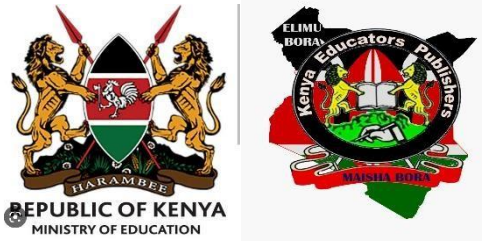
FRM 3 ENDTERM 1 EXAM

ALL SUBJECTS

SERIES 1



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FORM 3 END TERM 1 SET 1 EXAM 2023

Name……Adm No……Class…….

School ……

Candidate's Signature ……

GRAND TOTAL

AGRICULTURE PAPER 1

SECTION A (30 MARKS)

Answer all Questions in this section

1. Give four advantages of practicing crop rotation ***(2mks)***

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2. Name any four records that should be kept by a poultry farmer ***(2mks)***

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3. Give two areas of study that make agriculture to be regarded as a science ***(1mk)***

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4. A farmer has the option of growing either wheat or maize in his one hectare of land. Wheat gives a return of sh 20000 while maize gives a return of sh.35000. What will be the opportunity cost? ***(1mk)***

5. State any two conditions under which opportunity cost is zero

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6. Give two practices that are commonly used in hardening seedlings in a nursery of kales ***(1mk)***

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7. Outline four advantages of tissue culture ***(2mks)***

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8. Name any four farming practices aimed at minimum tillage ***(2mks)***

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9. Outline four factors that determine the depth of planting *(2mks)*

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10. State three factors that determine the quality of compost manure *(1 ½mks)*

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11. Distinguish between under sowing and over sowing as used in pasture establishment (1mk)

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12. State two disadvantages of shifting cultivation (1mk)

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13. Name any four methods of treating seeds before planting (2mks)

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14. Give four reasons why seeds may be preferred in crop propagation (2mks)

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15. Differentiate between soil structure and soil texture *(1mk)*

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16. State four reasons why burning of fields is discouraged in crop production *(2mks)*

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17. Name three diseases that attack cabbage *(1 ½ mks)*

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18. State four characteristics that make a crop suitable for green manure *(2mks)*

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19. State four different types of irrigation that can be used by farmers *(2mks)*

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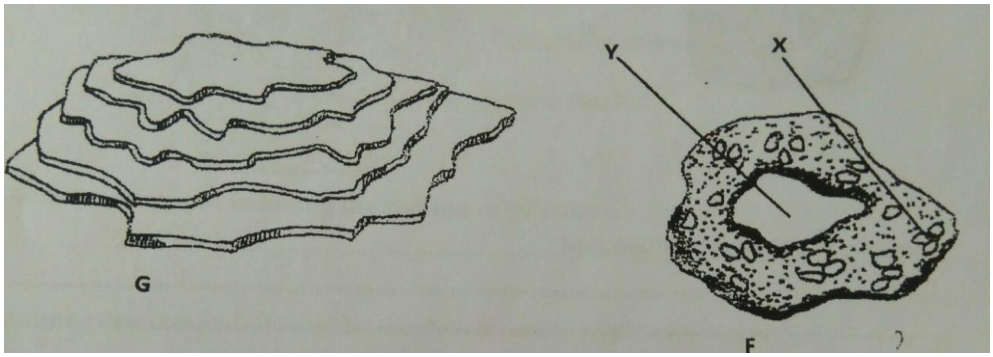
SECTION B (20 MARKS)

Answer all questions

20. The diagram below illustrates some soil structures. Study it and answer the questions that follow.



a) Identify the soil structures F and G *(2mks)*

b) Name the parts labeled X and Y in diagram F *(1mk)*

c) Sate two ways through which structure G influences crop production *(2mks)*

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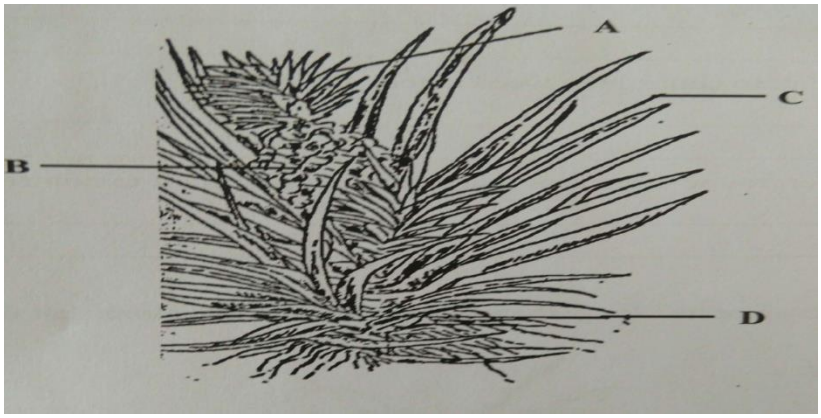
21. The diagram below illustrates a type of fruit. Study nit and answer the questions that follow.



a) Identify the fruit *(1mk)*

b) Name the parts A-D *(4mks)*

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c) Name two crops propagated by the part labeled D *(1mk)*

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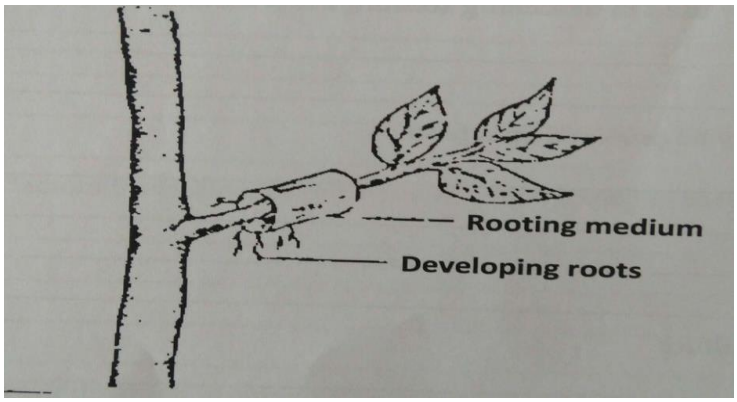
22. The diagram below shows a method of layering. Study it and answer questions that follow



a) Identify the method of layering illustrated above *(1mk)*

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b) State one circumstance in which this method of layering is recommended *(1mk)*

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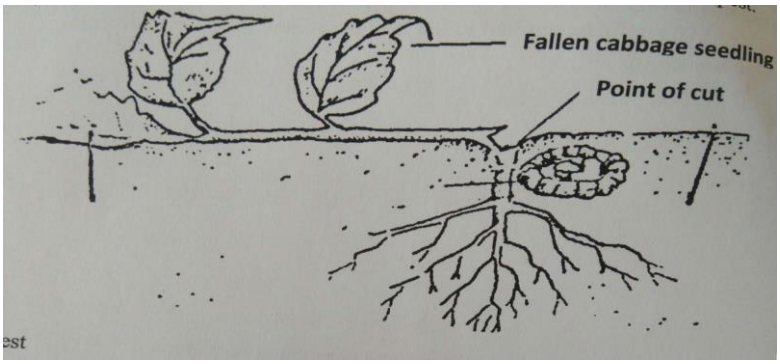
23. A maize farmer was advised to apply 150 kg CAN per hectare while topdressing the maize crop. CAN contains 21%N. calculate the amount of Nitrogen applied per hectare. ***(3mks)***

24. The diagram below shows a seedling attacked by a certain pest.



a) Identify the pest *(1mk)*

b) Name any two types of vegetable crops likely to be attacked by the pests *(2mks)*

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c) State two methods of controlling the above pest *(2mks)*

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SECTION C (40 marks)

Choose any two questions from this section

25. a)Outline the effects of wind on agricultural products ***(11mks)***

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b) Briefly mention the importance of soil organic matter *(9mks)*

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26. a) Describe the advantages of using seeds as planting materials *(5mks)*

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c) Give reasons for raising vegetable seedling through a nursery *(5mks)*

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d) Outline the process of chemical water treatment for use in the farm *(10mks)*

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26. a) Explain five factors that determine spacing to be used in crops ***(10mks)***

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b) Describe six management practices carried out on a nursery bed (6mks)

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c) Explain four advantages of grafting (4mks)

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FORM 3 END TERM 1 SET 1 EXAM 2023

Name……Adm No……Class……

School ……

Candidate's Signature ……

GRAND TOTAL

AGRICULTURE PAPER 2

SECTION A (30 marks)

Answer all questions from this section

1) State any four signs of parturition shown by a cow ***(2mks)***

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2) State the uses of the following tools and equipments (4mks).

(a)Secateurs

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(b)Sickle

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(c)Bolus gun

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(d)Strip cup

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3) State four maintenance practices carried out on a wheelbarrow ***(2mks).***

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4) Name the breed of rabbit which is white with one or more of the ears, paws or tail being black

(1mk).

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5) State four conditions considered in citing an apiary ***(2mks)***

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6) State four properties of a good vaccine ***(2mks)***

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7) State any four disadvantages of natural mating in livestock production *(2mks)*

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8) Outline four roles played by proteins in livestock nutrition *(2mks)*

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9) State any four benefits of steaming up in livestock *(2mks)*

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10) Name four reasons for castrating male calves *(2mks)*

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11) Name any four dairy breeds of goats *(2mks)*

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12) List any four farm structures that are necessary for handling dairy animals *(2mks)*

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13) Give four reasons why young rams should be docked *(2mks)*

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14) State two roles of a drone bee *(1mk)*

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15) Give two advantages of using wood in construction of farm buildings *(2mks)*

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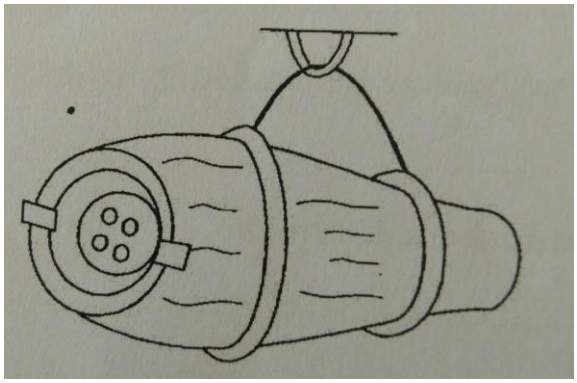
SECTION B (20 MARKS)

Answer all questions from this section

16. Below is a diagram illustrating a type of a hive



a) Identify the type of hive illustrated above ***(1mk)***

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b) Why is it necessary to keep it in a slanting position ***(1mk)***

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c) State one disadvantage of the hive above ***(1mk)***

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d) Name any other two types of bee hives ***(1mk)***

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d) List down four factors causing the swarming of bees ***(2mks)***

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e) Name one type of disease affecting bees ***(2mks)***

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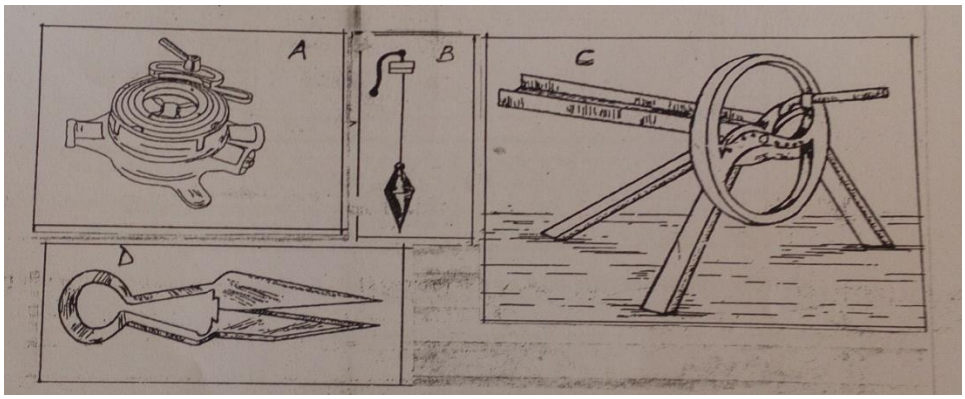
17. The diagrams below represent some farm tools and equipment



a) Identify the tools ***(2mks)***

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b) State the use of each of the tools labeled C and D ***(2mks)***

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c) State one maintenance practice carried out on tool D *(1mk)*

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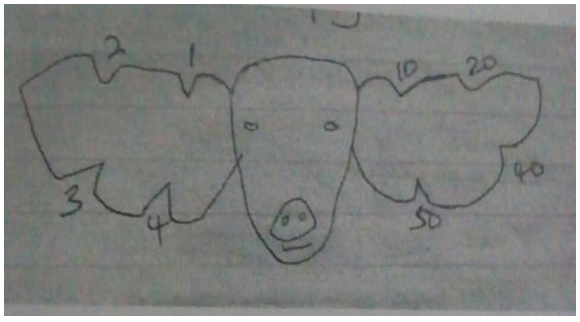
18. A ration containing 20% DCP is to be prepared the available maize contains 7% DCP and fish meal 62% DCP. Calculate using Pearson square method, the amount in kgs required to prepare 100 kg of the feed *(5mks)*

a) Apart from Pearson square method, name any other method that can be used to prepare rations *(1mk)*

19. The diagram below shows a certain practice carried on pigs.



a) Identify the practice *(1mk)*

b) Name the tool used to carry out the practice above *(1mk)*

c) State any other two methods of identifying piglets (1mk)

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SECTION C (40marks)

Answer any two questions from this section

20a) Describe six signs of furrowing in a sow ***(6mks)***

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c) Explain six benefits of the Kenya Top bar hive *(6mks)*

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d) describe 8 factors considered when citing farm structures *(8mks)*

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21. a) Describe five reasons for maintaining farm tools and equipments ***(5mks)***

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b) State five differences between ruminants and non-ruminants ***(5mks)***

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b) Describe the various methods of treating timber for construction ***(10mks)***

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22. a) Discuss five human factors influencing agriculture ***(10mks)***

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b) Explain any five post harvest practices on cereal crops *(10mks)*

FORM 3 END TERM 1 SET 1 EXAM 2023

Name……Adm No……Class……
School ……
Candidate's Signature ……

GRAND TOTAL

231/1
BIOLOGY FORM THREE
TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

- *Answer **ALL** the questions*
- *Answers should be written in the spaces provided*

1. (a) What is the formula of calculating linear magnification of a specimen when using a hand lens? ***(1mk)***

(b) Give a reason why staining is necessary when preparing specimens for observation under the microscope ***(1mk)***

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2. State two functions of Golgi apparatus. ***(2mks)***

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3. State the importance of the following processes that take place in the nephrons of a human kidney ***(1mk)***

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4. (a) Name a disease of the liver whose symptom is jaundice ***(1mk)***

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(b) State the causative agent of:

(i) Cholera *(1mk)*

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(ii) Amoebic dysentry *(1mk)*

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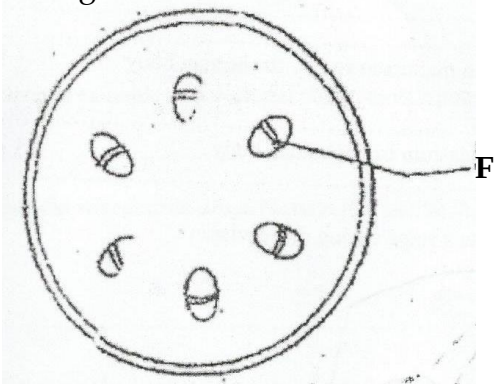
5. The diagram below shows a section through a plant organ



(i) Name the class of the plant which the section was obtained
(1mk)

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(ii) Give a reason for your answer in (a) (i) above *(1mk)*

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iii) State the functions of the part labeled F *(1mk)*

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6. Describe what happens during the light stage of photosynthesis *(2mks)*

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7. Name a support tissue in plants that is not thickened with lignin

(1mk)

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8. (a) In which part of the cell do the following stages of respiration take place. *(2mks)*

(i) Glycolysis.....

(ii) Kreb's Cycle .....

(b) In which of the two stages above is most energy produced? *(1mk)*

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9. Explain why drug addicts are prone to HIV infection. *(2mks)*

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10. (a) (i)A man's urine gave positive reaction with Benedict's solution. Name the disease he was suffering from. ***(1mk)***

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(ii)State **two** ways in which the symptoms of the condition in (a) above can be controlled. ***(2mks)***

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(b) Name the hormones involved in regulating glucose level in blood. ***(2mks)***

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11. (a) Name **two** structures for gaseous exchange in aquatic plants. ***(2mks)***

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(b) What is the effect of contraction of the diaphragm muscles during breathing in mammals? ***(3mks)***

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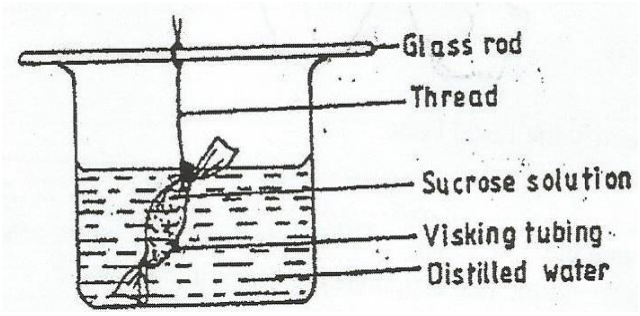
12. An experiment was set up in the experiment as shown below.



The set up was left for 30 minutes. State the expected results. ***(1mk)***

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b) Account for your answer in (a) above ***(2mks)***

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13. State **two** structural modifications of nephrons found in desert mammals ***(2mks)***

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14.(a) State **two** characteristics of Monera that are not found in other kingdoms ***(2mks)***

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(b) Name the class to which a termite belongs ***(1mk)***

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15. (a) Distinguish between population and community *(2mks)*

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(b) Name the method that can be used to estimate the population size of the following organisms

(i) Fish in a pond

..... *(1mk)*

(ii) Black jack in a garden ..... *(1mk)*

16. Explain how an increase in temperature affects the rate of active transport. *(2 marks)*

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17. Give the synthesis role of smooth endoplasmic reticulum. *(1 mark)*

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18. State **two** functions of bile juice in the digestion of food. *(2 marks)*

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19. Name the features that increase the surface area of small intestines *(2 marks)*

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20. Explain what happens when there is oxygen debt in human muscles *(2 marks)*

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21. State **two** ways in which the root hairs are adapted to their function *(2 marks)*

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22. Name **two** factors that affect transpiration and absorption at any given time *(2 marks)*

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23. State **two** functions of blood in a human body. *(2 marks)*

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24. State **two** differences between open and closed circulatory systems *(2 marks)*

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25. State **two** ways in which the leaf is suited to gaseous exchange *(2 marks)*

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26. State **four** ways in which respiratory surfaces are suited to their function. *(4 marks)*

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27. What are the **three** end products of anaerobic respiration in plants *(3 marks)*

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28. What is oxygen debt? *(1 mark)*

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

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30. (a) What is homeostasis? ***(2 marks)***

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b) Name **three** processes in the human body in which homeostasis is involved ***(3marks)***

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31. (a) Explain the term binomial nomenclature ***(2 marks)***

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(b) State the importance of classification. ***(3 marks)***

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32. State two external features found in the class Mammalia only. ***(2 marks)***

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FORM 3 END TERM 1 SET 1 EXAM 2023

Name……Adm No……Class……

School ……

Candidate's Signature ……

GRAND TOTAL

231/2
BIOLOGY FORM THREE
TIME: 2 HOURS
INSTRUCTIONS TO CANDIDATES:

- *Answer **ALL** the questions*
- *Answers should be written in the spaces provided*

1. Study the diagram of the organism shown below then answer the questions that follow.

(a) State the phylum to which the organism belongs. ***(1mark)***

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(b) With reasons state the class to which the organism belongs. (1 mark)

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c) Name **two** diseases of the respiratory system. (2 marks)

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2. (a) Name the gaseous exchange structure in the following organisms.

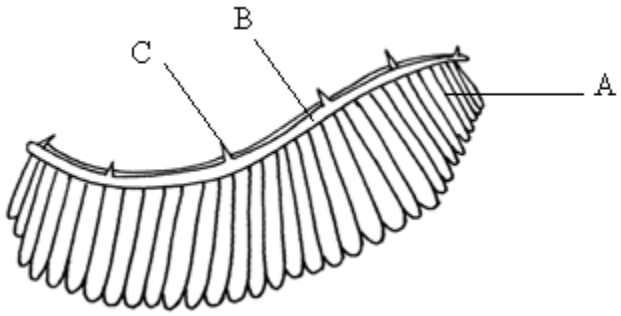
(i) Amoeba .....

(1 mark)

(ii) Grasshopper.....

(1mark)

(b) The diagram below illustrates the structure of a gill from a bony fish.



(i) Name the parts labelled A, B, C ***(3 marks)***

A ……..

B ……..……

C ……..

(ii) State the function of the part labelled C ***(1 mark)***

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(iii) How is part A adapted to carry its functions ***(2 marks)***

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3.The table below shows the number of Leopards and Impala in a grassland park over a period of six years.

Time in years	1	2	3	4	5	6
Number of Impala	360	498	546	216	120	72
Number of Leopard	11	17	25	7	3	2

(a) (i) What is the average number of Impala in the park during the six years. ***(2marks)***

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(ii) Account for the decrease in the number of leopards between the 4th and 6th year? ***(2marks)***

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(b) Identify the trophic level occupied by

(i) Leopards ***(1 mark)***

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(ii) Tick feeding on the leopard. (1 mark)

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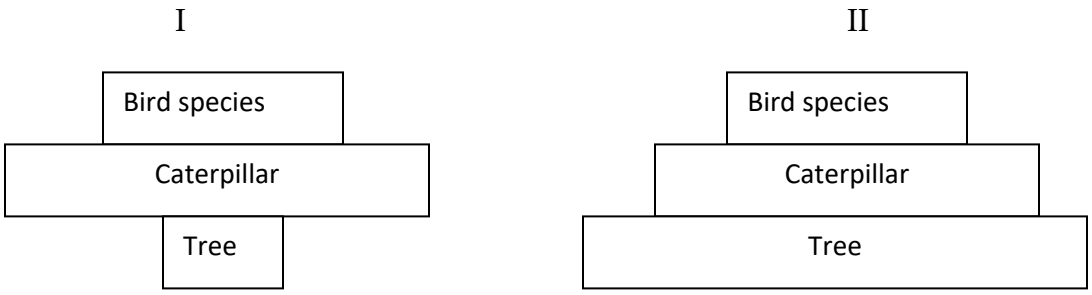
(c) The two pyramids shown were obtained in the park.

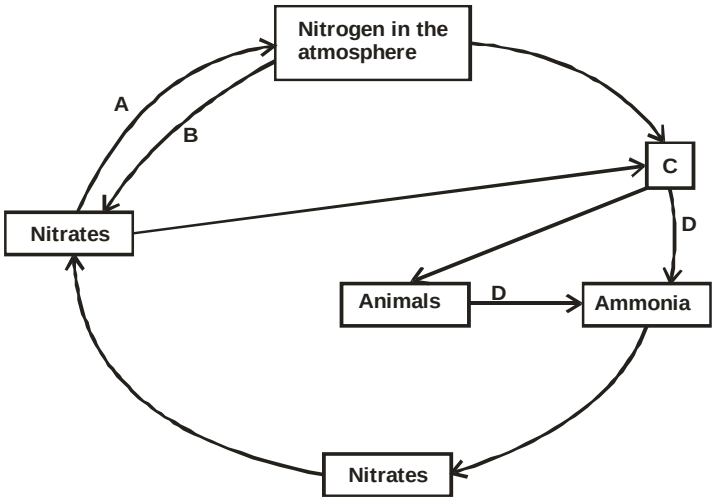


(i) Identify each type of pyramid. ***(2 marks)***

I: ……..

II:……

4. The diagram below represents a simplified nitrogen cycle.



a) Name the group of bacteria represented by: (2 marks)

A. .....

B. .....

b) i) Name the group of organisms represented by

C. ..... ***(1 mark)***

c) Give the reasons for your answer in b (i) above. ***(2 marks)***

d) Define the term nitrification. ***(1 mark)***

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e) Explain how excessive use of pesticides will affect nitrification. (2 marks)

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5.(a) State **three** structural differences between an artery and a vein of a mammal. ***(3 marks)***

Artery	Vein

(b) How are the capillary suited to their function? ***(3 marks)***

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(c) (i) What is blood transfusion? ***(1 mark)***

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(ii) A person whose blood group is A died shortly after receiving blood from a person of blood group B. Explain the cause of death. ***(2 marks)***

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Answer question 6 (Compulsory) and EITHER question 7 or 8 in the spaces provided

6. An experiment was carried out in which red blood cells were put in salt solutions of different concentrations. The table below shows the percentage of cells which were destroyed by haemolysis in different salt concentration.

Salt concentration (g/dm^3)	**% of RBC destroyed By haemolysis**
0	**100**
1	**100**
2	**100**
2.5	**100**
3.0	**100**
3.5	**96**
3.7	**80**
4.0	**60**
4.5	**16**
4.7	**0**
5.0	**0**

6.0	**0**

(a) Draw a graph of percentage of red blood cells haemolysed against salt concentration ***(6 marks)***

(b) Explain haemolysis of red blood cells. ***(3marks)***

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(c) From the graph, state:

(i) The salt concentration at which 50% red blood cells were haemolysed. ***(1 mark)***

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a) The highest salt concentration when the largest number of red blood cells were haemolysed. ***(1 mark)***

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(b) (i) Suggest the normal salt concentration in the blood of the mammal from which the red blood cells were obtained. (2 marks)

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(ii) Give a reason for your answer in (d) (i) above. ***(1 mark)***

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(iii) What term is used to describe the solution with equal solute concentration as that of the cells?

(1 mark)

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(e) Name the process in the human body that ensures that haemolysis of red blood cells is prevented. ***(1mark)***

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(f) State the role of osmosis in organisms. ***(4 marks)***

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(7) Describe the adaptation of the skin to its functions ***(20mks)***

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(8) a) Describe how the digestion of a protein is achieved in the following portions of the alimentary canal.

(i) Stomach *(4 marks)*

(ii) Duodenum *(4marks)*

(b) (i) Describe the process of absorption at the root hair to the xylem of the root. ***(8mks***)

(iii) Describe how temperature and light intensity affect the rate of transpiration.
(4 mks)

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CONFIDENTIAL
BIOLOGY PAPER 3

Solution G is prepared by adding albumen from 1 egg in 500cm^3 of water then added 20g of sucrose and stir the mixture thoroughly.

FORM 3 END TERM 1 SET 1 EXAM 2023

Name……Adm No……Class…….

School ……

Candidate's Signature ……

GRAND TOTAL

231/3
BIOLOGY
PAPER 3 (PRACTICAL)
FORM THREE

INSTRUCTIONS TO CANDIDATES:

1. You are provided with food substance labeled solution G. The reagent provided are Iodine solution, Benedicts solution, 2M HCl acid, 10% Sodium hydroxide solution Copper (II) sulphate and 10-% Sodium hydroxide solution.

(a) Perform food tests and fill in the table below. ***(12 mks)***

Food substance	Procedure	Observation	Conclusion

(b) (i) Name the enzyme responsible for digestion of food substance present in G in two named regions of the human alimentary canal. ***(2 mks)***

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(ii) Name three deficiency diseases in children that may result from lack of one of the food substances in G. ***(1 mk)***

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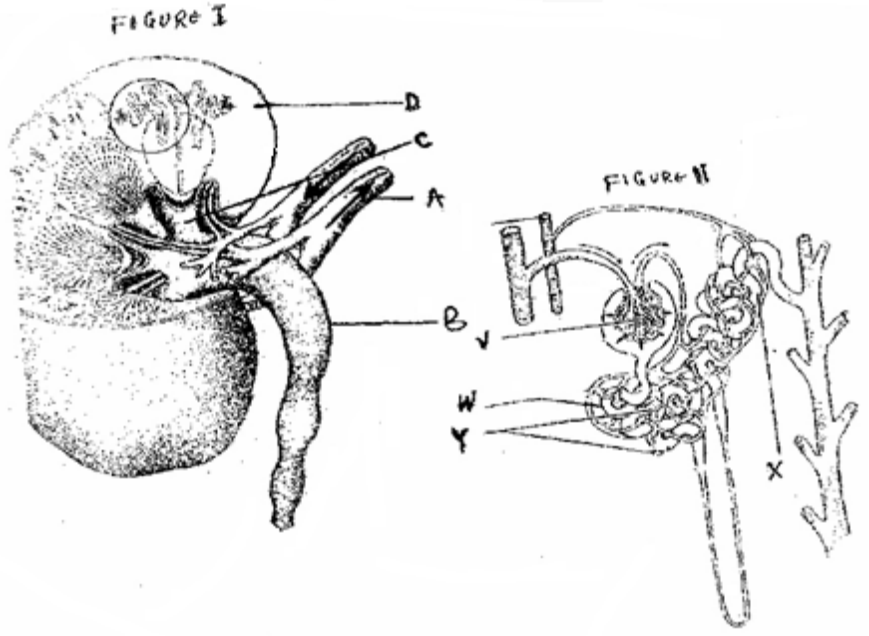
2. Study the kidney diagrams below.



