# FRM 3 MIDTERM 2 EXAM

# ALL SUBJECTS

## SERIES 1

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KENYA CERTIFICATE OF SECONDARY EDUCATION

# AGRICULTURE PAPER 1 FORM 3

# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**Instructions to candidates.**

**(i) Write your name and admission number in the spaces provided.**

**(ii) This paper consists of three sections A, B and C.**

**(iii) Answer ALL the questions in section A and B and any two questions in section C.**

**(iv) All answers must be written in the spaces provided.**

**(v) Do not remove any pages from the question paper.**

**For Examiner`s use only**

| Section | Questions | Maximum score | Candidates score |
|---|---|---|---|
| A | 1-17 | 30 | |
| B | 18-21 | 20 | |
| C | | 20 | |
| | | 20 | |
| | Total Score | 90 | |

**SECTION A (30 MARKS)**

1. Differentiate between **Olericulture** and **Pomoculture** as used in crop production.(1mk)

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   ……

   ……..

2. Give two activities that justify the fact that Agriculture is a **science**. (1mk)

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   ……

3. List **four** climatic factors that influence crop production. (2mks)

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4. Name **three** types of pipes used to convey water in the farm. ($1^1/_2$mks)

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5. Give four factors considered when choosing a nursery site (2mks)

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6. Calculate the plant population in a 4.5 hectares plot on maize crop planted at a spacing of 75cm x 30cm. (Assume 1 plant per hole) (2mks)

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   ……

7. State **four** reasons why burning of vegetation when clearing land should be discouraged. (2mks)

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8. State four aspects of rainfall that affect crop production. (2mks)

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9. Give **FOUR** ways of achieving minimum tillage. (2mks)

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10. List four physical weathering agents in the soil formation (2mks)

……

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……

……

11. Name one vegetative material used to propagate the following crops (2mks)

Banana……..

Pineapples…….

Irish potato…….

Pyrethrum……..

12. List three methods of fertilizer application in the farms ($1^1/_2$mk)

……

……

……

13. State two conditions under which shifting cultivation is favourable. (1mk)

……

……

……

14. Name two field management practices that are carried out to ensure optimum plant population in a crop field (2mk)

……

……

**15.** Name any **four** post-harvest practices carried out in crop productions (2mks)

……

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……

……..

16. State **four** characteristics of a fertile soil. (2mks)

……

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17. State four importance of soil to crops. [2mks]

……

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……

## SECTION B 20MKS

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

18. A student was to apply a compound fertilizer 5:20:10 at the rate of 200kg per hectare on her Agriculture project plot measuring 3m by 4m.

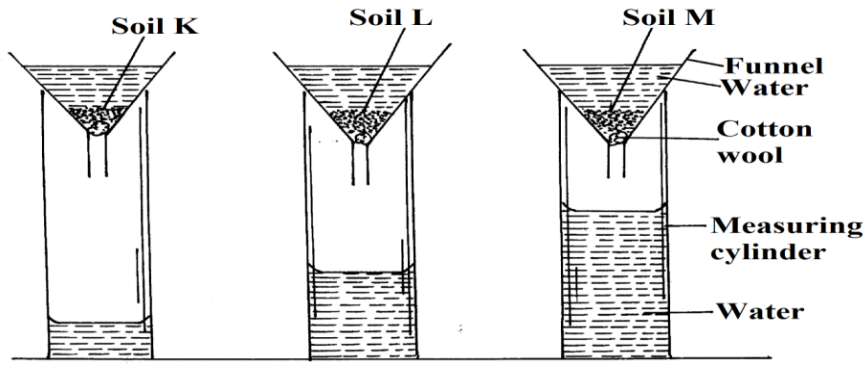
    a. What do the figures 20 and 10 in the compound fertilizer stand for? (2mk)

    20……

    10……..…

    b. Calculate the amount of fertilizer she would require for the plot. (3mks)

19. The diagram below shows the results of an experiment set up to investigate certain properties of three different types of soil K, L and M. equal quantities of soil were used and same amount of water added to each soil. Study the set up carefully and answer the questions that follow.




a) State the **two** properties of soil that were being investigated. [2mks]

…….

b) Identify the soil in each of the set ups. [3mks]

K……

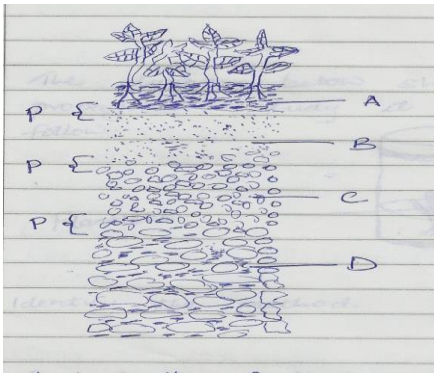
L……

M……

c) Which type of soil would be suitable for growing beans. [1mk]

……

20. The diagram below illustrates a feature observed after digging the soil several meters deep Study the diagram carefully and answer the question that follow




a) Identify the feature that the diagram above represents in the study of soil (1mrk)

.....

b) What is the name given to the part labeled **p** (1mrk)

.....

c) Give a reason why part B is also referred to as layer of accumulation (1mrk)

.....

.....

.....

d) State two ways in which the knowledge of the above feature would be of benefit to farmer (2mrks)

.....

.....

.....

21. The diagram below shows a method of crop propagation .Study it and answer the questions that follow


a) Identify the method (1mrk)

.....

b Name **one** crop that can be propagated using this method. (1mk)

.....

c. Give two benefits of the above practice. (2mks)

.....

.....

.....

## SECTION C 40MKS

***Answer any two questions from this section in the spaces provided.***

22. a) Describe the production of carrots under the following subheadings.
    i. Land preparation. (3mks)
    ii. Planting. (3mks)
    iii. Field management practices. (4mks)

    b) State and explain the factors that determine the stage and time of harvesting crops. (5mks)

    c) Identify any five methods of farming in agricultural production. (5mks)

23. a) Describe **five** roles of horticultural crops to the economy of Kenya. [10mks]

    b) Describe five methods of breaking seed dormancy. [10mks]

24. a) State four properties of Nitrogenous fertilizers. (5mks)

    b) Outline **five** methods of improving drainage in waterlogged soils. (5mks)

    c) Discuss 5 importance of crop rotation in agricultural production. (10mks)

KENYA CERTIFICATE OF SECONDARY EDUCATION

# AGRICULTURE PAPER 2 FORM 3

# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**Instructions to candidates**.

(i) Write your **name** and **admission number** in the spaces provided.

(ii) This paper consists of three sections **A, B** and **C.**

(iii) Answer **ALL** the questions in section A and B and any two questions in section C.

(iv) All answers must be written in the spaces provided.

(v) Do not remove any pages from the question paper.

**For Examiner`s use only**

| Section | Questions | Maximum score | Candidates score |
|---|---|---|---|
| **A** | 1-16 | 30 | |
| **B** | 17-19 | 20 | |
| **C** | | 20 | |
| | | 20 | |
| | Total Score | 90 | |

**SECTION A (30 marks)**

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

1. Give two uses of the roof of cattle dip tank. (1mk)

.....

.....

2. State Four dairy goat breeds reared in a farm. (2mk)

.....

.....

3. Give four signs of farrowing in a sow. (2mks)

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.....

4. State four maintenance practices carried out on a knapsack sprayer. (2mks)

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5. Give **three** factors that a farmer may consider while carrying out culling in livestock production. ($2^{1}/_{2MKS}$)

.....

.....

.....

6. a. state two factors considered when siting a fishpond (1mk)

……

……

State **four** categories of individual land tenure system (2mks)

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7. State **two** ways of caponisation in poultry. (2mks)

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8. State four reasons why inbreeding may be useful in livestock production. (2mks)

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9. Give two effects of Tsetse flies on livestock. (1mk)

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.....

10. Name two types of rabbit houses. (1mk)

.....

.....

11. List four types of vaccines used in livestock production. (2mks)

.....

.....

.....

12. Name four types of pests that affect bees. (2mks)

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13. Outline three reasons why farmers dehorn cattle. ($1^1$/2mks)

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.....

14. (a. Differentiate between cropping and harvesting as used in fish production. (1mk)

.....

.....

b. Name two species of fresh warm water fish. (1mk)

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.....

15. Give four reasons for steaming up dairy cattle. (2mks)

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16. Name **four** factors to consider while choosing construction materials in the farm. (2mks)

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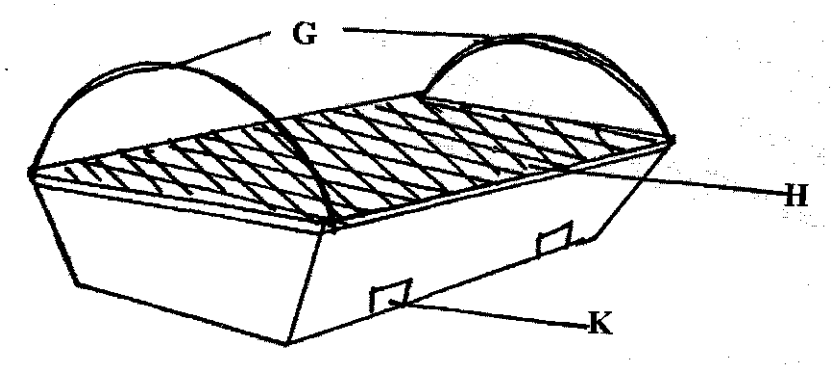
## SECTION B (20 Marks)

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

17. Below is a diagram illustrating a beehive. Study carefully an answer the questions that follow.




a) Name the type of beehive shown (1mk)

b) Name the parts labeled H and K (2mk)

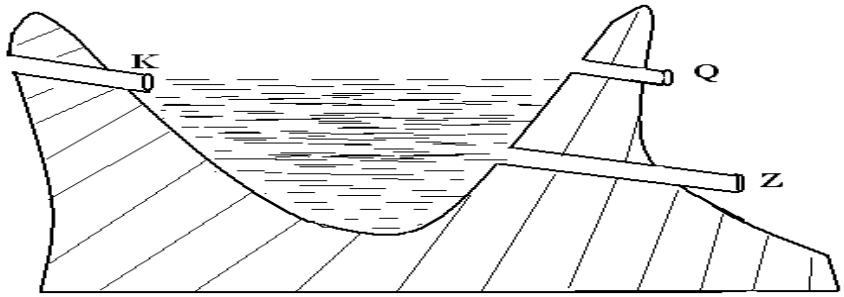
H

K

c) Give **two** importance of part G (2mks)

d) Give **two** tools used for detaching honey combs during honey harvesting. (2mks)

18. The illustration below is a farm structure.




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

**b)** Name the parts labeled K, Q and Z. **(3 marks)**

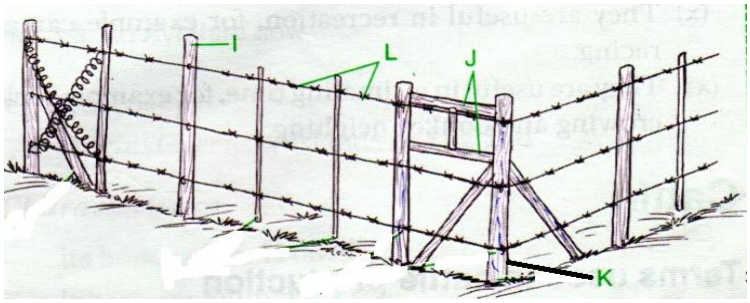
K

Q

Z

**c)** Give four maintenance practices carried out on the above structure. **(2marks)**

19. Study the farm structure shown below and answer questions that follow.




(a) . Identify the structure shown above. (1mk)

(b). Name the parts labeled **I, J, K** and **L**. above. (4mks)

I

J

K

L

(c). Give two disadvantages of using the structure above in pasture fields. (2mk)

**SECTION C (20 Marks**

***Answer any TWO questions in this section in the spaces provided.***

20. (a)state three fat soluble vitamins **(3marks)**

b) Give five functions of vitamins in livestock production. **(5 marks)**

c) State reasons for absconding of bees **(7 marks)**

d) Outline five advantages of embryo transplant technology in cattle management. **(5 marks)**

**21.** a) Describe five features of an ideal calf pen (5mks)

b) Describe the general uses of a fence in the farm (10mks)

c) Outline five reasons for keeping livestock healthy (5mks)

**22. a)** Outline ten factors to consider when selecting gilt for breeding stock. **(10 marks)**

**b)** Explain the economic importance of parasites to livestock. **(10 marks)**

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# BIOLOGY PAPER 1 FORM 3

# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**INSTRUCTIONS TO CANDIDATES**

- Write your name and Index Number in the spaces provided above.
- Sign and write date of examination in the spaces provided above.
- Answer **ALL** questions in the spaces provided.

**FOR EXAMINER'S USE ONLY**

| Question | Maximum score | Candidate's score |
|---|---|---|
| 1-27 | 80 | |

***Candidates should check the question paper to ensure that all the 8 pages are printed as indicated and no questions are missing.***

1. **a)** A student using a light microscope observed blurred image of onion epidermal cell. Name part of a microscope he needed to use to get a clear image. **(1 mark)**

……

……

**b)** If the field of view measured 3mm and he counted 15 cells, determine the size of one cell in micrometers. **(3 marks)**

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2. Why is oxygen important in the process of active transport in cells? **(2 marks)**

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3. What is the use of osmosis in plants? **(2 marks)**

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4. **a)** Name the main product of dark stage of photosynthesis. **(1 mark)**

……

**b)** Explain why insectivorous plants trap and digest insects. **(2 marks)**

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5. State **3** ways in which the ileum is structurally adapted to the absorption of digested food **(3 marks)**

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**6.** What are the functions of muscles found in the alimentary canal of mammals? **(3 marks)**

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**7.** **a)** What are the functions of bile juice in food digestion? **(2 marks)**

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**b)** How does substrate concentrate affect rate of enzyme reaction? **(1 mark)**

……

……

**8.** Give **three** structural differences between arteries and veins. **(3 marks)**

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**9.** State **three** adaptations of xylem to its functions. **(3 marks)**

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**10.** Name **3** processes by which manufactured food is translocated. **(3 marks)**

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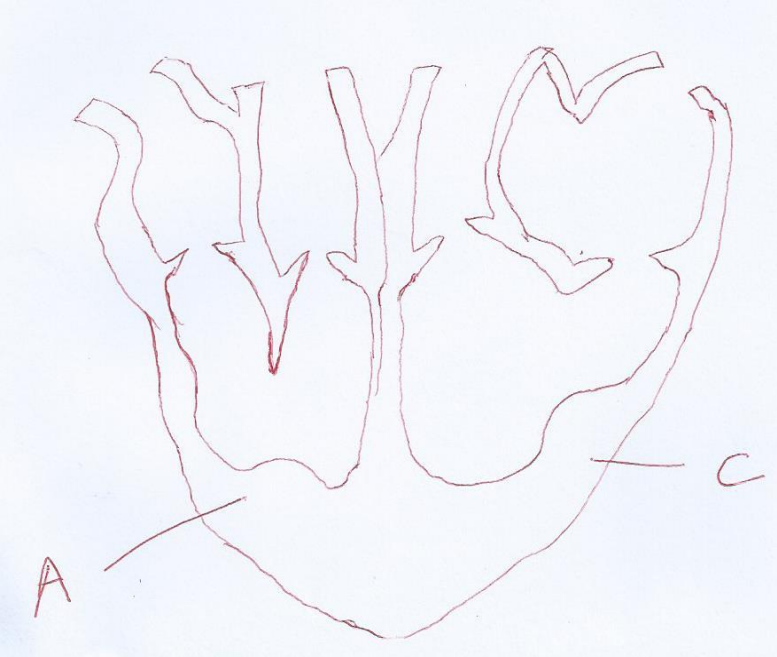
**11.** Below is a diagram of the heart




**a)** On the diagram, indicate how blood flows in and out of the heart. **(2 marks)**

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……

**b)** Explain why chamber C is thicker than chamber A. **(2 marks)**

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**12.** other than using quadrant ;state two other methods of estimating population **(2 marks)**

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**13.** How are aerenchyma tissues adapted to their functions? **(2 marks)**

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**14.** Describe how carbon (IV) oxide move from insect body tissue until it reaches the atmosphere. **(2 marks)**

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**15. a)** Give a reason why there is high rate of production of lactic acid during exercise. **(2 marks)**

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**b)** What causes decrease in lactic acid after exercise? **(1 mark)**

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**16. i)** In what form is energy stored in muscles? **(1 mark)**

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……

**ii)** Give **two** economic importance of anaerobic respiration in industries. **(2 marks)**

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**17.** Below is an equation representing a metabolic process in mammalian liver.

Amino acid → organic compound + Urea.

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

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……

**(b)**What is the economic importance of the process to mammals? **(1 mark)**

……

……

**18.** Urine sample obtained from a given mammal was found to contain sugar.

**(a) i)** Name the disease the animal may have suffered from. **(1 mark)**

……

……

**ii)** Name the hormone deficient in the animal. **(1 mark)**

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**b)** Give **two** structural modifications of nephron found in desert mammals. **(2 marks)**

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**19.** state two characteristics of population **(2 marks)**

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**20.** What are the harmful economic importance of fungi to man? **(2 marks)**

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**21.** Name **two** characteristic feature found in members of division bryophyta. **(2 marks)**

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**22**. **a)** Name the class to which a crab belong. **(1 mark)**

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**b)** Give **two** distinguishing characteristics of organisms belonging to kingdom monera.

**(2 marks)**

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**23.** State the function of the following cell organelles.

**i)** Lysosome **(1 mark)**

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**ii)** Golgi bodies. **(2 marks)**

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**24. a)** Give reasons for the following microscopic work.

**i)** Staining specimen before observation. **(1 mark)**

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……

**ii)** Putting a drop of water on specimens. **(1 mark)**

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**b)** When using eye piece magnification of X10 a cell was magnified 600 times.

Determine magnification of the objective lens. (Show your working) **(2 marks)**

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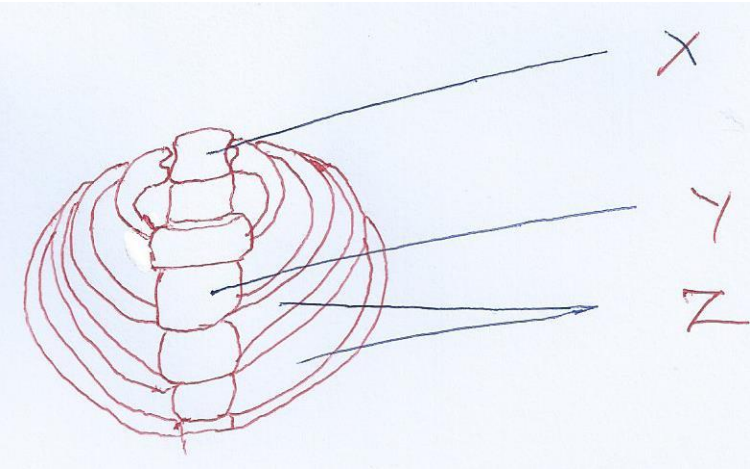
**25**. Below is a diagram of a mammalian rib cage.




**(a)** Identify the structure labeled X. **(1 mark)**

……

**(b)** How does the part labeled Z facilitate breathing in? **(3 marks)**

……

……

……

**26. a)** Name the substrate used in respiration during starvation. **(1 mark)**

……

**b)** Explain why lipid though contain high amount of energy is not used as the main respiratory substrate. **(2 marks)**

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**27.** Name **three** factors that affect rate of diffusion. **(3 marks)**

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# BIOLOGY PAPER 2 FORM 3

# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**INSTRUCTIONS**

a) This paper consists of two sections A and B

b) Answer all questions in section A in the spaces provided.

