) *Write your name and index number in the spaces provided above*
b) *Sign and write the date of examination in the spaces provided above.*
c) *This paper consists of **three** sections.*
d) *In section I, you will have five minutes to read through the questions before the test starts. Before answering the questions you will listen to several recorded passages on a CD. For each passage you will answer questions as indicated to you on the CD.*
e) *In section II, you will listen to recorded materials once and start writing during the second listening.*
f) *In section III, choose one composition from question 6*
g) *Answer all questions in the spaces provided.*

FOR EXAMINER'S USE ONLY

Section	Maximum Score	Candidate's Score
I	15	
II	05	
III	15	
Total score	35	

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SECTION 1

Listening comprehension (15 marks)

Passage 1

(a) Quelle est la destination des passagers ? ……..
½pt

(b) Quel est le numéro du bus ? ……..
……. ½ pt

(c) Où se trouve le bus ? ……..
½ pt

(d) Les passagers doivent montrer leurs ……au
…… ? 1pt

Passage 2

a) Comment s'appelle le professeur ? …… ½ pt

b) La leçon est à propos de quoi ? ……..
½ pt

c) Qui aime l'ugali avec des légumes traditionnels ? …….. ½ pt

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Passage 3

a) Pourquoi est-ce que Marie passe quelques jours à Paris ?

……

1 pt

b) Elle va à …….. le

……. 1pt

c) Marie sera seul parce que ……a beaucoup de travail. ½ pt

d) Comment est-ce qu'ils organiseront leurs rencontres ?

…… ½ pt

Passage 4

a) D'après le texte :

i. …….. a du travail à l'église.

½ pt

ii. Papa ……

½ pt

iii. ……. se prépare pour une excursion.

½ pt

iv. Michel

……. ½ pt

v. ……. révise pour un examen.

½ pt

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b) Que mangent-ils pour le dîner ? …….. ½ pt

c) Qu'est-ce qu'ils ne font pas faire ? …… ½ pt

Passage 5

1. Les deux amies voulaient acheter des ……pour ……. 1pt

2. Quel était le problème de la première boutique ?

   …… …… 1 pt

3. Où est-ce qu'elles ont fait leur achat ?

   …… ½ pt

SECTION 2.

DICTATION (5 points)

5. Write the dictation passage in the spaces provided.

……

……

……

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SECTION III

Composition (25 marks)

Write your two compositions in the spaces provided. Indicate whether your choice is 6(a), 6(b)

6. In 150 to 180 words, write in French a composition starting with:

Either:

(a) Nous nous sommes levés de bonne heure … **(15 points)**

Or:

(b) Le jour très attendu impatiemment était déjà arrivé… **(15 points)**

……

……

……

……

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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

NAME……. **INDEX NO……..**

SCHOOL…… **SIGN…….**

DATE……..

501/2

FRENCH

Paper 2

(Reading comprehension, grammar and functional writing)

2 ¼ hours

INSTRUCTIONS

(a) *Write your* ***name*** *and* ***index number*** *in the spaces provided.*
(b) ***Sign*** *and write the* ***date*** *of this examination.*
(c) *Answer* ***all*** *the questions in the spaces provided*
(d) *The candidate should* ***check to ascertain that all the pages are printed*** *as indicated.*

For Examiner's Use Only

Section	Maximum Score	Candidate's Score
I	15	
II	15	
III	10	
TOTAL SCORE	40	

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SECTION 1

Reading comprehension (15 marks)

Read the following passages and answer the questions that follow:

Passage I

Je m'appelle Diane Adhiambo. Je suis Malgache mais je travaille à Nairobi comme sociologue. Je cherche un correspondant parlant italien; il doit être beau, disponible et responsable. Si on est intéressé, veuillez me contacter entre le 15 juillet et le 2 août, 2019. Mes contacts sont: Tel: 0734675432, B.P 4356 Dodoma ou dianeadhis67@gmail.com.

a) De quel pays vient Diane? (½ pt)

……

b) La personne qu'elle cherche doit parler quelle langue? (½ pt)

……

c) Quelles qualités est-ce que le correspondant doit avoir? (1½pts)

(i)……

(ii)…….

(iii)……

d) Quelle est la date limite pour la contacter? (½pt)

……

e) Qu'est-ce qu'on doit faire pour la contacter? (1pt)

(i)……..