(a) (i) Name the parts labeled **A**, **B**, **C** and **D** in figure **1**. ***(4 marks)***

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(ii) Name the processes that take place in the parts labeled. **V and W** ***(2 marks)***

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(b) State **two** adaptations of the part labeled **W**. ***(2 marks)***

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(c) On the diagram name the part where counter current flow occurs. ***(1 mark)***

(d) State **two** homeostatic functions of the diagram above. ***(2 marks)***

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(e) Explain what will happen to the process of urine formation in absence of vasopressin hormone.

(4 marks)

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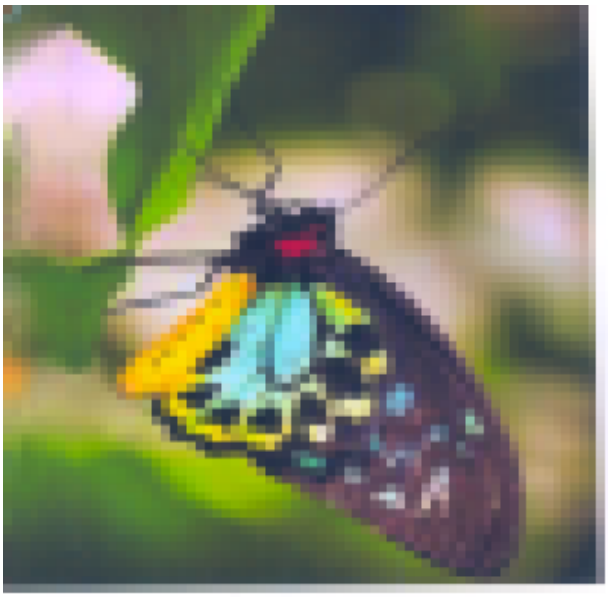
3. The photographs on the leaf attached are of animals belonging to the same taxonomic unit (class).



a) i) Name the class to which the organisms in the photographs belong. ***(1mk)***

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ii) State three reasons for your answer in a) (i) above. ***(3mks)***

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b) State three economic importance of organisms in this class. ***(3mks)***

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c) Use the following characteristics to prepare a two step dichotomous key of the animals in the photographs. ***(4mks)***

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FORM 3 END TERM 1 SET 1 EXAM 2023

Name……Adm No……Class……

School ……

Candidate's Signature ……

GRAND TOTAL

BUSINESS STUDIES PAPER 1

TIME: 2HRS

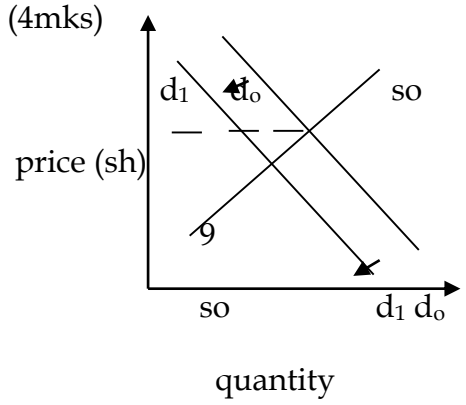
INSTRUCTIONS TO CANDIDATES

- Write your Name and index No in the spaces provided
- Answer all the questions
- All answers must be written in the spaces provided

ANSWER ALL THE QUESTIONS

1. Name the discipline described below that is part of the subject Business Studies ***(4mks)***

2. The diagram below shows a shift of the demand give of a commodity from dodo to d1d1. Outline any four factors that could have led to the shift (4mks)



3. Highlight four factors that may make communication in an organization to be ineffective

(4mks)

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4. Give four circumstances under which a cooperative society may be dissolved ***(4mks)***

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5. Outline any four characteristics of an imperfect competition market ***(4mks)***

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6. Write down the meaning of the following terms as used in business ***(4mks)***

7. Give four benefits of electronic filing in an office *(4mks)*

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8. Give four reasons why business firms advertise their products *(4mks)*

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9. Mr Kigen is the managing director of Mbau furniture ltd, which has a large, well equipped workshop with expensive machines. The company handles large sums of money. Outline four insurance policies that the company may have.

(4mks)

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10. Outline four benefits to a firm that uses modern technology in its production activities

(4mks)

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11. Highlight four benefits to a retailer who uses a public warehouse to store goods ***(4mks)***

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12. A business wishes to communicate the arrival of much waited stock of goods to its customers. Give four reasons why it might describe to write a short text message(sms) to the customers instead of a business letter.

(4mks)

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13. Outline any four advantages of using intermediaries in the chain of distribution ***(4mks)***

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14. List down four assumptions of the circular flow of income in a two sector economy ***(4mks)***

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15. Give any four challenges faced by human beings in their endeavor to satisfy human wants ***(4mks)***

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16. Highlight any four benefits that the recently launched standard gauge railway from Mombasa to Kisumu would bring to Kenya's economy

(4mks)

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17. Name any four occupations that are found at the extractive level of production ***(4mks)***

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18. Outline any four advantages of small-scale retailers over large-scale retailers ***(4mks)***

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19. Highlight any four methods used to determine prices of goods and services in the economy
(4mks)

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20. Outline any four challenges that entrepreneurs face in Kenya ***(4mks)***

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21. Highlight four characteristics of free resources ***(4mks)***

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22. Give four advantages of self employment *(4mks)*

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23. Outline any four duties of an office receptionist *(4mks)*

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24. Name the types of advertising that are described below *(4mks)*

i. Brand name and other features of the brand features more prominently **–**

ii. Advertising that aims at popularizing a new product –

iii. Advertising that popularizes the business organization**–**

iv. **U**sed by organization that deals with similar products to convince potential customers to buy their products and not the other **–**

25. Highlight any characteristics of subsistence production in Kenya ***(4mks)***

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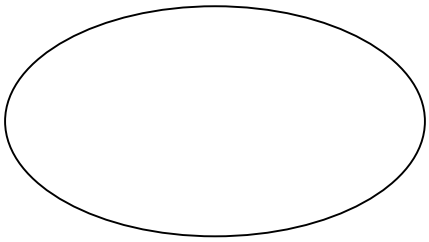
FORM 3 END TERM 1 SET 1 EXAM 2023

Name……Adm No……Class……

School ……

Candidate's Signature ……

GRAND TOTAL



BUSINESS STUDIES PAPER 2

TIME: 2 ½ HRS

INSTRUCTIONS TO CANDIDATES

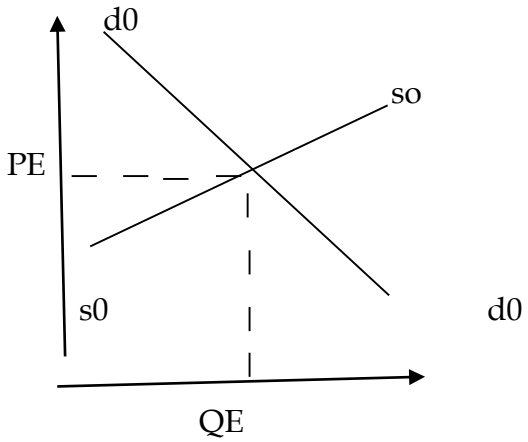
- This paper consists of six questions
- All questions carry equal marks
- Answer any five questions

1. a) Outline any five differences between a public limited company and a public corporation ***(10mks)***

   b) Explain five factors that influence the location of business enterprises ***(10mks)***

2. a) The diagram below shows the equilibrium price and quantity of commodity A which is produced jointly with commodity B.

   do do-demand curve
   so so- supply curve
   PE -Equilibrium point
   QE -Equilibrium quantity



   i. On the diagram show the effect of a decrease of tax charged on commodity B on the equi8librium price and quantity of commodity A ***(4mks)***
   ii. Explain the effect of a decrease of tax charged on commodity B on the equilibrium price and quantity of commodity A ***(6mks)***

   b) Bidco Kenya Ltd. is a manufacturer of soap and edible oil products. Highlight five reasons why the company chooses to distribute its products through wholesalers rather than selling directly to consumers ***(10mks***

3. a) Explain any four ways in which the Kenya government involves itself in government activities in the country ***(10mks)***

   b) Discuss five ways which county governments in Kenya can use to attract entrepreneurs in their areas. ***(10mks)***

4. a) Kenya association of manufactures (KMA) brings Kenyan manufacturers together to solve problems faced by the manufacturers as well as consumers. Discuss five measures taken by the manufacturers to protect consumers ***(10mks)***

   b) Discuss five importance of natural resources in a country ***(10mks)***

5. a) A recent economic survey showed a very big gap between the rich and the poor in Kenya Explain any five factors that could have led to this disparity in income distribution among individuals in Kenya ***(10mks)***

   b) Highlight any five reasons why there are so many small-scale business firms in Kenya despite the economies of scale enjoyed by large firms ***(10mks)***

6. a) Discuss any five circumstances under which an insurer may not compensate the insured in the event of occurrence of a loss ***(10mks)***
   b) Explain any five functions of marketing boards in Kenya ***(10mks)***

FORM 3 END TERM 1 SET 1 EXAM 2023

Name……Adm No……Class……

School ……

Candidate's Signature ……

GRAND TOTAL

CHEMISTRY PAPER 1
FORM THREE
TIME:

Answer All questions in the spaces provided.

1. (a) Give the main allotrope of sulphur. ***(2mks)***

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(b) Define transition temperature. ***(1mk)***

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2. (a) Define crystallization. ***(1mk)***

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3. A student added some pure potassium nitrate crystals to cold water and stirred the mixture. A few of the crystals did not dissolve at room temperature.
   a) Give a reason why some crystals did not dissolve. ***(1mk)***

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b) What would happen if the contents of the mixture in a beaker were warmed? Explain. ***(2mks)***

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c) Name two substance that can be reacted to give copper (II) sulphate. ***(1mk)***

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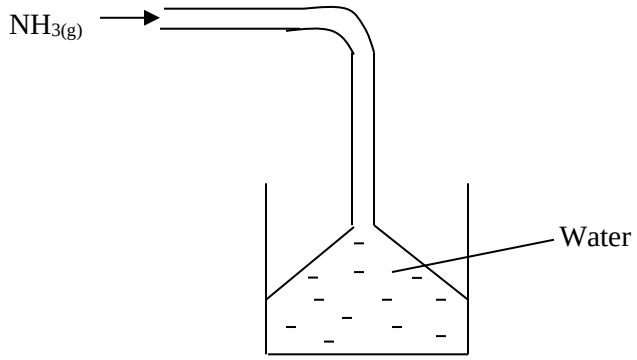
4. Ammonia gas was passed into water as shown below.



a) When a red litmus paper was dropped into the resulting solution, it turned blue. Give a reason for this observation. ***(1mk)***

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b) What is the function of the funnel? ***(1mk)***

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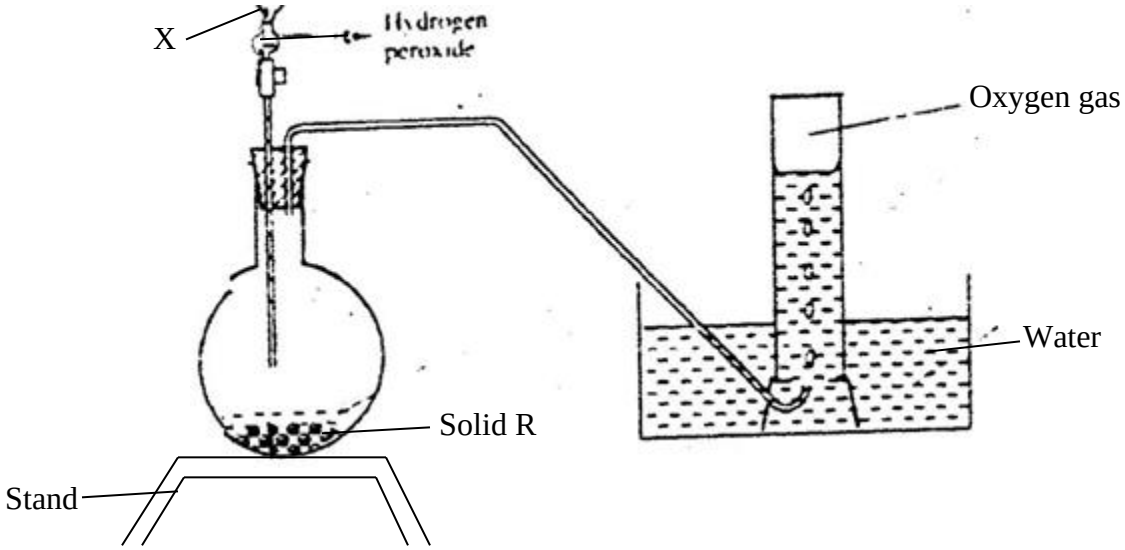
5. The diagram below is set-up for the laboratory preparation of oxygen gas.



a) Name solid R. ***(1mk)***

b) Name the apparatus X. ***(1mk)***

c) Write an equation for the reaction that takes place in the flask. ***(2mks)***

6. An element Y has electronic arrangement of 2.8.5.
   a. State the period and the group which the element belong. ***(2mks)***

   b. Write the formula of the most stable ion formed when the element Y ionizes.

   (1mk)

   c. Lithium has two isotopes with mass number 6 and 7. If the R.A.M (relative atomic mass) of Lithium is 6.94, determine the percentage abundance of such isotope.
   (3mks)

7. Give the name of each of the following processes described below when salts are exposed to air for some time.
   a) Anhydrous copper (II) sulphate becomes blue.

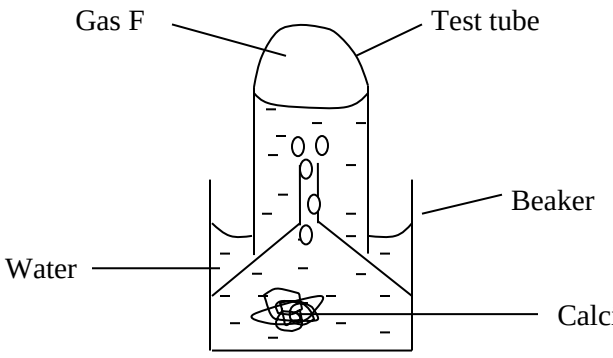
   b) Magnesium chloride forms an aqueous solution.

   c) Fresh crystals of sodium carbonate $Na_2CO_3.10H_2O$ covered with a white powder of formula $Na_2CO_3H_2O$.

8. A hydrated salt has the following composition by mass;
   Iron 20.2%, oxygen 23.0%, sulphur 11.5%, water 45.3%. Its relative formula is 278.
   (Fe=56, S=32, O=16)
   a) Determine the formula of hydrated salt. ***(3mks)***

   b) When magnesium is burnt in air it reacts with oxygen and nitrogen gas giving a white ash. Write two equations for the two reactions that take place.
   (3mks)

9. The set-up was used to collect gas F, produced by the reaction between water and calcium metal.



a) Name gas F. ***(1mk)***

At the end of the experiment, the solution in the beaker is a weak base. Explain. ***(2mks)***

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b) Give the laboratory use of solution of solution formed in the beaker. ***(1mk)***

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10. The grid below sow part of the periodic table. The letters are not the actual symbol of the element.

				G			K	
				H			I	
F								

a. Select;

i) Element which has the largest atomic radius. ***(1mk)***

ii) Most reactive non-metal. ***(1mk)***

b. Show on the grid the position of element 'J' which forms J^{-2} ions with electronic configuration of 2.8.8.8. ***(1mk)***

c. Write the equation between element F and I. ***(2mks)***

11. Use dots (.) and crosses (x) to represents electrons. Draw diagram to show bonding in
    a) (i) NH^{+}_{4} ***(1mk)***

    (ii) H_3O^+ ***(1mk)***

    (iii) CO_2 ***(1mk)***

12. In terms of structure and bonding, explain why graphite is used as a lubricant. ***(2mks)***

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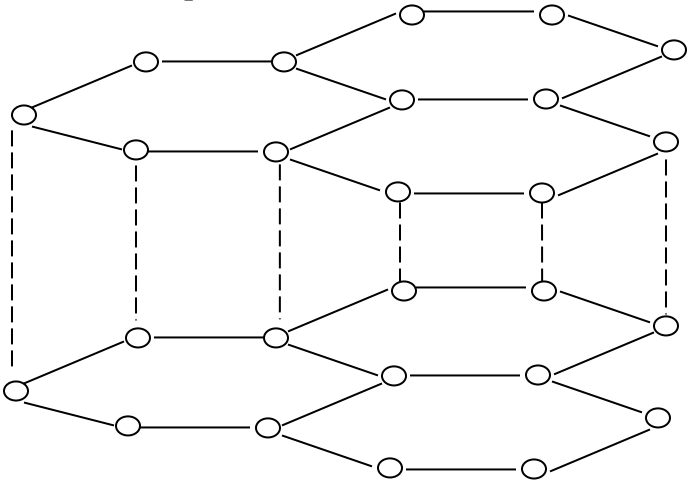
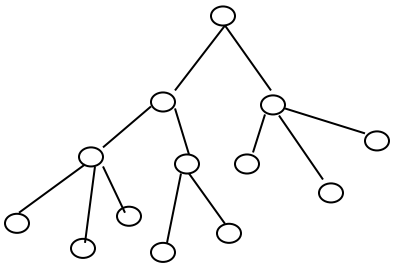
13. The following diagram, show the structure of two allotropes of carbon. Study them and answer the questions that follow.



Allotrope M



Allotrope N

a) Name the allotropes. ***(2mks)***

M - ……..

N - ……..

b) Give one use N. ***(1mk)***

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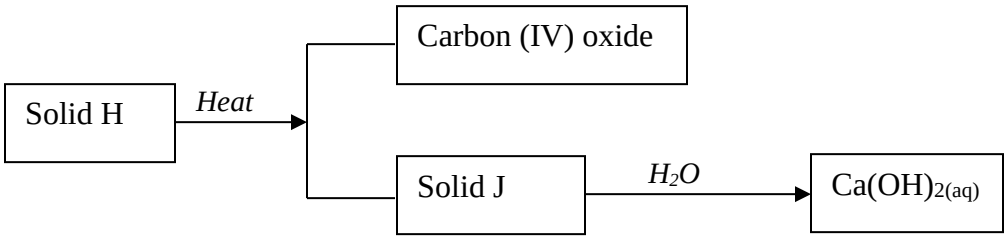
14. Use the scheme below to answer the questions that follow.



a) Identify the solids J and H. ***(2mks)***

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b) State one commercial use of solid H. ***(1mk)***

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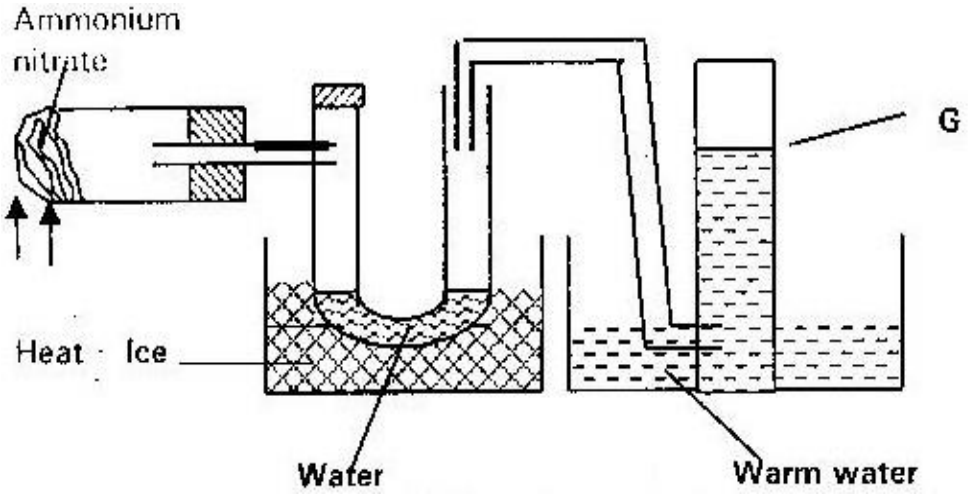
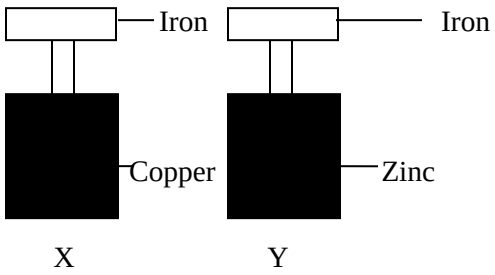
15. Ammonium nitrate was gently heated and the products collected as shown in the diagram below.



Describe one chemical test and physical properties that can be used to identify gas G. ***(3mks)***

16. Form two student in an attempt to prevent rusting, put copper and zinc in contact with iron as shown below.



State what would happen in the set up X and Y. ***(2mks)***

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17. Explain how you would separate a mixture of ammonium chloride and sodium chloride into its pure components. ***(2mks)***

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18. Calculate the mass of lead (II) nitrate that must be heated to give 22.3g of lead (II) oxide. (pb = 207, N=14, O=16) ***(3mks)***

19. 0.84g of aluminium reacted completely with chlorine gas. Calculate the volume of gas used. (Molar gas volume is 24dm^3, Al=27) ***(3mks)***

20. State Gay Lussac's Law. ***(1mk)***

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21. In an experiment 20cm^3 of sulphur (IV) oxide are found to react completely with 10cm^3 of oxygen to produce 20cm^3 of sulphur (VI) oxide. Determine the equation for the reaction. ***(3mks)***

22. Define absolute temperature. ***(1mk)***

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23. At 27^{o}C and 740mmHg pressure, a sample of nitrogen gas occupies 30cm^{3}, what will be its volume at standard temperature and pressure (s.t.p)
(3mks)

24. Complete the following equation and balance. ***(3mks)***

$NH_4NO_2 \xrightarrow{\text{Heat}}$

$KNO_3 \xrightarrow{\text{Heat}}$

$Pb(NO_3) \longrightarrow$

25. The molecular formula of gas R is 28 and its empirical formula is CH_2. (C=12, H=1)
Determine the molecular formula of gas R. ***(2mks)***

26. (a) Define the terms:

i) Electrolyte - ***(1mk)***

ii) Electrolysis - ***(1mk)***

(b) Explain the difference in conductivity between magnesium and molten magnesium chloride. ***(1mk)***

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27. $30cm^3$ of hydrogen gas were reacted with $40cm^3$ of oxygen according to the equation.

$2H_{2(g)} + O_{2(g)} \rightarrow 2H_2O_{(g)}$

Identify the gas that was in excess and by how much volume? ***(2mks)***

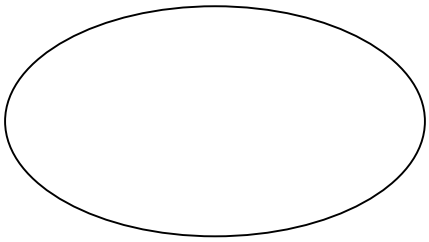
FORM 3 END TERM 1 SET 1 EXAM 2023

Name……Adm No……Class……

School ……

Candidate's Signature ……

GRAND TOTAL



BUSINESS STUDIES PAPER 2

TIME: 2 ½ HRS

INSTRUCTIONS TO CANDIDATES

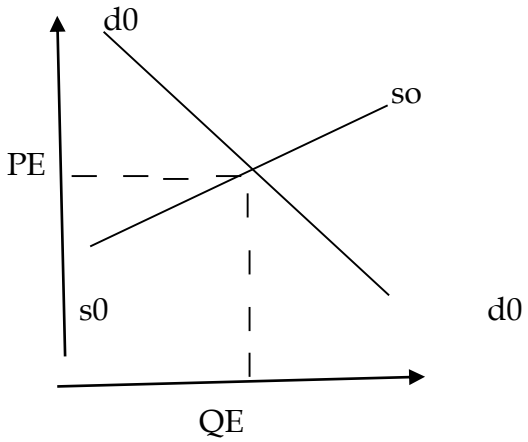
- This paper consists of six questions
- All questions carry equal marks
- Answer any five questions

1. a) Outline any five differences between a public limited company and a public corporation ***(10mks)***

   b) Explain five factors that influence the location of business enterprises ***(10mks)***

2. a) The diagram below shows the equilibrium price and quantity of commodity A which is produced jointly with commodity B.

   do do-demand curve
   so so- supply curve
   PE -Equilibrium point
   QE -Equilibrium quantity



   i. On the diagram show the effect of a decrease of tax charged on commodity B on the equi8librium price and quantity of commodity A ***(4mks)***
   ii. Explain the effect of a decrease of tax charged on commodity B on the equilibrium price and quantity of commodity A ***(6mks)***

   b) Bidco Kenya Ltd. is a manufacturer of soap and edible oil products. Highlight five reasons why the company chooses to distribute its products through wholesalers rather than selling directly to consumers ***(10mks***

3. a) Explain any four ways in which the Kenya government involves itself in government activities in the country ***(10mks)***

   b) Discuss five ways which county governments in Kenya can use to attract entrepreneurs in their areas. ***(10mks)***

4. a) Kenya association of manufactures (KMA) brings Kenyan manufacturers together to solve problems faced by the manufacturers as well as consumers. Discuss five measures taken by the manufacturers to protect consumers ***(10mks)***

   b) Discuss five importance of natural resources in a country ***(10mks)***

5. a) A recent economic survey showed a very big gap between the rich and the poor in Kenya Explain any five factors that could have led to this disparity in income distribution among individuals in Kenya ***(10mks)***

   b) Highlight any five reasons why there are so many small-scale business firms in Kenya despite the economies of scale enjoyed by large firms ***(10mks)***

6. a) Discuss any five circumstances under which an insurer may not compensate the insured in the event of occurrence of a loss ***(10mks)***
   b) Explain any five functions of marketing boards in Kenya ***(10mks)***

FORM 3 END TERM 1 SET 1 EXAM 2023

Name……Adm No……Class……

School ……

Candidate's Signature ……

GRAND TOTAL

CHEMISTRY PAPER 1
FORM THREE
TIME:

Answer All questions in the spaces provided.