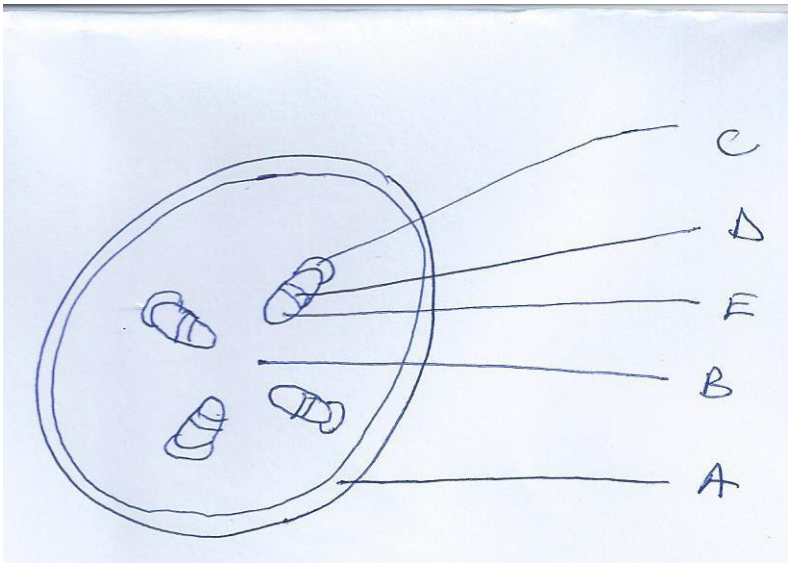
c) In section B answer question 6 and either question 7 or 8 in the spaces provided

d) Candidates should answer the questions in English

| SECTION | QUESTION | MAXIMUM SCORE | CANDIDATE SCORE |
|---|---|---|---|
| A | 1 | | |
| | 2 | | |
| | 3 | | |
| | 4 | | |
| | 5 | | |
| B | 6 | | |
| | 7 | | |
| | 8 | | |

***This paper consists of 8 printed pages. Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.***

1. The diagram below represents a transverse section of a young stem.




**a)** Name the part labeled A and B. **(2 marks)**

A-

B-

**b)** State the function of parts labeled C, D and E. **(3 marks)**

C-

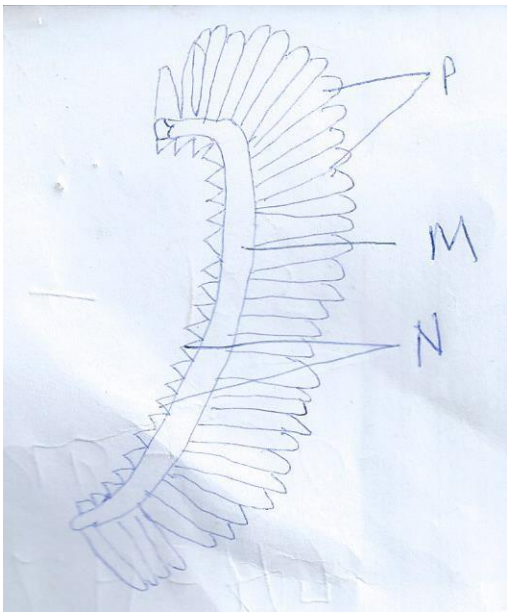
D-

E-

**c)** What would be the difference between the section drawn above and that obtained from its root?

**(3 marks)**

2. Below is a diagram of an organ from a bony fish. Study it and answer the questions that follow.




**a)** Identify the organ shown above and structures labeled M, N and P. **(4 marks)**

Organ-

M-

N-

P-

**b)** How are structures P adapted to their function? **(4 marks)**

**3. a)** How is high blood pressure necessary for ultra filtration developed at the glomerulus of a kidney? **(2 marks)**

**b)** Identify one substance filtered from the blood at glomerulus but keep on increasing in concentration as the filtrate move in the kidney**.** **(1 mark)**

**c)** What are the structural modifications of nephrons found in desert mammals. **(2 marks)**

**d)** Appearance of glucose in urine is a symptom of a certain disease caused by a hormone deficiency. Name the;

**i)** Disease **(1 mark)**

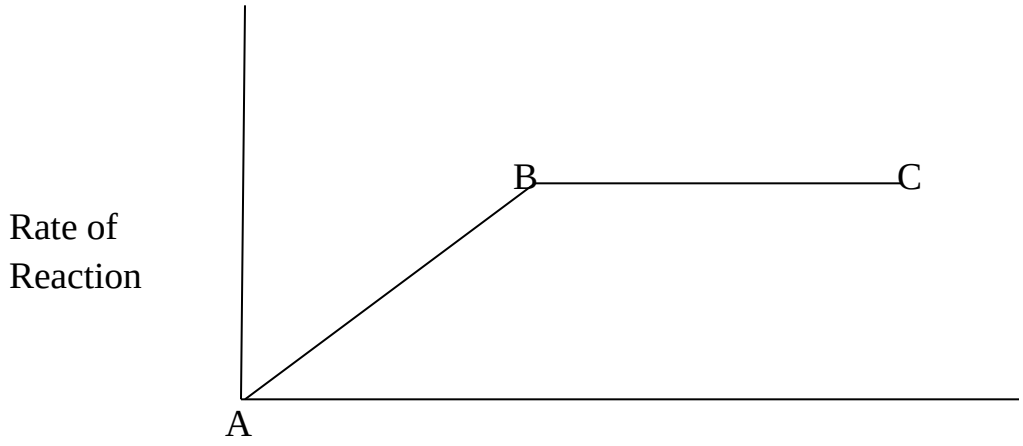
**ii)** Hormone **(1mark)**

**e)** Name the hormone that regulate the amount of urine produced in an individual**. (1 mark)**

**4. a)** Distinguish between a community and a population. **(2 marks)**

**b)** Describe how a population of grasshopper in a given area can be estimated. **(6 marks)**

5. Below is a diagram illustrating effect of substrate concentration on rate of enzyme reaction




**a)** Account for the shape of graph between :

**i)** A and B **(2 marks)**

**ii)** B and C **(2 marks)**

**b)** How can rate of reaction be increased after point B? **(1 mark)**

**c)** Give 3 other factors that may affect rate of enzyme catalyzed reaction. **(3 marks)**

## SECTION B.

**Answer question 6(compulsory) in the spaces provide and either question 7 or** 8.

**6.** An experiment was carried out using human red blood cells put in different salt concentrations. The percentage number of haemolysed cells was determined and result recorded as shown below.

| Salt concentration | 0.30 | 0.34 | 0.38 | 0.40 | 0.42 | 0.44 | 0.49 |
|---|---|---|---|---|---|---|---|
| % haemolysed cells | 100 | 90 | 81 | 70 | 30 | 15 | 0 |

**a)** On the graph provided, plot a graph of haemolysed red blood cells against salt concentration. **(6 marks)**

**b) i)** At what salt concentration was number of haemolysed cells equal? **(1 mark)**

**ii)** Determine the percentage of haemolysed cells at salt concentration of 0.45% . **(1 mark)**

**c)** Account for the results obtained at:

**i)** 0.30% salt concentration. **(3 marks)**

**ii)** 0.49% salt concentration. **(3 marks)**

**d)** If the salt concentration is increased to 50% , what would happen to the number of red blood cells. **(1 mark)**

**e)** Explain what would happen if tradescantia cortex cells were put in distilled water.

**(5 marks)**

**7. a)** Explain structural features in terrestrial plants affect the rate of transpiration.

**(13 marks)**

**c)** Explain how the human skin brings about cooling effect of the body on a hot day**.**

**(7 marks)**

**8. a)** State the characteristics of gaseous exchange surfaces. **(4 marks)**

**b)** Describe the mechanism of gaseous exchange in a mammal. **(16 marks)**

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# BIOLOGY PAPER 3 CONFIDENTIAL FORM 3
# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

Each student to be provided with;

1. Specimen Q……..Ripe orange
2. 1 boiling tube
3. 3 test tubes
4. Scarpel
5. Source of heat
6. Test tube holder
7. Benedicts solution with s dropper
8. Iodine solution with a dropper
9. DCPIP solution
10. 10ml measuring cylinder
11. specimen K ……..kales with a petiole
12. Glass slide
13. Blotting paper/Tissue paper
14. Methylene blue stain with a dropper
15. Hand lens

KENYA CERTIFICATE OF SECONDARY EDUCATION

# BIOLOGY PAPER 3 FORM 3
# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**INSTRUCTIONS TO CANDIDATES:**

(a) Write your **name** and **admission number** in the spaces provided **above.**
(b) **Write** the date of examination in the spaces provided **above**.
(c) Answer all the questions in the spaces provided.
(d) You are required to spend the first 15 minutes of the 1¾ hours allowed for this paper reading the whole paper carefully before commencing your work.
(e) Additional papers must not be inserted.
(f) This paper has **three** questions.
(g) Candidates may be penalized for recording irrelevant information and for incorrect spelling of technical terms.
(h) Candidates should answer all the questions in English.

**FOR EXAMINER'S USE ONLY:**

| Question | Maximum Score | Candidate's Score |
|---|---|---|
| 1 | 12 | |
| 2 | 14 | |
| 3 | 14 | |
| Total Score | 40 | |

Q1. You are provided with specimen Q. Cut into two halves. Squeeze juice from one half into a boiling tube. Using the reagents provided, test the food substances present in the extract from specimen Q
Record down the food substance being tested, procedure, observation and conclusion in the table below.

| Food substance | Procedure | Observation | Conclusion |
|---|---|---|---|
| | | | |

| | | | |
|---|---|---|---|
| | | | |
| | | | |
| | | | |

(12mks)

2. You are provide with specimen K. make thin cross sections of the leaf stalk. Place the sections on a glass slide. Using a dropper, add a drop of methylene blue to the sections. After 5 minutes, use a blotting paper to dry the sections. Examine one using a hand lens
(a) Make a well labeled drawing of the section (6mks)

(b) In the table below, state the functions of the parts labeled in (a) above (6mks)

| Part labeled | Function |
|---|---|
| | |
| | |
| | |
| | |
| | |
| | |

(c) Why were the following procedures done?

(i) Making thin sections (1mk)

……

……

(ii) Adding a drop of methyelene blue to the sections (1mk)

……

……

3. (a)The following are photographs of various animals. Examine them and answer the following questions.

A

B

C

D

E

F

G


The dichotomous key shown below can be used to place each specimen into its taxonomic group.

Dichotomous key

| | | | |
|---|---|---|---|
| 1(a) | Organisms having a flat body | ---------- | go to 9 |
| (b) | Organism without flat body | ---------- | go to 2 |
| 2(a) | Organism having a body in a shell | ---------- | Mollusca |
| (b) | Organisms without a shell | ---------- | go to 3 |
| 3(a) | Organisms having segmented body | ---------- | go to 4 |
| (b) | Organisms with a body not segmented | ---------- | Nematoda |
| 4(a) | Organisms having jointed appendages | ---------- | go to 6 |
| (b) | Organisms without jointed appendages | ---------- | go to 5 |
| 5(a) | Organisms having a long cylindrical body | ---------- | Annelida |
| (b) | Organisms having a short stout body. | ---------- | Trematoda |

| | | |
|---|---|---|
| 6(a) | Organism with antennae ---------- | go to 7 |
| (b) | Organism lacking antennae ---------- | go to 8 |
| 7(a) | Organism with a pair of antennae ---------- | Insecta |
| (b) | Organism with more than one pair of antennae ----- | Crustacea |
| 8(a) | Organism with pincer like mouth parts ---------- | Arachnida |
| (b) | Organism with sucking mouth parts ---------- | Acarina |
| 9(a) | Organism having a ribbon like body ---------- | Cestoda |
| (b) | Organism with circular body ---------- | Crinoidea |

(a)Using the dichotomous key, identify each of the specimens.

(7mks)

| Specimen | Steps followed | Identity |
|---|---|---|
| A | | |
| B | | |
| C | | |
| D | | |
| E | | |
| F | | |
| G | | |

(b). Study the diagrams Q and R carefully and answer the following questions.

Q R

(i) Name the phylum to which specimens R and Q belong. (1mk)

_____

_____

_____

(ii) State two reasons for your answer in a (i) above. (2mks)

_____

_____

_____

_____

(iii) Name the class to which each of R and Q belong (2mks)

R _____

Q _____

(iv) State reasons for your answer in (b) (iii) above (2mks)

R _____

Q _____

KENYA CERTIFICATE OF SECONDARY EDUCATION

# BUSINESS STUDIES PAPER 1 FORM 3

# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**INSTRUCTIONS TO CANDIDATES**

i) Write your name and admission number in the spaces provided above
ii) Answer all questions in the spaces provided.
iii) This paper consists of **6** printed pages
iv) Check the question paper to ascertain that all the pages are printed as indicated and no questions are missing.

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

   a) .....

   b) .....

   c) .....

   d) .....

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

   a) .....

   b) .....

   c) .....

   d) .....

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

| **Public Limited Company** | **Public Corporation** |
|---|---|
| | |

| | |
|---|---|
| i)<br>ii)<br>iii)<br>iv) | i)<br>ii)<br>iii)<br>iv) |

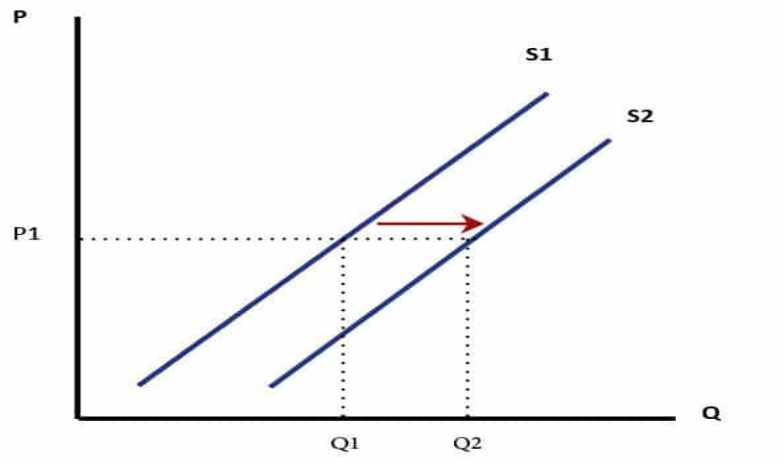
4. State four reasons for government involvement in business activities. (4 marks)
   a) ……..
   b) ……..
   c) ……..
   d) ……..
5. For each of the statements below, state the appropriate term as used in insurance.(4 mrks)

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

6. Highlight four problems that would be experienced by consumers in the absence of warehousing. (4 marks)
   a) ……
   b) ……
   c) ……
   d) ……

7. Highlight four external economies of scale that a firm may get as a result of growth in the industry. (4 marks)
   a) ……
   b) ……
   c) ……..
   d) ……..
8. Highlight four characteristics of oligopoly market structure. (4 marks)
   a) ……
   b) ……
   c) ……
   d) ……
9. The diagram below shows a change in the supply of a product. Outline four factors which may have caused such a change. (4 marks)

Price




Quantity

   a) ……
   b) ……
   c) ……
   d) ……
10. Outline four roles played by the Nairobi Securities Exchange in the Kenyan economy. (4 marks)
   a) ……
   b) ……
   c) ……

d) .....

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

a) .....

b) .....

c) .....

d) .....

12. Outline four barriers to verbal communication ( 4 marks)

a) …….

b) …….

c) ……

d) …….

13. Highlight four characteristics of labour as a factor of production ( 4 mrks)

a) .....

b) .....

c) .....

d) .....

14. State four reasons why a producer may involve wholesaler in distributing products ( 4 mrks)

a) .....

b) .....

c) .....

d) .....

15. Give four basic characteristic features of a business idea ( 4 mrks)

a) .....

b) .....

c) .....

d) .....

16. Outline any **four** areas of business culture that may lead to the success of a business enterprise.

(4 marks)

a) …….

b) …….

c) …….

d) …….

17. Identify the office etiquette described in the following statements. (4 marks)

| **Statement** | **Office etiquette** |
|---|---|
| Handling people politely, pleasantly and with consideration | |
| Ability to convince other people tactfully | |
| Performing duties with precision and correctness | |
| Ability to keep time in attending duties and appointments | |

18. Outline **four** features of chain stores. (4 marks)

a) ……

b) ……

c) …….

d) …….

19. Outline **four** importance of national census statistics in an economy. (4mks)

a) ……

b) ……

c) ……

d) ……

20. Outline how scarcity, choice and opportunity cost are related. (4mks)

……

……

……

……

……

……

21. State any **four** essential elements of communication. (4mks)

a) ……

b) ……

c) ……

d) …….

22. Highlight **four** reasons why firms tend to be localized in a particular area. (4mks)

a) ……

b) ……

c) ……..

d) ……

23. State the **four** principles that govern the co-operative societies in Kenya. (4mks)

a) ……..

b) ……..

c) ……..

d) ……

24. Give **four** disadvantages of long chain of distribution of goods to a buyer (4mks)

a) ……

b) ……...

c) ……

d) ……..

25. State **four** components of business studies (4mks)

a) ……

b) ……..

c) ……..

d) ……

**KENYA CERTIFICATE OF SECONDARY EDUCATION**

# BUSINESS STUDIES PAPER 2 FORM 3

# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**INSTRUCTIONS TO THE CANDIDATES**

- *Answer **any five questions.***
- *Write your answer in the answer booklet provided.*
- ***All** questions carry equal marks.*

1. a) Explain **five** factors that may limit adoption of modern technology in business.(10 mks)
   b) Outline **five** ways in which commercial attaches may promote trade between their country and other countries. (10 marks)

2. a) Explain **five** benefits business firms enjoy as a result of government involvement in business activities. (10 marks)
   b) Explain **five** factors one should consider in choice of a method of product promotion. (10 marks)

3. a) Explain **five** principles of insurance. (10 marks)
   b) Explain **five** factors that encourage entrepreneurship in Kenya. (10 marks)

4. a) Describe **FIVE** channels of distribution that may be followed by imported manufactured goods (10 mks)
   b) Explain **FIVE** factors that influence the level of National income of a Country (10 mks)

5. a) There are many economies of scale that accrue from large scale operations. Explain **five** reasons why some firms continue to operate on a small scale. *(10marks)*
   b) Explain **five** factors that a business may consider when choosing an office layout. *(10 arks)*

6. (a) Explain any **five** reasons why organizations like the Kenya Power and Lighting company are the sole providers of products in the country. *(10 marks)*
   b) With aid of a diagram, explain how equilibrium price and quantity is affected when supply increases followed by a proportionate decrease in demand. (10 mks)

KENYA CERTIFICATE OF SECONDARY EDUCATION

# CHEMISTRY PAPER 1 FORM 3

# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**INSTRUCTIONS TO CANDIDATES:**

Answer ALL the questions

Mathematical tables and electronic calculations may be used

All working MUST be clearly shown where necessary

**FOR EXAMINER'S USE ONLY:**

| Questions | Max. score | Candidates score |
|---|---|---|
| 1 - 27 | 80 | |

1. a) Distinguish between ionization energy and electron affinity. (2mks)

……

……

……

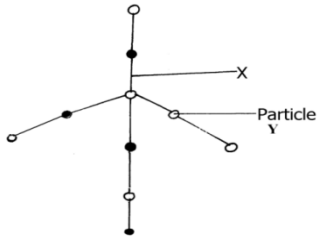
b) The atomic number of A and B are 9 and 17 respectively. Compare the electron affinity of A and B. Explain . (1mk)

……

……

2. 0.52g of nitrogen occupied 420cm3 at s.t.p. Calculate the molar mass of nitrogen.
(M.G.V = 22.4dm3) (3 mks)

3. Silicon (IV) oxide has a structure similar to that of diamond. Part of the structure is shown below.




a) What does x represent? (1mk)

……

b) What type of structure is shown by the diagram? (1mk)

……

……

c) Predict one physical property of silicon (IV) oxide and explain how it is related to its structure.
(1mk)

……

……4.Describe how a dry solid sample of lead (II) chloride can be prepared using the following reagents dilute nitric (V) acid dilute hydrochloric acid and lead (II) carbonate.

(3mks)

5a) State Graham's law of diffusion. (1mk)

……

……

b)Ammonia gas diffuses 1.41 times faster than gas $XH_3$.Determine the relative atomic mass of element X.( H = 1 , N = 14) (2mks)

6.An ore of iron wasfound to contain 7g of iron and 3g. of oxygen.( fe = 56 O =16)

a) Workout its emprical formula. (2mks)

.....

.....

.....

b) Write a balanced equation for reaction of the oxide in (a) with hot carbon. (1mk)

.....

7. Carbon (iv) Oxide can undergo the changes below.

$CO_{2(s)} \underset{B}{\overset{A}{\rightleftharpoons}} CO_{2\,(g)}$

a) What are process A and B?

A.....( 1mk)

B.....(1mk)

b)Suggest one use of carbon (iv) oxide that utilizes process A and B. (1 mk)

..... 8.The table sows the PH values of solutions A to E

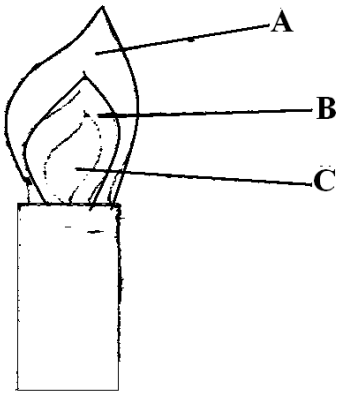
| Solution | A | B | C | D | E |
|---|---|---|---|---|---|
| PH | 6 | 13 | 2 | 10 | 7 |

a) What is meant by the term PH? (1mk)

b) Which of the solutions contains the largest number for hydroxide ions (1mk)

c) What will be the PH value of the mixture of D and E. (1mk)

9.The diagram below shows a Bunsen Burner when in use.




Which of the labeled parts is used for heating? Give a reason.(2mks)

10.The table below shows the atomic numbers of elements T, U, V and W. Study it and answer the questions that follow. The letters are not the actual symbols of the elements.

| Element | T | U | V | W |
|---|---|---|---|---|
| Atomic number | 13 | 16 | 17 | 20 |

(a) What type of bond would be formed between:-

(i) elements U and W (1mk)

……

(ii) elements V and U (1mk)

……

(b) Which of the elements are metals. (1mk)

11.Oxygen gas can be prepared in the laboratory by catalytic decomposition of hydrogen peroxide.

(a) Write the chemical equation for the reaction. (1mk)

……

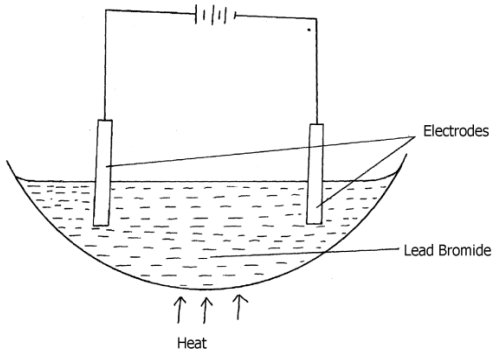
(b) State the Name of the suitable catalyst used. (1mk)

……

(c) Give one industrial use of oxygen (1mk)

……

12. The d diagram below shows electrolysis of lead bromide



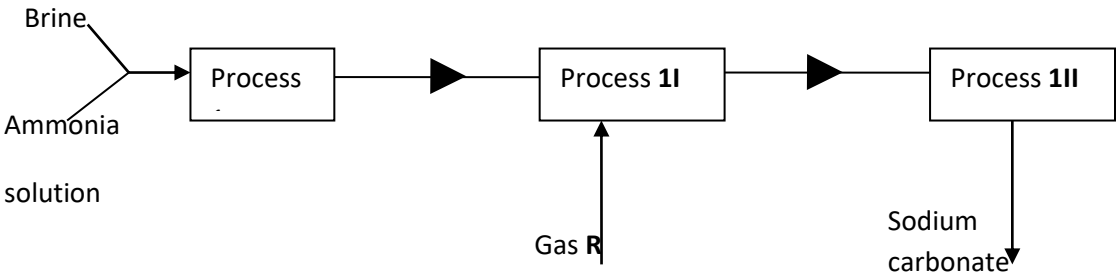

a) Label the anode. (1mk)

b) Write half equations to shows reactions at cathode. (1mk)

c) State one application of electrolysis. (1mk)

.....