(ii)……

Passage II

La jeune dame a finalement téléphoné à la police.

Monsieur l'agent, dit-elle, je vous demande de persuader mes voisins de ne pas faire beaucoup de bruits. Chaque nuit, ils frappent mon mur, crient et hurlent des insultes à moi jusqu'à cinq heures du matin.

Oh, je suppose qu'ils vous font impratiquement impossible de dormir Madame, dit le vieil agent de police, d'un ton sympathique.

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Mais non, ce n'est pas ça! Lui répond la dame; avec le battement violent et les cris insupportables, je ne peux plus m'amuser en jouant du piano.

a) D'après le texte, que demande la jeune dame à l'agent de police? (1pt)

……

……

b) Quels noms du passage expliquent qu'il y a beaucoup de bruits? (1pt)

……., ……..

c) La jeune dame ne peut pas ……... (½pt)

d) Exposez la difference entre l'agent de police et la dame. (1pt)

……

……

Passage III

Dans le village où ils passent leurs vacances, Jean, Charlot et Paulette ont connu un vieux marchand qui avait une auto qui les emmenait souvent dans les villes et les villages de la région. Un jour, pour jouer une farce à leur vieil ami, ils se sont cachés dans sa voiture, sous des sacs vides. Quelqu'un est monté dans l'auto, qui est parti dans la direction de la montagne. Les jeunes ont découvert que celui qui conduisait était un étranger. C'était en effet un escroc qui, après voler de l'argent, a pris la voiture pour s'enfuir. Enfin l'auto s'est arrêtée et l'escroc est descendu et il s'en est allé. Jean, qui savait à peine conduire, a réussi à faire partir la voiture. Les enfants ont fait dans la nuit un voyage périlleux. Au matin, ils sont arrivés dans le village.

a) Pourquoi est-ce que les trois enfants se sont-ils cachés dans la voiture? (1pt)

……

……

b) Qu'est-ce que leur est arrivé? (½pt)

……

c) *" Jean, qui savait à peine conduire*……." Qu'est-ce que cela veut dire? (½ pt)

……

d) Trouvez un mot du passage avec le même sens que: (1pts)

(i) un voleur…….

(ii) s'échapper…….

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Passage IV

Une jeune Française vivait à l'étranger et elle avait toujours l'habitude d'envoyer des cadeaux aux amis pendant le Noël.

Cette année-là, elle allait offrir des cadeaux à deux personnes. Elle les a envoyés un mois à l'avance. Agnès, qui n'aimait ni vins ni bière a reçu une bouteille de champagne. Moïse, au contraire, a reçu une grosse caisse de pommes.

Par bonheur, tout s'est bien passé. Agnès s'est dit, "je m'en servirai pour mes invités." Moïse, lui, qui n'aimait pas les pommes, a crié, "j'en mangerai une tout de suite."

a) Selon le passage, est-ce que c'est la première fois que la jeune fille envoyait les cadeaux? (1pt)

……..……

……..

b) Citez ce que Moïse et Agnès devaient recevoir?

(i) Moïse ……(½ pt)

(ii) Agnès …… (½ pt)

c) Quelle était la réaction commune de ces deux personnes quand les cadeaux sont arrivés? (1pt)

……

Passage V

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Vous êtes matinal et
Dynamique?
Nous vous offrons un travail
à temps partiel
venez renforcer nos équipes de
portage de journaux sur Paris-
Ouest- Boulogne- Versailles
Contactez: chef du personnel
B.P 3456, Paris, France.

a) Le document au dessus, c'est quel type de document? (½pt)

……

b) Donnez l'antonyme de "**temps partiel**" (½pt)

……

c) Pendant quel moment d'un jour doit-on commencer à travailler? (½pt)

……

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SECTION II Grammar (15pts)

6. *For each of the following questions, complete the responses correctly. Avoid unnecessary repetitions.*

Example

-Julien, qui a pris ma valise?

-C'est moi qui l'ai prise.

1. "Ne sortez pas ce soir"

   Pardon, Qu'est-ce que vous dites?

   Je vous dis……..(1pt)

2. Il ne peut pas acheter cette voiturele. Il n'a pas assez d'argent.

   Mais s'il avait…… (1pt)

3. Marie: Mon perè est parti très tot; il n'a pas pris son thé.

   Jacques: Ah,bon!