1. (a) Give the main allotrope of sulphur. ***(2mks)***

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(b) Define transition temperature. ***(1mk)***

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2. (a) Define crystallization. ***(1mk)***

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3. A student added some pure potassium nitrate crystals to cold water and stirred the mixture. A few of the crystals did not dissolve at room temperature.
   a) Give a reason why some crystals did not dissolve. ***(1mk)***

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b) What would happen if the contents of the mixture in a beaker were warmed? Explain. ***(2mks)***

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c) Name two substance that can be reacted to give copper (II) sulphate. ***(1mk)***

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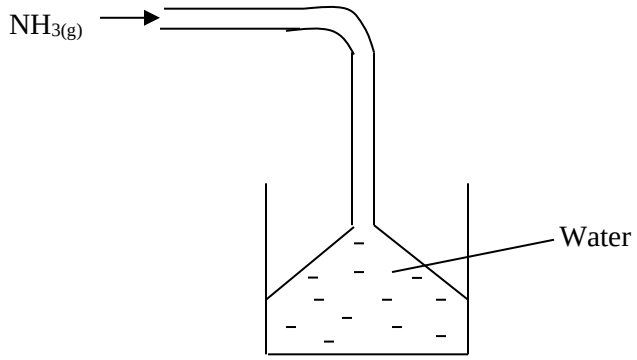
4. Ammonia gas was passed into water as shown below.



a) When a red litmus paper was dropped into the resulting solution, it turned blue. Give a reason for this observation. ***(1mk)***

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b) What is the function of the funnel? ***(1mk)***

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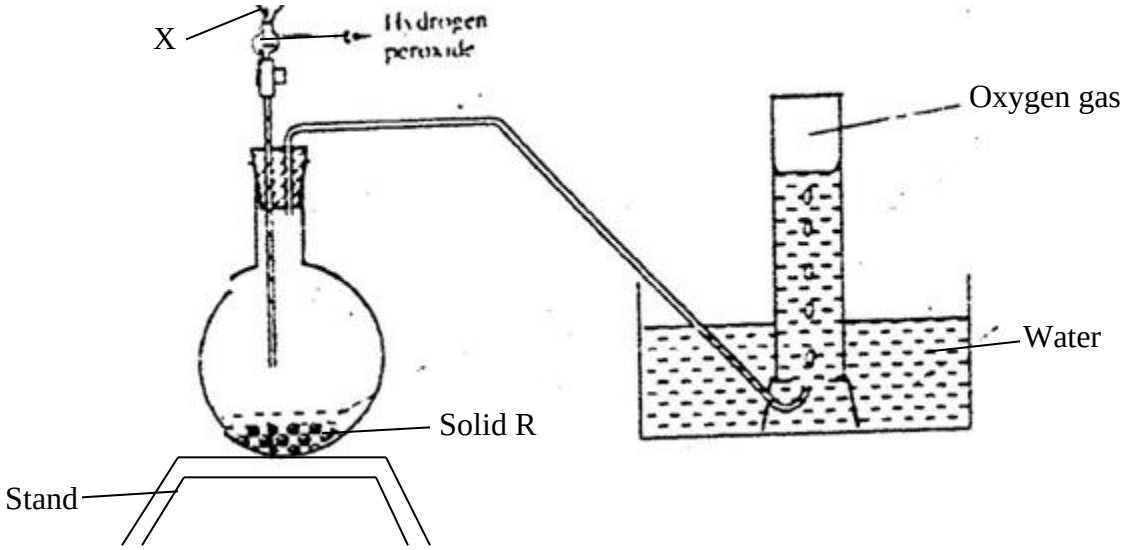
5. The diagram below is set-up for the laboratory preparation of oxygen gas.



a) Name solid R. ***(1mk)***

b) Name the apparatus X. ***(1mk)***

c) Write an equation for the reaction that takes place in the flask. ***(2mks)***

6. An element Y has electronic arrangement of 2.8.5.
   a. State the period and the group which the element belong. ***(2mks)***

   b. Write the formula of the most stable ion formed when the element Y ionizes.

   (1mk)

   c. Lithium has two isotopes with mass number 6 and 7. If the R.A.M (relative atomic mass) of Lithium is 6.94, determine the percentage abundance of such isotope.
   (3mks)

7. Give the name of each of the following processes described below when salts are exposed to air for some time.
   a) Anhydrous copper (II) sulphate becomes blue.

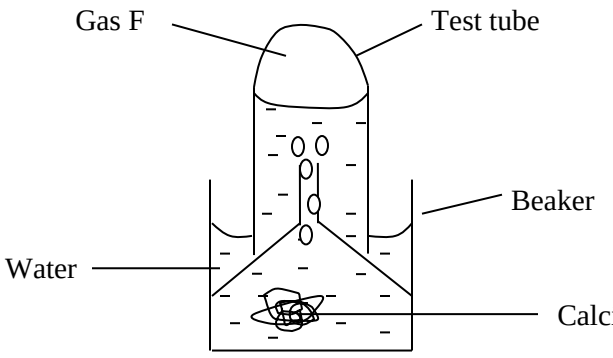
   b) Magnesium chloride forms an aqueous solution.

   c) Fresh crystals of sodium carbonate $Na_2CO_3.10H_2O$ covered with a white powder of formula $Na_2CO_3H_2O$.

8. A hydrated salt has the following composition by mass;
   Iron 20.2%, oxygen 23.0%, sulphur 11.5%, water 45.3%. Its relative formula is 278.
   (Fe=56, S=32, O=16)
   a) Determine the formula of hydrated salt. ***(3mks)***

   b) When magnesium is burnt in air it reacts with oxygen and nitrogen gas giving a white ash. Write two equations for the two reactions that take place.
   (3mks)

9. The set-up was used to collect gas F, produced by the reaction between water and calcium metal.



a) Name gas F. ***(1mk)***

At the end of the experiment, the solution in the beaker is a weak base. Explain. ***(2mks)***

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b) Give the laboratory use of solution of solution formed in the beaker. ***(1mk)***

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10. The grid below sow part of the periodic table. The letters are not the actual symbol of the element.

				G			K	
				H			I	
F								

a. Select;

i) Element which has the largest atomic radius. ***(1mk)***

ii) Most reactive non-metal. ***(1mk)***

b. Show on the grid the position of element 'J' which forms J^{-2} ions with electronic configuration of 2.8.8.8. ***(1mk)***

c. Write the equation between element F and I. ***(2mks)***

11. Use dots (.) and crosses (x) to represents electrons. Draw diagram to show bonding in
    a) (i) NH^{+}_{4} ***(1mk)***

    (ii) H_3O^+ ***(1mk)***

    (iii) CO_2 ***(1mk)***

12. In terms of structure and bonding, explain why graphite is used as a lubricant. ***(2mks)***

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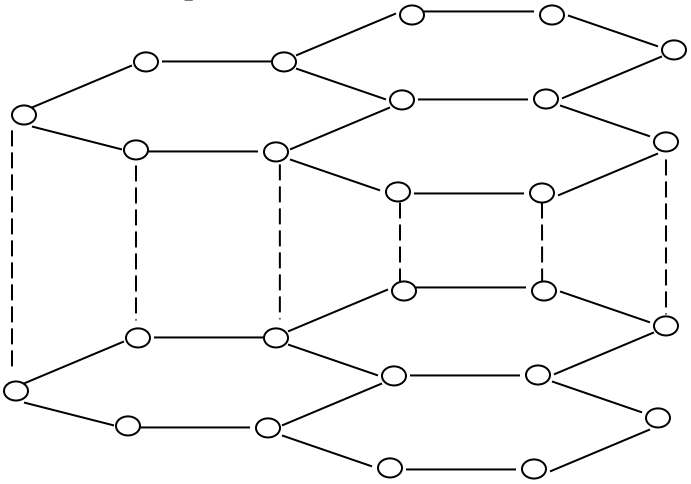
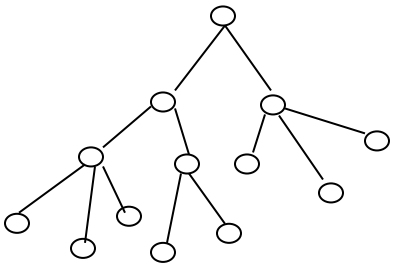
13. The following diagram, show the structure of two allotropes of carbon. Study them and answer the questions that follow.



Allotrope M



Allotrope N

a) Name the allotropes. ***(2mks)***

M - ……..

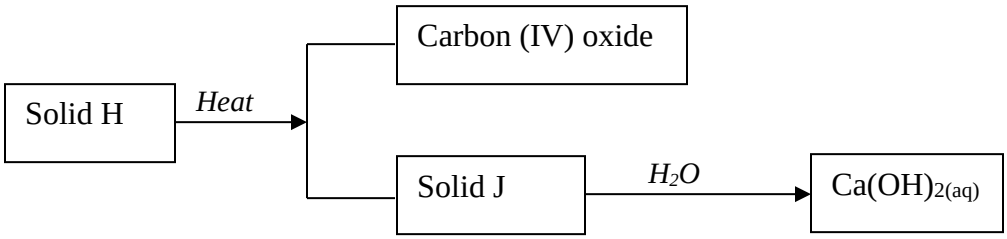
N - ……..

b) Give one use N. ***(1mk)***

……

……

14. Use the scheme below to answer the questions that follow.



a) Identify the solids J and H. ***(2mks)***

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b) State one commercial use of solid H. ***(1mk)***

……

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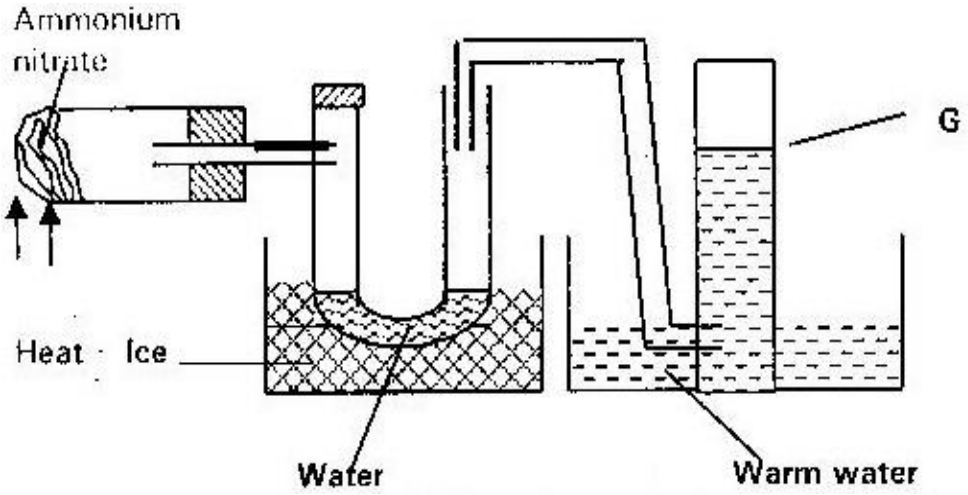
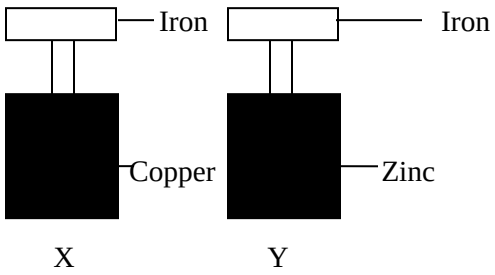
15. Ammonium nitrate was gently heated and the products collected as shown in the diagram below.



Describe one chemical test and physical properties that can be used to identify gas G. ***(3mks)***

16. Form two student in an attempt to prevent rusting, put copper and zinc in contact with iron as shown below.



State what would happen in the set up X and Y. ***(2mks)***

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17. Explain how you would separate a mixture of ammonium chloride and sodium chloride into its pure components. ***(2mks)***

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18. Calculate the mass of lead (II) nitrate that must be heated to give 22.3g of lead (II) oxide. (pb = 207, N=14, O=16) ***(3mks)***

19. 0.84g of aluminium reacted completely with chlorine gas. Calculate the volume of gas used. (Molar gas volume is 24dm^3, Al=27) ***(3mks)***

20. State Gay Lussac's Law. ***(1mk)***

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……

21. In an experiment 20cm^3 of sulphur (IV) oxide are found to react completely with 10cm^3 of oxygen to produce 20cm^3 of sulphur (VI) oxide. Determine the equation for the reaction. ***(3mks)***

22. Define absolute temperature. ***(1mk)***

……
……

23. At 27^{o}C and 740mmHg pressure, a sample of nitrogen gas occupies 30cm^{3}, what will be its volume at standard temperature and pressure (s.t.p)
(3mks)

24. Complete the following equation and balance. ***(3mks)***

$NH_4NO_2 \xrightarrow{\text{Heat}}$

$KNO_3 \xrightarrow{\text{Heat}}$

$Pb(NO_3) \longrightarrow$

25. The molecular formula of gas R is 28 and its empirical formula is CH_2. (C=12, H=1)
Determine the molecular formula of gas R. ***(2mks)***

26. (a) Define the terms:

i) Electrolyte - ***(1mk)***

ii) Electrolysis - ***(1mk)***

(b) Explain the difference in conductivity between magnesium and molten magnesium chloride. ***(1mk)***

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27. $30cm^3$ of hydrogen gas were reacted with $40cm^3$ of oxygen according to the equation.

$2H_{2(g)} + O_{2(g)} \rightarrow 2H_2O_{(g)}$

Identify the gas that was in excess and by how much volume? ***(2mks)***

FORM 3 END TERM 1 SET 1 EXAM 2023

Name……Adm No……Class……

School ……

Candidate's Signature ……

GRAND TOTAL

CHEMISTRY PAPER 2
FORM THREE

INSTRUCTIONS.
Answer all the questions in the spaces provided.

1. The grid below shows part of the periodic table. The letters do not represent the actual symbols. Use it to answer the questions that follow.

								T
	K					U		
X	Y		M			Q	W	
J								Z

a. How is the atomic radius of element X and Y compared? ***(2mks)***

b. Using crosses (x) to represent electrons, draw the atomic structure of element Q. ***(1mk)***

State the period and the group to which element Q belong. ***(2mks)***

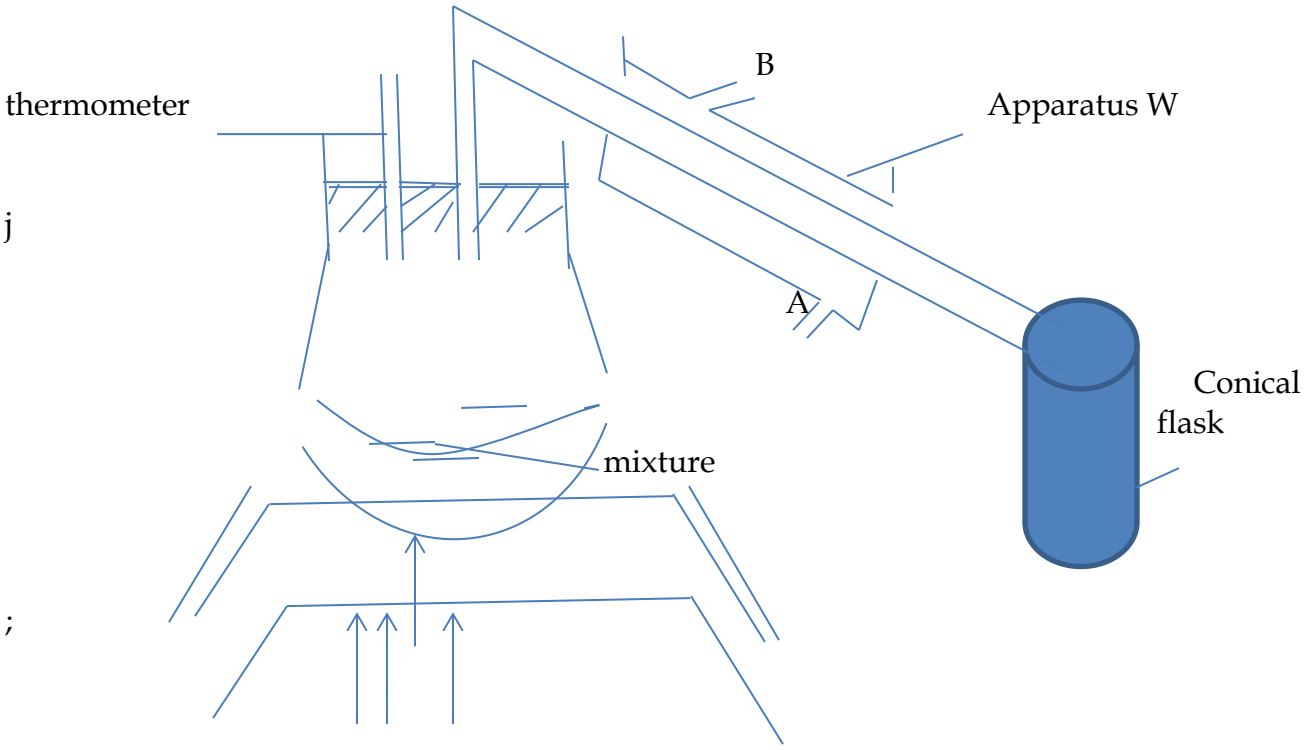
c. The ionic configuration of element G is 2.8 G forms an ion of the type G^{-1}. Indicate in the grid the position of element G. ***(1mk)***

ii. To which chemical family does element G belong? ***(1mk)***

iii. State one use of element U. ***(1mk)***

iv. Write the equation that would take place when Y is heated with air. ***(2mks)***

2. A student left some crushed fruit mixture which fermented to form water and ethanol with boiling point of $100^{O}C$ and $78^{O}C$ respectively. The set up of the apparatus below were used to separate the mixture.



a. Name the apparatus labeled W. ***(1mk)***

i. What is the purpose of the thermometer in the set-up? ***(1mk)***

ii. At what end of the apparatus W would tap water connected? ***(1mk)***

iii. Which liquid was collected first as a distillable? Explain (***2mks)***

b. i. What is the name given to above method of separating mixture? ***(1mk)***

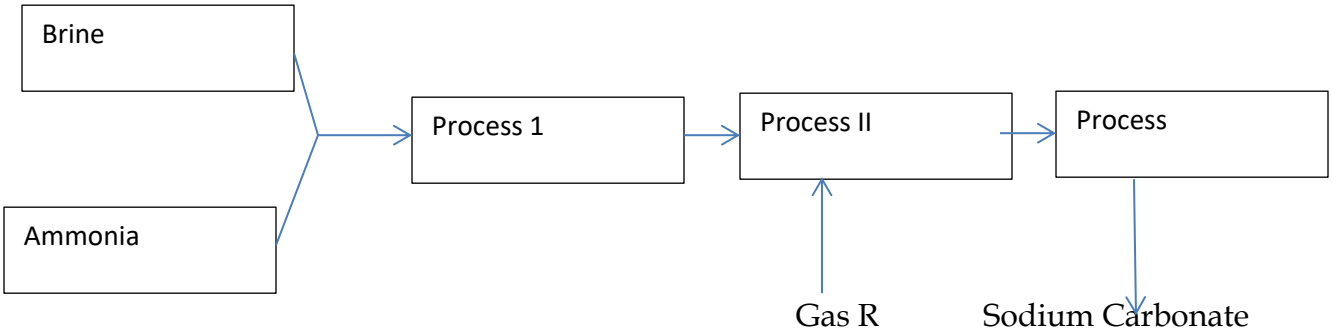
ii. State two application of the above method of separating mixtures. ***(2mks)***

iv. What properties of the mixture make it possible to be separated by the above method? ***(1mk)***

3. a. State one use of graphite. ***(1mk)***

ii. Both graphite and diamond are allotrope of element carbon. Graphite conduct electricity whereas diamond does not. Explain. ***(2mks)***

b. Below is a simplified scheme of solvery process. Study it and answer the questions that follow.



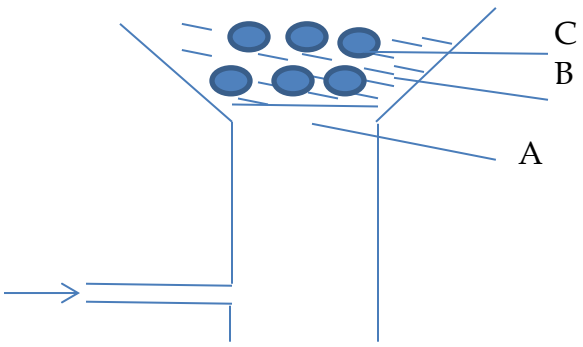
i. Identify gas R. ***(1mk)***

ii. Write an equation for the process III. ***(1mk)***

iii. Name the process II. ***(1mk)***

c. Give two uses of sodium carbonate. ***(2mks)***

d. The diagram below shows a charcoal stove with different region.



i. Write an equation for the formation of product B. ***(1mk)***

ii. How would one prevent the production of product at B? ***(2mks)***

4. An unknown mass X, of an hydrous potassium carbonate was dissolve in water and the solution made up to 200cm^3. 25cm^3 of this solution required 18cm^3 of 0.22M nitric acid for complete neutralization. (K=39,C=12,O=16)

i. Write an equation for the reaction that took place ***(2mks)***

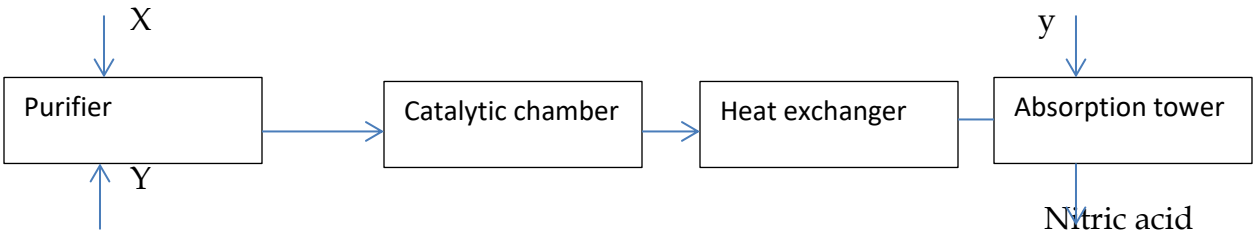
ii. Calculate the number of moles of nitric (V) acid that reacted with anhydrous potassium carbonate. ***(2mks)***

iii. Calculate the number of moles of anhydrous potassium carbonate that was neutralized by acid. ***(2mks)***

iv. Determine the value of X. ***(2mks)***

5 a. Describe the process by which oxygen can be obtain from air. ***(4mks)***

a. The flow chart below shows industrial manufacture of nitric (V) acid.



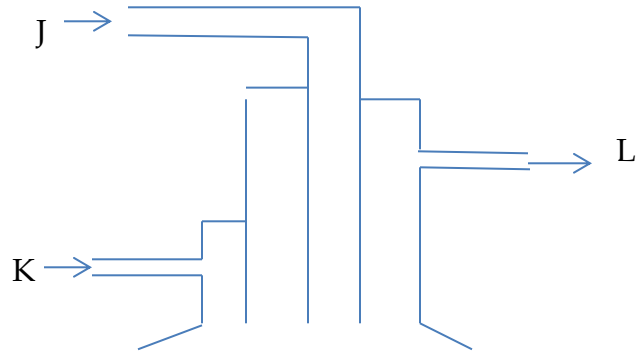
i. Identify substance X and Y. ***(2mks)***

ii. Write an equation for the reaction taking place in the absorption tower. ***(2mks)***

b. The concentration of acid obtain is 60%. How can this concentration be increased to about 65%. ***(1mk)***

ii. A factory uses nitric (V) acid and ammonia as the only reaction for the production of a fertilizer. If a mass of 9600kg of fertilizer was produced. Calculate the mass of ammonia gas needed. (N=14, H=1, O=16) ***(3mks)***

5. Sulphur is extracted from underground deposits by process in which three concentric pipes are sink down to the deposit as shown.



i. Name the process represented above. ***(1mk)***

ii. What is passed down through pipe J? ***(1mk)***

iii. Name two allotropes of sulphur. ***(2mks)***

b. Commercial sulphuric acid has a density of $1.8gcm^{-3}$.
i. Determine the molarity of the acid. ***(3mks)***

ii. Determine the volume of commercial acid in a above that can be used to prepare $500cm^3$ of $0.2M H_2SO_4$ solution. ***(3mks)***

iii. Oleum is an intermediate product in the industrial manufacture of sulphuric acid. How is oleum ($H_2S_2O_7$) converted into sulphuric acid. ***(1mk)***

iv. Give two use of sulphuric (VI) acid. ***(2mks)***

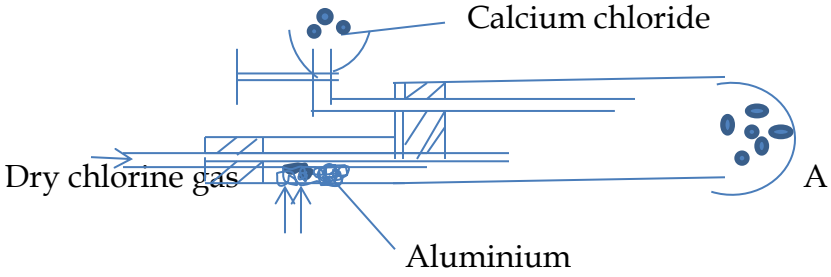
6. Two reagent that can be used to prepare chlorine gas are manganese(IV) oxide and conc. Hydrochloric acid.

a. Write an equation for the reaction. ***(2mks)***

ii. Give the formula of another reagent that can be reacted with conc. Hydrochloric acid to produce chlorine gas. ***(1mk)***

iii. Describe how chlorine gas could be dried and collected in the laboratory. ***(2mks)***

b. In an experiment, dry chlorine gas was reacted with aluminium as shown in the diagram below.



i. Name substance A *(1mk)*

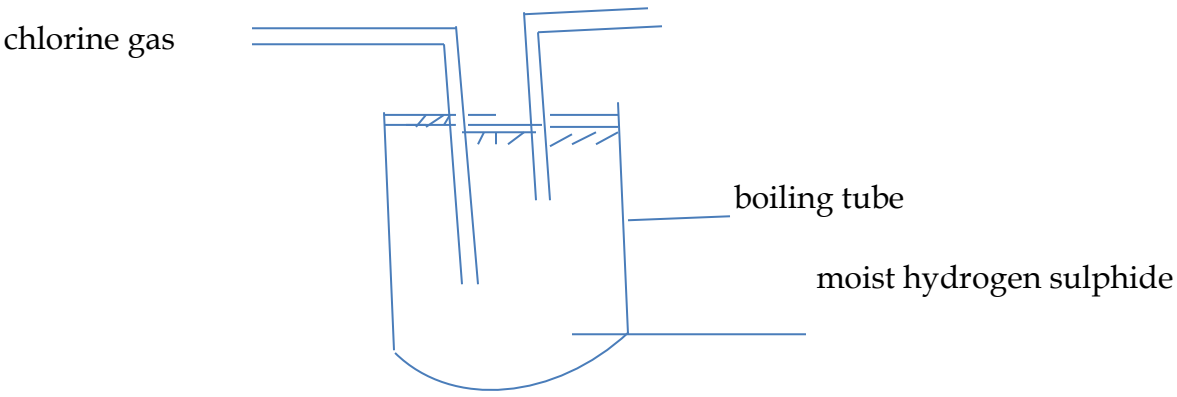
ii. Write an equation for the reaction that took place in the combustion tube. *(2mks)*

iii. State the function of calcium chloride. *(1mk)*

c. Give the properties of substance A. *(1mk)*

ii. Name other three substances that behavior as A. *(3mks)*

7. In an experiment, chlorine was passed into moist hydrogen sulphide in a boiling tube as shown below.



i. What observation was made in the boiling tube? ***(1mk)***

ii. Write an equation for the reaction that took place in the boiling tube.
(2mks)

FORM 3 ENDTERM 1 SET 1 EXAM

CHEMISTRY PAPER 3 CONFIDENTIAL

In addition to the common laboratory apparatus and fittings, each candidate shall be supplied with the following

- 60 $cm^3$of 0.5M copper (II) sulphate labeled ***solution K***
- 2.5g of ***Solid L***
- 90cm^3 of acidified potassium manganate(VII), labelled as ***Solution M***
- 60 $cm^3$of 2M sulphuric (VI) acid, H_2SO_4
- 2ml of ***solution X***
- 2ml of ***solution Y***
- 2ml of ***solution Z***
- About 8 $cm^3$of ***liquid E*** in a stoppered test tube
- About 2g of ***solid Q*** in a stoppered container
- Burette
- Pipette and pipette filler
- Three conical flasks
- 10ml measuring cylinder.
- 250 ml plastic beaker
- 250 ml volumetric flask with a stopper
- 1 label
- Stop watch
- Clean glass rod/looped nichrome wire
- Clean and dry Metallic spatula
- Thermometer (-10-110^{0}c)
- four test tubes
- test tube holder
- Filter paper
- Filter funnel
- Retort stand
- white tile
- 10ml measuring cylinder.
- 50ml measuring cylinder.

Access to the following:

- Distilled water
- Bunsen burner
- Acidified potassium dichromate (VI) supplied with a dropper.
- 2M Barium nitrate solution supplied with a dropper.
- 2M lead (II) nitrate supplied with a dropper
- 2M Nitric (V) acid supplied with a dropper
- Sodium hydrogen carbonate solid supplied with a spatula

Note

- Solid Q is $N_{a2}SO_3$
- Liquid E is ethanol
- Solution K is prepared by accurately weighing 125g of hydrated copper (II) sulphate and making up to 1000 cm3 of solution
- Solution M is prepared by accurately weighing 3.2g of $KMnO_4$.then dissolving in 100ml of 2M sulphuric acid and topping up to 1000ml of the solution
- Solution X is 2M potassium nitrate
- Solution Y is made by dissolving One Spatulaful of ***blue Toss*** detergent in 100ml of ***distilled water (do not use tap water)then filter***
- Solution Z is 2M copper (II) sulphate solution

Name……Index No……

Class: ……Adm no:……

Date……..