13.Below is a simplified scheme of solvary process. Study it and answer the questions that follow:




(a) Identify gas **R**…….. (1mk)

(b) Write an equation for process **III** (1mk)

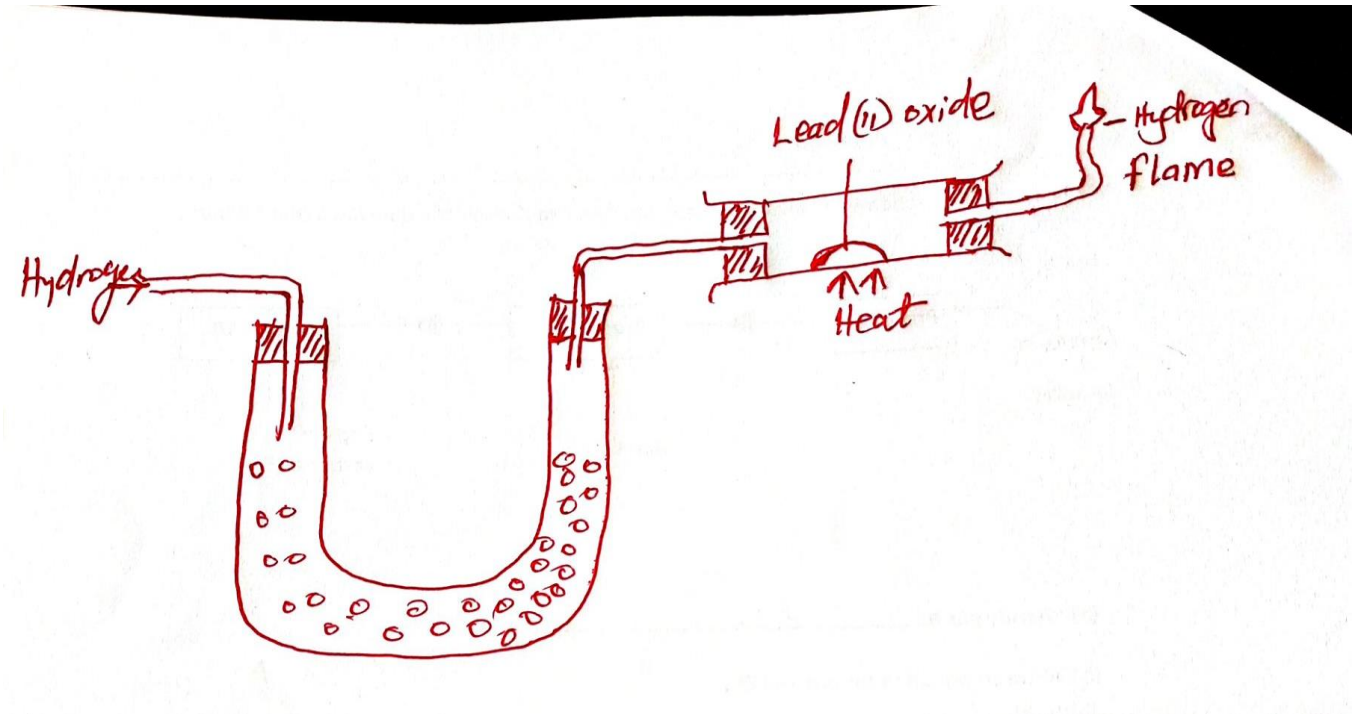
……..

……..

(c) Give **one** use of sodium carbonate (1mk)

……..

14. The set-up below was used to investigate the properties of hydrogen




(i) State the observations that was made in the combustion tube as the reaction progressed to completion (2mks)

(ii) Write equations for the reactions ;

I) In the combustion tube (1mk)

……

II) At the jet of the delivery tube (1mk)

……

III) State the properties of hydrogen that were investigated . (2mks)

……

15.Classify the process below as chemical or physical changes (2mks

| Process | Physical or chemical change |
|---|---|
| (a) Fractional distillation | |
| (b) Displacement reaction | |
| (c) Sublimation | |
| (d) Neutralization | |

16.Iron reacts with oxygen in the presence of moisture to form hydrated iron (III) oxide. $Fe_2O_3.2H_2O$

(a) What name is given to the process that produces hydrated iron (III) oxide? (1 mk)

(b) What does the term 'hydrated' mean? (1 mk)

(c) Name one method used to prevent corrosion of iron. (1 mk)

17.The table **below** gives elements represented by letters which are not the actual symbols.

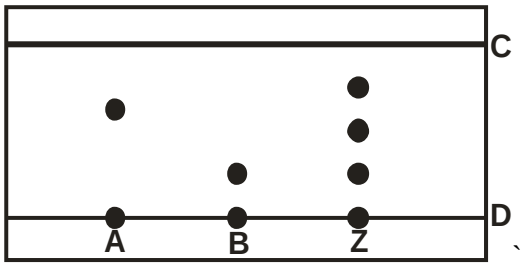
| U | Element | V | W | X | Y | Z |
|---|---|---|---|---|---|---|
| 8 | Atomic No. | 12 | 13 | 15 | 17 | 20 |

(i) Select an element that can form divalent anion. (1 mark)

(ii) What is the structure of the oxide of **W**? (1 mark)

(iii) Compare the atomic radius of **W** and **X**. (1 mark)

18.Spots of three pure pigments A,B and mixture Z were placed on a filter paper and allowed to dry. The paper was then dipped in a solvent. The results obtained were as on the paper chromatogram.




i) Identify;

a) Baseline. (1mark)

……

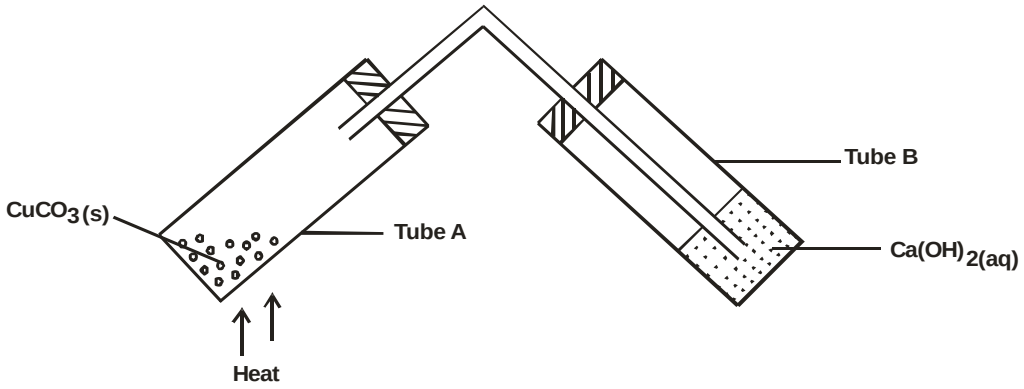
b) Solvent front. (1mark)

……

ii) Which pure pigment was component of Z.? (1mark)

……

19.The following was used to investigate the effect of heat on a sample of Copper(II) Carbonate.




a) State the observation made in test tube. (2 marks)

A ……

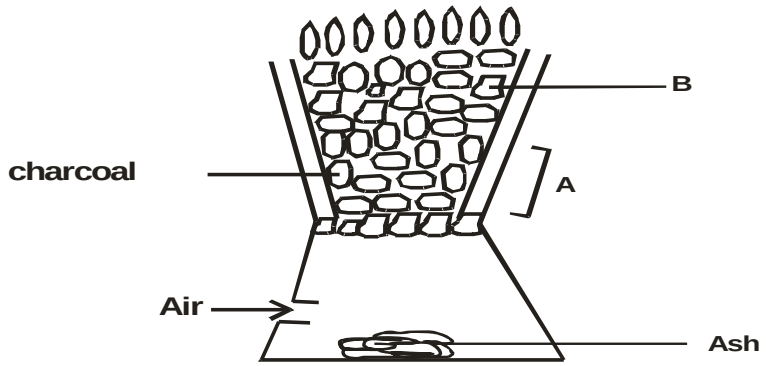
B……

b) Write equation for the reaction that occurs in tube A. (1mark)

……

20. Sketch a graph of temperature time for a pure substance A with a melting point of $20^0$C and boilingpoint of $90^0$C and it is heated from $0^0$C to $100^0$C. (2marks)

21.The diagram below shows a burning "jiko" in a room which has sufficient supply of oxygen.




i) Using chemical equations, explain what happens at A and B. (2marks)

……

……

……

ii) State the main danger of emitting excess carbon (IV) oxide into the atmosphere. (1mark)

……

……

22. 3.22g of hydrated Sodium Sulphate, $Na_2SO_4{}^{o}X\ H_2O$ were heated to a constant mass of 1.42g, determine the value of X in the formula. (Na = 23, S = 32, O = 16, H=1). (2 mks)

23.a)The atomic number of Sulphur hydrogen and oxygen are 16, 1 and 8 respectively. Write the electron arrangement of Sulphur in the following substances.

(i) $H_2S$…… (1 mk)

(ii) $SO_3^{2-}$…… (1 mk)

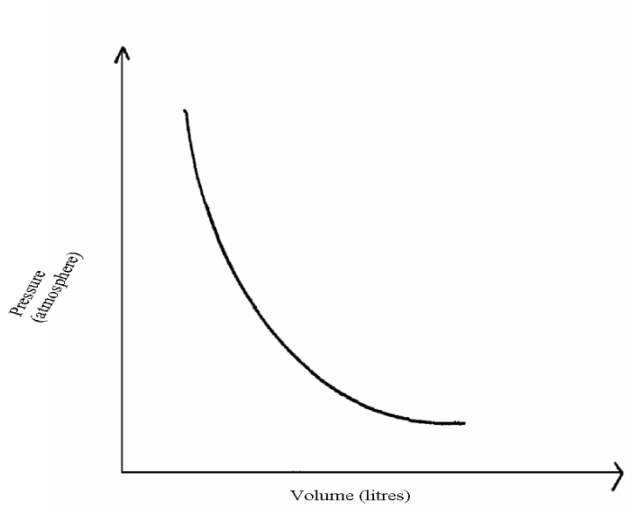
(b)State the number of neutrons and electrons in the species of Aluminum shown below:

$^{27}_{13}Al^{3+}$

Neutrons ……..( 1mk)

Electrons …….( 1 mk)

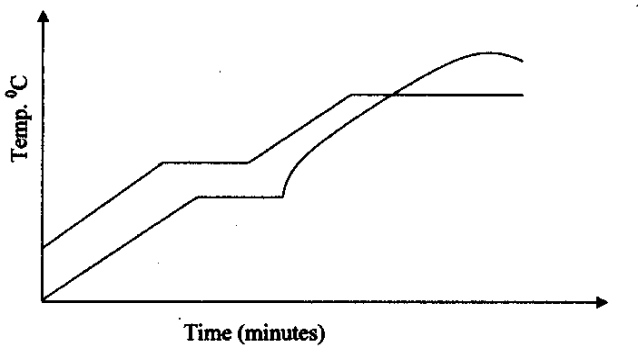
24.The graph below shows the behaviour of a fixed mass of a gas at constant temperature.




(i) What is the relationship between the volume and the pressure of the gas. (1 mk)

(ii)12 litres of oxygen gas at one atmosphere pressure were compressed to 2.5 atmospheres pressure at constant temperature. Calculate the volume occupied by the oxygen gas. (2 mks)

25.Two samples of a similar substance from different containers were investigated. The graph below represents the variation of temperature with time when heated.




a) Explain the variation in the curves of:

Sample I……
(1mk)

Sample II……
(1mk)

b) Common salt is sprinkled on roads during winter in temperate countries. Explain.(1mk

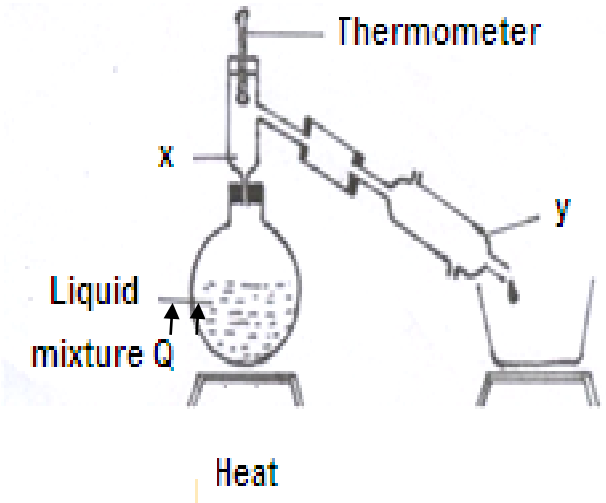
26. Hydrogen can be prepared by reacting Zinc with dilute Hydrochloric acid.

(a) Write an equation for the reaction. (1 mk)

(b) Write an equation for burning hydrogen in air. (1 mk)

(c) Name an appropriate drying agent for hydrogen gas. (1 mk)

27.Study the diagram below and answer the questions that follow. The diagram shows the method used to separate components of mixture Q.



a) Name X and Y. (1mk)

X……

Y……

b) What is the purpose of apparatus X? (1mk)

c)Show the direction of flow of cold water used for cooling the vapour formed. (1mk)

**KENYA CERTIFICATE OF SECONDARY EDUCATION**

# CHEMISTRY PAPER 2 FORM 3

# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**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)

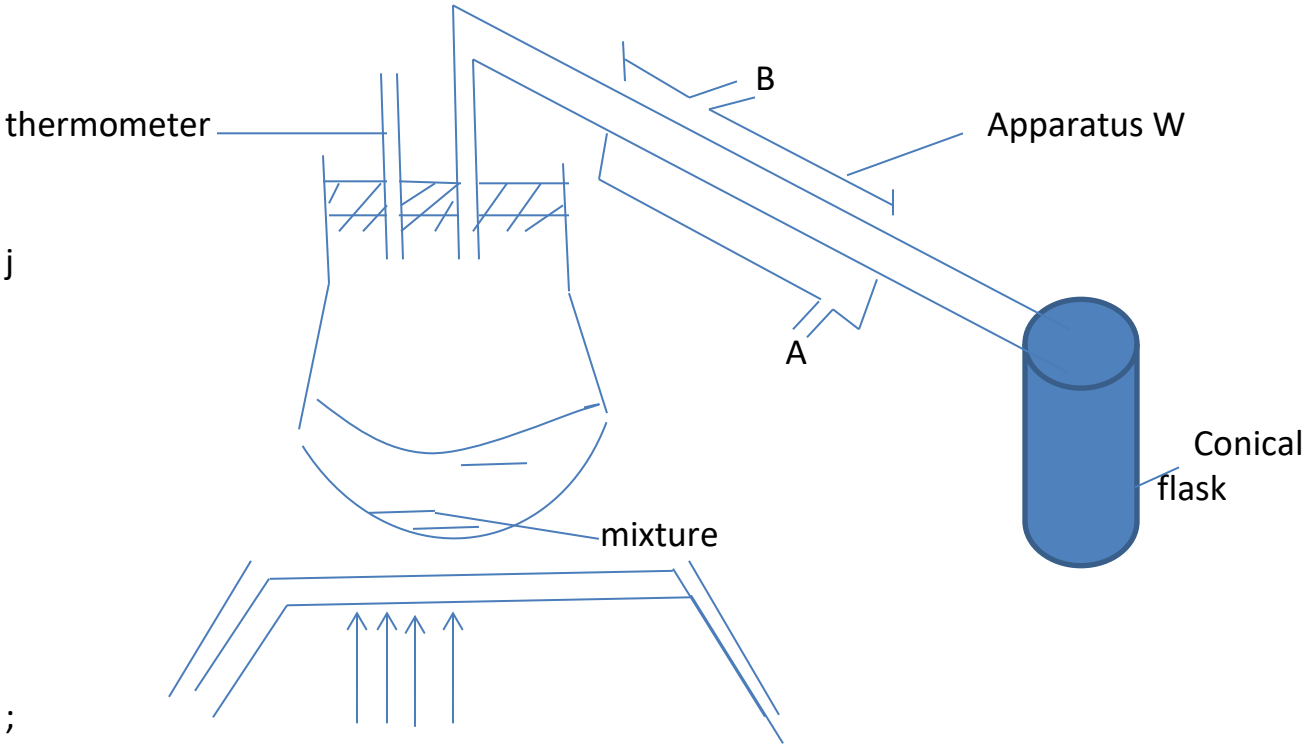
c. The ionic configuration of element G is 2.8 G forms an ion of the type $G^{-1}$. Indicate in the grid the position of element G. (1mk)

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.




j

;

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)

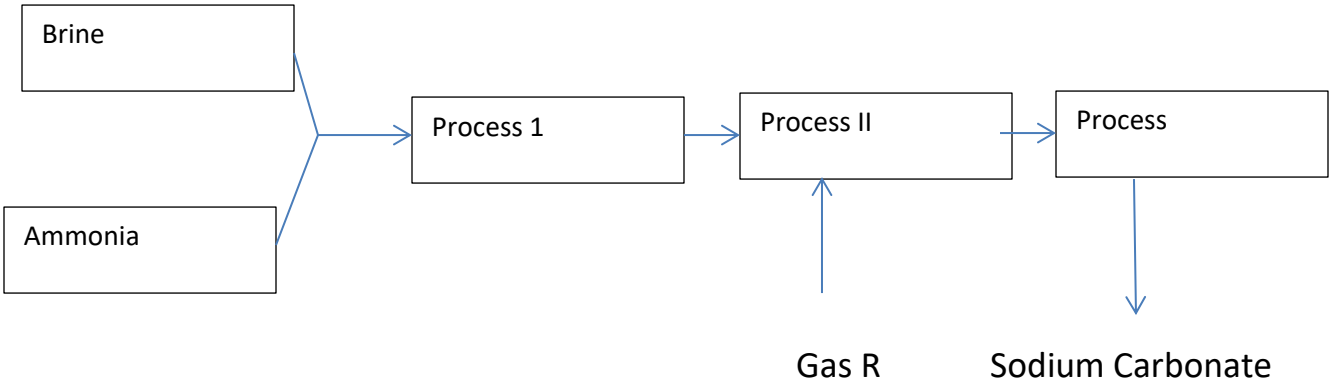
ii. State two application of the above method of separating mixtures. (2mks)

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.



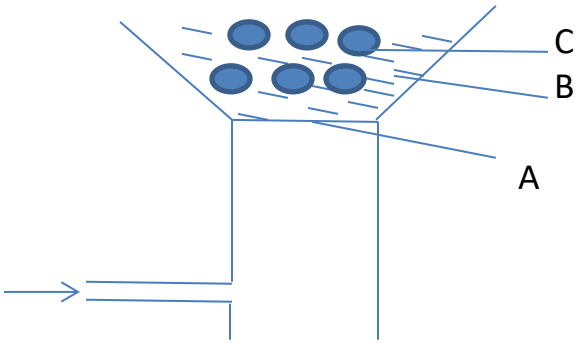
i. Identify gas R. (1mk)

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 200$cm^3$. 25$cm^3$ of this solution required 18$cm^3$ 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)

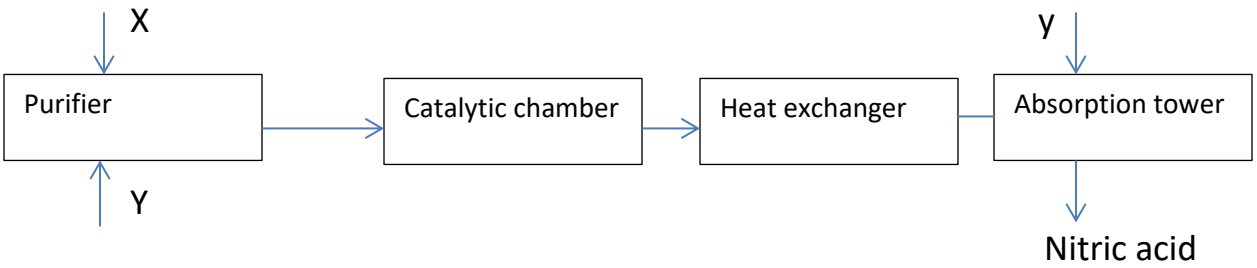
ii. Calculate the number of moles of nitric (V) acid that reacted with anhydrous potassium carbonate. (2mks)

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.



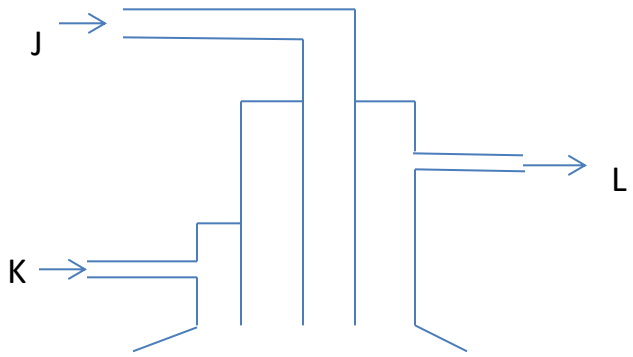

i. Identify substance X and Y. (2mks)

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 (H2S2O7) converted into sulphuric acid. (1mk)

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

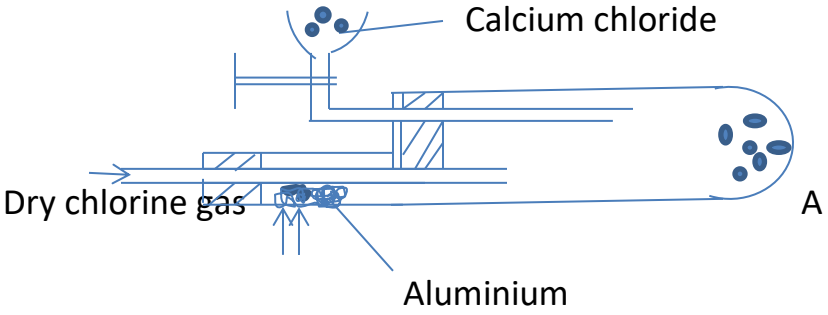
6. Two reagent that can be used to prepare chlorine gas are manganese(IV) oxide and conc. Hydrochloric acid.