   Marie: Eh oui, il est parti sans…….. (½ pt)

4. Quelqu'un est dans le salon?

   Non …….(1pt)

5. Nous habitons dans cette ville depuis douze ans

   Ça fait ……(1pt)

6. Où est-ce qu'ils sont maintenat?

   Où……..? (½pt)

7. Vous avez beaucoup de problèmes mais vous restez confiants.

   Bien que……. (1 pt)

8. Les élèves travaillent mieux quand ils écoutent la musique.

   Les élèves travaillent mieux en …….. (½ pt)

9. Marie – Etes –vous allez au cinema hier soir?

   Les amis- Non ……(½pt)

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*7. Fill in the blanks with **ONE** word only.* *(5pts)*

Ma mère et moi, sommes arrivées dans l'hôtel (1)…….nous logeons. (2)…….mercredi, (3)…….. les parents de mon amie, Yvette, nous avons (4)…….visite leur oncle, Antoine puis on est allé au Parc Nakuru où nous avons (5)…….des animaux comme les lions, les léopards et les éléphants. Demain, nous espérons (6) ……la journée (7)…… ville. Le weekend, on (8)……. des courses; on passera l'après-midi (9)……la plage. Lundi, c'est le jour (10)…… départ.

8. What would you tell the following people under the circumstances given: (3pts)

a) A un ami qui a réussi aux examens

……

b) Un groupe de touristes qui visitent votre pays pour la première fois.

……

c) Vous demamdez un vendeur le prix le pris d'une robe

……

SECTION II- FUNCTIONAL WRITING

In 120-150 words, answer (a) or (b) according to the instructions given. [10 points]

a) Ecrivez à votre correspondant(e) français(e) lui racontant vos projets après vos études secondaires.

b) Vous avez vu cette annonce dans le journal. Ecrivez une lettre de candidature.

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TV LE MONDE

B.P 14054 NAIROBI

CHERCHE UN JOURNALISTE

BILINGUE

FRANÇAIS OBLIGATOIRE

EXPÉRIENCE SOUHAITABLE

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CROSSCOUNTRY PREDICTION

KCSE 2022 SERIES 3

NAME……. **INDEX NO……..**

SCHOOL…… **SIGN…….**

DATE……..

501/3

FRENCH

Paper 3

(READING ALOUD, EXPOSE AND CONVERSATION)

Time: 15 MINS

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SECTION I

READING ALOUD

CARD A

Comme on dit, « Un chasseur sachant chasser, sait chasser sans son chien. »
Tout simplement, je ne consulte pas mon dictionnaire tout le temps quand je lis et quand je fais l'écoute. J'essaie de trouver le sens des mots et citations à partir du contexte. Mais, de temps en temps, quand je me trouve vraiment coincé, je le consulte évidemment !

CARD B

« Six scies scient six citrons et donc six cents scies scient six cents citrons. »
C'est logique, n'est-ce pas ?
Voilà une phrase que j'ai tirée de mon dictionnaire. Tout simplement, le dictionnaire contient beaucoup plus que le sens des mots. De temps en temps, on y trouve de très belles citations évidemment !

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SECTION III

Exposé

Instructions to Candidates

a) *You will talk on the topic given overleaf.*

b) *You will have **ten** minutes to prepare for the task.*

c) *You will have **two** minutes to talk about the topic.*

SECTION III

Exposé

Instructions to Candidates

a) *You will talk on the topic given overleaf.*

b) *You will have **ten** minutes to prepare for the task.*

c) *You will have **two** minutes to talk about the topic.*

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EXPOSÉ A

Il existe des métiers heureux et des métiers désagréable. Qu'en pensez-vous ?

EXPOSÉ B

Parlez de votre activité de loisir la plus intéressante.

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SECTION III

Exposé

Instructions to Candidates

a) *You will talk on the topic given overleaf.*

b) *You will have **ten** minutes to prepare for the task.*

c) *You will have **two** minutes to talk about the topic.*

SECTION III

Exposé

Instructions to Candidates

a) *You will talk on the topic given overleaf.*

b) *You will have **ten** minutes to prepare for the task.*

c) *You will have **two** minutes to talk about the topic.*

EXPOSÉ C

Décrivez les sites touristiques de votre région.

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EXPOSÉ D

Selon vous, quelle est l'importance de l'uniforme scolaire ?

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