233/3 **CHEMISTRY PRACTICAL**

PAPER 3

TIME: 2 ¼ HOURS

FORM 3 ENDTERM 1 SET 2 EXAM

Kenya Certificate of Secondary Education (K.C.S.E.)

Chemistry 233/3

2 ¼ Hours

INSTRUCTIONS TO CANDIDATES

- Write your **name** and **index number** in the spaces provided.
- **Sign** and write the **date** of examination in the spaces provided.
- Answer ***all*** the questions in the spaces provided in the question paper in **English**.
- You are not allowed to start working with the apparatus for the first 15 minutes of the 2 ¼ hours allowed for this paper. This time is to enable you to read the question paper and make sure you have all the chemicals and apparatus you need.
- All working **must** be clearly shown where necessary.
- Mathematical tables and silent electronic calculators may be used
-

For examiners use only

Question	Maximum Score	Candidate's Score
1	22	
2	10	
3	08	
TOTAL	40	

Question 1

You are provided with the following reagents:

- **Solution K**- Copper (II) sulphate solution
- **Solid L**- Iron powder

- **Solution M**- Acidified Potassium Manganate (VII) solution, containing **0.8g** of Potassium Manganate (VII) in 250cm^3 of the solution.

You are required to determine the ***molar heat of displacement*** of copper in a solution of its ions by iron metal.

Procedure I

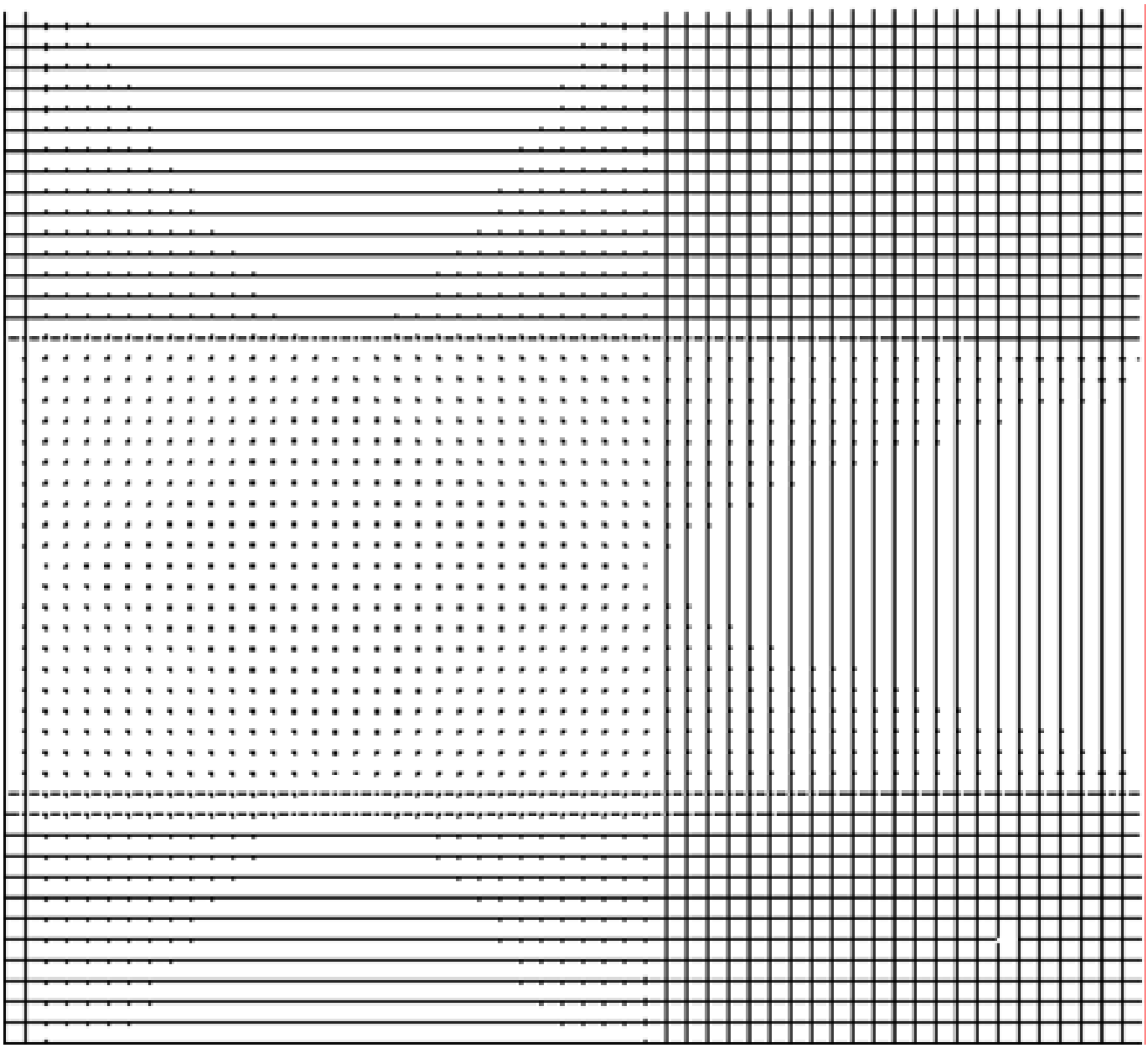
- Place 50cm^3 of **Solution K** in a 100cm^3 plastic beaker using a burette.
- Measure the constant temperature of the solution and record it in the **Table 1** below.
- Add all of the **Solid L** provided at once and start a stop watch immediately.
- Using a thermometer, Stir the mixture **thoroughly and continuously** and record the temperature of the mixture after every **one minute** in the table 1.
- **Retain** the resultant mixture for use in the next **Procedure II**.

Table 1

Time (Min)	0	1	2	3	4	5	6	7	8	9	10
Temperature(^{0}C)											

(3 marks)

(i) Plot a graph of temperature (vertical axis) against time on the grid provided below.
(3 marks)



(ii) From the graph you have drawn, determine the;

a) highest change in temperature, ΔT **(1 mark)**

b) time taken for the reaction to completely occur **(1 mark)**

(iii) Calculate the heat change for the reaction. (Take density of the solution to be 1g/cm^3 and specific heat capacity of the solution to be 4200kJ/Kg/K)

(2 marks)

Procedure II

- Swirl the mixture obtained in procedure I above and filter into a 250mL volumetric flask.
- Thoroughly rinse the beaker with 20cm^3 of distilled water and ensure all the mixture has been transferred onto the filter paper.
- Add 50cm^3 of 2M Sulphuric (VI) acid to the filtrate mixture in the volumetric flask.
- Add more distilled water to the solution in the volumetric flask to the mark. Mix the contents thoroughly and label this solution as **Solution N**.
- Fill the burette with **Solution M.**
- Place 25 cm^3 of **Solution N** into a 250 cm^3 conical flask using a pipette and a pipette filler.
- Titrate **Solution N** against **Solution M** until the **first permanent pink** colour is seen.
- Record your results in **Table 2** below.
- Repeat the titration **twice** and complete **Table 2**.

Table 2

Titre	**I**	**II**	**III**
Final burette reading(cm^3)			
Initial burette reading(cm^3)			
Volume of solution M used(cm^3)			

(3 marks)

(i) What is the average volume of **Solution M** used? **(1 mark)**

(ii) Calculate the molarity of **Solution M,** $KMnO_4$ **(1 mark)**

(K=39, Mn=55, O=16)

(iii) Calculate the number of moles of:

a) Potassium manganate (VII) used, **solution M** **(1 mark)**

b) Iron (II) ions in $25cm^3$ of **solution N** **(1 mark)**

The equation for the reaction is:

$$MnO_4^-{}_{(aq)} + 8H^+{}_{(aq)} + 5Fe^{2+}{}_{(aq)} \longrightarrow Mn^{2+}{}_{(aq)} + 4H_2O_{(l)} + 5Fe^{3+}{}_{(aq)}$$

c) Iron (II) ions in the $250cm^3$ of **solution N** **(1 mark)**

(iv) Determine the molar heat of displacement of copper from a solution of its ions by iron metal **(2 marks)**

(v) Draw an energy level diagram for the reaction **(2 marks)**

Question 2

(a) You have been provided with solutions X, Y and Z. Carry out the flame tests for each and indicate the colour of the flames and inferences below.

Ions	Flame colour	Inference
X		
Y		
Z		

(3 marks)

(b) You are provided with **Solid Q**. Carry out the tests below and Write your observations and inferences in the spaces provided.

i) Place all **Solid Q** in a clean test tube. Add about $8cm^3$ of distilled water and shake. Divide the solution into 3 portions

Observation	Inference
(1/2 mark)	**(1/2 mark)**

ii) To the first portion add a few drops of Lead (II) nitrate solution and warm

Observation	Inference
(1 mark)	**(1 mark)**

(iii) To the first portion add a few drops of Barium nitrate solution followed by few drops of dilute hydrochloric acid

Observation	Inference

(1 mark)	**(1 mark)**

iv) To the third portion add a few drops of acidified potassium dichromate (VI) then warm gently

Observation	Inference
(1 mark)	**(1 mark)**

3. You have been provided with **Liquid E**.

i) Place about 2cm^3 of the **Liquid E** in a clean test tube. Add an equal amount of distilled water and shake the mixture. Allow to settle.

Observation	Inference

(1 mark)	**(1 mark)**

ii) Place about 2cm^3 of the **Liquid E** in a clean test tube. Add a half spatulaful of sodium hydrogen carbonate.

Observation	Inference
(1 mark)	**(1 mark)**

iii) To about 2cm^3 the **Liquid E** add 3 drops of acidified potassium dichromate (VI) solution and warm gently

Observation	Inference
(1 mark)	**(1 mark)**

iv) Take a few drops of **Liquid E** on a **clean and dry** metallic spatula and ignite over a non-luminous Bunsen flame

Observation	Inference
(1 mark)	**(1 mark)**

CRE FORM THREE PARER ONE

NAME…… ADM……. CLASS……

Answer any FIVE questions

1(a) State seven contributions of cre to the development of a student ***(7 mks)***

(b) Outline seven steps taken by God to seal the broken relationship with man ***(7 mks)***

(c) In what ways is the church in Kenya fighting evil in society ***(6 mks)***

2(a) outline the regulations that god gave Moses about the Passover ***(7mks)***

(b) Give seven ways in which the Israelites worshipped god in the wilderness ***(7mks)***

(c) Identify the elements of Jewish worship found in Christian worship today ***(6 mks)***

3 (a) Explain the factors that led to the division of the kingdom of Israel ***(7 mks)***

(b) State six practices of idolatry during the time of Prophet Elijah ***(6 mks)***

© Give reasons why political leaders in Kenya have failed to perform their duties effectively ***(7 mks)***

4 (a) Identify seven characteristics of true prophets in the Old Testament ***(7mks)***

(b)Outline the teaching of Amos on remnant and restoration of the Israelites (***6mks)***

(c) Give the responsibility of Christians as elected people of God today ***(7 mks)***

5 (a) Identify seven evils condemned by prophet Jeremiah during the temple sermon ***(7 mks)***

(b) Describe the fall of Jerusalem 39 ***(7mks)***

(c) Outline six ways in which Christians can fight evils in the society today ***(6 mks)***

6 (a) Describe the traditional African concept of a community ***(8mks)***

(b) Give ways in which a child learns to be part of the community ***(6mks)***

(c) State the disadvantages of kinship system ***(7 mks)***

FORM 3 END TERM 1 SET 1 EXAM 2023

Name……Adm No……Class……

School ……

Candidate's Signature ……

GRAND TOTAL

CHEMISTRY PAPER 2
FORM THREE

INSTRUCTIONS.
Answer all the questions in the spaces provided.

1. The grid below shows part of the periodic table. The letters do not represent the actual symbols. Use it to answer the questions that follow.

								T
	K					U		
X	Y		M			Q	W	
J								Z

a. How is the atomic radius of element X and Y compared? ***(2mks)***

b. Using crosses (x) to represent electrons, draw the atomic structure of element Q. ***(1mk)***

State the period and the group to which element Q belong. ***(2mks)***

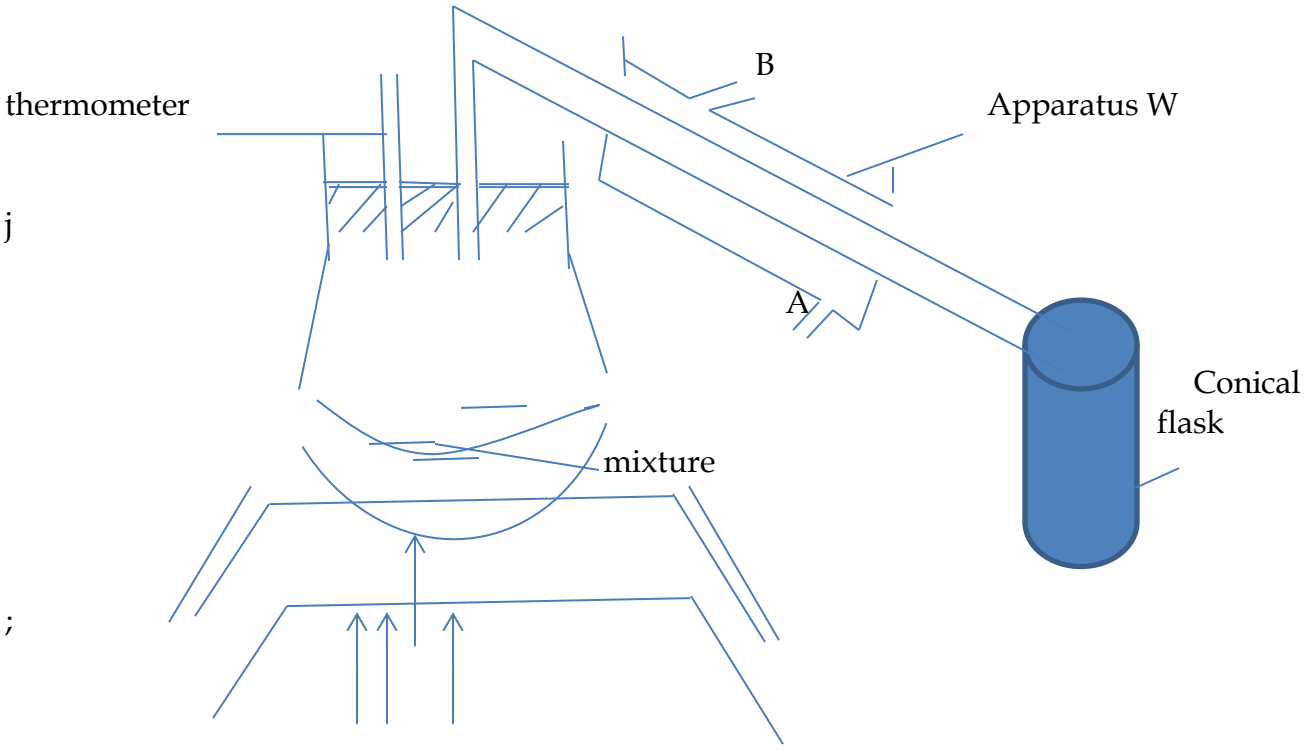
c. The ionic configuration of element G is 2.8 G forms an ion of the type G^{-1}. Indicate in the grid the position of element G. ***(1mk)***

ii. To which chemical family does element G belong? ***(1mk)***

iii. State one use of element U. ***(1mk)***

iv. Write the equation that would take place when Y is heated with air. ***(2mks)***

2. A student left some crushed fruit mixture which fermented to form water and ethanol with boiling point of $100^{O}C$ and $78^{O}C$ respectively. The set up of the apparatus below were used to separate the mixture.



a. Name the apparatus labeled W. ***(1mk)***

i. What is the purpose of the thermometer in the set-up? ***(1mk)***

ii. At what end of the apparatus W would tap water connected? ***(1mk)***

iii. Which liquid was collected first as a distillable? Explain (***2mks)***

b. i. What is the name given to above method of separating mixture? ***(1mk)***

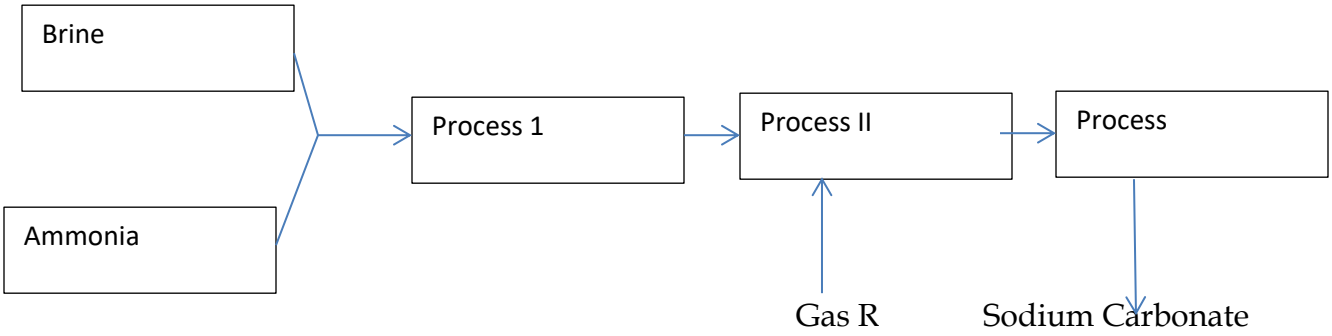
ii. State two application of the above method of separating mixtures. ***(2mks)***

iv. What properties of the mixture make it possible to be separated by the above method? ***(1mk)***

3. a. State one use of graphite. ***(1mk)***

ii. Both graphite and diamond are allotrope of element carbon. Graphite conduct electricity whereas diamond does not. Explain. ***(2mks)***

b. Below is a simplified scheme of solvery process. Study it and answer the questions that follow.



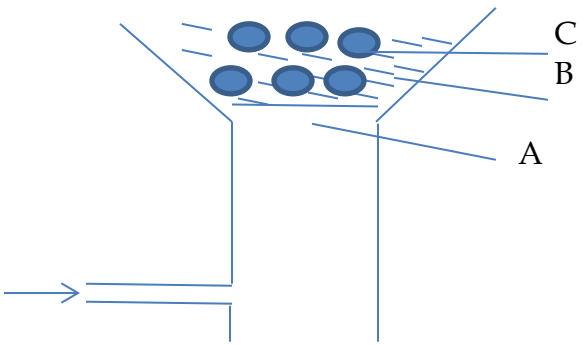
i. Identify gas R. ***(1mk)***

ii. Write an equation for the process III. ***(1mk)***

iii. Name the process II. ***(1mk)***

c. Give two uses of sodium carbonate. ***(2mks)***

d. The diagram below shows a charcoal stove with different region.



i. Write an equation for the formation of product B. ***(1mk)***

ii. How would one prevent the production of product at B? ***(2mks)***

4. An unknown mass X, of an hydrous potassium carbonate was dissolve in water and the solution made up to 200cm^3. 25cm^3 of this solution required 18cm^3 of 0.22M nitric acid for complete neutralization. (K=39,C=12,O=16)

i. Write an equation for the reaction that took place ***(2mks)***

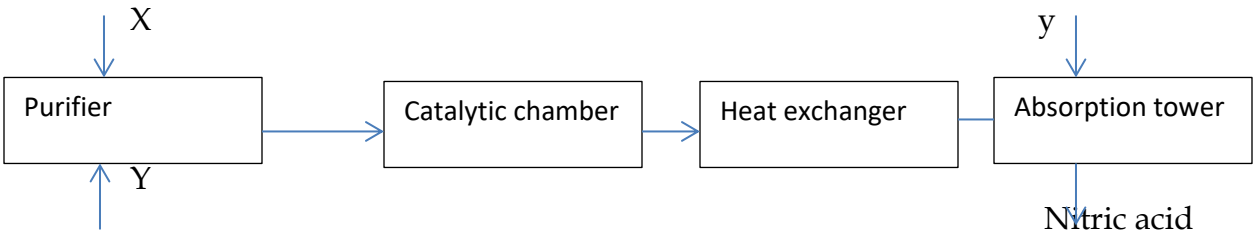
ii. Calculate the number of moles of nitric (V) acid that reacted with anhydrous potassium carbonate. ***(2mks)***

iii. Calculate the number of moles of anhydrous potassium carbonate that was neutralized by acid. ***(2mks)***

iv. Determine the value of X. ***(2mks)***

5 a. Describe the process by which oxygen can be obtain from air. ***(4mks)***

a. The flow chart below shows industrial manufacture of nitric (V) acid.



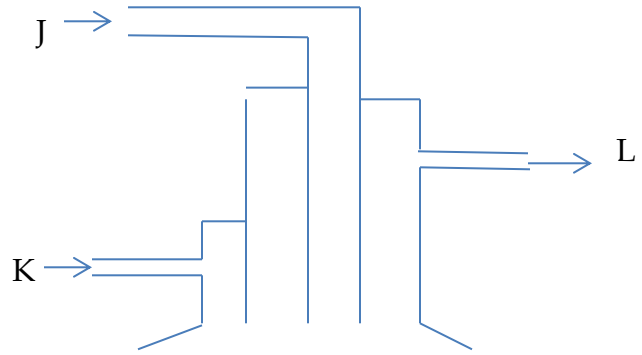
i. Identify substance X and Y. ***(2mks)***

ii. Write an equation for the reaction taking place in the absorption tower. ***(2mks)***

b. The concentration of acid obtain is 60%. How can this concentration be increased to about 65%. ***(1mk)***

ii. A factory uses nitric (V) acid and ammonia as the only reaction for the production of a fertilizer. If a mass of 9600kg of fertilizer was produced. Calculate the mass of ammonia gas needed. (N=14, H=1, O=16) ***(3mks)***

5. Sulphur is extracted from underground deposits by process in which three concentric pipes are sink down to the deposit as shown.



i. Name the process represented above. ***(1mk)***

ii. What is passed down through pipe J? ***(1mk)***

iii. Name two allotropes of sulphur. ***(2mks)***

b. Commercial sulphuric acid has a density of $1.8gcm^{-3}$.
i. Determine the molarity of the acid. ***(3mks)***

ii. Determine the volume of commercial acid in a above that can be used to prepare $500cm^3$ of $0.2M H_2SO_4$ solution. ***(3mks)***

iii. Oleum is an intermediate product in the industrial manufacture of sulphuric acid. How is oleum ($H_2S_2O_7$) converted into sulphuric acid. ***(1mk)***

iv. Give two use of sulphuric (VI) acid. ***(2mks)***

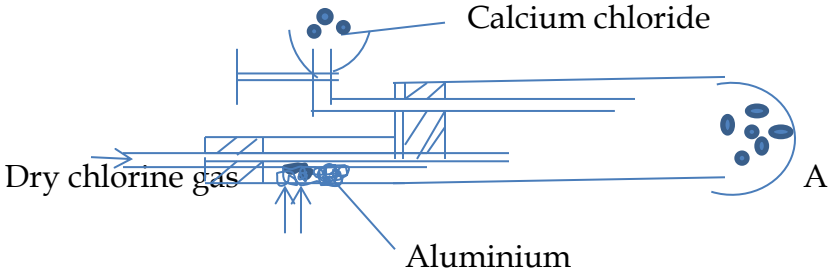
6. Two reagent that can be used to prepare chlorine gas are manganese(IV) oxide and conc. Hydrochloric acid.

a. Write an equation for the reaction. ***(2mks)***

ii. Give the formula of another reagent that can be reacted with conc. Hydrochloric acid to produce chlorine gas. ***(1mk)***

iii. Describe how chlorine gas could be dried and collected in the laboratory. ***(2mks)***

b. In an experiment, dry chlorine gas was reacted with aluminium as shown in the diagram below.



i. Name substance A *(1mk)*

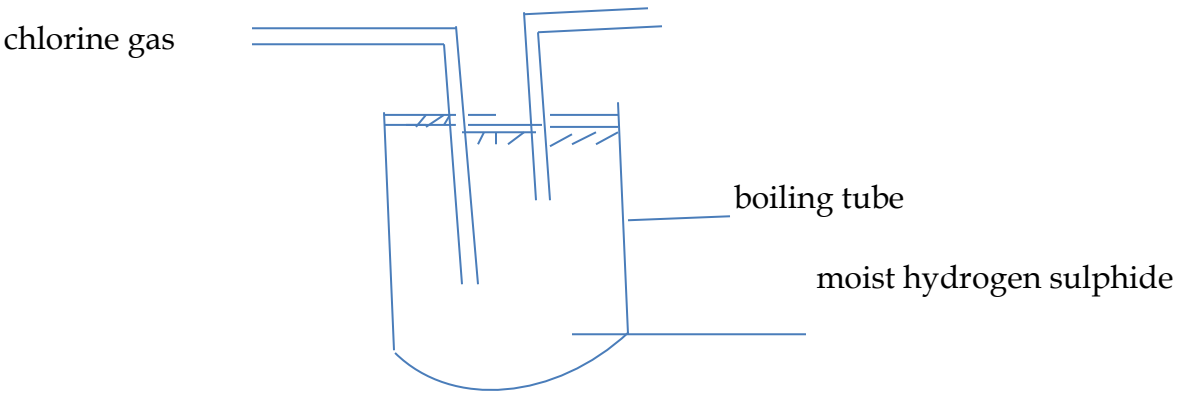
ii. Write an equation for the reaction that took place in the combustion tube. *(2mks)*

iii. State the function of calcium chloride. *(1mk)*

c. Give the properties of substance A. *(1mk)*

ii. Name other three substances that behavior as A. *(3mks)*

7. In an experiment, chlorine was passed into moist hydrogen sulphide in a boiling tube as shown below.



i. What observation was made in the boiling tube? ***(1mk)***

ii. Write an equation for the reaction that took place in the boiling tube.
(2mks)

FORM 3 END TERM 1 SET 1 EXAM 2023

Name……Adm No……Class……

School ……

Candidate's Signature ……

GRAND TOTAL

ENGLISH PAPER 1

Time 2hrs

1. FUNCTIONAL WRITING

Imagine that you are organizing secretary of Ruth Kerubo's Graduation Party.Ruth has just graduated with a First Class Honor's from Kenyatta University.

(a)Design an invitation card to be sent to the guests ***.(10mks)***

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……b) Write a congratulatory note to Ruth to be presented that day ***(10mks)***

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2. CLOZE TEST ***(10mks)***

Read the passage below and fill in each blank space with the most appropriate word .

Passing National Examination in Kenya has become a matter of life and 1_____ .This is primarily because, more often than not,examination 2_____ the future of the student. From our collective experience this is very clear. A standard eight pupil must 3_____ well to secure a place in a good 4_____ school. Similarly, a form four candidate must not just pass, but must also be among the students who join public 5 _____ .The reverse often has painful consequences for the student , 6_____ means falling by the wayside and in a country with limited employment 7 _____ , chances of a decent livelihood become severely compromised .It is precisely because of those stark realities that students find 8_____ under seething pressure to pass 9_____ . On the other hand , parents who know all too well that failing to score good grades could mean that the end of the road of their children's 10_____ are willing to cut all corners to ensure the children pass their exams.

3. ORALSKILLS ***(30mks)***

(a) Read the narrative below and answer the questions that follow.

The cock and the kite

(The setting of the story is in Kibiro , Uganda in the Western Rift Valley near Lake Albert)

A long time ago, there lived cock and his family as well as kite and his family .The former was hard working while the latter was lazy .It happened that the place was hit by a famine .People from far used to travel a long way to go to Kibiro to barter food for salt .It also happened that both families ran out of salt. Cock's wife informed her husband that they had ran out of salt and asked him to take some finger millet to Kibiro .He agreed , went to Kibiro , obtained salt and set upon the return journey .