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)

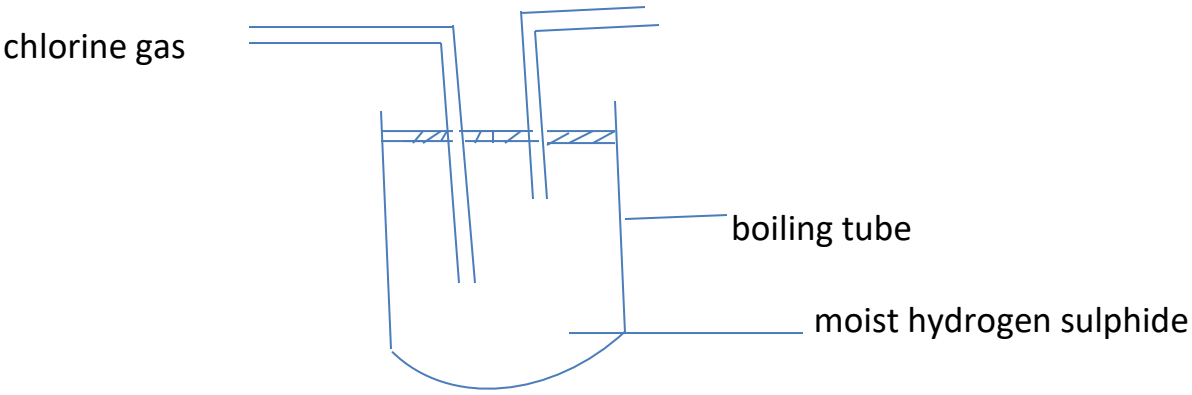
ii. Write an equation for the reaction that took place in the combustion tube. (2mks)

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)

KENYA CERTIFICATE OF SECONDARY EDUCATION

# CHEMISTRY CONFIDENTIAL FORM 3
# MIDTERM 2 SET 1 2023 EXAM

***Each candidate should be provided with the following:***

1. ***Burette***
2. ***Pipette***
3. ***Three conical flasks***
4. ***Funnel***
5. ***One label***
6. ***Phenolphthalein indicator***
7. ***Solution P 120cm$^3$***
8. ***Solution R 100cm$^3$***
9. ***Distilled water in a wash bottle***
10. ***8 test tubes***
11. ***100 ml plastic measuring cylinder***
12. ***10 ml plastic measuring cylinder***
13. ***One boiling tube***
14. ***Solid T , solid Q and solid V***
15. ***Means of heating***
16. ***Bench solution of 2M nitric (V) acid***
17. ***Bench solution 2M NaOH***
18. ***Bench solution 0.1M $Ba(NO_3)_2$***
19. ***Bench solution 0.1M $Pb(NO_3)_2$***
20. ***Bench solution 2M $NH_{3(aq)}$***
21. ***Metallic spatula***
22. ***Glass rod***

***<u>Notes on preparation of solutions:</u>***

- ***Solution P = 0.2M HCl***
- ***Solution R = 4.0 g/l sodium hydroxide***
- ***Solid V = ½ spatula full of sodium sulphite***
- ***Solid T = ½ spatula full of $CuSO_4$***
- **Solid Q = EXACTLY 0.5 g *$CaCO_3$***

KENYA CERTIFICATE OF SECONDARY EDUCATION

# CHEMISTRY PAPER 1 FORM 3

# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**INSTRUCTIONS TO CANDIDATES:**

Answer ALL the questions

Mathematical tables and electronic calculations may be used

All working MUST be clearly shown where necessary

**FOR EXAMINER'S USE ONLY:**

| Questions | Max. score | Candidates score |
|---|---|---|
| 1 - 27 | 80 | |

1. a) Distinguish between ionization energy and electron affinity. (2mks)

……

……

……

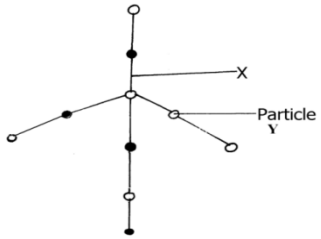
b) The atomic number of A and B are 9 and 17 respectively. Compare the electron affinity of A and B. Explain . (1mk)

……

……

2. 0.52g of nitrogen occupied 420cm3 at s.t.p. Calculate the molar mass of nitrogen.
(M.G.V = 22.4dm3) (3 mks)

3. Silicon (IV) oxide has a structure similar to that of diamond. Part of the structure is shown below.




a) What does x represent? (1mk)

……

b) What type of structure is shown by the diagram? (1mk)

……

……

c) Predict one physical property of silicon (IV) oxide and explain how it is related to its structure.
(1mk)

……

……4.Describe how a dry solid sample of lead (II) chloride can be prepared using the following reagents dilute nitric (V) acid dilute hydrochloric acid and lead (II) carbonate.

(3mks)

5a) State Graham's law of diffusion. (1mk)

……

……

b)Ammonia gas diffuses 1.41 times faster than gas $XH_3$.Determine the relative atomic mass of element X.( H = 1 , N = 14) (2mks)

6.An ore of iron wasfound to contain 7g of iron and 3g. of oxygen.( fe = 56 O =16)

a) Workout its emprical formula. (2mks)

.....

.....

.....

b) Write a balanced equation for reaction of the oxide in (a) with hot carbon. (1mk)

.....

7. Carbon (iv) Oxide can undergo the changes below.

$CO_{2(s)} \underset{B}{\overset{A}{\rightleftharpoons}} CO_{2\,(g)}$

a) What are process A and B?

A.....( 1mk)

B.....(1mk)

b)Suggest one use of carbon (iv) oxide that utilizes process A and B. (1 mk)

..... 8.The table sows the PH values of solutions A to E

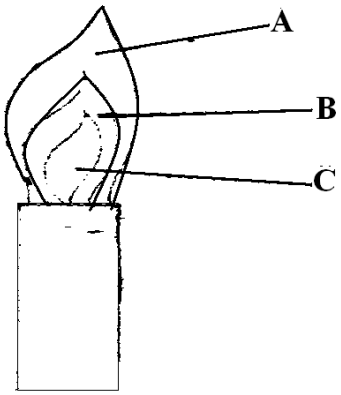
| Solution | A | B | C | D | E |
|---|---|---|---|---|---|
| PH | 6 | 13 | 2 | 10 | 7 |

a) What is meant by the term PH? (1mk)

b) Which of the solutions contains the largest number for hydroxide ions (1mk)

c) What will be the PH value of the mixture of D and E. (1mk)

9.The diagram below shows a Bunsen Burner when in use.




Which of the labeled parts is used for heating? Give a reason.(2mks)

10.The table below shows the atomic numbers of elements T, U, V and W. Study it and answer the questions that follow. The letters are not the actual symbols of the elements.

| Element | T | U | V | W |
|---|---|---|---|---|
| Atomic number | 13 | 16 | 17 | 20 |

(a) What type of bond would be formed between:-

(i) elements U and W (1mk)

……

(ii) elements V and U (1mk)

……

(b) Which of the elements are metals. (1mk)

11.Oxygen gas can be prepared in the laboratory by catalytic decomposition of hydrogen peroxide.

(a) Write the chemical equation for the reaction. (1mk)

……

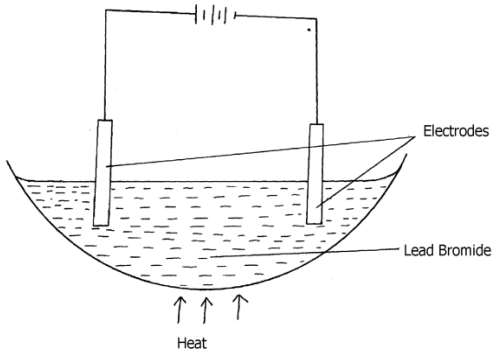
(b) State the Name of the suitable catalyst used. (1mk)

……

(c) Give one industrial use of oxygen (1mk)

……

12. The d diagram below shows electrolysis of lead bromide



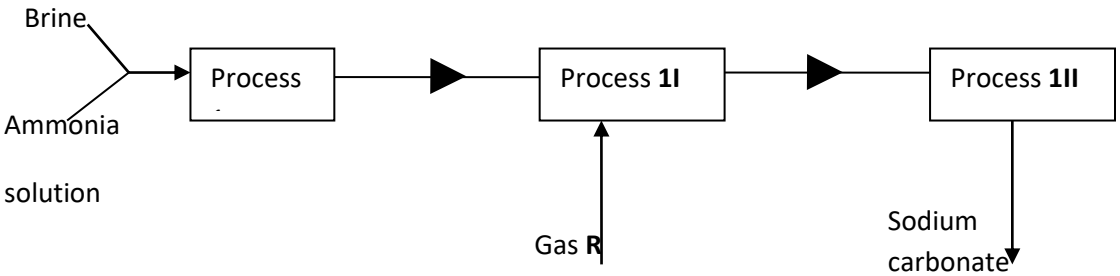

a) Label the anode. (1mk)

b) Write half equations to shows reactions at cathode. (1mk)

c) State one application of electrolysis. (1mk)

.....

13.Below is a simplified scheme of solvary process. Study it and answer the questions that follow:




(a) Identify gas **R**…….. (1mk)

(b) Write an equation for process **III** (1mk)

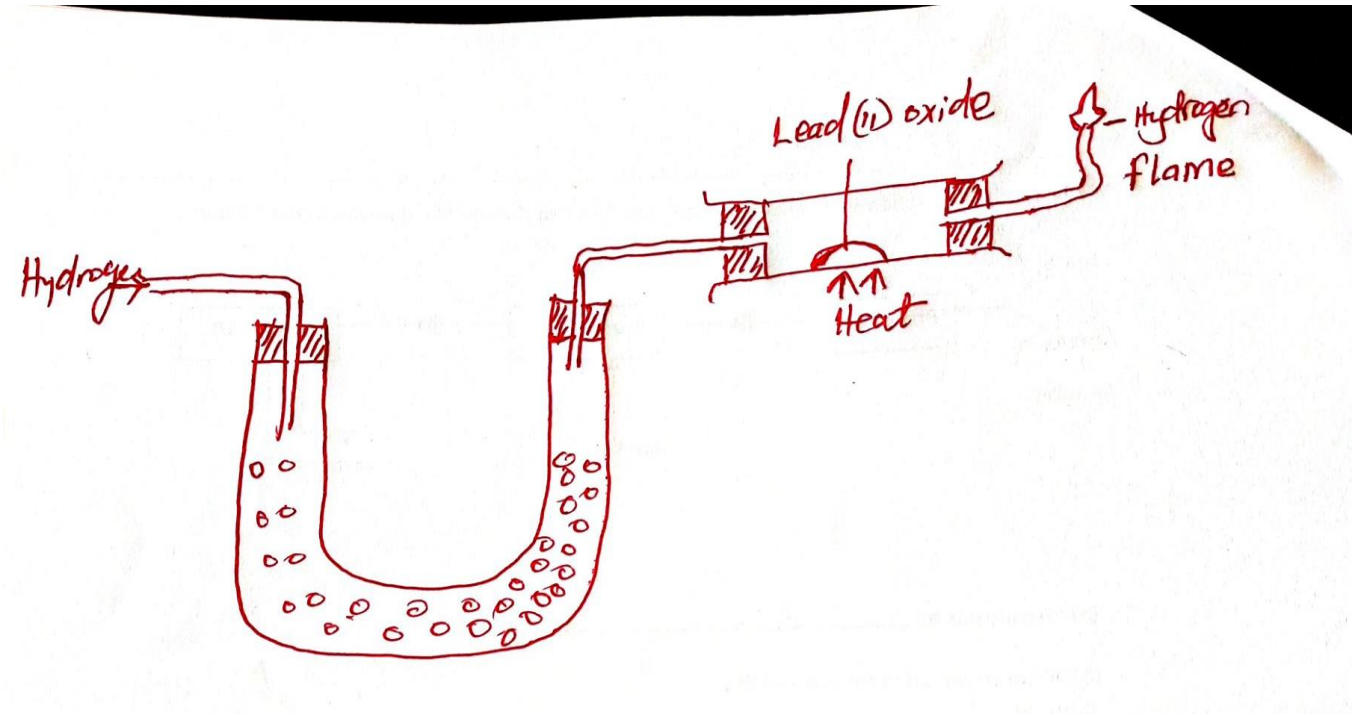
……..

……..

(c) Give **one** use of sodium carbonate (1mk)

……..

14. The set-up below was used to investigate the properties of hydrogen




(i) State the observations that was made in the combustion tube as the reaction progressed to completion (2mks)

(ii) Write equations for the reactions ;

I) In the combustion tube (1mk)

……

II) At the jet of the delivery tube (1mk)

……

III) State the properties of hydrogen that were investigated . (2mks)

……

15.Classify the process below as chemical or physical changes (2mks

| Process | Physical or chemical change |
|---|---|
| (a) Fractional distillation | |
| (b) Displacement reaction | |
| (c) Sublimation | |
| (d) Neutralization | |

16.Iron reacts with oxygen in the presence of moisture to form hydrated iron (III) oxide. $Fe_2O_3.2H_2O$

(a) What name is given to the process that produces hydrated iron (III) oxide? (1 mk)

(b) What does the term 'hydrated' mean? (1 mk)

(c) Name one method used to prevent corrosion of iron. (1 mk)

17.The table **below** gives elements represented by letters which are not the actual symbols.

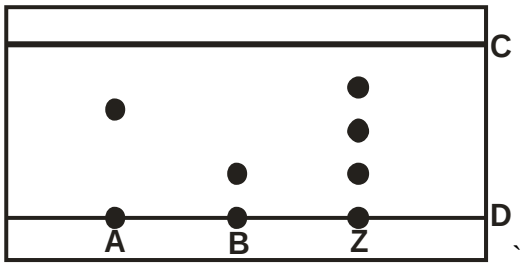
| U | Element | V | W | X | Y | Z |
|---|---|---|---|---|---|---|
| 8 | Atomic No. | 12 | 13 | 15 | 17 | 20 |

(i) Select an element that can form divalent anion. (1 mark)

(ii) What is the structure of the oxide of **W**? (1 mark)

(iii) Compare the atomic radius of **W** and **X**. (1 mark)

18.Spots of three pure pigments A,B and mixture Z were placed on a filter paper and allowed to dry. The paper was then dipped in a solvent. The results obtained were as on the paper chromatogram.




i) Identify;

a) Baseline. (1mark)

……

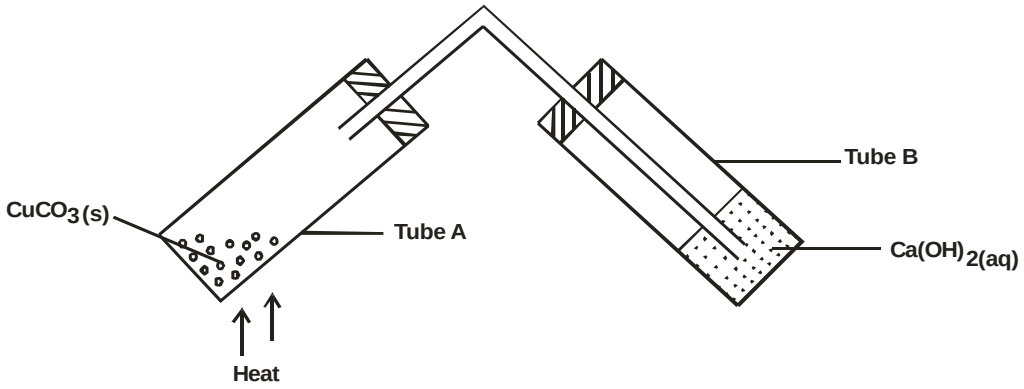
b) Solvent front. (1mark)

……

ii) Which pure pigment was component of Z.? (1mark)

……

19.The following was used to investigate the effect of heat on a sample of Copper(II) Carbonate.




a) State the observation made in test tube. (2 marks)

A ……

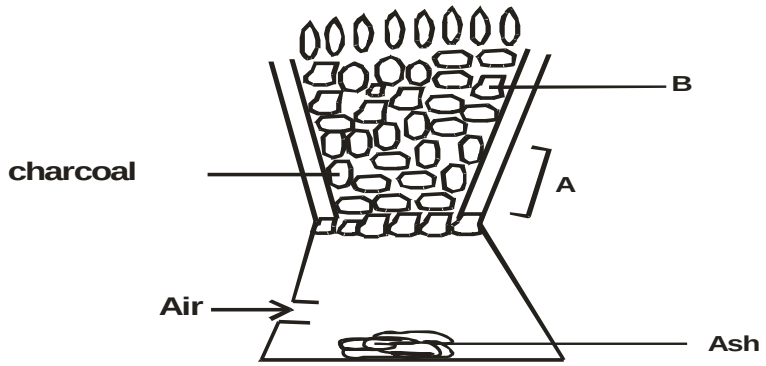
B……

b) Write equation for the reaction that occurs in tube A. (1mark)

……

20. Sketch a graph of temperature time for a pure substance A with a melting point of $20^0$C and boilingpoint of $90^0$C and it is heated from $0^0$C to $100^0$C. (2marks)

21.The diagram below shows a burning "jiko" in a room which has sufficient supply of oxygen.




i) Using chemical equations, explain what happens at A and B. (2marks)

……

……

……

ii) State the main danger of emitting excess carbon (IV) oxide into the atmosphere. (1mark)

……

……

22. 3.22g of hydrated Sodium Sulphate, $Na_2SO_4{}^{o}X\ H_2O$ were heated to a constant mass of 1.42g, determine the value of X in the formula. (Na = 23, S = 32, O = 16, H=1). (2 mks)

23.a)The atomic number of Sulphur hydrogen and oxygen are 16, 1 and 8 respectively. Write the electron arrangement of Sulphur in the following substances.

(i) $H_2S$…… (1 mk)

(ii) $SO_3^{2-}$…… (1 mk)

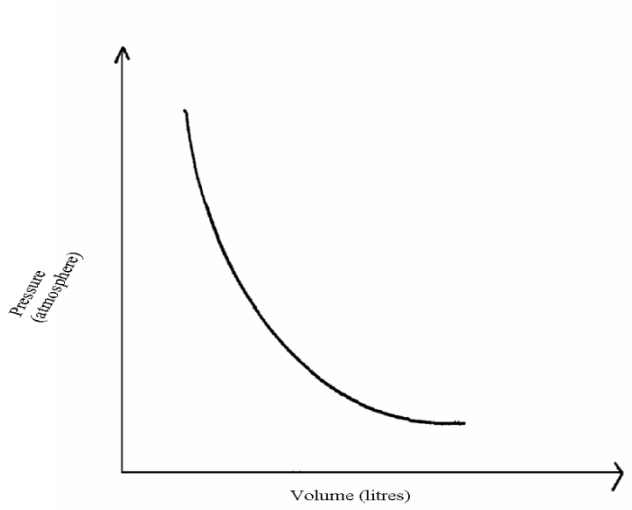
(b)State the number of neutrons and electrons in the species of Aluminum shown below:

$^{27}_{13}Al^{3+}$

Neutrons ……..( 1mk)

Electrons …….( 1 mk)

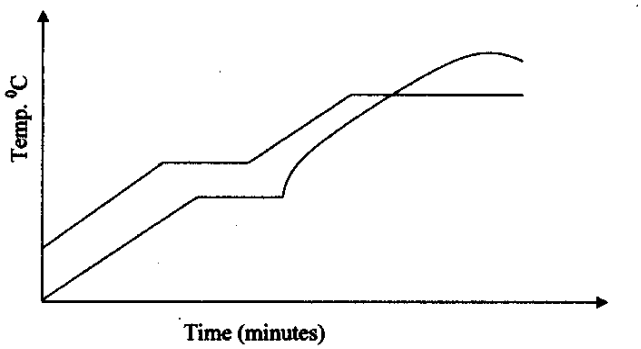
24.The graph below shows the behaviour of a fixed mass of a gas at constant temperature.




(i) What is the relationship between the volume and the pressure of the gas. (1 mk)

(ii)12 litres of oxygen gas at one atmosphere pressure were compressed to 2.5 atmospheres pressure at constant temperature. Calculate the volume occupied by the oxygen gas. (2 mks)

25.Two samples of a similar substance from different containers were investigated. The graph below represents the variation of temperature with time when heated.




a) Explain the variation in the curves of:

Sample I……
(1mk)

Sample II……
(1mk)

b) Common salt is sprinkled on roads during winter in temperate countries. Explain.(1mk

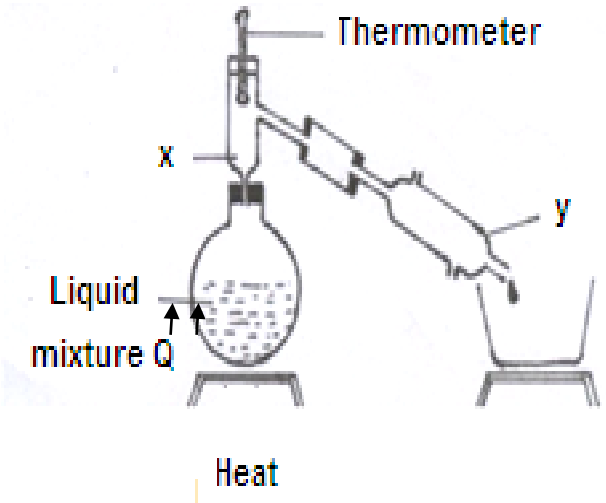
26. Hydrogen can be prepared by reacting Zinc with dilute Hydrochloric acid.

(a) Write an equation for the reaction. (1 mk)

(b) Write an equation for burning hydrogen in air. (1 mk)

(c) Name an appropriate drying agent for hydrogen gas. (1 mk)

27.Study the diagram below and answer the questions that follow. The diagram shows the method used to separate components of mixture Q.



a) Name X and Y. (1mk)

X……

Y……

b) What is the purpose of apparatus X? (1mk)

c)Show the direction of flow of cold water used for cooling the vapour formed. (1mk)

# KENYA CERTIFICATE OF SECONDARY EDUCATION
# COMPUTER STUDIES PAPER 1 FORM 3
# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**INSTRUCTIONS TO CANDIDATES**

1. **Write your name and class in the space provided above.**
2. **This paper consists of TWO sections: A and B.**
3. Answer all the questions in section **A.**
4. **Answer question 16 and any other 3 questions from section B.**
5. **All answers should be written in the spaces provided on the question paper.**

**For official use only**

| SECTION | QUESTIONS | |
|---|---|---|
| A | 1-15 | |
| B | 16 | |
| | 17 | |
| | 18 | |
| | 19 | |
| | 20 | |
| TOTAL MARKS | | |

## SECTION A (40 MARKS)

1. Define the following terms as used in Computer studies:

   (i) Nibble **(1mark)**

   (ii) Word**(1mark)**

2. State the difference between Batch and real time processing then give an example in each case **(3marks)**

3. Mr. Baraka games teacher at Chianda High School wants to invite several schools for the hockey tournament. He was advised to use mail merging technique to create invitation letters for the respective schools identified. State three benefits of this technique **(3marks)**

4. The final activity in data processing cycle is producing the desired output. Mention three ways of disseminating the desired output (**3marks)**

5. Convert AAFH to Octal number system**(2marks)**

6. A company has decided to computerize their operations. They have decided to purchase packages standard software instead of developing their own programs. Give three advantages of standard software. **(3marks)**

7. A computer student from Bondo Technical defined multitasking as a concept where computer process more than one tasks at the same time. Agree or disagree with this student and support your answer (**2marks)**

8. State the functions of the following disk management operation.

   (i) Partitioning**(1mark)**

   (ii) Disk defragmentation**(1mark)**

9. List two limitation of low-level programming languages **(3marks)**

10. Demonstrate three ways in which $-21_{10}$ can be represented in a binary form**(3marks)**

11. Describe the concept of binary search method as used in sequential file organization **(2marks)**

12. Mention three advantages of electronic data processing **(3marks)**

13. Bena has a new laser printer to print letters for his business. Bena connects his printer to his computer using the USB port. Give three benefits of using the USB port to connect the printer to the computer **(3marks)**

14. State two ways of resolving windows related problem like missing operating system **(2marks)**

## SECTION B: (60 MARKS)

## (ANSWER QUESTION 16 AND ANY OTHER THREE QUESTIONS FROM THIS SECTION)

15.