The other family got wind of this .Mrs.Kite also asked her husband her husband to go to Kibiro and try to get salt since the lazy family did not have anything to take to Kibiro .On the way , he met the cock resting on his way home with the salt behind him .He was standing on one leg having hidden one of his leg in his wing , as cocks do many times when resting .Kite asked cock how he managed to get the salt , where upon cock told kite that the salt miners ad cut off one of his legs in exchange for the salt .Kite accepted the lie and proceeded towards Kibiro ready to do the same .Cock continued on his journey and got home safely .

On arrival at Kibiro, Kite offered his leg for a bundle of salt which the miners readily accepted .His leg was consequently amputated , rendering him immobile , even unable to carry home salt .poor kite flew back home, where he was received by his family in much grief , especially when he narrated to them the ordeal he went through . Later, kite's family was to receive the traumatizing news that cock had actually ill-advanced Kite, leading to loss of his leg.

Hence forward, great enmity ensued between the two families with Kite's family swearing to retaliate by hunting Cock's family down and eat them. This goes -+on to date.

(i)The narrator notices signs of inattentiveness among the audience during the story telling session what could be the problem? ***(3mks)***

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(ii) Explain how you would make the narration of the first two paragraphs effective. ***(2mks***)

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……..

(iii)Mention two ways in which you would know that your audience in this story is fully participating in the performance. ***(3mks)***

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……

(b)Underline the silent letter in the words below ***(4mks)***

Pseudo

Subtle

Deign

Damn

(c)Explain the meaning brought out by stressing the underlined word in each of the following sentences. ***(3mks)***

(i) Muriithi spoke to Gatwiriyesterday.

……
……

(ii) Muriithispoke to Gatwiriyesterday.

……
……..

(iii)Muriithi spoke to Gatwiriyesterday.

……
……

(d)Read the following conversation and answer the questions that follow. ***(7mks)***

MBAIRE:hiMr.Katana , long time no see.
MR .KATANA: hello Mbaire , how have you been for so long ?
MBAIRE:I'm fit as you can see .
MR.KATANA :What a surprise to see you here!Do you live around this area?
MBAIRE:Zi , just popped in to have a glimpse of some associates of mine .And you ?
MR.KATANA : Well , I came to visit a colleague who has been ailing for some time .You rememberMr.Kwach ?
MBAIRE:Yes , the leopard !Who can forget him ? He used to …..
MR.KATANA:Well , I must be going .Goodbye.
MBAIRE:See you.

(i)Identify one short coming in Mbaire's responses. ***(2mks)***

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(ii)Give three aspects of speech that Mbaire needs to consider so as to communicate effectively and in an appropriate manner. ***(3mks)***

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…….

(iii)Give two possible reasons for Mr .Katana's exit before Mbaire finishes speaking. ***(2mks)***

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…….....
.....

Outline four shortcomings that one can face when undertaking field work

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.....
.....

(e)Write another word pronounced the same way as the word given below. ***(2mks)***

Call-

Awe-

(f)In the words given below .Underline the part that should be stressed. ***(2mks)***

(i)Excuse

(ii)Reject (noun)

FORM 3 ENDTERM 1 SET 1 EXAM

NAME:…… **CLASS:**……

ADM NO:…… **DATE:**……

FORM 3
ENGLISH
2 ½ HOURS
Instructions to candidates

- ***a)*** *Write your name, admission number, class and the date in the spaces provided.*
- ***b)*** *This paper consists of* **10** *printed pages.*
- ***c)*** *Answer* ***ALL*** *the questions in the* ***six*** *sections in legible handwriting.*

Candidates should ensure that all the pages in the question paper are printed and NONE is missing.

FOR EXAMINER'S USE ONLY

SECTION	TITLE	MAXIMUM SCORE	CANDIDATE'S SCORE
A	WRITING	20	
B	CLOZE TEST	10	
C	COMPREHENSION	20	
D	ORAL LITERATURE	15	
E	ORAL SKILLS	15	
F	GRAMMAR	20	
TOTAL		100	

1. **FUNCTIONAL WRITING** (20 MARKS)

You have just reported back to school after half time break. You are not allowed to have food stuffs in school. At the gate, the deputy principal discovers food items in your bag and demands an explanation. Write an apology letter to the deputy principal over the incident.

2. CLOSE TEST

Fill in the blank spaces with the most appropriate words. (10 MARKS)

'I am done! I am done!' my voice echoed in the forest. I wept aimlessly. I did 1_____ know whether I was weeping because my friend was dying 2_____ because I had very little hope of 3_____ the next sunrise. 4_____ fell like a heavy 5_____ covering the whole country around us. A hyena, which was apparently watching 6_____ helplessness, made a noise which sounded like a hoarse laughter. 7_____ frightened me so much that I could hear my own 8_____ beating. I shouted as 9_____ as my empty stomach would allow me and the 10_____ ran to the forest. From that day to this, when I am telling this story, I have never been confronted with such a problem.

3. COMPREHENSION (20 MARKS)

Read the following passage and answer the question that follow

In case you've ever wondered how much time your daughter spends taking selfies, a poll in 2015 found that the average woman between 16 and 25 years old spends over five hours a week. It sounds like a lot unless you've tried to take selfies yourself and know what an elaborate process it can be. Women take an average of seven shots to get one image, according to the poll; Kim Kardashian said it takes about 15 to 20. Then there are the filters, not to mention real-life alterations like changing lighting or touching up makeup. There are also apps you can use for more drastic procedures like changing your bone structure, slimming your waistline, erasing pimples and more.

Selfies can be silly and lighthearted, of course, notes Alexandra Hamlet, a psychologist at the Child Mind Institute. But she also recognizes the darker side, when photos become a measure of self-worth. "With makeup, with retouch, with filters, with multiple, multiple attempts, it's almost like you're never going to **stack up**," says Dr. Hamlet, "And that is where I think it gets dangerous."

We're used to worrying about how girls will be affected by seeing too many air-brushed images of models in magazines or movies. But now young people themselves are the models and they're wielding their own image-editing software. This leads to a lot of self-scrutiny as they try to perfect their own images, and comparisons to the pictures their peers are posting. Experts are understandably worried about what this means for kids' **self-esteem**.

If you've been telling your daughter that she's beautiful just the way she is, she's getting a different message when she opens up *Snapchat* and sees filters and lenses that alter appearances. Pictures used to be final; now we have post-production.

Dr. Hamlet acknowledges that some of the filters are fun and distort in amusing ways, but also points out there's a so-called "pretty filter" on *Instagram* and *Snapchat*. Beautifying

filters are used almost reflexively by many, which means that girls are getting used to seeing their peers effectively airbrushed every single day online. There are also image altering apps that teens can download for more substantial changes. *Facetune* is one popular one, but there are many, and they can be used to do everything from erase pimples to change the structure of your face or make you look taller. One app called *RetouchMe* gives your photo a "professional retouch" using a photo editing team for under a dollar. The possibilities can be **overwhelming**, particularly since girls know they are scrutinized on their appearances – as, of course, they are scrutinizing their peers.

Self-esteem often takes a hit when you start comparing yourself too much to other people, which is something social media seems to be made for. One study found that frequently viewing selfies led to decreased self-esteem and decreased life satisfaction. Another study found that girls who spend more time looking at pictures on Facebook reported higher weight dissatisfaction and **self-objectification**.

Parents who want to provide a healthy counterbalance to the pressures of social media can start by evaluating how they use social media themselves. Make sure you aren't talking too much about the pictures you post or see, or ask your children to take too many pictures. The occasional photo is fine, of course, but make a point of prioritizing being in the moment, too. "If you're taking your kid to a concert, don't allow them to film the whole thing and see it only through the eyes of the camera," says Dr. Hamlet. "That's reinforcing this concept that just being here is not good enough."

QUESTIONS

1) What shows that women take selfies seriously? (2mks)

_____

_____

2) Mention two drastic procedures that you can use to alter your image. (2mks)

_____

_____

3) Explain how selfies become harmful to those who take them. (3mks)

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4) What do you think is the different message one's daughter gets when she opens Snapchat? (2mks)

_____

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_____

5) Explain the relationship between self-esteem and social media. (3mks)

_____

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_____

6) Dr. Hamlet acknowledges that some of the filters are fun and distort in amusing ways, but also points out there's so called "pretty filter" on Instagram and Snapchat. (1mk)
(Replace the underlined words with suitable word)

_____

_____

7) From the passage identify two apps mentioned that can be used to alter image. (2mks)

_____

_____

8) Explain the meaning of the following words and phrases as used in the passage; (4mks)
   a) Stack-up

   _____

   _____

   b) Overwhelming

   _____

   _____

   c) Self-esteem

   _____

   _____

   d) Self-objection

   _____

   _____

4. ORAL LITERATURE (20 MARKS)
LION AND HARE

Long time ago there were two great friends. They were Lion, the chief of the animals and hare. Each of these two friends were married. But one day after a suggestion by Hare, the two friends decided to kill their wives so as to remain alone.

Lion told hare that each one's wife should be heard screaming to death and each friend went home saying; "My wife will know whom I am today."

On his arrival home, hare summoned his wife and told him that he and his friend decided to kill their wives. But he added that he was not going to kill her. He told her to hide in a nearby bee hive. Hare told her, 'when you hear me hit this hide, you scream because Lion wants to hear you scream to death." When Hare started beating the hide, his wife screamed as she had been instructed.

When Lion heard the screams of his friend's wife he beat his wife to death. Hare took his wife and hid her in the hive and warned her against coming out of it in case she was seen by Lion.

Lion and hare continued with their friendship. They shared everything they got, including food. Whenever food was ready, Hare deceived Lion he was having a stomachache. He would then go to the bush taking his food with him. This way he would feed his wife so that she did not starve. He hid his wife and fed her like this for a long time.

One day, Hare's trick was discovered by Lion. Lion was so angry that he decided to kill hare's wife. So one day when Hare had gone on a short journey, Lion killed his wife.

When Hare came back and discovered his friend had killed his wife, he went and lit a very huge fire. He called his friend and told him, "Lion, you are the king of all animals. I want you to prove that you are the king of all animals. I want you to prove that you are really big by jumping over this fire to the other side of it." "You start jumping over it," Lion answered hare. Hare jumped as high as he could and landed on the other side. Lion tried as hard as he could jump over the fire but instead, he landed in the middle of it. He screamed and called for help saying: "My friend, come and rescue me! I am burning!"

Lion screamed and screamed for help. But there was no one coming, he burnt to death. Hare was happy to see the killer of his wife dead. That is the end of the story.

QUESTIONS

i) Classify the above narrative. Give an illustration to support your answer. (3mks)

_____

_____

_____

_____

ii) Give an example of each of the following features used in the story. (4mks)

a) Opening formula –

b) Closing formula –

c) Repetition –

d) Personification -

iii) What lesson do we learn from this story? Explain your answer clearly by giving an illustration from the story. (2mks)

_____

_____

_____

_____

iv) Apart from the above type of story, list **Three** other types of narratives. (3mks)

_____

_____

_____

_____

v) Give **two** functions of oral literature. (2mks)

_____

_____

_____

vi) Give a character trait of Hare. (2 mks)

_____

_____

5. ORAL SKILLS

a) Circle the word in which the vowel is pronounced differently;

i) Son, sun, can, –

ii) Steak, teak, sale –

iii) Last, love, bust, -

b) **For each letter below, provide a word in which the letter is silent.** (3mks)

i) n-

ii) k-

iii) w-

c) **underline where stress falls in the words in bold**. (4mks)

i) She keeps her car in **PERFECT** condition.

ii) With practice, you will **PERFECT** your technique.

iii) Those cows **PRODUCE** much milk.

iv) The **PRODUCE** is in the store.

d) **From the list below, identify any five pairs of words that are pronounced the same way.** (5mks)

Lick	blue	past	much	hill	heel	west
Dear	pear	witch	deer	leak	sin	march
Whole	blew	hole	waste	seen	which	pair

_____

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_____

6. GRAMMAR

a) **Identify the collective nouns in the following sentences.** (3mks)

i) The committee will plan the wedding.

ii) I look after my father's flocks during the holidays.

iii) The navy has two hundred war ships.

b) **Use the apostrophe and 's' to show possession in the following sentences.** (3mks)

i) The mother of Jane is my sister.

_____

ii) The toy of the child has been cleaned.

_____

iii) The book of the teacher is neat.

_____

c) **Fill in the space in the following sentences with an appropriate conjunction.** (4mks)

i) Boyani was upset _____ she wasn't included in the team.

ii) He works very hard _____ he is old.

iii) The teacher said that we would only leave _____ we have finished our duties.

iv) You will never know peace _____ you apologise to your parents.

d) **Fill in the blank spaces in each of the following sentences with the adjective given in brackets in their correct order.** (3mks)

i) He was driving a _____car. (red,beautiful ,new)

ii) Wanjohi brought a_____ suit. (second-hand,shapeless, brown)

iii) The baby played with a _____toy. (small,lovely plastic)

e) **Use the correct form of the word in brackets.** (3mks)

i) She sang_____(beautiful).

ii) John is the _____of the two. (tall)

iii) She did it _____(her).

f) **Change the following sentences into the passive voice.** (4mks)

i) Ekiro kicked the ball.

_____

ii) My mother takes me to school.

_____

iii) Mary cooked the dinner last night.

_____

iv) Zebras surrounded our school bus.

_____

FORM 3 ENDTERM 1 SET 1 EXAM

GEOGRAPHY
312/1
Time:2 ¾ hrs.

Instructions
Answer all questions in Section A
Answer Question 6 and any other Two questions in section B

1. (i) Name two theories of the origin of the earth ***(2mks)***
   (ii)Name four layers of the earths atmosphere ***(4mks)***

2. (i) What is weather forecasting ***(2mks)***
   ii) Give three elements of weather ***(3mks)***

3. State four uses of savanna vegetation ***(4mks)***

4. (i) Name three components of soil ***(3mks)***
   (ii) State three characteristics of desert soils ***(3mks)***

5. Outline four characteristics of a river in its youthful stage ***(4mks)***

6. a) Study the map of Kijabe 1:50,000(sheet 134/3) provided and answer the following questions.
   i) Give two types of scales used in the map extract
   (2mks)
   ii) Give the map title
   (1mk)
   iii) Measure dry weather road (D38) from grid square 3800 to the eastern edge of map extract. Give your answer in kilometres ***(2mks)***

   b) (i) What is the bearing of Air photo principal point in grid square 9025 from the cattle dip in grid square 2692. ***(2mks)***

   (ii) Identify two human features I grid square 3890 ***(2mks)***

   c) Draw a rectangle measuring 14cm by 10cm to represent the area enclosed by easing of 30 and 37 and northings of 90 and 95. On the rectangle mark and label ***(5mks)***
   i) Railway line
   ii) Thicket
   iii) River Matathia
   iv) Cattle dip

d) Explain how relief has influenced the distribution of settlement on the area covered by the map *(4mks)*

e) Describe the drainage of the area covered by the map *(4mks)*

f) Give the social functions of Kijabe town *(3mks)*

7. a) (i)What is a rock? *(1mk)*

(ii) Describe the three ways through which sedimentary rocks are formed *(6mks)*

b) Describe the following characteristics of minerals

i) Colour *(2mks)*

ii) Cleavage *(2mks)*

c) Give two types of igneous rocks *(2mks)*

d) Suppose you were to carry out a field study of rocks within the vicinity of your school

i) Name three secondary sources of information you would use to prepare for the field study *(2mks)*

ii) State three activities you would carry out during the field study *(2mks)*

iii) State three problems you are likely to experience during the field study *(2mks)*

e) Explain three significance of rocks to huma activities in Kenya *(4mks)*

8. a) (i) Define the term hydrological cycle *(2mks)*

(ii) Give three factors that influence the occurrence of surface runoff *(3mks)*

(iii) State the significance of the hydrological cycle *(4mks)*

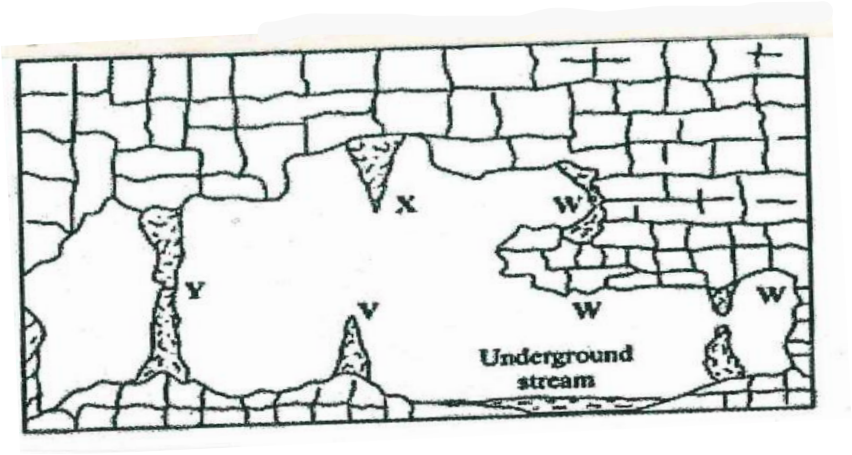
b) (i) What is a lake *(2mks)*

(ii) Give three reasons why some lakes in Kenya have saline water *(3mks)*

c) Explain how Lake Victoria influences the climate of the surrounding areas. *(6mks)*

d) State five economic uses of lakes *(5mks)*

9. The diagram below represents underground features in a limestone area. Use it to answer question (a)



a) (i) Name the features marked X, V and W *(3mks)*
(ii) Describe how the feature marked y is formed *(6mks)*

b) (i) What is an artesian basin? *(2mks)*

(ii) Explain three factors which influence the formation of features in limestone areas *(6mks)*

c) Give four reasons why there are few settlements in Karst landscapes *(4mks)*

d) State four significance of the Karst Region *(4mks)*

10. a) (i) What are earthquakes? *(2mks)*

(ii) Name two types of earthquake waves *(2mks)*

(iii) State four ways in which the earth's crust is affected by earthquakes *(4mks)*

b) (i) Name three types of faults *(3mks)*

(ii) Apart from compressional forces explain two other processes that may cause faulting. *(4mks)*

c) With the aid of diagrams, describe how compressional forces may have led to the formation of the Great Rift valley *(8mks)*

d) Apart from the Rift Valley name two other relief features that were formed as a result of faulting

(2mks)

NAME:……...……

SCHOOL:……..

A.D.M NO:…….. DATE:……

SIGNATURE:……

FORM 3 ENDTERM 1 SET 1 EXAM

312/2

GEOGRAPHY

END TERM 1

PAPER 2

FORM THREE

Answer All Questions

1. Name three patterns of human settlements. (3mks)
2. i) List any two products from Jua kali industry in Kenya exported to other countries. (2mks)
   ii) Name two renewable sources of energy used in Kenyan industries. (2mks)
3. a) Name three surfaces that are reclaimed in Kenya. (3mks)
   b) Identify the method of reclamation used in each surface mentioned in 3(a) (3mks)
4. Explain how the following practices help in soil conservation
   i) Mulching **(**2mks**)**
   ii) Terracing (2mks)
5. a) Describe how deep-shaft mining takes place. (5mks)
   b) Name three products from an oil refinery other than petrol. (3mks)

SECTION B

Answer question 6 and any other two questions in this section.

6. The table below shows milk yield in kilograms per dialy cow in Denmark between 1990 and 1995.

Year	1990	1991	1992	1993	1994	1995
Yields in kg	5243	6693	7398	7610	7792	7946

(a) (i) Draw a divided circle of radius 3-5cm to represent the milk yield in Denmrk,

Show all your calculations (2mks)

(ii) State two advantages of using the divided circle to represent data (2mks)

(iii) Name two other methods, apart from the divided circle, that could be used to represent the above data. (2mks)

(b) (i) Explain three physical factors that have favoured farming in Denmark (6mks)

(ii) State three problems facing dairyFarmers in Kenya (3mks)

(c) Explain two reasons why beef farming is more developed in Argentina than in Kenya. (4mks)

7 (a) (i) State any two forms in which minerals occur (2mks)

(ii) Name any three places where limestone is mined in Kenya (3mks)

(b) Explain how the following factors influence the exploitation of a mineral

(i) Market (2mks)

(ii) The quality of ore (2mks)

(iii) Technology (2mks)

(c) (i) Name two provinces in south Africa where gold is mined (2mks)

(ii) Explain three problems facing gold mining in south Africa (6mks)

(d) Describe the processing of diamond in south Africa.

8 (a) (i) Apart from oil, name **two** sources of non-renewable energy. (2 mks)

(ii) List **three** advantages of solar energy. (3 mks)

(b) Explain **four** problems encountered in mineral exploitation in Kenya. (8 mks)

(c) Explain the effects of over-relience on oil as a source of energy. (8 mks)

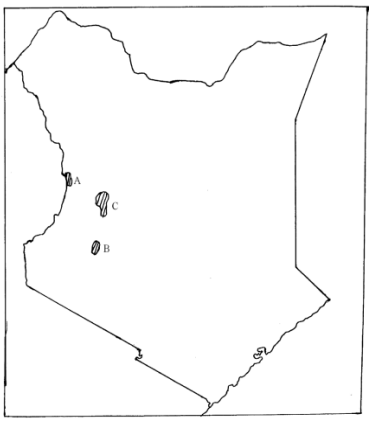
(d) State **four** methods the Government of Kenya uses to manage and conserve her energy resources. (4 mks)

9 a) i) define the term forestry. (1 mark)

ii) Give three differences between natural forest and planted forests.(3 marks)

b) Explain FOUR causes of forest depletion in Kenya today. (8 marks)

c) i) From the map below, give the names of the forests marked A, B ad C



ii)State FOUR measures that are being undertaken by the Kenya Government to conserve forests.

(4 marks)

d)Explain THREE factors favouring the exploitation of softwoods inCanada(6mks)

End

NAME:……...……

SCHOOL:……..

A.D.M NO:…….. DATE:……

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FORM 3 ENDTERM 1 SET 1 EXAM

311/1

HISTORY AND GOVERNMENT

END TERM 1

PAPER 1

TRIAL EXAM SERIES

FORM THREE

INSTRUCTIONS TO CANDIDATES

1. *This paper consists of THREE sections: A, B & C.*
2. *Answer ALL the Questions in Section A, THREE Questions from Section B & TWO Questions from Section C.*
3. *Answer ALL the Questions in the Answer BOOKLETS provided*

SECTION A (25MKS)

Answer all questions in this section.

1. Identify two archeological evidences that show Kenya was inhabited by Stone Age people 2 million years ago. (2mks)

2. State two practices that the Agikuyu borrowed from the Gumbo during the pre-colonial period. (2mks)

3. Give two reasons why Africans moved to urban centres in Kenya during the colonial period. (2mks)

4. Name two exports to East Africa from China during the Indian Ocean trade. (2mks)

5. State two duties of the governor in the colonial Kenya. (2mks)

6. Name the Amani coalition's presidential candidate and his running mate in the just concluded general elections. (2mks)

7. Name the chief executive officer of the Independent Electoral and Boundaries commission. (1mk)

8. Name the longest serving Kenyan vice-president since independence. (1mk)

9. State two significance of the initiation ceremonies among the Mijikenda during the pre-colonial period. (2mks)

10. Name two functions of the Wanga king during the pre-colonial period. (2mks)

11. Name two archeological sites in Kenya. (2mks)

12. How many counties are there in Kenya under the new constitution? (1mk)

13. Name the immediate former government spokesperson. (1mk)

14. Name the levels of government in Kenya. (2mks)

15. Identify two Portuguese officials involved in the Portuguese conquest of the East coast. (2mks)

SECTION B (45MKS)

Answer any THREE questions.

16. (a) What were the factors that led to the development of urban centres in the colonial Kenya. (5mks)

(b)Explain the positive effects of **urbanization** during the period of colonial rule in Kenya. (10mks)

17. (a) What are the causes of food shortage in Kenya. (3mks)

(b)Explain the measures that the Kenyan government has taken to solve food shortages. (12mks)

18. (a) Identify the groups of the Ameru during the pre-colonial period. (5mks)

(b)Explain the functions of the NjuriNcheke among the Ameru. (10mks)

19. (a) What were the grievances presented by the coast African Association to the colonial government? (3mks)

(b)Explain problems faced by early political organizations in Kenya. (12mks)

SECTION C (30MKS)

Answer any TWO questions.

20.(a) What are the limitations to freedom of movement in Kenya? (3mks)

(b)Discuss the social duties of a Kenyan citizen. (12mks)

21. (a) Give hierarchy of courts in the current court system in Kenya. (5mks)

(b)Discuss the challenges faced by the Kenyan judiciary. (10mks)

22. (a) State the economic issues that cause conflict. (5mks)

(b)Describe the various methods of conflict resolution. (10mks)

NAME: …… ADM NO: …… CLASS: ……
311/2
HISTORY AND GOVERNMENT
FORM THREE
PAPER 2
TIME: 2 ½ HOURS

INSTRUCTIONS TO CANDIDATES:
This paper consists of three sections; A, B and C. Answer all questions from section A, three questions from section B and two questions in section C. All answers must be written on the answer sheets provided.

SECTION A: (25 MARKS)

Answer all questions from this section.

1. State one advantage of linguistic *(1 mk)*

2. Give two characteristics of Homo erectus *(2 mks)*

3. State two earliest crops in Mesopotamia. *(2 mks)*

4. How has poor transport contributed to food shortage? *(2 mks)*

5. Identify one metal used as a currency in pre-colonial Africa. *(1 mk)*

6. Name two means of air transport. *(2 mks)*

7. Give two uses of wood as an early source of energy *(2 mks)*
8. Name two inventions in textile industry in Britain during industrial revolution. *(2 mks)*
9. Identify one reason for growth of Meroe as early urban centre. *(1 mk)*
10. What was the function of Ssaza chief Buganda kingdom? *(2 mks)*
11. Give one type of British constitution. *(1 mk)*
12. Name the main document of the fundamental human rights. *(1 mk)*
13. Give the main reason why Ethiopia was not colonized by Europeans in 19th century. *(1 mk)*
14. Name two treaties signed between Lewanika and British during the process of colonization of Bulozi. *(1 mk)*
15. What was the main factor which led to the growth of Johannesburg city? *(1 mk)*
16. Give one main reason why Drum Beats were effectively used at dawn was? *(1 mk)*
17. Give two essentials of representative democracy. *(2 mks)*

SECTION B: (45 MARKS)

Answer any three questions from this section.

18. (a) Identify any three reasons why man began the domestication of crops. ***(3 mks)***

(b) Explain six effects of early Agriculture in Egypt. ***(12 mks)***

19. (a) What factors led to the development of Trans Atlantic trade. ***(3 mks)***

(b) Explain the results of Trans-Atlantic Trade on the people of West Africa. ***(12 mks)***

20. (a) Give any three developments that have taken place in road transport system since 1750.

(3 mks)

(b) Describe the results of the development of Air transport. ***(12 mks)***

21. (a) What factors facilitated European colonization of Africa in the 19th century.***(5 mks)***

(b) Describe five reforms that were introduced by the Germans in Tanganyika after the Maji maji uprising. ***(10 mks)***

SECTION C: (30 MARKS)

Answer any two questions from this section.

22. (a) Identify any three economic activities of people of Ancient Asante. ***(3 mks)***

(b) Describe the political organization of Asante Empire during the 19th century.

(12 mks)

23. (a) What five factors influenced early urban development in Africa? ***(5 mks)***

(b) Discuss the problems of urbanization in Cairo. ***(10 mks)***

24. (a) State five uses of copper in pre-colonial Africa. ***(5 mks)***

(b) Explain the impacts/results of iron technology on the people of Africa. ***(10 mks)***

JINA……DARASA……..NAMBARI……
KISWAHILI KIDATO TATU
KARATASI YA KWANZA
INSHA

Maagizo

- Andika insha mbili. Insha ya kwanza ni ya lazima . Insha ya pili ichaguliwe kutoka vichwa vitatu vilivyobakia.
- Insha zako zisipungue maneno 400
- Kila insha ni alama 20.

1. Wewe kama katibu wa kamati andalizi, katika hafla ya kutoa tuzo kwa wanafunzi bora katika mtihani wa K.C.S.E 2015. Andika barua ya mwaliko kwa wazazi na marafiki.
2. Simu tamba(Rununu) zina manufaa mengi kuliko hasara. Jadli.
3. Dau la mnyonge haliendi joshi.
4. Uwanja ulifurika furifuri huku sauti ya mratibu ikipasua hewa…..Endelea.

……

JINA……DARASA……NAMBARI……

KISWAHILI KIDATO TATU

KARATASI YA 2

1. UFAHAMU (ALAMA 15)

Soma makala yafuatayo kisha ujibu maswali.

Hulka ya binadamu katika maisha yake ni matarajio ya kupata mambo mazuri zaidi kwa kadiri anavyozidi kuishi duniani. Hulka hiyo haiepukiki kwa mtu yeyote ilimradi yungali hai duniani.

Wapo watu wanaofanya kazi kufa na kupona ili kubadili maisha yao au kujiletea hali, watu hawa matumaini yao ni kuona wanaishi vizuri zaidi kesho kuliko walivyoishi jana.

Kadhalika wavivu nao ambao wana tabia ya kutopenda kujishughulisha kutafuta maisha, mawazo yao yanabaki palepale kutarajia maisha bora. Mtazamo huo wa matarajio ya maisha bora uko pia kwa vyombo vyenye dhamana kwa maisha ya watu katika jamii kama vile serikali. Tofauti na mtu binafsi, ambaye huota ndoto hizo peke yake, serikali hushirikisha mipango inayojiwekea ya kuleta hali bora katika jamii, inafanikiwa.

Ndani ya serikali kuna wadau (washika dau) mbalimbali wenye majukumu ya kuhakikisha kuwa mipango inayowekwa inasimamiwa na kutekelezwa katika muda unaotakiwa, ili kukidhihaja ya kuleta maendeleo katika jamii, tofauti na mtu binafsi ambaye wakati mwingine husimama peke yake katika kutekeleza malengo yake hayo.

Serikali ina nafasi nzuri ya kutekeleza malengo kwa kutumia rasilimali zake wakiwemo watu, madini, misitu, ardhi na nyingine nyingi. Matumizi haya ya rasilimali katika kuleta maendeleo, ni jambo muhimu sana katika kutekeleza mipango yake. Kuna sababu kadha zinazotufanya tuishi miaka nenda miaka rudi tukiwa na kiu ya maendeleo na ndoto ambazo zinashindwa kutimia.

Tatizo kubwa lililopo ni kwamba pamoja na kuwa na wataalamu wazuri na sera nzuri, tumeshindwa kuzitekeleza, badala yake tumekuwa mabingwa zaidi wa kuelezea sababu za kushindwa kutekeleza sera hizo kuliko kujikosoa kwa uzembe unaotufanya na kusababisha kushindwa kutekelezwa kwa sera hizo. Jambo hilo limechangia kurudisha nyuma maendeleo ya nchi yetu kwa miaka mingi. Mipango mingi inayopangwa na serikali, mara nyingi imekwama, matokeo yake badala ya kutafuta udhaifu uliokwamiza kutekelezwa kwa mipango hiyo, nguvu zaidi zinaelekezwa kuhalalisha sababu za kushindwa.

Tunapaswa kujiuliza ni kwa nini tumefikia hapo? Tukipata jibu tukae chini tusioneane aibu, tunyosheane vidole usoni. Tusioneane haya katika kuleta maendeleo.

(Kutoka gazeti la Majira, Oktoba 31, 2003)

Maswali

a) Upe ufahamu huu anwani mwafaka. ***(alama 1)***

b) Binadamu wote wana hulka moja. Ifafanue. ***(alama 2)***

c) Eleza jinsi serikali ilivyo na uwezo wa kutekeleza ndoto zake ***(alama 3)***

d) Kulingana na taarifa, ni kwa nini serikali hushindwa kuzitekeleza sera zake***(al 2)***

e) Mwandishi anatoa wito gani katika aya ya mwisho? ***(alama 2)***

f) Andika methali mbili zinazohusiana na aya mbili za mwisho. ***(alama 2)***

g) Eleza maana ya vifungu vifuatavyo kwa mujibu wa taarifa. ***(alama 3)***
(i) Kukidhi haja

(ii) Kiu ya maendeleo

iii) Tunyosheane vidole usoni

2. : MUHTASARI (Alama 15)

Soma taarifa ifuatayo kisha ujibu maswali yanayofuata.

UFUPISHO

Katiba mpya imeipa lugha ya Kiswahili hadhi nyingine kuifanya kuwa lugha rasmi kando na kuwa ni lugha ya taifa. Mabadiliko haya muhimu yana changamoto kadhaa.

Kwanza kabisa lugha ya Kiswahili sasa itashindania nafasi sawa na ile ya Kiingereza katika shughuli za kikazi. Swala hapa linahusu majukumu ambayo lugha hizi zitatekeleza. Je, lugha hizi zinatumika mtawalia katika shughuli za kikazi au zitatengewa majukumu maalum?

Lugha ya Kiswahili itachukua nafasi ipi? Kiingereza kitaachiwa nani tukizingatia kuwa kwa muda mrefu lugha ya Kiingereza ndiyo imekuwa lugha tawala katika mazingira haya? Je, wananchi wataweza kufanya maombi kwa lugha ya Kiswahili kando na kuendesha mawasiliano ya kiofisi kwa lugha hii? Kwa kifupi ili kusitokee mgongano wa matumizi ya lugha hizi mbili ni muhimu sana kwa watunga - sera kueleza kinagaubaga mawanda ya matumizi ya lugha hizi mbili katika mazingira ya kikazi.

Changamoto nyingine na muhimu ni kiwango cha maandalizi ya wananchi katika kuyapokea mabadiliko haya. Kwanza, wananchi wanafaa wafahamishwe kuhusu haki yao ya kutumia lugha hii katika mazingira ya kazi. Si ajabu kuwa wao hawana habari kuhusu mabadiliko haya ya kisera. Watumishi wa umma nao wanastahili kupewa mafunzo maalumu kuhusu mbinu za mawasiliano katika Kiswahili ili waendeshe shughuli zao vizuri.

Kwa upande mwingine, vyuo vikuu pamoja na taasisi nyingine za mafunzo zinastahili kutoa kozi ya lazima katika lugha ya Kiswahili kwa wanafunzi wanaojiunga nazo ili kuwaandaa kwa mahitaji haya mapya ya kikatiba. Kadhalika, serikali inastahili kuwaandaa wataalamu zaidi wa lugha ya Kiswahili ambao watahusika katika kuwafunza wanaohusika na utekelezaji sera.

Kuna haja pia ya wataalamu wa lugha kuandika vitabu zaidi kwa lugha ya Kiswahili ambavyo vitatoa mafunzo kuhusu mbinu mbalimbali za mawasiliano. Shughuli hii iambatane na ile ya kutafsiri vitabu vilivyoandikwa kwa lugha nyingine kwa ile ya Kiswahili.

Kwa muda mrefu sasa, kumekuwa na tatizo la mitazamo hasi miongoni mwa wananchi kwa lugha ya Kiswahili. Baadhi ya wananchi wamekuwa na sababu zao za kutoitumia lugha hii wakishikilia kuwa lugha yenyewe ni ngumu.

Aidha, wananchi wengine wamekuwa na uzoefu wa kuzungumza lugha ya kiingereza au lugha nyingine za kigeni huku wakitoa nafasi finyu kwa lugha ya Kiswahili. Serikali Inastahili kutafuta njia ya kuwahimiza wananchi wote kuionea fahari lugha ya Kiswahili, waipende na kuielewa vizuri.

Ni muhimu kufanywe kila juhudi kuhakikisha kuwa wananchi wanatumia Kiswahili sanifu ili wasije wakakivuruga kwa kukiendeleza visivyo au kwa kukiharibu kwa kijilugha cha sheng au kwa lugha za kienyeji.

Vile vile, ni muhimu wananchi watambue kuwa nchi yetu ya Kenya ndiyo kitovu cha lugha hii na hivyo basi wafanye kila juhudi kuitumia ipasavyo ili tusionekane kuwa watumwa katika lugha yetu asili. Tunahitaji viongozi vielelezo nchini ambao wanazungumza Kiswahili sanifu kwa madoido na ufasaha sio tu katika ulingo bali pia katika nyanja nyingine za maisha.

Kwa hivyo viongozi wetu wajiepushe na matumizi ya Kiswahili chapwa ili wananchi wahimizike kuzungumza Kiswahili kwa ufasaha. Ingekuwa hata bora ikiwa wangepewa kipaumbele katika kupokea mafunzo kabambe katika lugha hii. Pengine tungejifunza mengi kutoka nchi jirani ya Tanzania ambayo kwa kiasi kikubwa ilifaulu kurasmisha Kiswahili na kuleta umoja wa kitaifa.

MASWALI

a) Fafanua changamoto zinazoikumba lugha ya Kiswahili kama lugha rasmi. (Maneno 70) (alama 6, 1 mtiririko)
Matayarisho.

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Jibu

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b) Mwandishi ametoa mapendekezo kuhusu namna ya kuimarisha matumizi ya Kiswahili nchini. Yafafanue. (Maneno 80) (alama 7, 1 mtiririko)

Matayarisho

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Jibu

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3.MATUMIZI YA LUGHA

a) Taja sauti mbili za nazali. ***(Al 2)***

b) Taja aina mbili za mofimu na utolee mfano mmoja mmoja ***(al 2)***

c)Tunga sentensi yenye kitenzi kishikirishi kipungufu ***(al 2)***

d) Taja vigezo vyovyote viwili vy kuainisha vokali za Kiswahili ***(al 2)***

e)Tunga sentensi moja ukitumia kihisishi na nomino maalum ***(al 2)***

f)Eleza maana ya chagizo na utunge sentensi moja kuonyesha maana yake ***(al2***)

g)Tumia "amba" rejeshi katika sentensi ifuatayo ***(al 2)***
Mchezaji ninayempenda ni Messi

h)Yakinisha sentensi ifuatayo. ***(al 2)***
Asingepigiwa kura, asingekuwa rais wa Kenya.

i)Unda nomino kutokana na vitenzi vifuatavyo ***(al 2)***
i)Tafakari
ii)Sujudu

j)Badilisha sentensi ifuatayo iwe katika hali ya kuamuru katika wingi ***(al. 2)***
Njoo hapa.

k)Andika katika msemo wa taarifa
"Naapa ya kwamba nitatumikia wananchi wa Kenya na nitakuwa mwaminifu," Rais mteule alisema ***(al 2)***

l)Onyesha vishazi katika sentensi ifuatayo ***(al2)***
Uchaguzi uliofanywa nchini Kenya ulikuwa wa amani

m)Bainisha aina za shamirisho katika sentensi . Shule nzuri ilijengewa wanafunzi kwa matofali ***(al 3)***

n)Changanua sentensi ifuatayo ukitumia jedwali ***(al 4)***
Walimu shupavu walifunza vizuri lakini wanafunzi hawakupita mtihani

o)Eleza sifa mbili za sentensi ambatano na utoe mfano mmoja ***(al 3)***

p)Eleza matumizi tofauti ya kiambishi 'ni' katika sentensi ifuatayo ***(al 2)***
Nitasoma kwa bidii shuleni

q)Tunga sentensi moja ukitumia neno 'gani' kama ***(al 2)***
i)Kiwakilishi
ii)Kivumishi

r)Tunga sentensi ukitumia kitenzi 'la' katika hali ya kutendesha ***(al 2)***

4.ISIMU JAMII (al 10)

"Karibu wageni karibuni
Come and learn with us lugha ya Kiswahili
Nyote mtabenefit sana"
"Kwa nini?"
"Kwa sababu it's a national language"
Maswali

a)Lugha ngapi zimetumika katika muktadha hii? ***(al 2)***

b)Mtindo wa kutumia lugha zaidi ya moja katika mazungumzo huitwaje? ***(al 2)***

c)Mzungumzaji mwenye uwezo wa kutumia lugha zaidi moja anaitwaje***? (al 2)***

d)Taja sababu za wazungumzaji kutumia lugha zaidi ya moja ***(al 4)***

NAME:……

SCHOOL:……....

A.D.M NO:……... DATE:……

SIGNATURE:……..

FORM 3 ENDTERM 1 SET 1 EXAM

121/1

MATHEMATICS

END TERM 1

PAPER 1

TRIAL EXAM SERIES

FORM THREE

INSTRUCTIONS TO CANDIDATES:

- *Write **your name** and **admission number** in the spaces provided above*
- *This paper contains **two sections;** Section **I** and section **II.***
- *Answer **all** the questions in section **I** and only **five** questions from section **II.***
- *All workings and answers **must** be written on the question paper in the spaces provided below each question.*
- *Marks may be given for correct working even if the answer is wrong.*
- *Calculators and KNEC mathematical tables may be used EXCEPT where stated otherwise*
- *Show all the steps in your calculations, giving your answers at each stage in the spaces below each question*

For Examiner's Use Only;

Section I

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

Section II

Questions	17	18	19	20	21	22	23	24	**TOTAL**
Marks									

GRAND TOTAL

1. Without using mathematical tables or calculators, evaluate the following leaving your answer as a fraction in its simplest form. (3mks)

$$\sqrt[3]{\frac{0.119\times 0.256}{0.068\times 7}}$$

2. Two boys and a girl shared some money .The elder boy got $\frac{4}{9}$ of it, the younger boy got $\frac{2}{5}$ of the reminder and the girl got the rest. Find the percentage share of the younger boy to the girl's share. (4mks)

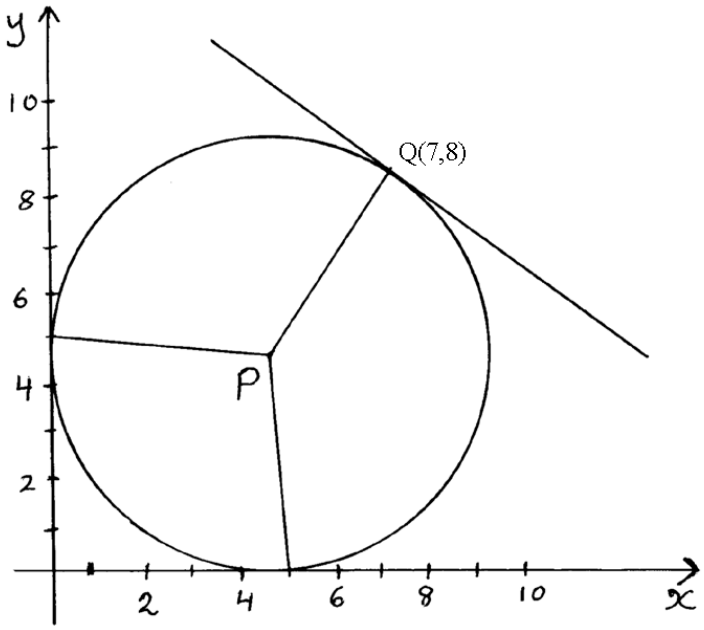
3. From a point A, the angle of elevation of top of a watch tower is 20^0.From another point which is 25m from the base of the tower, the angle of elevation of the top of the tower is 26^0.Giving your answer to three decimal places, determine the height of the tower and hence calculate the distance between the points A and B if they are both on the same side of the tower and lie on a straight line with the base of the tower. (3mks)

4. If X is a positive integer, find all possible values of x given that $1 < \frac{2}{5}x^2 < 7$. (3mks)

5. A train whose length is 60 metres is travelling at 40km/h in the same direction as a bus whose length is 20m.If the speed of bus is 80km/h and moving parallel to the train, calculate the time it takes the truck to overtake the train completely in seconds. (3mks)

6. A positive two digit number is such that the product of the digits is 20.When the digits are reversed , the number so formed is greater than the original number by 9.Find the number.

7. The diagram below shows a circle with centre P(5,5) and radius 5 units

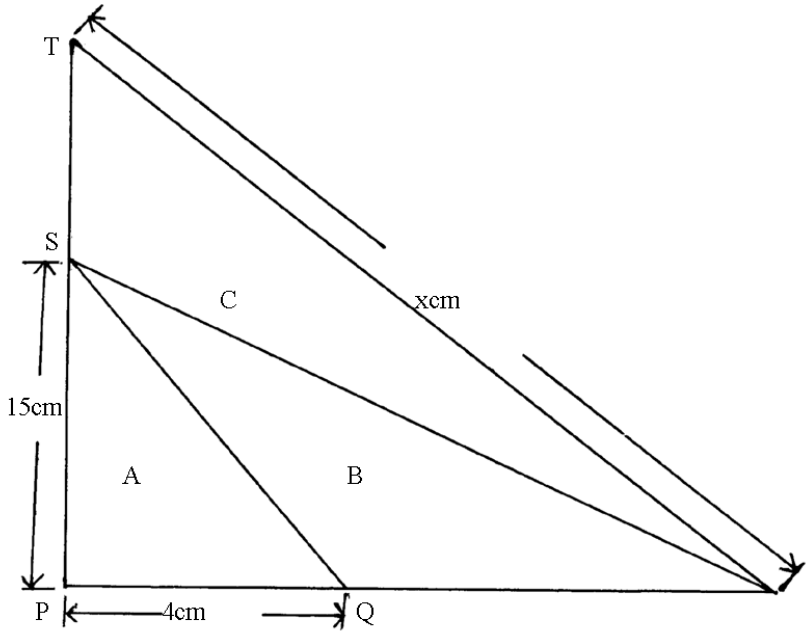


(a) Write down in terms of x and y the equation of the circle in the form $ax^2+by^2+cx+dy+e=0$ where a,b,c,d and e are constants. (1mk)

(b) Determine the gradient of PQ (1mk)

(c) Find the equation of the tangent at Q in the form ax+by=c. (2mks)

8. Find the value of x in the following figure given that area A =Area B=Area C(Give your answer to 2 decimal places) (4mks)



9.Odhis car Hire company hires out as follows; sh. 2500 per day and sh. 270 per kilometer covered. They offer a discount of 30km free each day of hire.Makori hires a car for 5 days and drives for 480km.Calculate the total cost. (2mks)

10.Omwando borrows sh. 90,000 for 5 years at 6 ½ % simple interest p.a.What amount does he have to pay at the end of that time? (3mks)

11.Solve for t in the equation

$9^{t+1}+3^{2t}=30$. (3mks)

12.Given the curve $y= x^2-2x+6$, find the coordinates of the point on the curve at which the gradient is 4. (2mks)

13.Mary has some money in two denominations only. Fifty shilling notes and twenty shilling coins. She has three times as many fifty shilling notes as twenty shilling coins. If altogether she has sh. 3400, find the number of fifty shilling notes and 20 shilling coins.

14. In Ngamongo village, a piece of work can be completed by 45 workers in 10 days .They worked for 4 days after which 15 workers were laid off. How many days would it take the remaining workers to complete the work? (3mks)

15. The table below shows marks obtained by a form three class in a certain school.

Marks (x)	$8 \leq X < 9$	$9 \leq X < 11$	$11 \leq X < 13$	$13 \leq X < 16$	$16 \leq X < 20$	$20 \leq X < 21$
No. of students (y)	2	6	8	3	2	1

Use the table to represent the information on a histogram. (3mks)

16. Find the inverse of the matrix $\begin{pmatrix} 2 & 1 \\ 3 & 2 \end{pmatrix}$ and hence solve the simultaneous equations below. (4mks)

2x+y=21

3x+2y=34

SECTION II (50 MARKS)

ANSWER ANY FIVE QUESTIONS.

17. A bag contains 5 red , 4 white and 3 blue beads. Two beads are selected at random.

(a) Draw a tree diagram and list the probability space. (3mks)

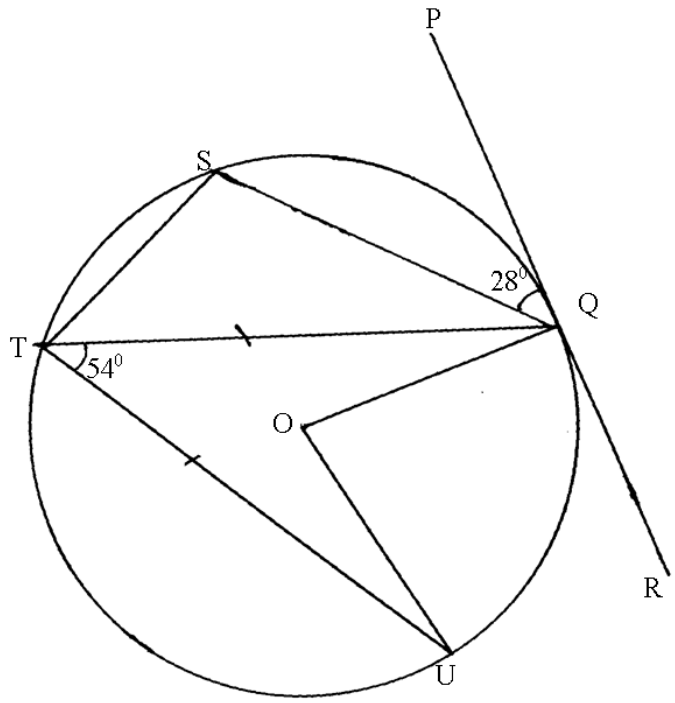
(b) Find the probability that

(i) The last bead selected is red. (2mks)

(ii) The beads selected were of the same colour (2mks)

(iii) At least one of the selected beads is blue. (3mks)

18. In the figure below,O is the centre of the circle.PQR is a tangent to the circle at Q. Angle PQS=28^0,angle UTQ=54^0 and UT =TQ.



Giving reasons , determine the size of

(a) Angle STQ. (2mks)

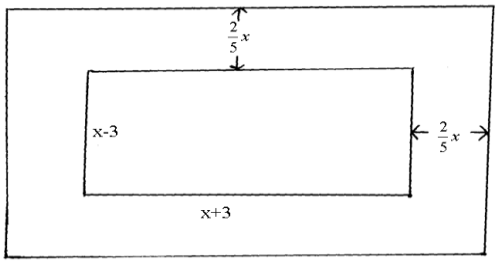
(b) Angle TQU. (2mks)

(c) Angle TQS (2mks)

(d) Reflex angle UOQ . (2mks)

(e) Angle TQR. (2mks)

19.The following figure represent a dancing floor with a carpeted margin all around of $\frac{2}{5}x$ wide leaving a dancing space of (x-3)m by (x+3)m



If the total area of the entire room is $315m^2$

(a) Calculate the value of x. (5mks)

(b) Calculate the area of the carpeted margin. (3mks)

(c) If the carpet cost sh. 750 per m^2,calculate the total cost of the sealed margin. (2mks)

20. John bought 3 brands of tea, A B and C. The cost price of the three brands were sh 25, sh 30, sh 45 per kg respectively. He mixed the three brands in the ratio 5:2:1 respectively: After selling the mixture he made a profit of 20%.

(a) How much profit did he make per kilogram of the mixture? (4 mks)

(b) After one year the cost price of each brand was increased by 10%

(i) For how much did he sell one kilogram of the mixture to make a profit of 15%? (Give your answer to the nearest 5 cents) (3 mks)

(ii) What would have been his percentage profit if he sold one kilogram of the mixture at sh. 45. (3 mks)

21. A car accelerates from rest for 10 seconds until it reaches a velocity of 12 metres per second.It then continues at this velocity for the next 40 seconds after which it brakes and comes to rest until a constant retardation of 1.5 meres per second

(a) Determine

(i) The acceleration over the first 10 seconds (2mks)

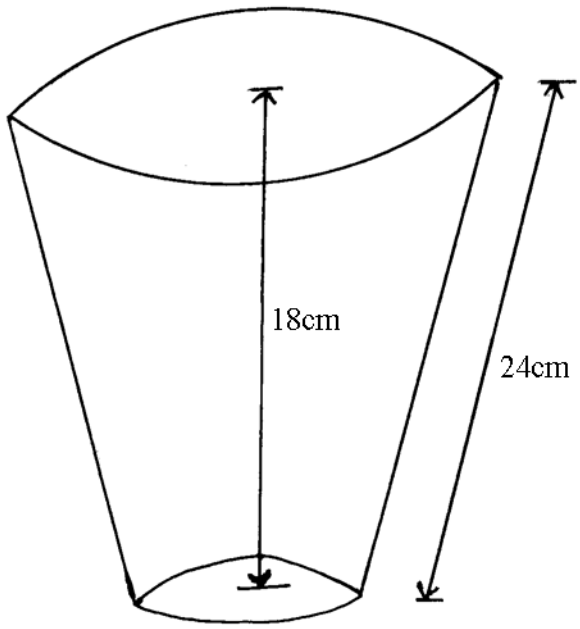
(ii) The time taken during the retardation (2mks)

(b) Draw the velocity time graph for the journey and use it to determine.

(i) The total distance covered by the car (4mks)

(ii) The percentage of the total distance which was covered during the first 15 seconds. (2mks)

22. The diagram below shows a flower vase of depth 18cm.The ratio of the top and bottom diameters is 5:2 (Take $\prod$ =3.142)



Calculate

(a) The volume of the flower vase (7mks)

(b) The curved surface area of the flower vase (3mks)

23. Given that x-y=3 and 3x+y=17, find without solving for X and Y the value of

(a) $2xy-x^2-y^2$ (2mks)

(b) $6xy+y^2+9x^2$ (2mks)

(c) $3x^2-2xy+y^2$ (3mks)

(d) $\dfrac{3x^2-4xy+y^2}{9x^2-y^2}$ (3mks)

24. Three Kenyan warships A,B and C are at sea such that ship B is 450km on a bearing of 030^0 from ship A. ship C is 700km from ship B on a bearing of 120^0.An enemy ship D is sighted 1000km due south of ship B.

(a) Taking a scale of 1cm to represent 100km locate the position of the ships A,B,C and D (4mks)

(b) Find the compass bearing of :

(i) Ship A from ship D (1mk)

(ii) Ship D from ship C (1mk)

(c) Use the scale drawing to determine

(i) The distance of D from A (1mk)

(ii) The distance of C from D (1mk)

(d) Find the bearing of :

(i) B from C (1mk)

(ii) A from C (1mk)

END

NAME:……...……

SCHOOL:……..

A.D.M NO:…….. DATE:……

SIGNATURE:……

FORM 3 ENDTERM 1 SET 1 EXAM

121/2

MATHEMATICS

END TERM 1

PAPER 2

TRIAL EXAM SERIES

FORM THREE

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Marks																	

Section II

Questions	17	18	19	20	21	22	23	24	**TOTAL**
Marks									

GRAND TOTAL

1. Evaluate without using tables or calculators. (3mks)

$$\sqrt{\frac{0.8064 \times 6.048}{1.008 \times 0.1344}}$$

2. Evaluate $\frac{-4 \text{ of } [(-4 + -5 \div 15) + -3 - 4 \div 6)]}{84 \div -7 + 3 - - 5}$ (2mks)

3. Solve for θ without using table given that $0 \leq \theta \leq 90^{o}$ and that $\sin(2\theta - 30^{o}) - \cos 4\theta = 0$ (3mks)

4. Solve for x given that $5^{2x+2} - 20 \times 5^{2x} = 625$ (3mks)

5. The angle of a quadrilateral ABCD in order are 2 (x -10), 4 (x + 5), 5(x+4) and (x-20) in degrees. Find the exterior angles of the quadrilateral. (4mks)

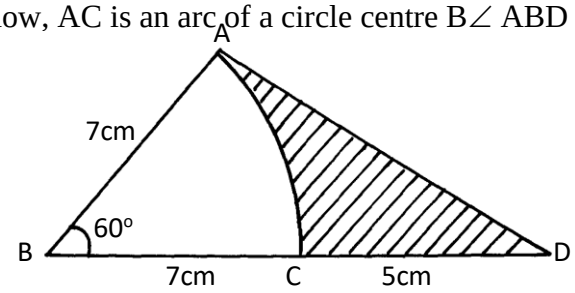
6. A radio costing kshs. 1240 is marked to sell at a price calculated to give a profit of 40 %. What will be its selling price in sale when 25% is taken off the marked price? (3mks)

7. Show that if OA = - i+ 7j, OB = 3i – 5j and OC = 4j, then points AB and C are collinear. (4mks)

8. Four men can dig 2 acres of land in 3 days working 4 hour a day. How many men are required to dig 5 acres of land in 4 days working 3 hours a day at the same rate.
(3mks)

9. The surface area of two similar bottles are 12 cm^2 and 108cm^2 respectively. If the larger one has a volume of 810 cm3. Find the volume of the smaller one.
(3mks)

10. In the figure given below, AC is an arc of a circle centre B$\angle$ ABD = 60^o, AB = BC = 7cm and CD= 5 cm.



Calculate

a) The area of triangle ADB (2mks)

b) The area of the shaded region. (2mks

11. Solve the inequalitites and represent the information on the number line. (3mks)

$-3+2x<3x+2<4(x-5)$

12. Make x the subject of the formula in $3s=2p\sqrt{\frac{x}{3x-5}}$ (3mks)

13. Given x = 13.4cm and y = 4.3 cm. calculate the percentage error in $\frac{x}{y}$ correct to 4 d.p(3mks)

14. A straight line through the point A (2, 1) and B (4,m) is perpendicular to the line whose equation is 3y = 5 – 2x, Determine the value of m. (3mks)

15. Okoth deposited some money at 10% compound interest compounded annually. How long will it take to double the amount to the nearest year? (3mks)

16. Chebet has 5 brown chicken and 3 black ones. She picks two of them for slaughter at random, one after the other. What is the probability that the two are of different colours. (3mks)

SECTION II

Answer only five questions.