(a) Define the following terms as used in programming:

(i) Programming **(1mark)**

(ii) Syntax **(1mark)**

(iii) Bug **(1mark)**

(b) Mention three items available in a fourth-generation programming language environment which make programming an easier task than the Third-generation languages **(3marks)**

(c) Describe three methods of testing a program for errors **(3marks)**

(d) Describe three language processors used by computer programmers when developing a new program (**3mks)**

(e) Describe three main features of a good algorithm **(3marks)**

16.

(a) The binary pattern 110100010101 can be interpreted in more than one way.

(i) State the hexadecimal equivalent **(2marks)**

(ii) State the denary equivalent if it represents two complement of a binary number **(2marks)**

(b) Convert $214.625_{10}$ to binary (**3mks)**

(c) Use twos compliment to subtract $20_{10}$ from $10_{10}$ and write your answer in decimal notation **(4mks)**

(d) Evaluate $1010011_2 + 10010_2 - 01010_2$ **(2marks)**

(e) State two difference between Ones and Twos complements **(2marks)**

17. A database was used to keep results for a class of students. Part of the database is shown below in Table called MARKS.

| Name | School Number | Math | English | Science | History | Geography |
|---|---|---|---|---|---|---|
| Paul | 017 | 70 | 55 | 65 | 62 | 59 |
| Ravi | 0009 | 29 | 34 | 38 | 41 | 44 |
| Chin | 0010 | 43 | 47 | 50 | 45 | 52 |
| John | 0013 | 37 | 67 | 21 | 28 | 35 |
| Diana | 001 | 92 | 88 | 95 | 89 | 78 |
| Rosanna | 0016 | 21 | 13 | 11 | 27 | 15 |

(a) Mention the most appropriate data type for field Class ID**(2mark)**

(b) State the number of records in the table above **(2mark)**

(c) Identify the key field to be used in the table **(2marks)**

(a) Give a reason for choosing the field in c above **(2marks)**

(b) Suggest how you can set an input mask for the name field such that data entered in the field is automatically change to title case **(2marks)**

(c) Show how the dynaset will appear if the following parameters are set as shown in the query extract below **(3marks)**

| Field Name | Name | History | Geography | Science | Math |
|---|---|---|---|---|---|
| Table | MARKS | MARKS | MARKS | MARKS | MARKS |
| Sort | | | | | |
| Show | √ | √ | √ | | |
| Criteria | | >60 | | | |
| Or | | | >60 | | |

(d) Write an expression that when typed at the builder will compute total marks per subject for the students **(2maks)**

18.

(a) Study the worksheet below then answer the questions that follows:

| | A | B | C | D | E | F | G |
|---|---|---|---|---|---|---|---|
| 1 | Item code | Type | Qnty | Price | Total | | |
| 2 | 001 | Sugar | 3 | 100 | 300 | | |
| 3 | 002 | Tea Leaves | 5 | 50 | 250 | | |
| 4 | 003 | Salt | 4 | 20 | 80 | | |
| 5 | 004 | Rice | 2 | 80 | 160 | | |
| 6 | 005 | Book | 10 | 20 | 200 | | |
| 7 | | | | | | | |
| 8 | | | | | | | |
| 9 | | | | | | | |
| 10 | | | | 10% | | | |
| 11 | | | | | | | |

(i) Write a formula at cell E2 to calculate Total amount for sugar **(1mark)**

(ii) The formula =Countif (c2:c6 >=5) was placed at cell C7, what will be the result **(1mark)**

(iii) Prices for all items are to be increased by 10%, write a function at cell F2 to show the new price increase per item to be copied to F3, F4, F5 and F6 **(2marks)**

(iv) Identify the data types in cell E3, C6 and A1 **(3marks)**

(b) List four hardware or software requirement that enable a computer to have multimedia capability **(2marks)**

(c) Mentioned two methods of checking genuineness, validity and legitimacy of a computer software**(2marks)**

(d) State four factors to consider when upgrading the computer memory modules**(4marks)**

19.

(a) Describe how the operating system handle the following in a computer system:
(i) Data and program protection **(1mark)**

(ii) Interrupt **(1mark)**

(iii) Deadlock**(1mark)**

(b) Kingjames saved a document in his computer during the lesson. At the end of the lesson the teacher instructed him to delete the document, Kingjames looked for the document and was not able to locate the document. Describe three parameters that would help him located the document (**3marks)**

(c) Give a reason to justify why operating systems are the first software to be installed in a computer **(2marks)**

(d) Describe three parameters used to measure data integrity (3marks)

(e) Masala Complex is a small financial institution based in a rural in Kisumu County. The institution carries out transactions with both international and local financial organization. State four measures that the institution need to adopt to minimize threats to its data integrity **(4marks)**

**KENYA CERTIFICATE OF SECONDARY EDUCATION**

# COMPUTER STUDIES PAPER 2 FORM 3

# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**INSTRUCTIONS TO CANDIDATES**

- *Type/Write your name and admission number at the top right hand corner of each printout.*
- *Answer all questions. They carry equal marks.*
- *Save your work in folder on desktop. Save the folder using your name and adm.no*
- *Hand in all the **printout** and ensure the teacher have noted your folder on the desktop*

1. a) Type the following passage as it appears and save it as CFSK (36 marks)

# Computer for Schools Kenya

Computers for Schools Kenya (CFSK), is a non-profit organization established in October 2002 with the vision of establishing an information-rich Kenyan society actively contributing to sustainable national development. CFSK seeks to empower youths and communities for life in a knowledge-based society by facilitating the development of ICT infrastructure and capacity.

CFSK believes in the power of education and that it is possible to teach, train, feed and ensure sustainable development for the nation through application of technology and the innovations it ensures.

The CFSK program thus creates a forum for community development that is led by community members and sustained by a multiplier effect
In the nine years of existence, CFSK has sourced over 45,000 personal computers that have been deployed in nearly 2,000 learning institutions. CFSK organizational and operational model has also been recognized as an exemplar, with ongoing efforts to replicate the same in other African countries. CFSK won the 2007 and 2008 African ICT Achievers Award in the category of top civil society organization to bridge the digital divide in Africa.

The annual awards for leadership in ICT in Africa were handed out in November 2007 and 2008 at a televised gala in Johannesburg, South Africa
During this period of time, we have also carried out training for over 12,000 heads of schools and Education Officers, teachers/tutors, and members of Schools' Boards of Governors and Parents/Teachers Associations. We have successfully developed digital multimedia teaching/ learning resources specifically intended for our national secondary school curriculum – providing both teachers and students with an invaluable modern tool that makes learning interesting and stimulating. We have also developed software tools for school administration and management.

The incorporation of e learning into the CFSK curriculum will be prime in increasing its capacity in encouraging sustainable practices to growing the curriculum in ICT even to rural Schools thus cutting out a new niche in the Information Technology Sector.

**Website**

http://www.cfsk.org

**Year established**

2002

***Partnership types***

- Doing business with the poor (1029)
- Project funding (4182)
- Provision of goods (1707)
- Get inspired
- Q & A
- Standards / guidelines / toolkits
- Country / territory
- Global issues
- Business sectors
- Yellow pages
- Stories
- CSR / Sustainable development
- Fair trade
- Social entrepreneurship
- Partnering options
- Requests
- Offers
- News
- Disasters

b) Apply 1.5 line spacing to the entire document (3marks)

c) Spell check the document to remove all the errors (2 marks)

d) Page number the document as follows

i) Page number position: Bottom centre (2 marks)

ii) Number format: Capital roman numbers (2 marks)

e) Apply justify alignment to the entire document (2 marks)

f) Save the document as CFSK1 (2 marks)

h) Print the documents CSFK, and CSFK1 (1 mark)

2. The following table shows **Kipevu Cargo Handlers** Company annual collection of containers from different storage yards, on behalf of Kenya Ports Authority, in Mombasa. Assuming you are working for the company as a data analyst, study it and answer the questions that follow.

a) Using a Spreadsheet package, enter the above data exactly as it appears into a workbook and save it as CARGO DETAILS. Rename the worksheet as KIPEVU CARGO (15mks)

b) Calculate the Transport cost for each Transporter (2mks)

c) Each Transporter is awarded Royalty Bonus of Kshs 80 per Container. Type the value 80 in cell B15 then use it in a function to calculate each Transporter's Royalties (2mks)

d) Copy the data above in Sheet 2 and Rename it as **Transporter Payment** (2mks)

e) Each transporter is given a Gross pay depending on the zone they are working in as follows:

| Zone | Gross pay (Kshs) |
|---|---|
| A | 45,000 |
| B | 55,000 |
| C | 60,000 |

(i) Add the following data in the Transporter Payment sheet (5mks)

(ii) Each Transporter gets a 10% deduction from their gross pay. Use a formula to compute deductions for each Transporter (2mks)

(iii) Given that Net pay = Gross pay + Bonus - Deductions, use a formula to compute the Net pay for each Transporter (2mks)

f) Rank the Transporters is descending order of the Net pay (4mks)

g) Use Subtotals function to compute Total Net pay for each zone (6mks)

h) Use a pie chart to represent the Subtotals above as percentages of the Grand Net pay (6mks)

i) Print the following: (4mks)

i) The chart

ii) Kipevu Cargo sheet

iii) Transporter Payment Sheet

iv) All the formulas/functions used

| KIPEVU CARGO HANDLERS | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| ZONE | TRANSPORT NUMBER | TRANSPORT NAME | CONTAINERS DELIVERED | TRANSPORT AMOUNT PER CONTAINER (KSHS) | TOTAL TRANSPORT COST PER TRANSPORTER | TOTAL ROYALTY BONUS PER TRANSPOTER | DEDUCTIONS | GROSS PAY | NET PAY |
| A | 142 | William Ole Tumbo | 123 | 2000 | | | | | |
| B | 143 | Justus Boyen | 870 | 2500 | | | | | |
| B | 144 | Mary Mutua | 1130 | 2500 | | | | | |
| B | 145 | Benjamin Seth | 982 | 2500 | | | | | |
| A | 146 | Nelly Onyango | 679 | 2000 | | | | | |
| C | 147 | Hamisi Timu | 560 | 3000 | | | | | |
| A | 148 | Mike Rudisha | 786 | 2000 | | | | | |
| C | 149 | Faith Wanjala | 598 | 3000 | | | | | |
| A | 150 | Tim Bwire | 740 | 2000 | | | | | |
| C | 151 | Newton Mageto | 944 | 3000 | | | | | |
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KENYA CERTIFICATE OF SECONDARY EDUCATION

# CRE PAPER 1 FORM 3

# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

1. a) Explain why Christian Religious Education is taught in Kenyan schools today. (7mks)
   b) Give reasons why one Bible is referred to as the word of God. (6mks)
   c) Discuss problems church leaders encounter in their work of evangelization. (7mks)

2. a) State the responsibilities given to human beings by God in Genesis chapters 1 and 2. (7mks)
   b) State six similarities in the Biblical stories of creation and Genesis 1 and 2. (6mks)
   c) Identify the ways which Christians can take care of the environment. (7mks)

3. a) Give six reasons why the Israelites asked Samuel to appoint a King for them. (6mks)
   b) Explain King Saul's failure. (8mks)
   c) What qualities should a Christian look for in a choosing leader? (6mks)

4. a) Why is initiation important in Traditional African communities? (8mks)
   b) Explain why Traditional African initiation ceremonies are not as popular in Kenya today as they were in the past. (6mks)
   c) What are the difference between the practice of initiation into adulthood and the Christian baptism? (6mks)

5. a) List five visions that Amos saw concerning the coming Judgment f the people of Israel. (5mks)
   b) Outline the teaching of prophet Amos on social justice and responsibility. (8mks)
   c) How is the church promoting social Justice in Kenya today? (7mks)

6. a) Describe the call of Jeremiah to become a prophet of God. (Jeremiah 1) (7mks)
   b) Explain four symbolic acts related to judgment and punishment as demonstrated by prophet Jeremiah. (8mks)
   c) Identify five obstacles that may hinder a person from accepting the call of God. (5mks)

**KENYA CERTIFICATE OF SECONDARY EDUCATION**

# CRE PAPER 2 FORM 3

# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

1. a) Outline Micah's prophecy about the Messiah (Micah 5:1-5) (7mks)
   b) Outline the events that took place on the night Jesus Christ was born. (6mks)
   c) What lessons do Christians learn about family relationships from the incident when Jesus accompanied his parents for the Passover festival? (7mks)

2. a) Describe the baptism of Jesus in rive Jordan by John the Baptist. (7mks)
   b) Outline the teachings of John the Baptist. (7mks)
   c) Give reasons why Christians find it hard to apply the teachings of John the Baptist in their lives. (6mks)

3. a) Describe the incident of the healing of the ten lepers. (7mks)
   b) Give reasons why Jesus used bread and wine during the last supper. (6mks)
   c) Identify seven ways in which Christians demonstrate their faith in God. (7mks)

4. a) Give the instructions that Jesus gave to the seventy-two disciples when he sent them on a mission. (7mks)
   b) Describe the triumphant entry into Jerusalem (Luke 19:28-40) (8mks)
   c) Outline reasons why some Christians find it difficult to pray. (5mks)

5. a) Identify the gifts of the Holy Spirit according to Saint Paul (1 corithians12:7-11) (8mks)
   b) Outline what Peter said about Jesus on the day of Pentecost. (6mks)
   c) Explain six ways in which the gift of the Holy Spirit are abused in the church today. (6mks)

6. a) Explain the teaching of Peter concerning the people of God. (1 Peter 2:9-10) (6mks)
   b) State the teaching of Saint Paul on the proper use of the gifts of the Holy Spirit in the church. (7mks)
   c) State seven ways in which Christians can prevent division in the church in Kenya today. (7mks)

**KENYA CERTIFICATE OF SECONDARY EDUCATION**

# ENGLISH PAPER 1 FORM 3

# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

(a) *Write **your name** and **index number** in the spaces provided above.*
(b)*Answer **all** the questions in this question paper.*
*(c) All answers must be written in the spaces provided in the question paper.*

**For examiner's use only**

| Question | Maximum | Score |
|---|---|---|
| 1 | 20 | |
| 2 | 10 | |
| 3 | 30 | |
| Total | 60 | |

**This paper consists of 7 printed pages**
**Candidates should check the question paper to ensure that all the Pages are printed as indicated and that no questions are missing**

**1. FUNCTIONAL WRITING 20 MKS**

1. Your school has gone for the National Music Festivals in Kisumu County. You are one of the members who attended the festivals for 3 days. You participated in the activities listed below on the different days:
    - Presenting a dance
    - A visit to Lake Victoria
    - Touring the Kisumu Airport

i )Write the **personal journal** that you kept for the 3 days (12 mks)

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ii)Write the **thank you note** you would send to the governor of Kisumu for allowing you to visit those sites (8mks)..

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## 2. CLOZE TEST

***Fill in the blank spaces below with an appropriate word.*** **(10 marks)**

All the ordinary Kenyans and their leaders, irrespective of their political 1 _____, must fully 2_____ the war on drugs. The consequences of drug 3_____ are devastating, and many have been moved to tears on seeing young people wrecked by these substances. When these drugs are exported, 4_____have same effects on the users overseas. And this is why governments in the west, including the United States, invest heavily in 5_____drugs.

The extradition of two Kenyans and their suspected foreign accomplices to the US is a manifestation of the determination 6_____break up cartels that ruin American lives. It is, 7_____, unfortunate that anybody would wish to politicize such a8_____matter. Kenya is bound by International conventions to co-operate and facilitate the arrest of criminal suspects on its own. If the suspects can prove they have 9_____to do with drug 10 _____, there is no reason they should not return home as soon as possible.

## 3. ORAL SKILLS **(30 marks)**

**a)** Read the short poem below and answer the questions that follow.

**Three Pool Player Seven at the Golden Shovel**

We read cool.
We Left school.
We Lurk late.
We Strike straight.
We Sing sin.
We Thin gin.
We Jazz June.
We Die soon.

*-Gwendolyn Brooks*

*a)* List all the pairs of rhyming words in the poem. (1mark)

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……..

*b)* What effect is created by the rhyming words in the poem? (1mark)

……...

*c)* Apart from the rhyming words, how else is the effect mentioned in *b)* above achieved in the poem. (1mark)

……...

**b)** "*Come ye to me and I will* ***heel*** *your* ***soles.****"*

*a)* Classify the genre above. (1mark)

……

*b)* Give one function of the genre above. (1mark)

……

*c)* Identify one characteristics of the genre above. (1mark)

……

**c)** Identify the silent letter (s) in each of the following words. (3marks)

*a)* Mutton _____

*b)* Sachet _____

*c)* Sword _____

**d)** From the following set of words, identify the odd one out with regard to the pronunciation of the underlined letters. (3marks)

| | | | |
|---|---|---|---|
| *a)* | Critically | Occasionally | Academically |
| *b)* | Hop | rod | hope |
| *c)* | Soar | saw | so |

**e)** Provide a homophone for each of the following words. (3marks)

*a)* Choose _____

*b)* Quire _____

*c)* Story _____

**f)** You attended an interview for your first job in a bank. You want to look presentable to create a good impression. What would you do before and during the occasion to achieve this. (4marks)

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**g)** Imagine that the mayor of a city in Australia has visited your school to address the students. How would you introduce him to the audience? (1marks)

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**h)** Against each of the following sentences state whether you would end with a rising or falling intonation. (3marks)

*a)* Why did you oversleep? _____

*b)* What a tragic experience that was! _____

*c)* My younger sister has identical twins. _____

**i)** Underline the stressed syllable in the following words. (2marks)

*a)* Reply (verb)

*b)* Absent (*adjective*)

**j) Read the following telephone conversation and then answer the questions that follow.**

**Secretary:** (*phone rings*) Hello Masomo Secondary School. How may I help you?
**Caller:**I want to speak to my mother.
**Secretary:** May I know who your mother is please.
**Caller:**(*Impatient and irritated*) I have said I want to speak to my mother.
**Secretary:** Excuse me, I'm sorry I don't know who your mother is. Could you please tell me her name?
**Caller:** (*Shouting*) You have been working in that institution for the last ten years and you don't know Mrs. Marita?
**Secretary:** (*politely*) Oh! Mrs. Marita? She has just stepped out shortly. May I take a message for her please?
**Caller:**(*bangs the receiver*)

a) Identify any **three** instances that show the caller's lack of telephone etiquette. (3marks)

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b) How can you tell that the secretary observes professional conversational skill in the above telephone conversation? (2marks)

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**KENYA CERTIFICATE OF SECONDARY EDUCATION**

# ENGLISH PAPER 2 FORM 3
# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**INSTRUCTIONS TO CANDIDATES:-**

Write **your name** and **admission number** in the spaces provided.
Sign and write the **date** of examination in the spaces provided above.
Answer ***all*** questions in this question paper.
Answers to all questions ***must*** be written in the spaces provided in this booklet.

**For Examiner's Use Only**

| QUESTION | MAXIMUM SCORES | CANDIDATE'S SCORES |
|---|---|---|
| 1 | 20 | |
| 2 | 25 | |
| 3 | 20 | |
| 4 | 15 | |
| **Total Score** | **80** | |

**QUESTION 1: COMPREHENSION.** **(20MKS)**

***Read the passage below and answer the questions that follow.***

Substance Abuse has emerged in recent decades as a major concern both on and off the job. Although reasons vary, substance abuse can be a way that some people try to manage or reduce distress.

But it is important to be clear on what is generally meant by a drinking problem. In all cases related to alcohol abuse, a common factor is the unfavorable effect alcohol has on the health or well-being of the drinker and his or her associates. Common signs and symptoms that

frequently indicate a drinking problem include being constantly absent from work, causing on-the-job accidents and expressing grievances most of the time.
Alcoholic employees can sometimes go undetected for years. Coworkers cover up for those unable to perform their jobs because of drunkenness. Even managers may be adept at concealing their alcohol abuse problems. Their secretaries or loyal associates may cover up for them. Alcoholics can be clever at inventing "credible" excuses when detected: "I must have a drink or two when I'm entertaining customers, of course."
Drug abuse, or drug addiction, exists when the taking of drugs, whether prescribed or non-prescribed, legal or illegal, causes difficulties in any area of an individual's life. Years ago, the stereotype of the drug user was either of a glazed-eyed musician frantically beating his sticks on a tight skin or a person who dwelt in a slum. Mass publicity on drug abuse has long since caused that stereotype to fade from view.
Complicating the ongoing war on drugs are changes in public attitudes and drug-use patterns. It sometimes seems that no sooner is progress made in combating one illegal drug than a different kind of substance abuse comes into vogue. Ethyl alcohol was the social drug during prohibition (1920 – 1933), marijuana became the social drug of the 1960s and 1970s, and some observers believe that crack cocaine and possibly ecstasy – another so-called upper – became the social drugs of the 1980s and 1990s. the drugs of choice and people's attitude toward them may change, but the problem of drug abuse appears to be continuing unabated.
Pinpointing the specific symptoms of alcohol and drug abuse problems is not a simple task. A supervisor's main responsibility, therefore should not necessarily be uncovering evidence of dependency on alcohol and drugs but instead being observant for declining job performance. Yet there are certain behavioral patterns that some excessive users of alcohol and drugs display. These patterns can sometimes be spotted through simple observation.
Increasingly though, employers are taking more aggressive steps to ferret out substance abuse among their workforces. A growing number of companies, especially large ones with many employees and those in business with potential to effect public health or safety, are adopting drug-testing programmer.
The signs of alcohol dependency, unfortunately, do not always become manifest until the middle of the late stages of the problem. No wonder some managers have mistaken an employee's euphoric appearance for the "look of love". The earlier treatment begins, naturally, the earlier treatment begins, naturally, the easier it will be. A person could experience some isolated incidents of such drinking problems without necessarily being an alcoholic. However, alcohol abuse usually results in declining job performance.
Because there are many symptoms of drug abuse, no one person would exhibit all of them and a supervisor should guard against assuming that the presence of one or more symptoms is conclusive of alcohol or drug abuse.