17. A bus left Nairobi at 8.00am and traveled towards BUsia at an average speed of 80km/hr. At 8.30 am a car left Busia for Nairobi at an average speed of 120km/hr. Given that the distance between Nairobi and Busia is 400km.

Calculate:

a) The time the car arrived in Nairobi. (2mks)

b) The time the two vehicles met. (4mks)

c) The distance from Nairobi to the meeting point. (2mks)

d) The distance of the bus from Busia when the car arrived in Nairobi. (2mks)

18. A triangle whose vertices are A (1,4) B (2,1) and C (5,2) is given the following transformation:

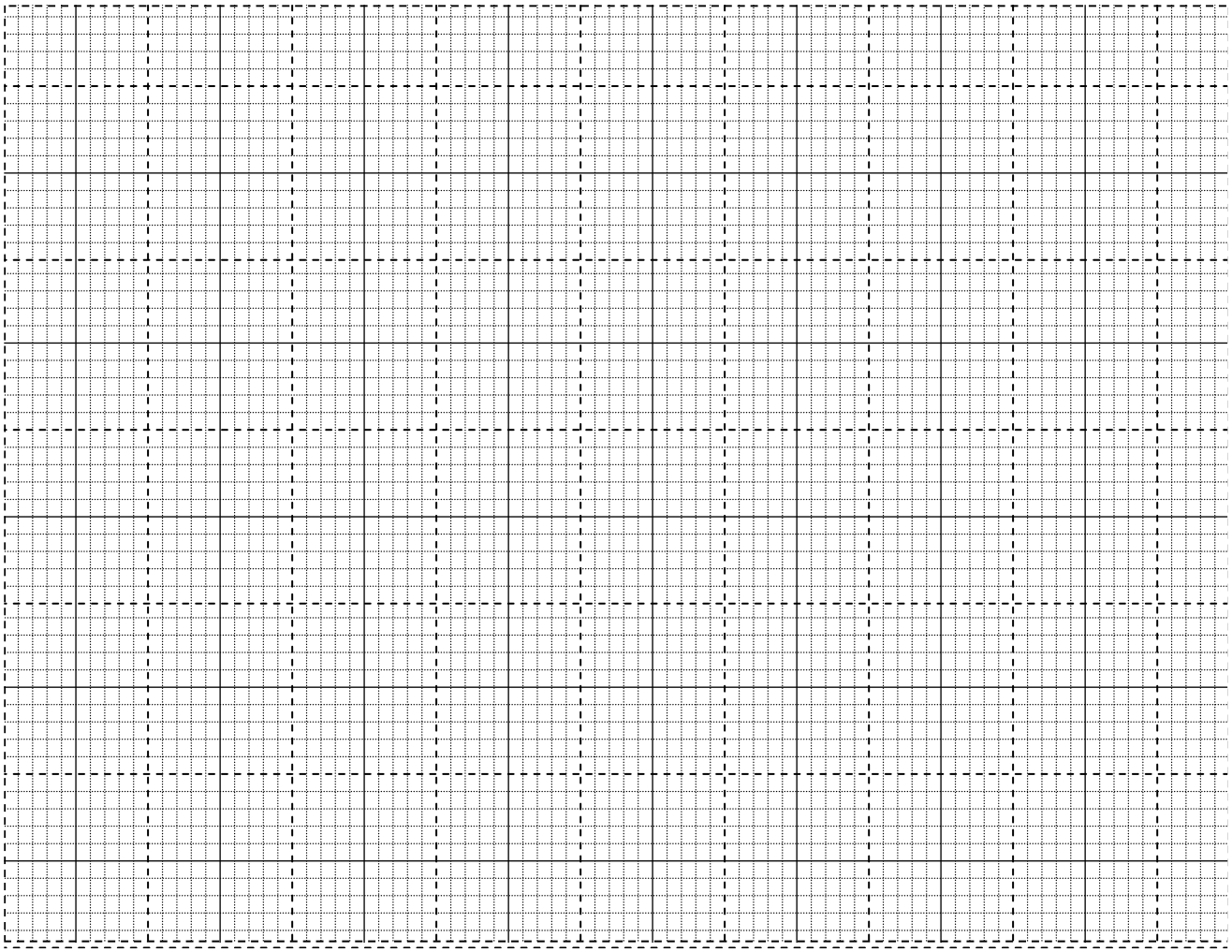
i) Reflection in the line y = -x to $A^1B^1C^1$

ii) $A^1B^1C^1$ is then given rotation of + 90^o about the origin to $A^{11}B^{11}C^{11}$

iii) $A^{11}B^{11}C^{11}$ is then given a translation vector $\begin{pmatrix} -2 \\ \end{pmatrix}$ to $A^{11}B^{11}C^{11}$

iv) $A^{11}B^{11}C^{11}$ is then given an enlargement scale factor – 2 centre (0, 0) to $A^{IV}\,B^{IV}\,C^{IV}$.

On the given grid plot a triangle ABC and it's images $A^1B^1C^1$, $A^{11}B^{11}C^{11}$, $A^{111}B^{111}\,C^{111}$ and $A^{IV}\,B^{IV}\,C^{IV}$. And give coordinates of $A^{IV}\,B^{IV}\,C^{IV}$. (10mks)



19. A Post OT stand vertically on level ground John moves from O, the foot of the flag post to point R, on the level ground. The points T, O and R from a right angled isosceles triangle whose perimeter is 56m. S is another point on the level ground 35m from O calculate:

a) The angle of elevation of T from S. (6mks)

b) The distance ST. (2mks)

c) Find the maximum possible distance between R and S. (2mks)

20. A salesman received a basic salary of sh. 50,000 a year together with a commission of 6 % on the value of goods sold and a car allowance of sh. 2.50 per km.

a) Find the total amount he received in a year in which he sells goods worth sh. 625,000 and travels 10,000km. (4mks)

b) The next year he travels 12,000km and receives a total of shs. 134,000

i) Calculate the value of goods sold. (4mks)

ii) Calculate the percentage increase in the value of the goods sold. (2mks)

21. Two airports a and B are such that B is 500km due east of A. two plane P and Q take off from A and B respectively and at the same time.

Plane P files at 360km/hr on a bearing of 030^{o}

Plane Q flies at 240km/hr on a bearing of 315^{o}

The two planes land after 90 minutes.

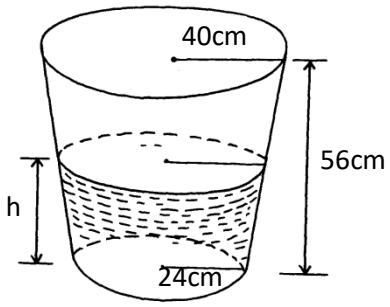
Using a scale of 1: 10,000,000

a) Show the positions of the planes after 90 min. (6mks)

b) Find the distance between the planes after 90 min. (2mks)

c) Find the bearing of plane Q from plane P after 90 minutes (2mks)

22. The figure below shows a container in form a frustrum of an open top radius 40cm and base radiu24 cm.
the depth is 56 cm.



a) Calculate the volume of the container in litres. (4mks)

b) Of the container is ¾ full of water by volume,
Calculate the radius of the meniscus. (6mks)

23. Use a ruler and compass only in this question.

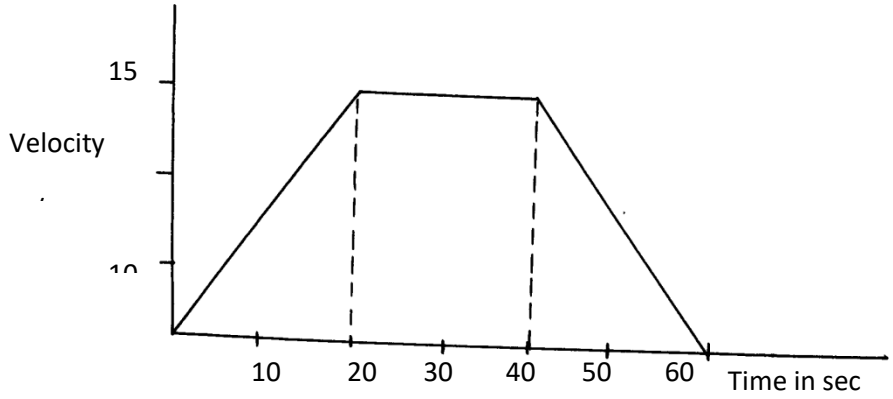
a) Construct Δ ABC such that AB = 6cm AC= 8.5 cm and $\angle$ BAC = 120^{o} (3mks)

b) Construct the locus ℓ, of points equidistant from A and B (2mks)

c) Construct the locus ℓzof points equidistant from AB and BC (3mks)

d) Find the points of intersection, P_1 and P_2, of 1_1 and 1_2 and measure P_1P_2 (2mks)

24. The diagram below shows the graph of a moving matatu from one bus stop to another.



a) Find the acceleration of the matatu. (2mks)

b) Find the deceleration of the matatu (2mks)

c) Calculate the distance the matatu while accelerating. (2mks)

d) Calculate the distance the matatu covered while traveling at an acceleration of $0m/s^2$ (2mks)

e) Find the distance between the two bus stops. (2mks)

FORM 3 END TERM 1 SET 1 EXAM 2023

Name……Adm No……Class……

School ……

Candidate's Signature ……

GRAND TOTAL

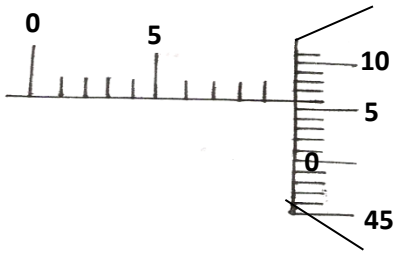
PHYSICS PAPER 1 FORM 3

Answer all questions in section A and B.

(take acceleration due to gravity g=10m/s^2)

Section A: 25 marks

1. The micrometrer screw gauge shown in figure below was found to have an error of + 0.04



(i) Give the correct reading of the micrometer *(1mk)*

2. State an advantage of using mercury than alcohol as a thermometric liquid *(1mk)*

3. State the principle involved when determining of the centre of gravity of regular lamina using a plumb line *(1mk)*

4. A uniform metre rule of mass 200g is pivoted at the)cm mark, calculate the force which would be applied vertically upward at the 65cm mark to keep the rule horizontal. ***(3mks)***

5. Distinguish between the terms gravitational potential energy and elastic potential energy. ***(2mks)***

6. Describe a simple experiment to demostrate that the pressure in liquid increase with depth. ***(3mks)***

7. An arrow of mass 100g is shot into a block of wood of mass 400g lying at rest on the smooth surface of an ice rink. If at the moment of impact the arrow is traveling horizontally at 15m/s. calculate the common velocity after the impact.

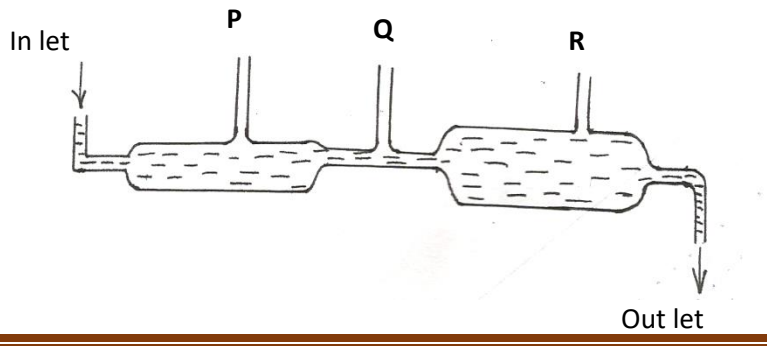
(3mks)

8. State **two** evidences that matter is made up of small particles *(2mks)*

9. Distinguish between conduction and convection *(1mk)*

10. A pump forces 12kg of water through a hose every minute. If the water is being raised vertically through 20m and ejected at the nozzle at 10m/s, calculate the power of the pump. *(3mks)*

11. Determine the manometer which will have the lowest level between **P,Q** and **R** in the figure below. Explain your answer. [assume the water is flowing continuously from the tap to the tap to the outlet. *(2mks)*

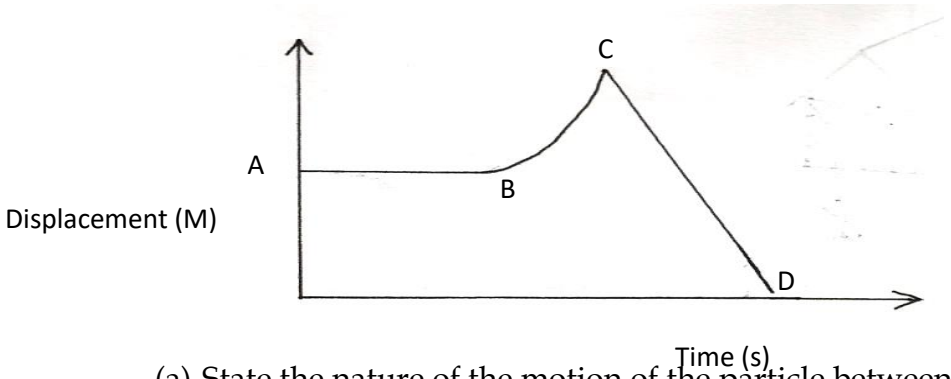


12. A block of metal A having a mass 40kg requires a horizontal force of 100N to drag it with uniform velocity along a horizontal surface.Calculate the co-efficient of friction

(3mks)

SECTION B (55 MARKS)

13. a) The figure below shows the displacement – time graph of the motion of particle.



(a) State the nature of the motion of the particle between

(i) A and B ***(1mk)***

(ii) B and C ***(1mk)***

(iii) C and D ***(1mk)***

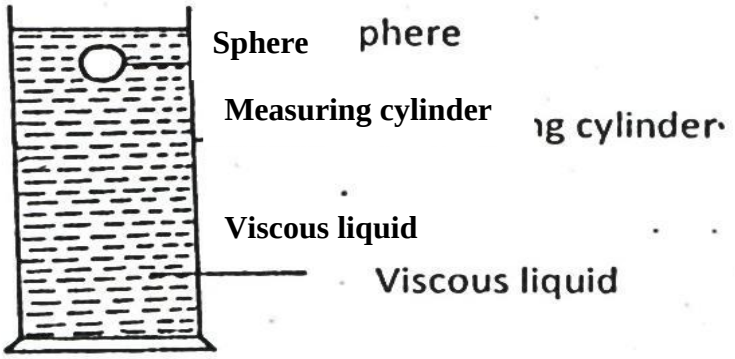
(b) A ball is thrown horizontally from top of a vertical tower and strikes the ground at a point 50m from the bottom of the tower. Given that the height of the tower is 45m, determine the

(i) Time taken by the ball to hit the ground. ***(2mks)***

(ii) Initial horizontal velocity of the ball ***(2mks)***

(iii) Vertical velocity of the ball just before striking the ground.***(2mks)***

c) The diagram in below shows a sphere moving in a viscous liquid in a tall measuring cylinder. Show on the diagram the forces acting on the sphere. ***(3 marks)***



14. In an experiment to estimate the size of oil molecule an oil drop of diameter 0.05cm spreads over water to form a circular patch whose diameter is 15cm.

a) Determine in SI units:

i) Volume of the drop. ***(2 marks)***

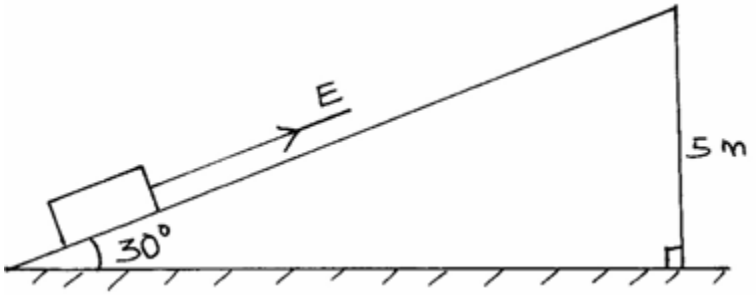
ii) Area of the patch. ***(2 marks)***

iii) Size of the oil molecule. ***(3 marks)***

c) State **two** assumptions made in b)(iii) above. ***(2 marks)***

15. (a) Define the term velocity ratio of a machine. ***(1 mark)***

(b) A man pushes an 80kg mass load on an inclined plane and raises the load through a vertical height of 5m as shown in the diagram below. The inclined plane is 30° to the horizontal. (Take g to be 10N/kg).



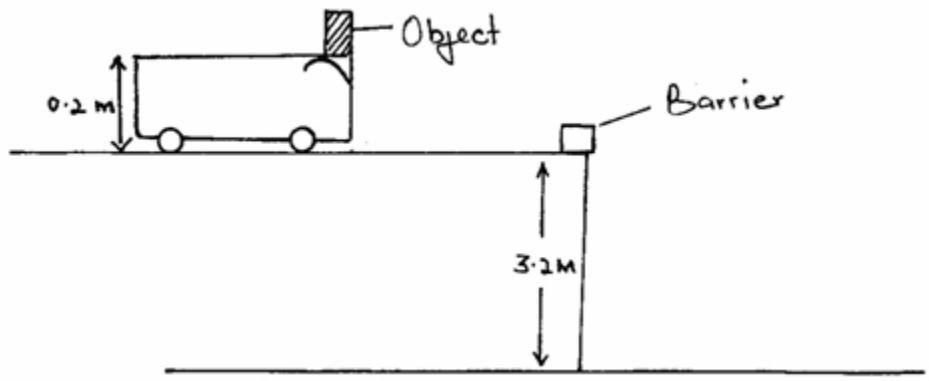
(i) Determine the velocity ratio of the inclined plane. ***(2 marks)***

ii. If the efficiency of the inclined plane is 75% determined.

I) the mechanical advantage. ***(2 marks)***

II) the effort E, needed to pull the load up the plane. *(2 marks)*

b) A trolley of height 0.2m moving on a horizontal bench of height 3.2m strikes a barrier at the edge of the bench. The object on top of the trolley flies off on impact and lands on the ground 2.5m from the edge of the bench as shown in the figure below.Use this information to answer the questions that follow.



(i) Give a reason why the object on the trolley flies off on impact. *(1 mark)*

(ii) Determine the time taken by the object to reach the ground. *(2 marks)*

16. a) A boy throws a tennis ball vertically upwards from a truck moving at a constant velocity. Give the reason why the ball lands back exactly the same point where it was projected. *(1 mark)*

b) Define momentum and state its SI unit *(2marks)*

c) A trailer of mass 30 tonnes travelling at a velocity of 72km/h runs onto a stationary bus of mass 10 tonnes. The impact takes 0.5seconds before the two vehicles move off together at a constant velocity for 15 seconds. Determine,

i) The common velocity. ***(3 marks)***

ii) The distance moved after the impact. ***(2 marks)***

iii) The impulsive force on the trailer on impact. ***(3 marks)***

d) Give a reason why when a passenger jumps from a floating boat, the boat moves backwards. ***(1 mark)***

e) Give the reason why a safety seat belt used in a vehicle:

i) Should have a wide surface area. ***(1 mark)***

ii) Should be slightly extensible. ***(1 mark)***

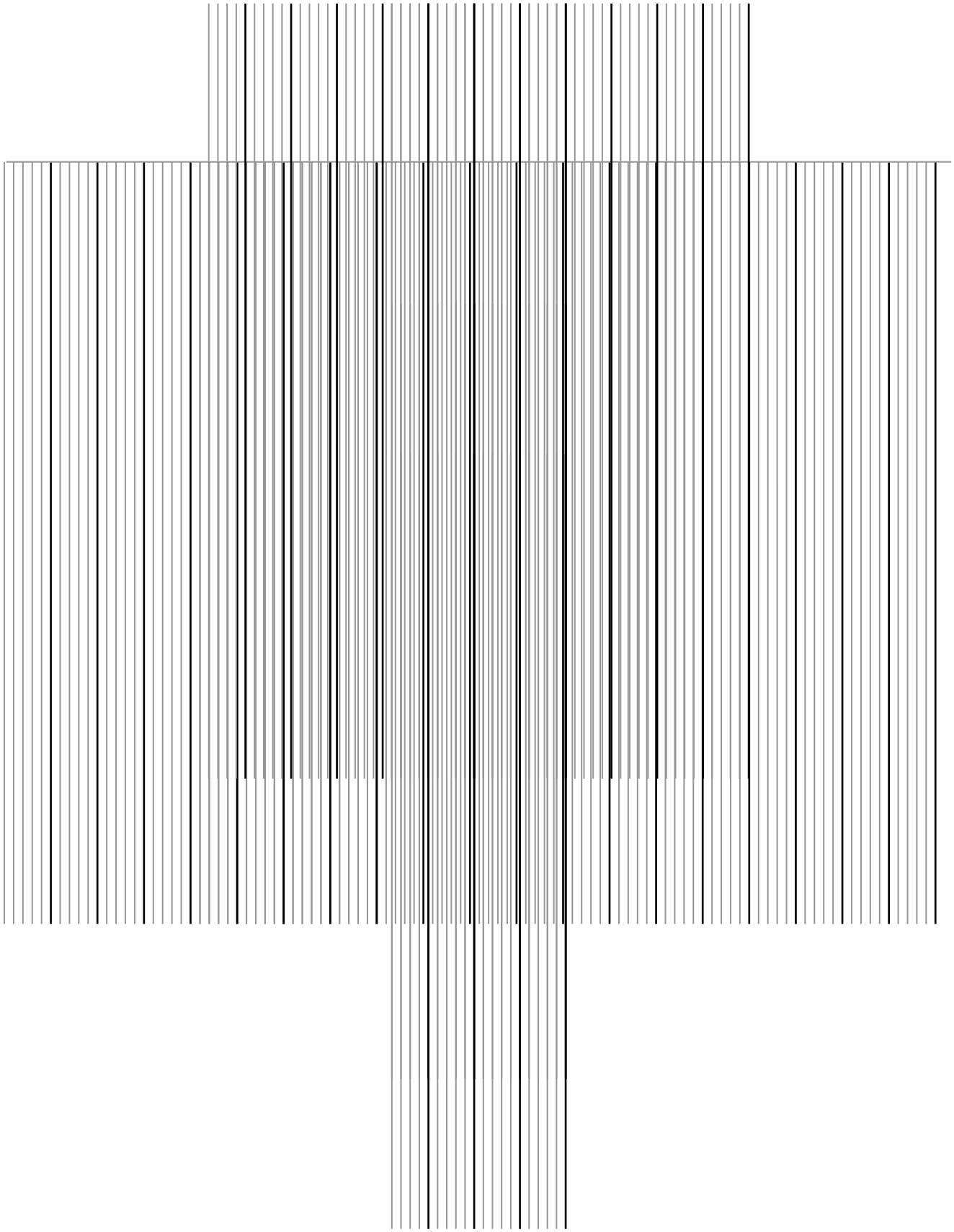
17. (a) State Hooke's Law. ***(1mk)***

(b) The following results were obtained in a experiment to verify Hooke's law when a spring was extended by hanging various loads on it.

(I) Complete the table for the extension e above. ***(1mk)***

Load (N)	0.00	1.00	2.00	3.00	4.00	5.00	6.00
Length of spring in cm	10.00	11.50	13.00	14.50	16.00	18.00	24.00
Extension							

(II) Plot a graph of load (y-axis) against extension ***(3mks)***



(III) From the graph determine the springs constant. ***(2mks)***

(IV) Calculate the energy stored when the spring is stretched to 16 cm.***(3mks)***

FORM 3 ENDTERM 1 SET 1 EXAM

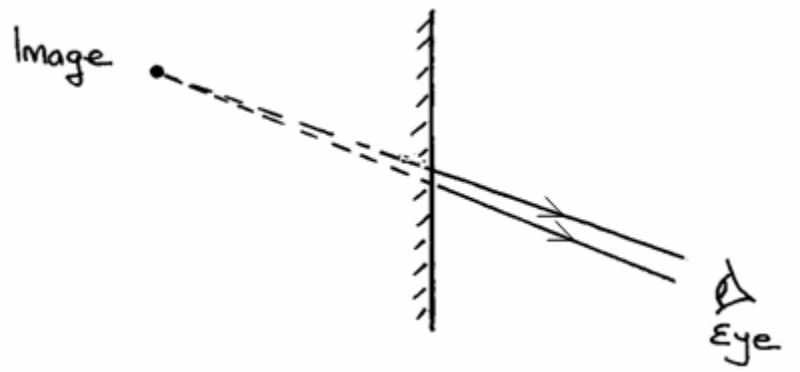
TERM 1 EXAMINATION

PHYSICS PAPER 2 FORM 3

NAME:……ADM NO:…….CLASS:……

SECTION A: (25 MARKS)

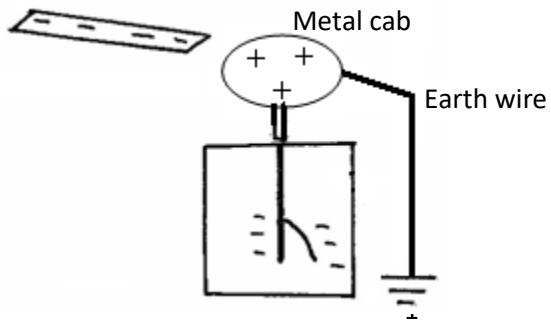
1. (a) Figure 1 shows an image formed in a plane mirror.



By drawing incident rays for the rays shown, locate the position of the object.(2 marks)

(b) Explain how an enlarged hole in a pin hole camera produces a blurred image. (1 mark)

2. The figure 2 below shows an electroscope being charged by induction.



(i) State the reason why the cap of the electroscope is made circular.(1 mark)

(ii) On the same diagram, show the direction of the flow of electrons on the earth wire. 1mk

3. (a) the figure below shows a current carrying conductor placed perpendicularly between the poles of a magnet. Show on the diagram The direction of net force on the conductor. (1 mark)

4. Using domain theory, describe how a nail can be magnetised through hammering. (2 marks)

5. State **two** properties of an image formed by a concave mirror that makes it suitable for use by barbers. (2 marks)

6. State **two** defects of a simple cell and how each can be corrected. (2 marks)

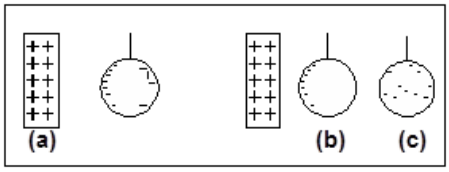
7. An object is placed 20cm in front of a concave mirror of focal length 10cm and another identical object is place 20cm infront of a plane mirror

(i) Give one similarity of the image formed. (1mk)

(ii) Give one difference between the image formed. (1mk)

8. Figure 1 show a method used to charge conductors. The procedure follows steps a, b and c

Fig 1

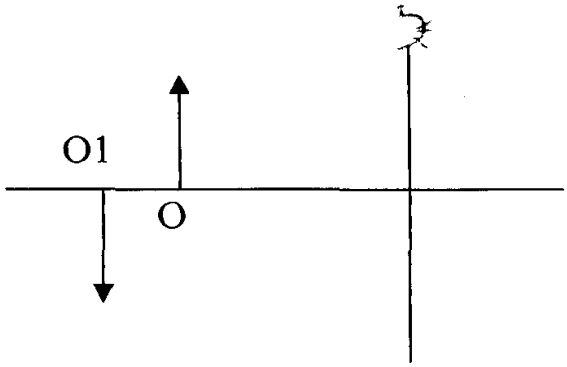


i)State the method of charging above. (1 mark)

ii) Explain what happens in step (b) above.