**Questions**

1. What is the main reason given for substance abuse? (2 mks)

2. From paragraph two, state three ways in which alcohol abuse can unfavorably affect the workmates of a drunker? (3mks)

3. According to the passage, what is drug abuse? (2mks)

4. What was the common misconception about who a drug user was? (2mks)

5. Rewrite the following sentences using "as soon as"
It sometimes seems that no sooner is progress made in combating one illegal drug than a different kind of substance abuse comes into vogue. (1mk)

6. What can we infer about "prohibition"? (2mks)

7. In not more than 55 words, summarize the reasons that make it difficult to effectively deal with substance abuse. (4mks)

8. Why do you think the author of the passage cautions supervisors against hastily concluding that one is a drug abuser? (2mks)

9. Explain the meaning of the following words as used in the passage. (2mks)
Credible

Stereotype –

**EXCERPT 25 marks.**

'Yes, I did,' he answered.
'Then you saw the letter from AGDA, didn't you? I will return to it shortly. First tell me this: what other items did you see in your brief case?' 'I saw a copy of way Omega, the development strategy that Nobel laureates have crafted to end Africa's misery, and that Africa heads of state are now expected to adapt at their summit. 'Go on.'
'I also saw a copy of Path Alpha, the development strategy that AGDA believes is a superior alternative to Way Omega, and that it hopes to slip in to replace Way Omega. 'Good. AGDA wants you to be fully familiar with both of those documents. Continue.'
'I also saw some leaflets, pamphlets and brochures from AGDA.' 'Skip those. What else?'
'Well, I then saw this mobile phone which I am using right now.' 'Excellent. Keep that mobile phone on at all times, day and night, rain or shine. From now on, I will be calling you often, even unexpectedly, but only hotel phone, it is completely secure, which means I can talk to you on it freely.
'So, you will tell me your real name now?' Pastor Chiamaka asked. 'My real name, my real name- why?' Shouted the caller, angry all of a sudden. 'Well, 'why?' Pastor Chaimaka shouted back, also angrily, answering fire with fire. 'If I don't have your real name, how can I even begin to ask for you were a need to do so arise?'
'Were a need to do so arise, I would contact you, ''the caller told him. 'Ah, you can contact me, but I can't contact you? What is the matter? Are you afraid I might surpurise you?
'Shut your mouth!' Snapped the caller.
'What did you say?' Pastor Chiamaka asked.

**Questions.**

1. Say what happens immediately before this excerpt. (3mks)

2. What are the character traits of Pastor Chiamaka as brought out in this excerpt? (4mks)

3. Identify and illustrate two stylistic techniques used in this excerpt. (4mks)

4. 'Shut your mouth!' Snapped the caller. Change into indirect speech. (1mk)

5. You will tell me your real name now. Add a question tag. (1mk)

6. Discuss any two social concerns that are brought out in this excerpt. (4mks)

7. From elsewhere in the text. Discuss how Chamaka critiques the government of the day. (2mks)

8. What is Chamaka's Attitude towards the guide? (1mk)

9. Explain the meaning of the following words as used in the excerpt. (3mks)
   i. Familiar

   ii. Misery

   iii. Laureates

iv. Pamphlets

v. Brochures

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

Oh beautiful bride, don't cry,
Your marriage will be happy,
Console yourself, your husband will be good.

And like your mother and your aunt,
You will have many children in your life,
Two children, three children, four……
Resign yourself do like all other,
A man is not a leopard,

A husband is not a thunderstruck,
Your mother was your father's wife,
It will not kill you to work.

It will not kill you to grind the grain
Nor will it kill you to wash the pots
Nobody dies from gathering firewood
Nor from washing clothes.

We did not do it for you,
We did not want to see you go,
We love you too much for that

It's your beauty that did it
Because you are so gorgeous
Ah, we see you laugh beneath your tears!

Goodbye, your husband is here
And already you don't seem
To need our consolations.

**Questions**

With evidence, classify the oral song. (2mks)

Who do you think are the singers of the song? Illustrate. (2mks)

How do the singers make the situation bearable for the lady? (2mks)

What is the attitude of the society from which the song is derived towards women? (2mks)

Illustrate and explain the use of the following stylistic devices in this oral poem. (4mks)

Repetition –

Simile –

State in note form the duties of a wife according to the song. (2mks)

Explain any social aspect and one economic activity carried out in the community from which the oral poem is taken. (4mks)

Explain the irony in the 7th stanza. (2mks)

**GRAMMAR 15 marks.**

***Fill in the blanks with the correct form of the word in brackets.*** ***(3mks)***

Who is the _____ person in you life? (important)

My brother was offended by the _____ of their joke. (vulgar)

You will improve your _____ if you listen to people keenly. (pronounce)

***Complete the sentences below using a little, little, afew or few.*** ***(3mks)***

There was _____ work to do, so slept almost the whole day.

Though _____ teams turned up, the competition was successful.

The thief had _____ accomplices.

***Use an appropriate phrasal verb to replace the underlined word.*** ***(3mks)***

The fire engines arrived in time to extinguish the ranging inferno.

The chairman decided to postpone the meeting at the eleventh hour.

It is not good to despise others.

***Choose the correct pronoun from the options provided to complete the following sentences.*** ***(2mks)***

Ms Kilundu gave my sister and _____ a lift to school. (I/me)

To _____ life had no meaning at all. (he/him)

***Provide the appropriate question tag.*** ***(2mks)***

Greet your wife for me, _____

I am responsible for this,_____

***For each of the nouns below, write a gender neutral equivalent.*** ***(2mks)***

Cateress

Watchman

KENYA CERTIFICATE OF SECONDARY EDUCATION

# GEOGRAPHY PAPER 1 FORM 3

# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**The paper has two sections, answer all questions in section A**

**Answer Qestion 6 and any other two in section B**

1 a Define the term environment [2mks]

b give any 4 importance of studying Geography [4mks]

2 a state 4 effects of earth's revolution [4mks

3 a. give two types of igneous rocks [2mks]
Intrusive

b.identify 3 factors influencing exploitation of minerals [3mks

4 a define the term folding [2mks]
b List 4 types of folds 4mks

5.state 4 effects of earthquakes [4mks]

SECTION B
Answer question 6 and any other two in this section
6 Study the map of Kisumu east and answer the following questions

a. i. Identify 3 methods used to show relief on a map 3mks
ii.Give 4 grid reference of Obumba school near Kano plain 2mks

iii. Give any three types of natural vegetation found in the area 3mks

b. Citing evidence from the map describe 3 functions of Kisumu town 6mks
c Describe the distribution of settlement in the area covered by the map 5mks

d. Describe the drainage of the area covered by the map 6mks

7a. i Define faulting [2mks]

ii using a well labelled diagram,describe the *Formation of a rift valley by compressional forces [8mks]*

*Iii list 3 types of faults 3mks*

*b List 4 examples of rift valleys [4mks]*

c Explain 4 Effects of faulting on human activities [8mks]

8.a i What is a lake [2mks]

ii Give the Factors that determine the size of a lake [4mks]

b Describe the Formation of lakes due to faulting [ 6mks]

C Give Reasons why some lakes in the Rift Valley are saline. [5mks]

d Explain 4 significance of lakes on human activities [8mks]

9.a i what is a coast [2mks]

ii Give the factors that influence the nature of coasts [3mks]

b i define a wave 2mks

ii describe the formation of a blowhole 4mks

c Expain Factors which influence salinity of ocean water [6mks]

d Explain the significance of coastal features [8mks]

10 a i.state 4 features formed at the youthful stage of a river [4mks]

ii Describe 3 ways in which a river transports its load [6mks]

b i what is a delta 2mks

ii give the Ideal Conditions for Formation of A Delta At A Rivers Mouth 4mks

C i State 5 factors that lead to river deposition 5mks

ii give the Ideal Conditions for Formation of A Delta At A Rivers Mouth 4mks

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# GEOGRAPHY PAPER 2 FORM 3

# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

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

1. ***Answer all questions from this section***

1 (a) Name <u>two</u> areas where gold is mined in the Republic of South Africa

b. Apart from alluvial mining, state two other methods of surface mining 2mk

(c State three disadvantages of alluvial mining 3mks

2 State <u>three</u> contributions of gold mining to the economy of the Republic of South Africa. 3mks

3(a) State 5 characteristics of tropical hard wood trees 5mks

4.) Name any 4 two species of indigenous tropical hard wood trees found in Kenya (4mks)

5 (a) Define the term forestry. 2mks

**<u>SECTION B ANSWER QUESTION 6 AND ANY OTHER TWO IN THIS SECTION</u>**

6. The table below shows agricultural crops produced in Kenya in the years 2008 to 2011. Use it to answer question (a)

| CROPS | AMOUNT IN METRIC TONNES | | | |
|---|---|---|---|---|
| | 2008 | 2009 | 2010 | 2011 |
| Tea | 240,000 | 314,000 | 399,000 | 405,000 |
| Coffee | 98,000 | 54,000 | 42,000 | 55,000 |
| Wheat | 70,000 | 37,000 | 54,000 | 66,000 |
| Others | 165,000 | 180,000 | 147,000 | 155,000 |

(a) (i) Using a scale of 1cm to represent 100,000 metric tones, draw a compound bar graph to represent the data above. (7 marks)

(ii) State *5* advantages of using compound bar graphs to represent data. (5marks)

*b. i. Which crop had the highest produce 1mk*

c.i you were to carry a field study on agricultural production of tea state the objectives of the study 4mks

ii. What are the challenges likely to be encountered during the study 4mks

iii. give the foolow up activities after the study 4mks

7. (a) The photograph below shows some mining activities. Study and use it to answer the questions that follow.

Identify the type of photograph. (1 mark

II.Give reasons for your answer in (i) above. (3 marks)

iii.Explain 4 negative effects of the mining method shown in the photograph to the physical environment. 8marks)

(b) (i) Name two gold mining areas in South Africa. (2 marks)

ii.Describe the process of gold processing. (6 marks

**c.** Explain three economic benefits of petroleum to the oil producing countries in the Middle East region. (6 marks)

8(a) i.State 5 characteristics of tropical hard wood trees 5mks

ii.Name 3 species of indigenous tropical hard wood trees found in Kenya (3mks)

*b. Explain 4 .Factors Influencing Types and Distribution of Forests 8mks*

c.Give the Importance of Forest Products 3mks

d.Explain 3 Problems facing forestry in Kenya and Canada 6mks

9. a. Define mining 2mks

b.Give factors influencing exploitation of minerals 2 mks

c i..State the forms in which minerals occur 5mks

ii. Explain 3 Problems Facing Mining Industry in Kenya 6mks

d. Explain 5 Significance of Minerals/Mining in Kenya 10mks

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# HISTORY & GOVERNMENT PAPER 1 FORM 3

# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**INSTRUCTIONS: SECTION A: Answer All Questions in This Section. (25 MKS)**

1. What is the difference between a Pongidae and a Hominidae? (1 mark)
2. Identify the community that displaced the Pokomo from Shungwaya. (1 mark)
3. List **two** roles of warriors among the pre-colonial Miji-Kenda. (2 marks)
4. State **two** roles of the Orkoiyot among the pre-colonial Nandi community. (2 marks)
5. Who was the first European to see Mt. Kenya in 1849? (1 mark)
6. Name **two** constitutional amendments which were done in 1982 in Kenya. (2 marks)
7. Define the term "Scorched earth policy". (1 mark)
8. Which was the **main** war method used by Africans in their resistance? (1 mark)
9. Identify the agreement signed to end partitioning of East Africa. (1 mark)
10. List **two** ways the Akamba displayed their resistance against the colonial administration. (2 marks)
11. Identify the basis of the political organization of African communities in Kenya during the pre-colonial period. (1 mark)
12. Name **one** political parties that existed in Kenya at Independence. (1 mark)
13 Mention **two** duties of a chief during the colonial administration in Kenya. (2 marks)
14 State **one** group that provided education in Kenya during the colonial period. (1 mark)
15 Name **one** community in Kenya that showed mixed reaction towards British colonization in Kenya. (1 marks)
16. State two methods which were used by the British to establish their rule in Kenya. (2 marks)
17. State two development rights of children. (2 marks)

**SECTION B**

**Answer three questions in this section.(45 marks)**

18. (a) State **five** economic activities of the Agikuyu during the pre-colonial period. (5 marks)
    (b) Describe the political organization of the pre-colonial Somali community. (10 marks)
19. (a) List **five** reasons for the coming of the missionaries to Kenya. (5 marks)
    (b) Explain **five** positive results of the Omani rule along the Kenyan Coast. (10 marks)
20. (a) Identify **three** terms of the Devonshire Whitepaper 1923. (3 marks)
(b) Explain **six** methods used by the colonial government to promote settler farming in Kenya. (12 marks)
21. (a) Identify **five** reasons for the collaboration of the Maasai. (5 marks)
    (b) Explain **five** reasons for failure of armed resistance by the Kenyan communities. (10 marks)

**SECTION C:**

**Answer any two questions in this section.(30 marks)**

22. (a) State **three** factors that may cause revocation of citizenship by registration in Kenya

(3mks)

(b)Explain **six** rights that are guaranteed to an arrested person by the Bill of Rights in Kenya. (12 marks)

23. a) State **five** non-violent methods of resolving a conflict. (5 marks)

b) Explain **five** factors that promote national unity. (10 marks)

**24.** (a) State **three** characteristics of indirect democracy. (3mks)

(b) Explain **six** principles of democracy. **(**12mks)

KENYA CERTIFICATE OF SECONDARY EDUCATION

# HISTORY & GOVERNMENT PAPER 2 FORM 3

# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**INSTRUCTIONS:**
This paper consists of three sections; A, B and C.
Answer all the questions in section A, three questions in section B and two questions in section C.

## SECTION A: (25 MARKS)

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

1. State two reasons why the study of government is important. (2 mks)

2. Give two theories that explain the origin of man. (2 mks)

3. Give two reasons why early agriculture developed along the river valleys. (2 mks)

4. Give one contribution of Ludwig Krapf in the history of East Africa. (1 mk)

5. State two problems encountered by traders during the Trans-Saharan trade. (2 mks)

6. Give any two ways through which slaves were acquired during the Trans-Atlantic trade.(2 mks)

7. Which invention is associated with Michael Faraday. (1 mk)

8. Give two challenges that face industrialization in India. (2 mks)

9. Give two problems facing Cairo as an urban Centres. (2 mks)

10. State the role played by the Tuaregs in the Trans-Saharan trade. (1 mk)

11. State one reason why Odwira festival was held among the Asante. ( 1 mk)

12. Mention any two factors that undermine Scientific advancement. (2 mks)

13. Name any Chartered Company that administered European colonial possession in Africa. (1 mk)

14. Give one African community that collaborated with European colonization. (1 mk)

15. Give two functions of Lukiiko. (2 mks)

16. Why did the Portuguese build Fort Jesus? (2 mks)

17. Identify one treaty signed between the British and the Sultan of the Coast in an effort to end Slave trade. (1 mk)

## SECTION B: (45 MKS)

**Answer any three questions from this section**

18. (a) State three negative impacts of the Trans-Saharan trade. (3 mks)

    (b) Discuss the positive impacts of telecommunications today. (2 mks)

19. (a) Which methods were used by Europeans to acquire colonies in Africa? (5 mks)

    (b) Discuss the grievances of the Ndebele and the Shona that led to the Chimurenga war. (10 mks)

20. (a) Identify five forms of written sources of information on History and Government. (5 mks)

    (b) Explain five disadvantages of electronic sources of information on History and Government. (10 mks)

21. (a) State five uses of domestic animals during the ancient period. (5 mks)

    (b) Describe five effects of the early agriculture on people's way of life. (10 mks)

## SECTION C: (30 MARKS)

**Answer two questions from this section.**

22. (a) Give three characteristics of human rights. (3 mks)

    (b) Discuss the rights enjoyed by people with disabilities. (12 mks)

23. (a) Give the challenges that undermined missionary work in East Africa. (5 mks)

    (b) Explain the effects of missionary activity in East Africa. (10 mks)

24. (a) State five factors that led to the development of urban centres in colonial Africa. (5 mks)

    (b) Discuss the factors that contributed to the growth of London upto the First World War.

KENYA CERTIFICATE OF SECONDARY EDUCATION

# HOME SCIENCE PAPER 1 FORM 3

# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

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

**SECTION A (40MKS) ATTEMPT ALL QUESTIONS.**

1. Who is a lactating mother? (1mk)

2. State two factors to consider when choosing and using shoes. (2mks)

3. List three signs and symptoms of cholera. (3mks)

4. Give atleast two reasons for using each of the following laundry agents in laundry work;
   a) Laundry blue (2mks)

   b) Salt (2mks)

5. State two immunizable childhood diseases. (1mk)

6. A part from gathers, list six methods if disposing excess fullness. (3mks)

7. State two causes of puckering of material when sewing. (2mks)

8. Draw the symbols that indicate the following information in laundry. (2mks)
   a) Dry flat
   b) Do not dry clean

9. State two problems related to weaning. (2mks)

10. Differentiate between creaming and rubbing in method. (2mks)

11. Describe the burning test of wool. (2mks)

12. State two points to consider when choosing a laundry brush. (2mks)

13. Mention six items found in a first aid kit. (3mks)

14. Give two reasons for an open coarse texture in creamed cake mixture. (2mks)

15. State two safety precautions to be exercised when handling calabash. (2mks)

16. State three rules for stain removal. (2mks)

17. Mention any two ways of meeting social needs of a pregnant woman. (2mks)

18. Identify any three ways of incorporating air in flour mixtures. (3mks)

19. Mention two advantages of breastfeeding for the mother. (2mks)

***SECTION B (20 MARKS) COMPULSORY.***

20. Your parents are away and you have been left in charge of the home. Using knowledge and skills learnt in Home Science;
    i. Explain how you would launder your mother's viscose rayon dress.(10mks)
    ii. Describe how you would clean your younger sisters leather shoes. (10mks)

***SECTION C (40MKS) ANSWER ANY TWO QUESTIONS.***

21. a. Give and explain five causes of malnutrition. (10mks)
    b. Explain five factors to consider when planning and preparing meals for children. (10mks)

22. a. Using a clearly labeled diagrams, describe how to work the double stitched seam/machine full seam. (9mks)
    b. Discuss four advantages of using plastic basins in laundry. (8mks)
    c. Highlight three qualities of a good advertisement. (3mks)

23. a. Define weaning. (2mks)
    b. Give four points on the importance of habit training. (4mks)
    c. Suggest four ways through which safe parenthood can be achieved. (2mks)
    d. Explain why it is important for an expectant mother to be tested for HIV/AIDS. (2mks)
    e. Explain five points on the care of lactating mother. (10mk)

**KENYA CERTIFICATE OF SECONDARY EDUCATION**

# KISWAHILI PAPER 1 FORM 3

# MIDTERM 2 SET 1 2023 EXAM

**JINA: …….....KIDATO..... NAMBARI……**

**MAAGIZO**

a) Jibu maswali mawili

b) **Swali la kwanza ni la lazima**

c) Kisha chagua swali jingine kutoka hayo matatu yaliyosalia

d) Kila insha isipungue **maneno 400**

e) Kila insha ina alama 20.

***KWA MATUMIZI YA MTAHINI PEKEE***

| SWALI | JUMLA | TUZO |
|---|---|---|
| **1** | **20** | |
| | **20** | |
| **JUMLA** | **40** | |

1. Mwandikie barua mwanafunzi uliyesoma naye umufahamishe kuhusu changamoto zinazowakumba wananchi katika nchi yako.

2. Sekta ya uchukuzi wa Bodaboda ni sarafu,ina pande mbili. Jadili.

3. Tunga kisa kitakachodhihirisha ukweli wa methali ,Pwagu hupata pwaguzi.

4. Andika insha itakayochukua mwanzo ufuatao.
   Ukumbi wa mahakama ulikuwa umejaa watu furifuri. Mshtakiwa alikuwa ameinamisha uso wake. Hatima ya kesi iliyomkabili ilifahamika tu na hakimu. Punde…

KENYA CERTIFICATE OF SECONDARY EDUCATION

# KISWAHILI PAPER 2 FORM 3

# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**Maagizo**

*(a) Andika jina na nambari yako katika nafasi ulizoachiwa hapo juu.*

*(b) Jibu maswali yote.*

*(c) Majibu yaandikwe katika nafasi ulizoachiwa katika kijitabu hiki cha maswali.*

*(d) Majibu yote lazima yaandikwe kwa lugha ya Kiswahili.*

*(e) Watahiniwa ni lazima wahakikishe kwamba kurasa zote za karatasi hii zimepigwa chapa sawasawa na kuwa maswali yote yamo.*

**KWA MATUMIZI YA MITAHINI PEKEE**

| SWALI | UPEO | ALAMA |
|---|---|---|
| 1 | 15 | |
| 2 | 15 | |
| 3 | 40 | |
| 4 | 10 | |
| JUMLA | 80 | |

## UFAHAMU (ALAMA 15)

Soma kifungu kifuatacho kisha ujibu maswali.

**ULEVI**

Ilikuwa Jumamosi ya mwisho wa mwezi, wakati wa magharibi, nikiwa kwenye tembeatembea zangu za kupunga hewa. Nikaona kilee, kijitu si kijitu, mtu si mtu. Kinakuja kwa kuyumba huku na huku kama kwamba kikiendeshwa na upepo.

Kukaribiana nacho, nikaweza kukiona vizuri zaidi. Kilikuwa kirefu, lakini kilichokonda na kukondeana mithili ya kiuno cha nyigu. Shati kiliyovaa ilionekana kama kwamba imetundikwa tu kijitini. Kukikazia macho, nilitambua. Maskini! Mwili wake ulidhoofika na kuwa kitu kama vile mfuko tu wa mifupa.Kufumba na kufumbua, kilianguka bwup! Chini. Nikajikuta nakitikisa kichwa.

“Vipi Mlachake bwana we?” Nikamtupia, huku nikijaribu kumsaidia ainuke.

”Vi-vi-vipi ni-nini?” Akanirudia.

“Umerudia he?”

“ La-lakini kwa pe-pesa zangu, si-si-siyo kwa-kwa-kwa kudoea.”

“Daktari alikushauri vipi?

“A-ach-ch-chana naye yeye hu-huyo. Ati nina-naji-jipunguzia maisha.Kwa ni-ni-nani ha-hata-ta-kufa?”

Kuzidi kumyanyua ili nimwinue kutoka chini, akatitazama kwa macho yake malegevu na kuniuliza, “Ha-hata wewe pia una-na-nataka kuniibia?”

“Nani amekuibia?” Nikamwuliza kwa mshangao. Kimya. Aliweza kuinuka na kubaki akiyumbayumba mfano wa mcheza rumba. Kisha yakamtoka matusi mfululizo.

“Mlachake!” Ikanitoka sauti ya mshangao baada ya kushuhudia yale niliyoyatia machoni.

“Ni aibu gani hii ya kujitapikia ovyo?”

“Ni me-jiji-jitapikia ni-ndiyo. Sikumta-tapikia mtu.”

“Sikiza Mlachake bwana.”

“Ndi-ndiyo bwana m-mkubwa,” akasema na kunipigia saluti. Kisha, kwa mara nyingine tena, huyoo akasalimu amri.

“Mlachake! Pesa, ulizifanyia, kazi mwezi mzima ili zije kukutesa namna hii he?”

“Ndi-ndiyo. Cha m-m-mgema hu-uliwa na mle-levi si-si ndiyo?”

Kwa mara nyingine tena, nilijikuta natikisa kichwa. Papo hapo, akili ikanipa kuwa nimsaidie kwa kumfikisha nyumbani kwake.

Kufika mlangoni tu, alipaaza sauti akisema, “Fungua!” Ilhali mlango ulikuwa umekomewa kutoka nje. Kisha dwa!Akaupiga teke, halafu “Huuwi!” akapiga nduru huku akishika mguu na kutandwa na wingu jeusi usoni. “Nita-ta-charaza mtu le-le leo mimi,” akatisha. Akichutama na kubwagizika chini mfano wa gunia tupu. Nikatikisa kichwa na kujiendea zangu.

**MASWALI**

a)Taja sababu mbili za Mlachake kuonekana akiyumbayumba. (Al 2)

.....
.....

b)Mbali na kumletea mtu aibu kama vile ya kujitapikia ovyo, taja athari au hasara nyingine tatu za ulevi kwa mlevi (Al 3)

.....
.....
.....

c)Mwandishi anasema, “Kwa mara nyingine tena huyoo, akasalimu amri.” Anamaanisha nini hasa kwa kusema “akasalimu amri?” (Al 1)

.....
.....

d)Ni aina gani mbili za ushihidi zinazotudokezea kuwa Mlachake hakuishi pekee nyumbani kwake? (Al 2)

.....
.....

e)Ni methali gani iliyomjia Mlachake kichwani wakati alipozungumza na msimulizi wa makala hii? (Al 1)

.....

f)Eleza jinsi methali hiyo inavyoingiliana na maudhui ya makala hii. (Al 2)

.....
.....

g)Eleza matumizi yafuatayo ya lugha kama yanavyojitokeza katika makala uliyosoma. (Al 4)

i)Wakati wa magharibi

.....

ii)Kukutesa

.....

iii)Kudoea

.....

iv)Akili ikanipa

.....

**UFUPISHO (ALAMA 15)**

Soma kifungu kifuatacho kisha ujibu maswali.

Tangu kuripotiwa kwa maambukizi na vifo kutokana na Tandavu la Korona nchini Kenya, Wakenya wengi wamekuwa wakiishi kwa hofu. Vifo vinavyohusishwa na ugonjwa huu hatari vimekuwa vikiongezeka kila kukicha. Ugonjwa huu sugu unawafisha watu kwa muda mfupi baada ya kuambukizwa. Kutokuwepo kwa dawa za kutibu ugonjwa wenyewe kunaongeza wasiwasi miongoni mwa wanajamii. Nchi ya Kenya kama ilivyo mataifa mengine ulimwenguni imehimiza raia wake kupata chanjo dhidi ya tandavu hili. Hata hivyo, hatua ya serikali kutumia vitisho ili kuwashinikiza watumishi wa umma kupata chanjo ya korona haifai kwani huenda ikatatiza mpango wa kuchanja watu milioni kumi mwaka huu. Licha ya serikali kujaribu kuwalazimisha watumishi wa umma bado chanjo haijakubalika na wengi nchini. Kutokubaliwa kwa chanjo hii kumesababishwa na ukosefu wa elimu ya kutosha kuihusu. Watu wengi wanahofia kuwa huenda waliochanjwa wakapata madhara baadaye.

Mamilioni ya watu wameathiriwa kwa njia moja au nyingine na ugonjwa huu. Kenya imeshuhudia hoteli nyingi za kifahari kufungwa. Hii imetokana na usafiri wa ndege kusitishwa kote duniani. Kutokana na hali hiyo, hoteli zilizotegemea wateja watalii zilisimamisha shughuli zake kwa muda. Kwa mfano, ya Intercontinental ilifunga milango yake kabisa mwaka wa 2020. Jambo hili liliwafanya watu wengi kupoteza ajira.

Usafiri wa umma umekumbwa na changamoto si haba kutokana na tandavu la korona. Serikali ilipunguza wasafiri katika magari ya abiria kwa thuluthi moja. Wasafiri hao walilazimika kulipa nauli maradufu kwa safari ile ile. Watu wengi walilazimika kufutilia mbali mipango yao ya usafiri. Kafyu vile vile iliathiri usafiri huu wa umma. Magari mengi yalilazimika kusitisha safari njiani kwa kupatikana na kafyu. Wafanyabiashara katika sekta ya matatu wanahesabu hasara kubwa kwa kukosa abiria. Wengine wamelazimika kuuza magari yao kwa kutamaushwa na changamoto iliyowakumba ghafla.Aidha, shule zililazimika kufungwa mnamo Machi 2020. Wanafunzi walikaa nyumbani hadi Januari 2021. Hii iliharibu kalenda ya masomo nchini.

Serikali ilijaribu kuwasihi walimu kufunza mtandaoni lakini hii haikufaulu hata. Wanafunzi wa kike kadhaa waliishia kupata ujauzito hivyo basi kukatiza masomo yao. Ibada zote pia zilisitishwa. Nao waumini hawakusazwa. Baada ya serikali kufunga makanisa, misikiti na vyumba vingine vya ibada, waumini wengi walilazimika kufuatilia ibada zao katika runinga au mtandaoni. Waliokosa mitandao waliomba na jamaa zao na wengine kupuuza ibada hizo kwa muda.

Shida zilizindikana ugonjwa wenyewe ulipozidi kuenea. Hospitali za umma zililemewa na idadi ya wagonjwa waliokuwa wakienda kule kutafuta matibabu. Vitanda vilijaa na hata wengine wakalala chini katika wadi mbalimbali. Huduma za afya zikazidi kudidimia kutokana na ukosefu wa wahudumu wa afya na vifaa vya kutumiwa na wagonjwa. Vifo vingi vikaripotiwa katika hospitali hizi za umma. Kila sehemu nchini ikaathirika. Majonzi yakajaa kila mahali.

Licha ya haya mabaya yote yaliyokuja na ugonjwa huu wa corona, kuna wale waliochuma riziki kwa kuzuka kwa ugonjwa huu. Mambo mapya yalijitokeza katika ulimwengu wetu. Msamiati wa lugha ukaongezeka. Hii ilitokana na haja ya kuwepo kwa istilahi au misamiati ya kufafanua hali mpya iliyoibuliwa na tandavu hili. Vilevile Kutokana na watu kulazimika kufanya kazi nyumbani, ujuzi wa matumizi ya mtandao umeimarika. Kwa mfano, ufundishaji mtandaoni umefaidi vyuo vingi vinavyofundisha masomo ya mbali.

Wanabiashara wengine wakaanza kuuza barakoa. Barakoa ilikuwa kitu kigeni huku kwetu na duniani kwa jumla. Wengi walipata faida kubwa sana kwa kuwa soko la barakoa lilikuwa pana. Hata hivyo, barakoa zinazotumika na wananchi wengi hazijathibitishwa kuwa bora kuzuia korona. Hali hiyo inawafanya watumiaji wake kuwa na usalama wa bandia kwani wanaweza kuambukizwa ugonjwa wa korona kwa urahisi licha ya kuwa wamevalia barakoa hizo.

Kadhalika, viyeyushi vikaanza kutumika kwa wingi humu nchini na duniani kote. Wachuuzi wengi waliingia biashara hii na kufaidika kiasi. Wengi hawakujua viyeyushi ni nini kabla ya wakati huo. Hivi sasa hata watoto wadogo wanajua viyeyushi na kutumia kwa njia mwafaka.

Kundi lingine lililonawiri kwa korona ni hospitali za kibinafsi. Wengi wa matajiri walioambukizwa ugonjwa huu walijipeleka hospitali hizi kwa matibabu. Wenye hospitali hizo nao wakapandisha bei ya matibabu kwao. Ikawa ni biashara inayonoga kabisa. Hawakujali kuhusu wale wasio na pesa.

Korona imefanikisha juhudi za maafisa wa afya kuhimiza usafi kila mara. Hii ni kwa sababu watu wanalazimika kunawa mikono yao kila mara. Usafi huu wa mikono unapunguza visa vya magonjwa kama vile kipindupindu katika jamii. Aidha, gharama za sherehe zimepungua mno kutokana na sheria za kudhibiti idadi ya watu wanaohudhuria sherehe za mazishi au matanga. Hali hii ni nafuu kwa wale wachochole ambao wakati mwingine hulazimika kuuza kidogo walicho nacho ili kugharamia sherehe za matanga au arusi.

**Maswali**

Kwa kuzingatia aya tano za kwanza, eleza shida zilizoletwa na korona. (Maneno 100) (Al 9)

Matayarisho

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Jibu

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Fupisha aya nne za mwisho kwa maneno 60. (Al 6)

Matayarisho

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Jibu

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**MATUMIZI YA LUGHA (ALAMA 40)**

a) Taja vipasuo viwili vya midomo.( alama 2)

_____

_____

b) Onyesha panapotokea shadda katika neno hili. (alama 1)

Mteremko._____

c) Tambua kiambishi awali na tamati katika neno hili.(alama 2)

Waliofika.

_____

_____

d) Tambua vivumishi vilivyotumika katika sentensi hii na ueleze ni vya aina gani.( alama2)

Karatasi nyekundu ilitengenezewa kiwanda kile.

_____

_____

_____

e) Andika sentensi ifuatayo katika wakati ujao.( alama 2)

Nora alisafiri Jana jioni.

_____

f) Onyesha matumizi yoyote mawili ya kiwakifishi koma.( alama 2)

_____

_____

_____

_____

g) Andika katika usemi wa taarifa.( alama 2)

“Wageni wangu watafika saa ngapi?” Mama aliuliza.

_____

_____

h) Andika sentensi ifuatayo katika hali yakinishi.(alama 2)

Hakumpa daftari lake.

_____

i) Andika sentensi ifuatayo kwa udogo.(alama 2)

Mbuzi huyo alipelekwa malishoni.

_____

_____

j) Tumia -O- rejeshi badala ya – amba- (alama 2)

Wachezaji ambao hucheza kwa bidii ndio ambao hufaulu maishani.

_____
_____

k) Ainisha vielezi katika sentensi zifuatazo.( alama 2)

Jaribu kujitahidi kisabuni usianguke mtihani.

_____
_____
_____

l) Wachezaji wote wameingia uwanjani.

_____
_____

m) Fafanua aina ya hali iliyotumika katika sentensi hii.(alama 1)

Wanasiasa wengi hulalamika kila mara.

_____

n) Changanua sentensi ifuatayo kwa njia ya mishale.( alama 4)

Wazazi wameenda sokoni.

_____
_____
_____
_____
_____
_____

o) Banisha mofimu katika neno lifuatalo:(alama 2)

Jimbi_____

p) Tambua matumizi ya – ni- katika sentensi hizi.( alama 2)

Mwanafunzi ni mtukutu.

_____

Ameenda ibadani.

_____

q) Tambua kiima na kiarifa katika sentensi hii.( alama 1)

Taja yake inatoa moshi mwingi.

_____
_____
_____

r) Onyesha virai katika sentensi ifuatayo na ueleze ni vya aina gani.( alama 2)

Wanafunzi wazuri wanapenda kusoma.

_____
_____
_____
_____

s) Tunga sentensi ukitumia tanakali ya sauti ifuatayo “tifu”.(alama 1)

_____
_____

t) Sahihisha sentensi ifuatayo.( alama 2)

Sukari zilizowekwa mfukoni zimenyeshewa.

_____

u) Eleza matumizi ya “ji”katika sentensi hii.(alama2)

Mwimbaji amejikata jidole lake.

_____
_____
_____

v) Andika visawe viwili vya neno”vurumai”.(alama 2)

_____
_____
_____
_____

**ISIMU JAMII (ALAMA 10)**

Nipe chai,andazi mbili na egg moja…

a) Taja sajili inayorejelewa na maneno haya.( alama 2)

_____
_____

b) Fafanua sifa nne zinazohusishwa na sajili hii.( alama 8)

_____
_____
_____
_____

KENYA CERTIFICATE OF SECONDARY EDUCATION

# KISWAHILI PAPER 3 FORM 3

# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**Maagizo**

**(i)** *Andika jina lako, nambari ya usajili, mkondo, sahihi na tarehe katika nafasi ulizoachiwa hapo juu.*

*(ii) Jibu maswali* ***Matatu*** *pekee.*

*(iii) Maswali yote ni sharti yaandikwe kwa lugha ya Kiswahili.*

(iv) *Fanya Maswali Yote*

**Kwa matumizi ya mtahini pekee**

| SWALI | UPEO | ALAMA |
|---|---|---|
| 1 | 20 | |
| 2 | 20 | |
| 3 | 20 | |
| JUMLA | 60 | |

**SWALI LA KWANZA: USHAIRI. (ALAMA 20)**

Wanafunzi sikieni, niwape wangu wasia
Mkiwa mtihanini, muweze kuzingatia
Nataka mtambueni, msije mkajutia
Kwa bidii durusuni, mtihani mfaulu

Kufanikiwa kitaka, watii nao walimu
Sielekeze dhihaka, kwao wao ni muhimu
Kwauliza mwahitajika, maswali yalo magumu
Kwa bidii durusuni, mtihani mfaulu

Mrauke na mapema, msome kwa tumaini
Msije nyie kukwama, kwenye wenu mtihani
Muweze rudia vyema, mlofunzwa awalini
Kwa bidii durusuni, mtihani mfaulu

Umoja ni nguvuni, mwafaa mfahamuni
Jiunge na makundini, masomo mujadilini
Na lile lilo gizani, takuja kulionani
Kwa bidii durusuni, mtihani mfaulu

Ilopita mitihani, Kwa chudi irudieni
Mpate na taswirani, ya ule ulo mwishoni
Ya ziada kazini, ifanye sizembeeni
Kwa bidii durusuni, mtihani mfaulu

Mwelewe sana vyema, yaliyo mtaalani
Msije mkandama, cha mtihani chumbani
Mgongeni ndipo vyema, sije mkapoteani
Kwa bidii durusuni, mtihani mfaulu

Mkiwa madarasani, kelele muepukeni
Sije mkapotezani, muda wenu masomoni
Neneni na vitabu, vitakuja walipani
Kwa bidii durusuni, mtihani mfaulu

Michezo sipuuzeni, kwayo nyie burudika
Nishati ntapatani, kifurahia michezo
Mazoezi eleweni, ni muhimu kwa ubonge
Kwa bidii durusuni, mtihani mfaulu

Nimefika kaditama, kuweleza ya moyoni
Yafwateni hayo mema, mfaulu mtihani
Ni upuzi msiseme, muda wangu potezeni
Kwa bidii durusuni, mtihani mfaulu.

**Maswali**

a) Eleza mawaidha yanayotolewa Kwa wanafunzi kuhusu namna ya kujitayarisha vyema kwa mtihani.(alama5)
b) Eleza umbo la shairi hili.(alama 4)
c) Eleza mbinu tatu zilizotumiwa katika shairi hili ili kukidhi mahitaji ya kiarudhi/ uhuru wa mshairi.( alama 3)
d) Taja na utoe mfano wa tamathali moja ya usemi iliyotumiwa katika shairi hili.( alama1)
e) Eleza toni ya shairi hili.( alama 1)
f) Andika ubeti wa pili kwa lugha ya nathari.( alama 4)
g) Eleza maana ya maneno yafuatayo kama yalivyotumiwa katika shairi.( alama2)
    i. Dhihaka
    ii. Kaditama

**SWALI LA PILI: FASIHI SIMULIZI( ALAMA 20)**

**Soma kifungu hiki kisha ujibu maswali**

Lala mtoto lala*2
Mama atakuja lala
Alienda sokoni lala
Aje na ndizi lala
Na maziwa ya motto lala
Andes lake aciduria
Pia name ya kukupa
Kukupa kwangu wewe kinofu
Kipenzi mwana lala*2

Tija laja*2

Basi kipenzi lala

Baba atakuja lala

Aje na mkate lala

Mkate wa mtoto lala

Tanona ja ndovu lala

**Maswali**

a) Huku ukithibitisha jibu lako eleza huu ni wimbo wa aina gani? (alama 2)
b) Eleza sifa za wimbo wa aina hii.( alama 5)
c) Onyesha umuhimu wa wimbo huu.( alama 4)
d) Eleza ni shughuli gani za kiuchumi ambazo jamii hii inajihusisha nayo katika wimbo huu.( alama2)
e) Tambua mbinu zozote mbili za lugha zilizotumika katika wimbo huu.( alama 2)
f) Wimbo huu una wahusika wangapi? Wataje. ( alama 2)
g) Taja vitendo viwili vinavyoambatana na uimbaji wa aina hii ya wimbo.( alama 3)

**SWALI LA TATU:TAMTHILIA**

***Timothy Arege* : BEMBEA YA MAISHA (ALAMA 20)**

"**Asiyejua safari ya Sara na Yona akielezwa huiona kama f**filamu".

a) Eleza muktadha wa dondoo hili.( alama 4)
b) Bainisha matumizi mawili ya mbinu za lugha zilizotumika katika dondoo hili.( alama 2)
c) Eleza sifa za msemewa.( alama 4)
d) Eleza umuhimu wa msemaji.( alama 5)
e) Eleza sifa za Yona kama zinavyojitokeza kwenye tamthiliya ya Bembea ya maisha.( alama 5)

# KENYA CERTIFICATE OF SECONDARY EDUCATION
# MATHEMATICS PAPER 1 FORM 3
# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**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)

$$3\sqrt{\frac{0.119\times 0.256}{0.068\times 7}}$$

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)

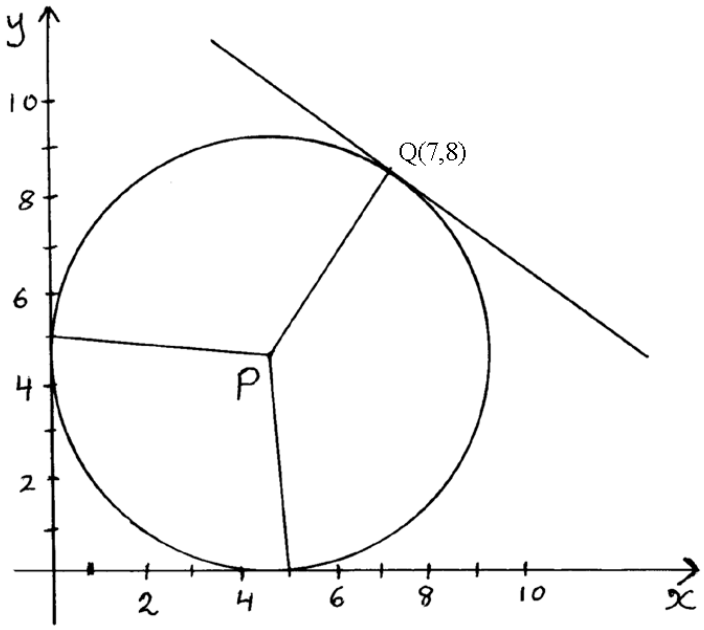
3. From a point A, the angle of elevation of top of a watch tower is $20^0$.From another point which is 25m from the base of the tower, the angle of elevation of the top of the tower is $26^0$.Giving your answer to three decimal places, determine the height of the tower and hence calculate the distance 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

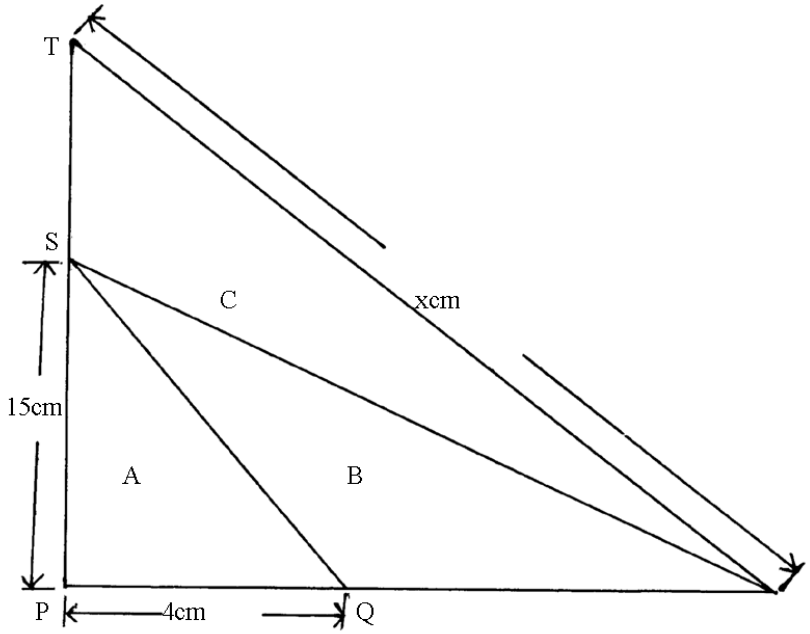



(a) Write down in terms of x and y the equation of the circle in the form $ax^2+by^2+cx+dy+e=0$ where a,b,c,d and e are constants. (1mk)