(1 mark)

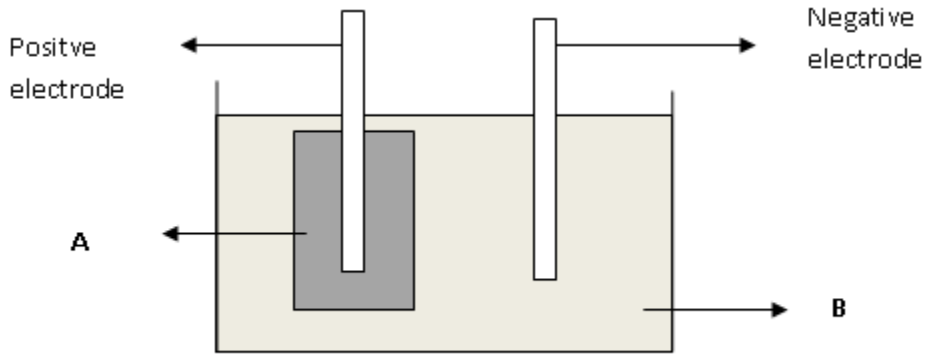
9. The figure below shows the object O and its image O1 formed by a concave mirror. Locate theposition of the principle focus. (2marks)



10. A current of 0.8A flows through an electric circuit. Determine the quantity of charge that passes a point in the circuit in 6 minutes. (2 marks)

11. A mine worker stands between two vertical cliffs 500m from the nearest cliff. The cliffs are **x**metres apart. Every time he strikes the rocks, he hears the echoes. The first one comes after **2.5.s** while the other comes **3s** later. Calculate the distance between the cliffs. (3 mks)

12. Figure below show a Leclanche cell



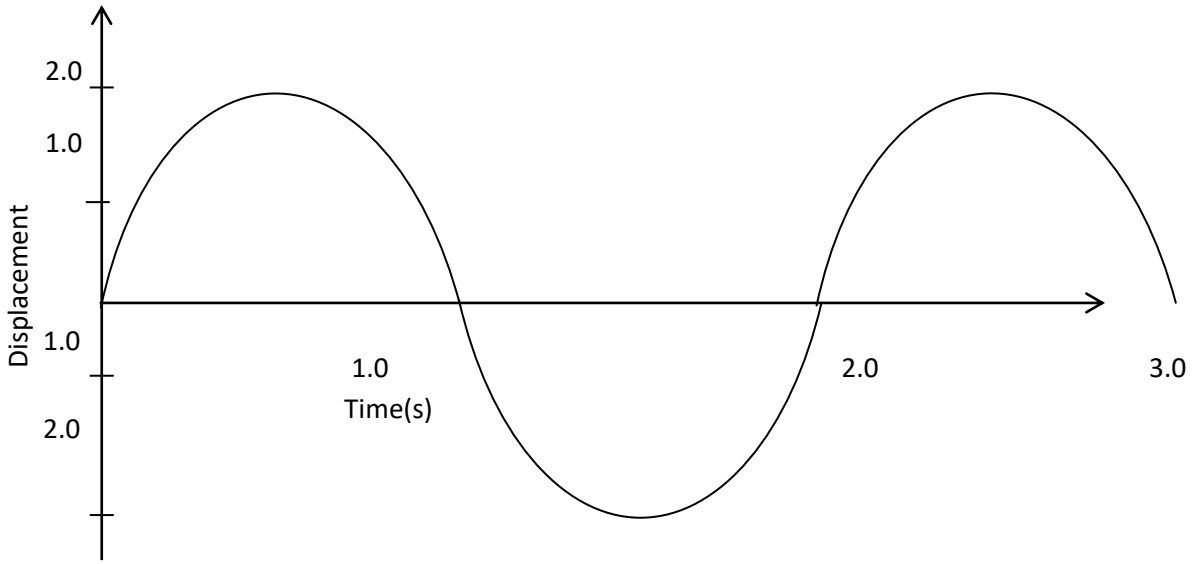
Name the chemical substances in the parts labeled (2mks)

A.....

B.....

SECTION B:55 MARKS

13. The figure **below** represents an oscillation taking place at a particular point when a sound wave in a gas passes the point. The vertical axis represents displacement.



(i)Explain what is meant by displacement in this context. (1 mark)

(ii) From the graph, determine.

(i) Amplitude (1mk)

(ii) Period (1mk)

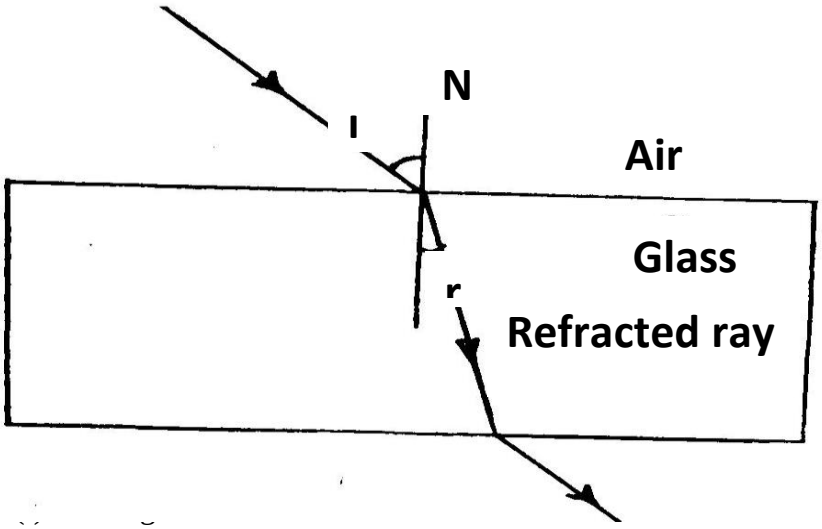
(iii) Frequency (2mks)

(iii) Calculate the wavelength of the sound wave in the figure above. (Speed of sound in gas is 340m/s). (3 marks)

(iii) State **two** factors that increases the speed of sound in solids.(2 marks)

(iv) Distinguish between transverse and longitudinal waves. (2mks)

14. (a) A ray of light makes a glancing angle of incidence i=60^o with a flat glass surface as shown below



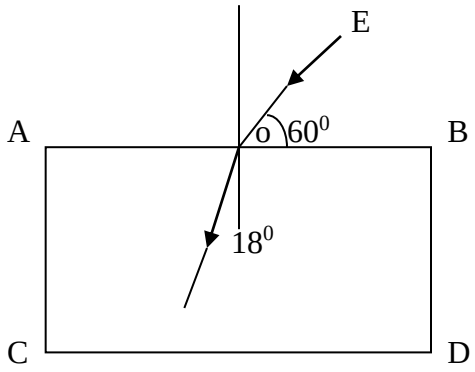
(3mks)

(ii) Given that speed of light in air 3.0 x 10^8 m/s, find the speed of light in glass (2mks)

(b) A microscope is focused on a mark on a horizontal surface. A rectangular glass block 30mm thick is placed on the mark. The microscope is then adjusted 10mm upwards to bring the mark back to focus. Determine the refractive index of the glass. (3mks)

c) State the conditions to be satisfied for total internal reflection to occur. (2mks)

(d) A ray of light traveling in the direction EO in air enters a rectangular block at an angle of incidence 30^0. The resulting angle of refraction is 18^0.



Find:-

(i) The refractive index of the block. (2mks)

(ii) The critical angle C of the block. (3mks)

15. (a) Define the term principal focus in relation to convex mirror (1mk)

(ii) Distinguish between real and virtual image (2mks)

(b) The table below shows the object distance u, and the corresponding image distance V for an object placed infront of a concave mirror

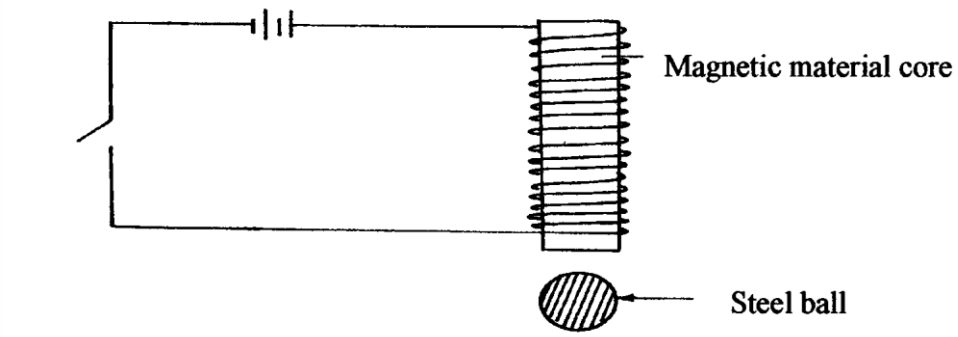
U(cm)	20	25	30	35	40	45
V (cm)	60.0	37.5	30.0	26.3	24.0	22.5
$^{I}/_{U}$ cm^{-1}						
$^{I}/_{V}cm^{-1}$						

(i) Complete the table (2mks)

(ii) Plot a graph of $^{I}/_{V}$ against $^{I}/_{U}$ (5mks)

(iii) From the graph determine the focal length (2mks)

16. a) The set up in figure 4 below can be used in a laboratory for lifting and releasing a steel ball.



i) State the material which is suitable for use in the core. (1 mark)

ii) If a slightly larger ball is to be lifted, it is necessary to make an electromagnet stronger. Name **two** ways of increasing the strength of the magnet. (2 marks)

b)Figure 4 shows a rectangular coil in a magnetic field rotating in a clockwise direction. The direction of induced current is as shown by the arrows.

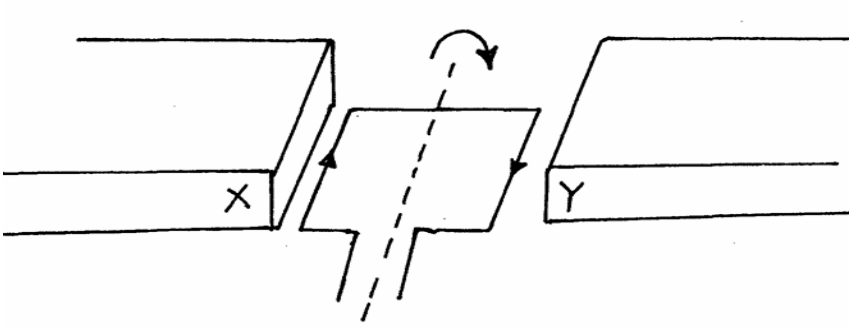


Fig. 4

i) Indicate the poles X and Y of the magnets (2 mark)

X _____ Y _____

ii) Suggest <u>one</u> way of increasing the magnitude of the force in such a coil (1mark)

c) What is meant by the term 'direction of a magnetic field' (1mk)

d) State one property of magnets. (1mk)

e)) Repulsion is the surest test for polarity of a magnet. Explain (1mk)

f) State the difference between magnetic properties of steel and soft iron (1mk)

g) A steel bar was being magnetized by electrical method. It was noted that the strength of the magnet depended on the amount of current. The current was increased steadily until it was noted that the strength of the magnet could not increase further .Explain the observation (2mks)

h) State **two** ways of demagnetizing a magnet (2mk)

FORM 3 PHYSICS CONFIDENTIAL

QUESTION ONE

Each candidate will require:

- Two retort stands
- Two clamps
- Two bosses
- 120cm long Inextensible thread
- 20cm Inextensible thread
- One pendulum bob
- One stop watch
- Each student to bring a complete geometrical set
- One metre rule
- One half metre rule
- Masking tape

Question 2

- a nichrome wire x, 1m long mounted on mm scale and labeled PQ at the ends (SWG 28)
- a dry cell
- a switch
- a voltmeter (0 – 3v)
- an ammeter (0- 1A)
- a cell holder
- eight connecting wires (4 with crocodile clips attached to the ends).
- A micrometer screw gauge (can be shared)

FORM 3 END TERM 1 SET 1 EXAM 2023

Name……Adm No……Class……
School ……
Candidate's Signature ……

GRAND TOTAL

PHYSICS PP.3 (PRACTICAL)
232/3

PHYSICS

PAPER 3

TIME: 2 HRS 15MIN

INSTRUCTIONS TO CANDIDATES

1. Write your name and admission number in the spaces provided.
2. Answer all questions in the space provided.
3. All working must be clearly shown where necessary.
4. Non-programmable silent electronic calculation may be used.
5. Candidates should check the questions paper to ascertain that all pages are printed as indicated and that no question is missing.

Question	Candidate's Score	Maximum Score
1		19
2		21
Total		40

Question 1

You are provided with the following apparatus

- Two complete retort stands.
- A metre rule
- Two pieces of thread (120cm and 20cm)
- A stop watch
- A piece of masking tape
- A pendulum bob
- A half metre rule

a) (i)

- Attach one end of string to the metre rule at the 10cm mark by fastening a loop of string tightly round the metre rule.
- Fix the string at this point with a piece of masking tape
- Tie the string in the second loop at 90cm mark. Fix this loop with another piece of masking tape.

ii) Attach the pendulum bob at the centre of the string – so that the centre of gravity of the bob is 15cm below the point of suspension (as shown in the figure below.)

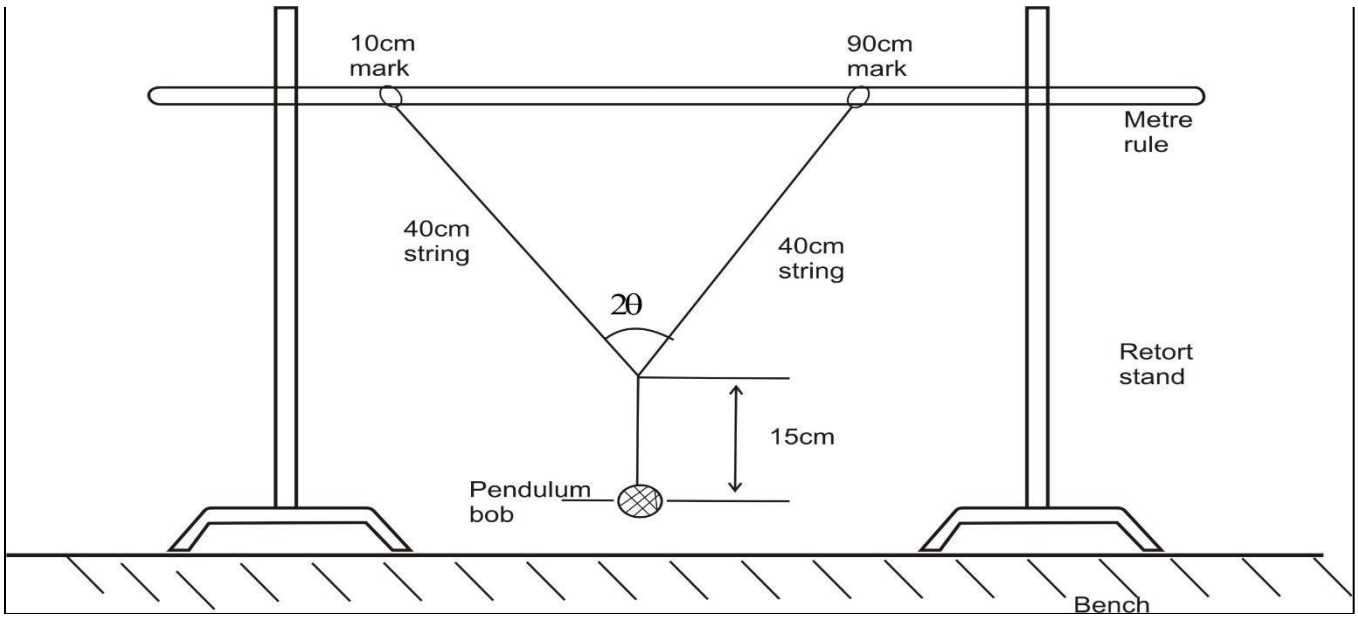


Figure 1

b) (i) Measure the angle 2θ .....1/2 mk

ii) Pull the pendulum bob towards you through a small distance release it and measure time "t" for 10 oscillations.

.....***1/2 mk***

iii) Remove the masking tape slide the loops to the 12cm and 88cm marks. Refix the masking tape. Measure the angle $\boxed{2\theta}$ and time"t" as before

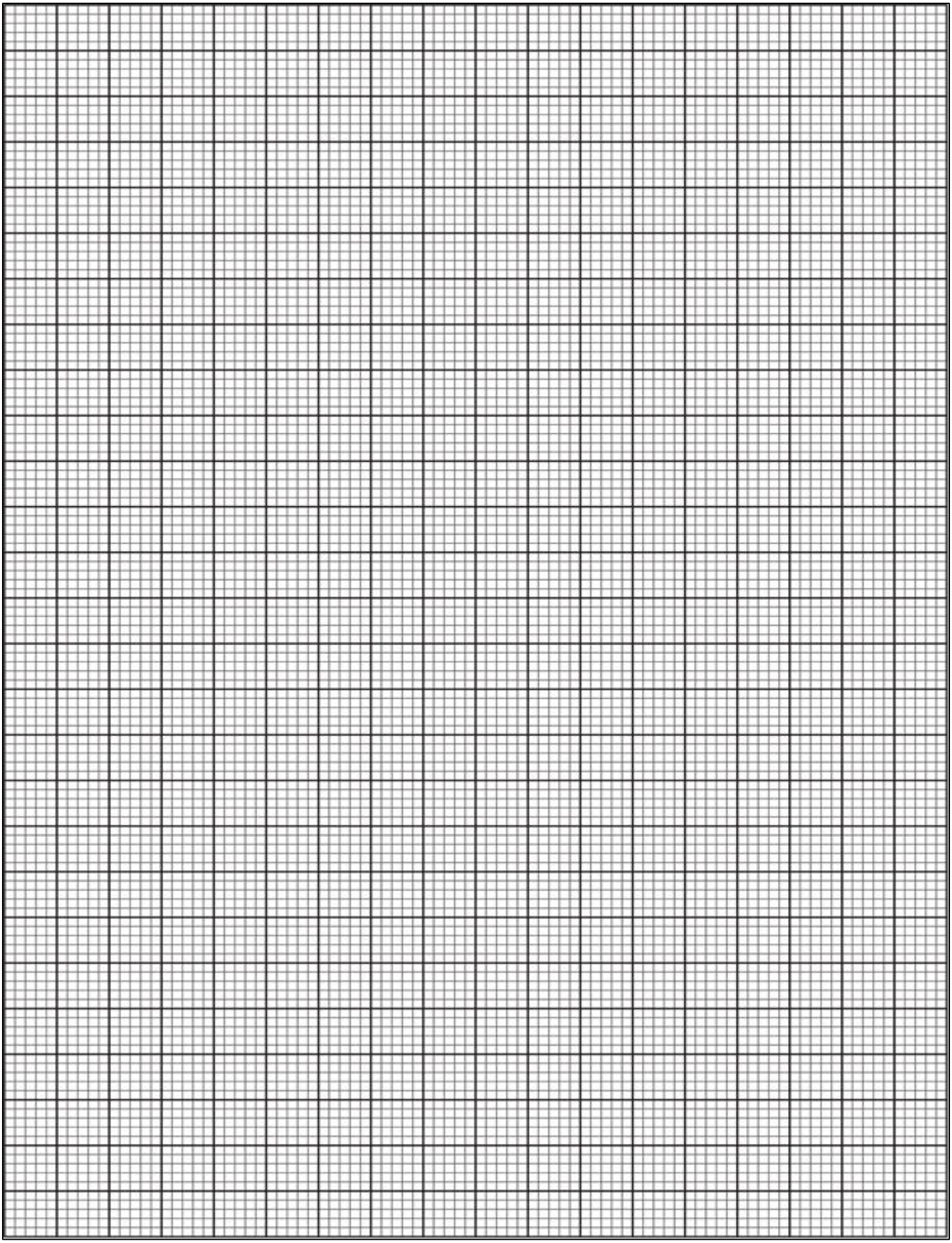
iv) Repeat (iii) above with the loops at 15cm and 85cm, 20cm and 80cm, 25cm, and 75cm. 30 and 70cm, 35cm and 65cm marks.

v) Enter all your results in the table below.

	10 and 90	12 and 88	15 and 85	20 and 80	25 and 75	30 and 70	35 and 65
2θ							
θ^0							
$Cos\ \theta^0$							
Time for 10 oscillations t (*s*)							
Periodic time T(s) $\boxed{T = \frac{t}{10}(s)}$							
$\boxed{T^2\left(S^2\right)}$							

(10mks)

c) (i) Plot a graph of T^2(y-axis) against cos θ



(5mks)

(ii) Determine the value of T^2 at the point where the graph intercepts the y – axis. ***(1mk)***

(iii) Given that the value of T^2 at the point A where the graph cuts the y – axis is given by $A = \boxed{\frac{0.6\Pi^2}{K}}$, use your result in (ii) above to determine the value of *K*. ***(3mks)***

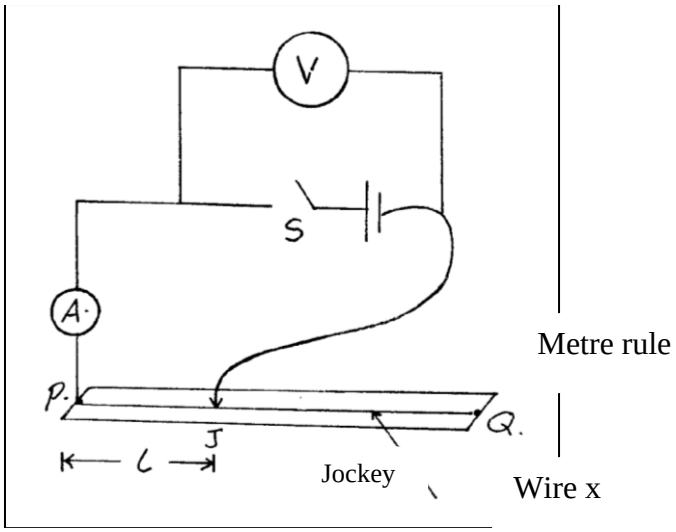
Question 2

Q2. You are provided with the following apparatus

- A voltmeter
- An ammeter
- A wire x mounted on a metre rule
- 6 connecting wires with crocodile clips
- Micrometer screw gauge
- A switch
- A jockey
- One new dry cell and a cell holder.

Proceed as follows:

a) Connect the apparatus provided as shown in the circuit below.



b) With the crocodile clip at L = 10 cm, close the switch S and record the ammeter and voltmeter reading.

I = _____ A ***½ mk***

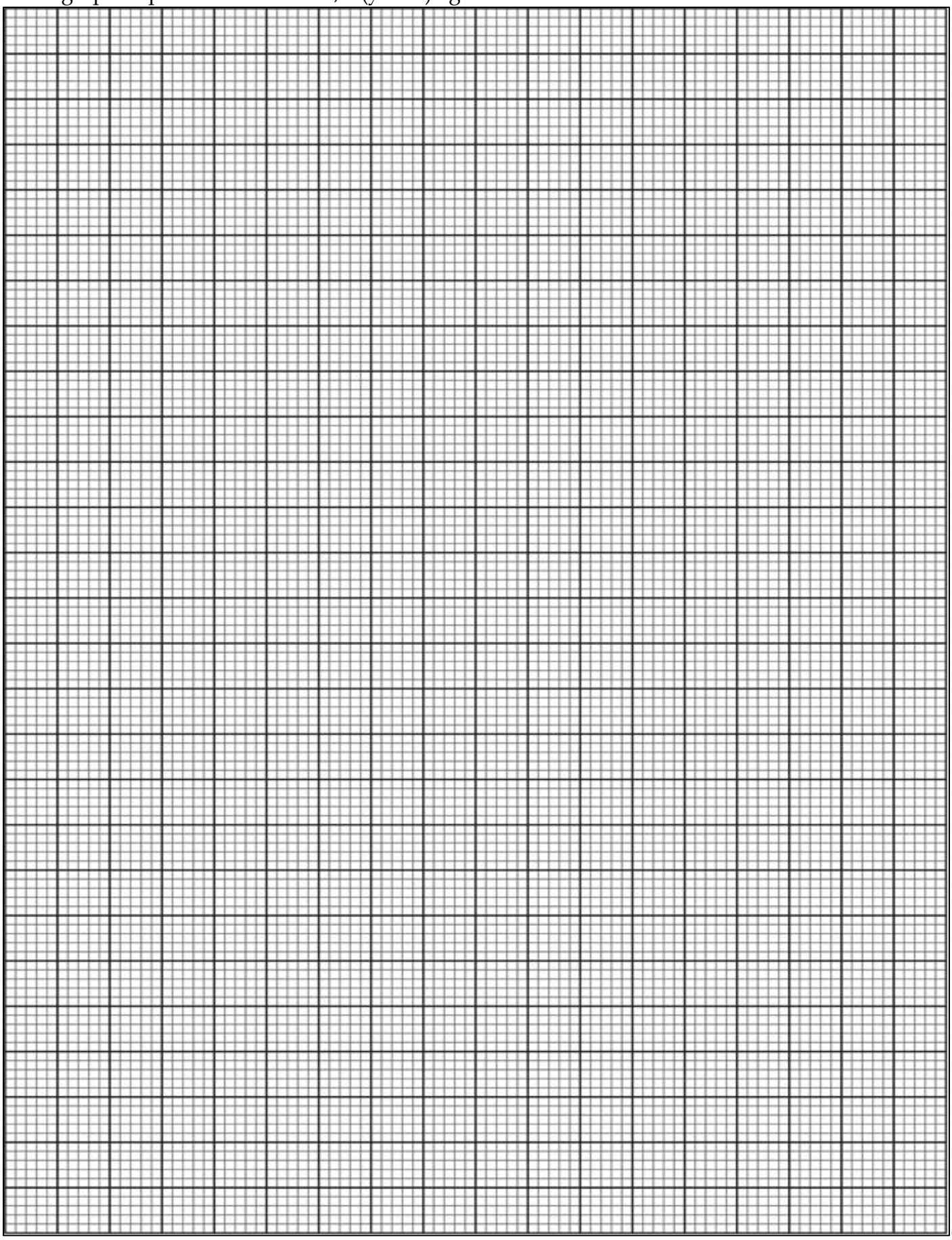
V = _____V ***½ mk***

c) Repeat the procedure in (b) for other values of l = 15cm, 20cm, 25cm, 30cm, 35cm and recordthe readings in the table below.

Length. L. (cm)	10	15	20	25	30	35
Voltmeter reading , V (volts)						
Ammeter reading , I(A)						

(5mks)

Plot a graph of potential difference, V(y-axis) against th



e

Current I. ***(5mks)***

Determine the slope of the graph ***(2mks)***

d) Given that V= E – I r, use your graph to determine the value of;

(i) E ***(1mk)***

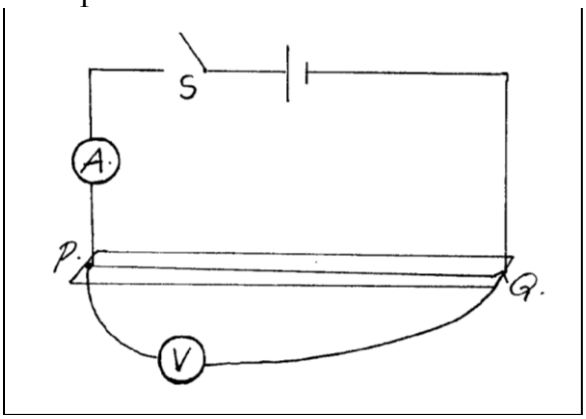
(ii) r ***(1 mk)***

e) Measure the diameter d of the wire x using the micrometer screw gauge.

d = _____ mm ***(½ mk***

_____m ***(1/2 mk)***

f) Dismantle the apparatus and set up the circuit as shown below.



g) Close the switch S and record the ammeter and the voltmeter readings

I = _____ A

V = _____ V ***(1mk)***

Hence find R, the resistance of the wire x.

R = _____ Ω ***(1mk)***

h) Given that R = $\frac{4\rho}{\pi d^2}$ determine ρ ***(2mks)***