(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)

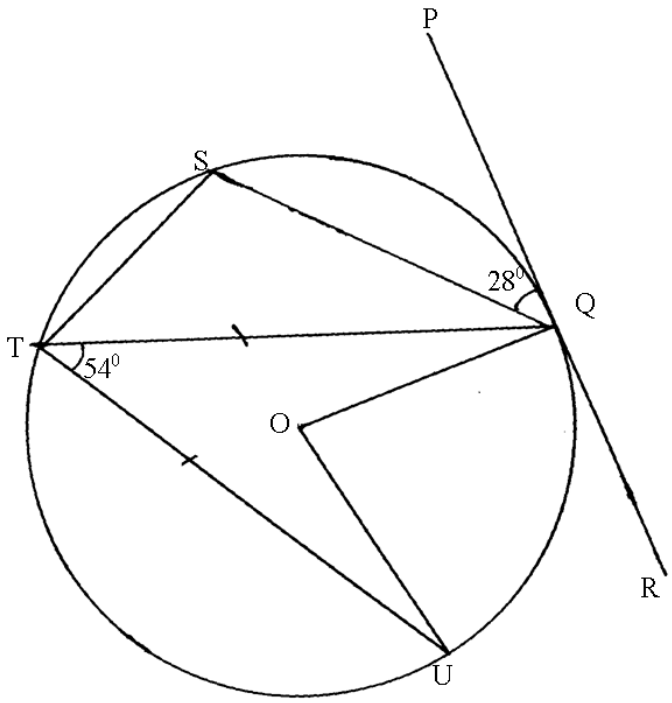
(b) Find the probability that

(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)

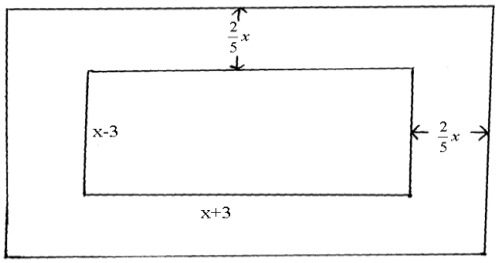
(b) Angle TQU. (2mks)

(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)

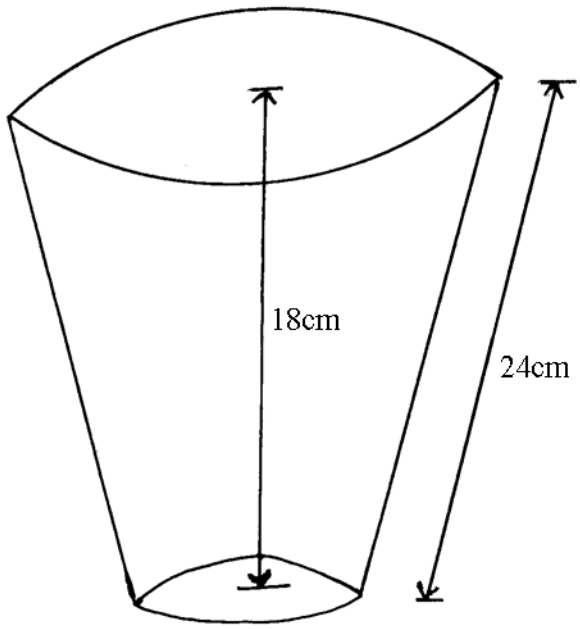
(ii) The time taken during the retardation (2mks)

(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

**KENYA CERTIFICATE OF SECONDARY EDUCATION**

# MATHEMATICS PAPER 2 FORM 3

# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**INSTRUCTIONS TO CANDIDATES:**

- *Write **your name** and **admission number** in the spaces provided above*
- *This paper contains **two sections;** Section **I** and section **II.***
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- *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**

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 $\theta$ 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)

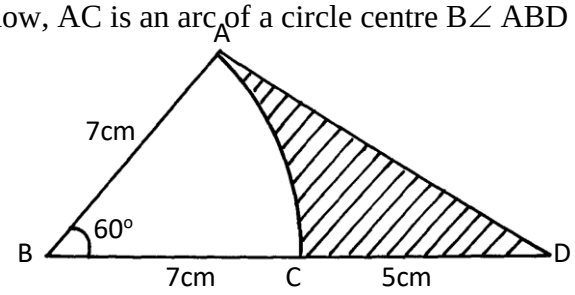
6. A radio costing kshs. 1240 is marked to sell at a price calculated to give a profit of 40 %. What will be its selling price in sale when 25% is taken off the marked price? (3mks)

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 108$cm^2$ 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∠ ABD = 60º, 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:

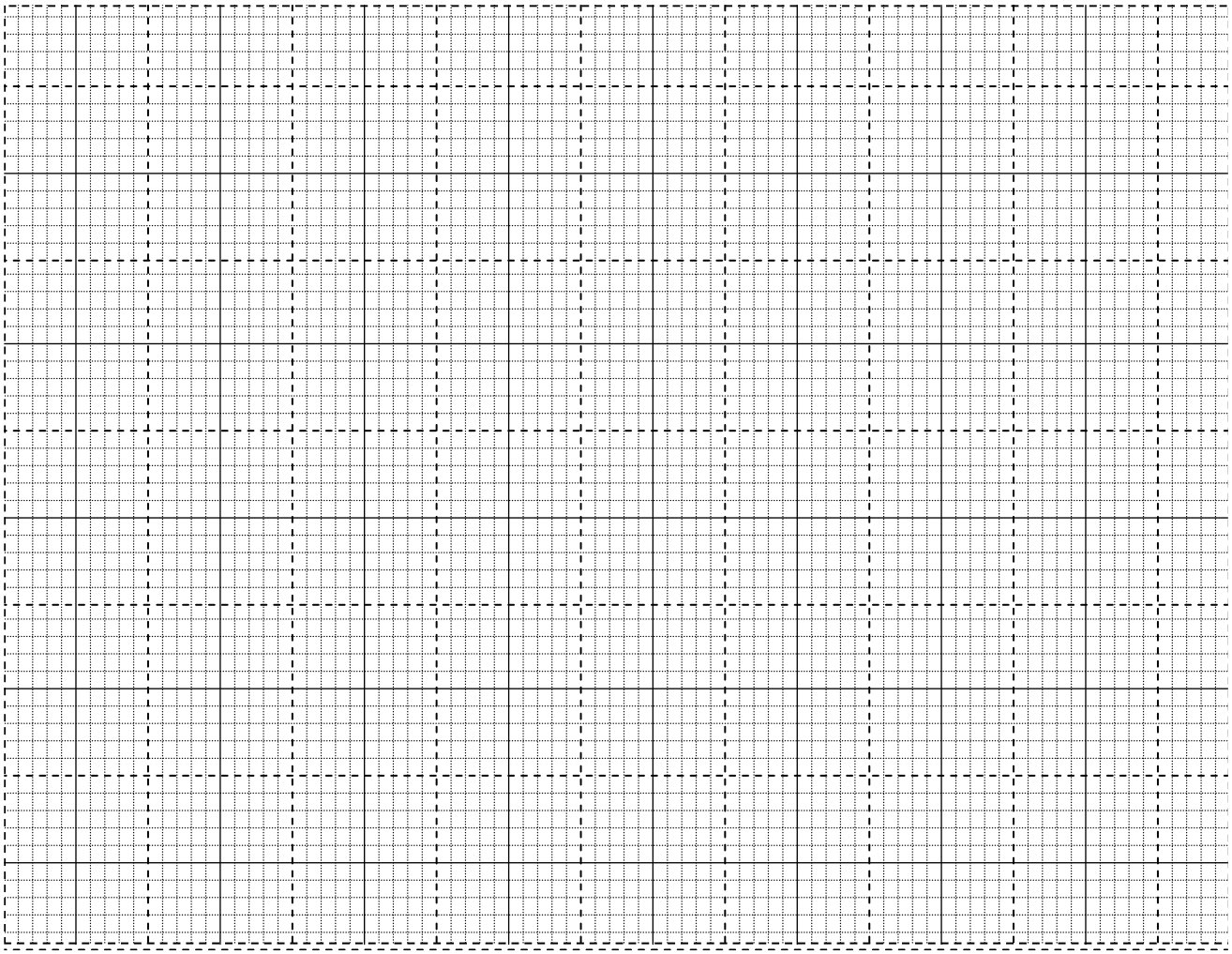
i) Reflection in the line y = -x to $A^1B^1C^1$

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

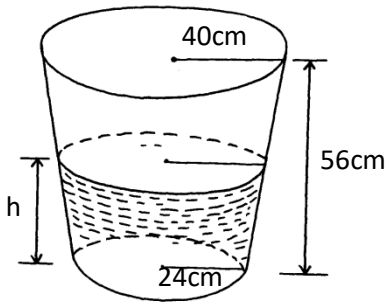
a) Show the positions of the planes after 90 min. (6mks)

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.

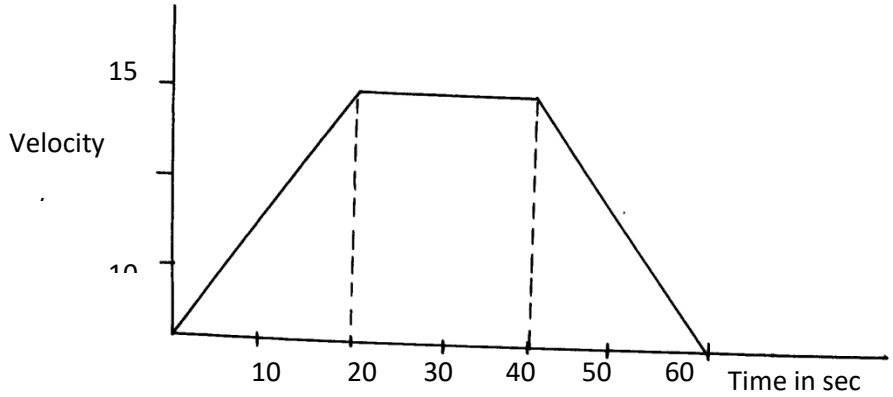
a) Construct Δ ABC such that AB = 6cm AC= 8.5 cm and ∠ BAC = $120^{o}$ (3mks)

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)

KENYA CERTIFICATE OF SECONDARY EDUCATION

# PHYSICS PAPER 1 FORM 3
# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**INSTRUCTIONS TO CANDIDATES**

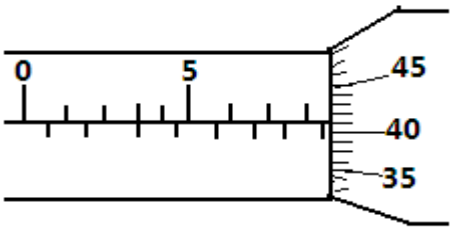
- *Write your name and index number in the spaces provided above*
- *Sign and write the date of the examination in the spaces provided*
- *Attempt **ALL** questions in sections A and B.*
- *All your answers must be written in the spaces provided in this question paper.*
- *All working must be clearly shown*
- *Non programmable silent electronic calculators and KNEC mathematics table may be used except where stated otherwise*

**For Examiner's Use Only**

| Section | Question | Maximum Score | Candidates' Score |
|---|---|---|---|
| A | Q 1 – Q 15 | 25 | |
| B | Q 16 | 12 | |
| | Q17 | 13 | |
| | Q18 | 14 | |
| | Q19 | 16 | |
| | | 80 | |

**SECTION A (25 MARKS)** ***(Answer ALL the questions in the spaces provided)***

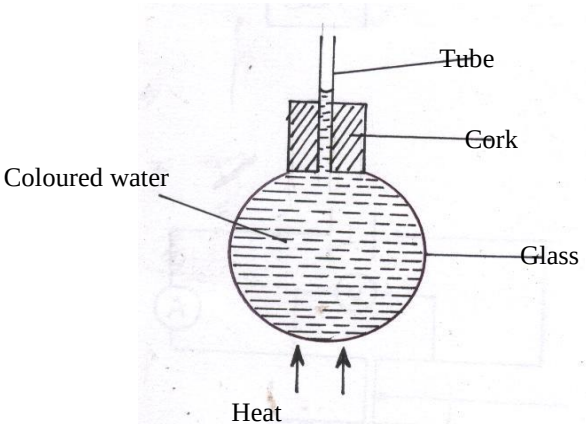
1. What is the reading on the micrometer screw gauge shown below with an error of +0.5mm? (3mk)




2. In a ball and ring experiment, the ball goes through the rings at room temperature. When it is heated it does not go through the ring, but when left on the ring for some time, it goes through. Explain this observation (2mks)

3. In the study of free fall, it is assumed that the force F acting on a given body of mass, m, is gravitational, given by F = ma. State **two** other forces that act on the same body (2mk)

4. In the set up shown below, it is observed that the level of the water initially drops before starting to rise. Explain this observation (2mks)



5. Distinguish between **speed** and **velocity.** (2mks)

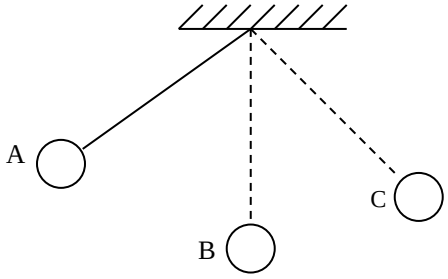
6. State how the pressure in a moving fluid varies with speed of the fluid. (1mk)

7. Explain how a person is able to drink a soda using a drinking straw. (2mks)

8. Give a reason why air is not commonly used as the fluid in a hydraulic lift. (1mk)

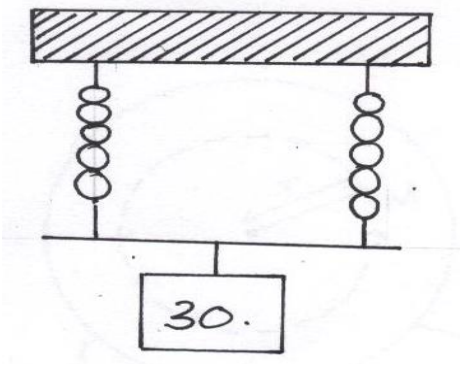
9. State **one** assumption made when estimating the size of an oil molecule in the oil drop experiment. (1mk)

10. The figure below shows a swinging pendulum.




State the energy conservation taking place as the pendulum moves from A to B and B to C (2mks)

11. The identical springs of spring constant 3N/cm are used to support a load of 30N as shown.




Determine the extension on each spring (3mks)

12. In a vacuum flask, the walls enclosing the vacuum are silvered on the inside. State the reason for this. (1mk)

13. State the features that govern the strength of a spiral spring of a given material. (2mks)

14. Sketch velocity-time graph of a body moving down a viscous fluid. (1mk)

**SECTION B (55 MARKS)**

***(Answer ALL the questions in the spaces provided)***

15. (a) State the principle of conservation of linear momentum. (1mk)

(b) Calculate the recoil velocity of a gun of mass 0.4kg which fires a bullet of mass 0.0045kg at a velocity of $400ms^{-1}$ (3mks)

(i) State **two** factors which affect frictional force of a body (2mks)

(ii) Suggest **three** ways in which friction can be minimized (3mks)

(iii) State **three** advantages of friction (3mks)

16.

a) Fig. 8 shows a cylindrical can filled with a liquid of density 0.8 $gcm^{-3}$. A hole of diameter 2.0 cm is drilled at a depth of 2.8 m from the top of the can.

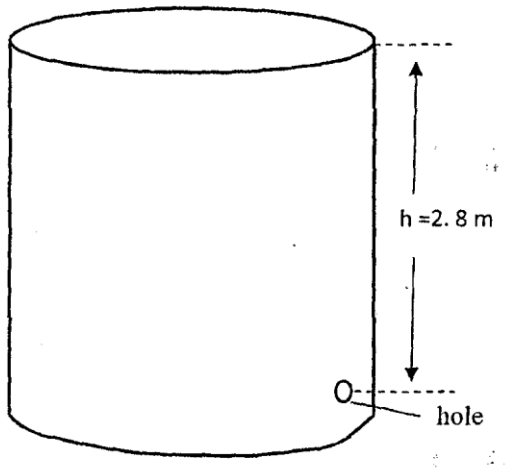


Fig. 8

Determine:

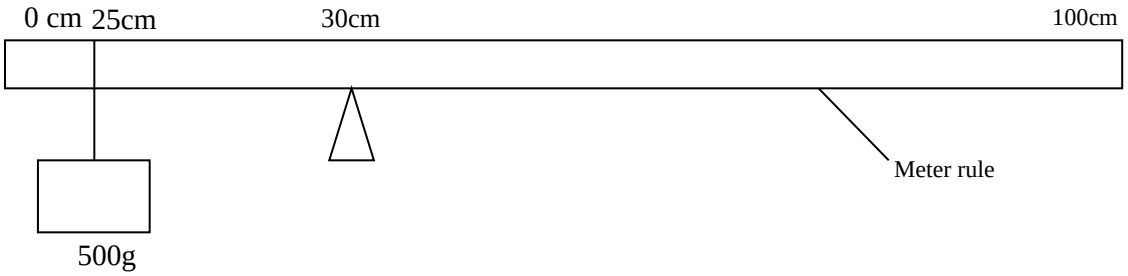
i. The cross-sectional area of the hole. (2mks)

ii. The maximum pressure exerted by the liquid at the hole. (2mks)

iii. The maximum force exerted on a jet of liquid through the hole. (2mks)

b) State the principle of moments (1mk)

c) A metre rule whose centre of gravity is at the 50cm mark balances at the 35cm mark when a mass of 500g is placed at the 25cm mark as shown in the figure 8 below




i. Determine the mass of the meter rule (3 mks)

ii. With the metre rule remaining on the knife-edge at the 30 cm mark, a mass of 125g is suspended from the 70 cm mark. The mass of 500g is moved until the rule is balanced. Determine the new position of the 500g mass (3 mks)

17.

a) For a body moving with a constant acceleration, a , show that:

i. **V = u + at** where **v** and **u** are the final and initial velocities respectively while **t** is the time taken (2mks)

ii. **S = ut + ½at²** where **S** is the distance covered (2mks)

iii. A car of mass 1200kg moving at 90km/h is brought to **rest** over a distance of 20m. Calculate the breaking force (3mks)

b) An object is projected vertically upwards with a velocity of 200m/s. Calculate:

i. Its velocity after 5 seconds (2mks)

ii. The distance covered in the first 8 seconds (2mks)

iii. The maximum height reached (2mks)

c) The figure below shows a uniform cardboard in the shape of a parallelogram.

Locate the centre of gravity of the cardboard. (1 mk)

19 (a) Distinguish between elastic and inelastic collision. (2mark)

(b)A striker kicks a ball of mass 200g initially at rest with a force of 78N. Given that the foot was in contact with the ball for 0.30s; determine the take-off velocity of the ball. (3marks)

(c) A high jumper usually lands on thick soft mattress. Explain how the mattress helps in reducing the force of impact. (2marks)

(d) A ball is thrown horizontally from the top of a vertical tower of height 75m and strikes the ground at a point 80m from the bottom of the tower. Determine the:

(i)Time taken by the ball to hit the ground. (*Acceleration due to gravity=10m/s$^2$)*
(3marks)

(ii) Initial horizontal velocity of the ball. (2marks)

e). i) A body is initially in motion. If no external force acts on the body, describe the subsequent motion.
(1 mark)

ii) A force of 6N acts on a 2kg trolley and accelerates at 2m/s$^2$. Calculate the retarding force acting on the trolley. (3marks)

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# PHYSICS PAPER 2 FORM 3
# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**INSTRUCTIONS TO CANDIDATES**

1. Write your name and index number in the spaces provided at the top of this page.
2. Sign and write the date of examination in the spaces provided above.
3. This paper consists of TWO sections: A and B
4. Answer ALL the questions in the sections A and B in the spaces provided.
5. ALL working MUST be clearly shown.
6. Non-programmable silent electronic calculators and KNEC mathematical tables may be used.

**FOR EXAMINERS USE ONLY.**

| SECTION | QUESTIONS | MAXIMUM SCORE | CANDIDATE' S SCORE |
|---|---|---|---|
| A | 1 – 13 | 25 | |
| B | 14 | 12 | |
| | 15 | 11 | |
| | 16 | 12 | |
| | 17 | 08 | |
| | 19 | 11 | |
| **Total Score** | | **80** | |

*This paper consists of 12 printed pages.*
*Candidates should check the question paper to ensure that all pages are printed as indicated and that no questions are missing.*

**Section A (25 marks)**

1. Give one difference between luminous and non-luminous sources of light. (1mk)

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2. When a negatively charged rod is brought near the cap of a leaf electroscope, the leaf rises.

   Explain this observation, (2mks)

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3. **Figure 2** represents a displacement-time graph for a wave.

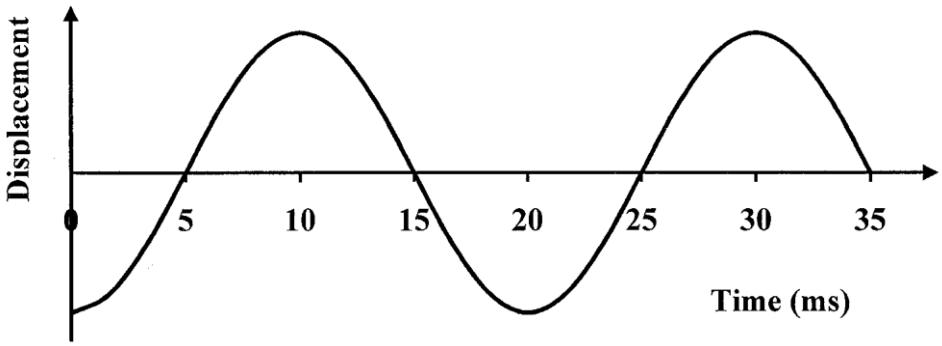


Figure 2

Determine the frequency of the wave. (2mks)

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4. ***State*** the conditions necessary for a wave incident on a slit to be diffracted. (2mrks)

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5. In an experiment to determine the focal length of a concave mirror, magnification M was determined for various image distances v. Figure 3 shows a graph of magnification M against image distance v for the results from the experiment.

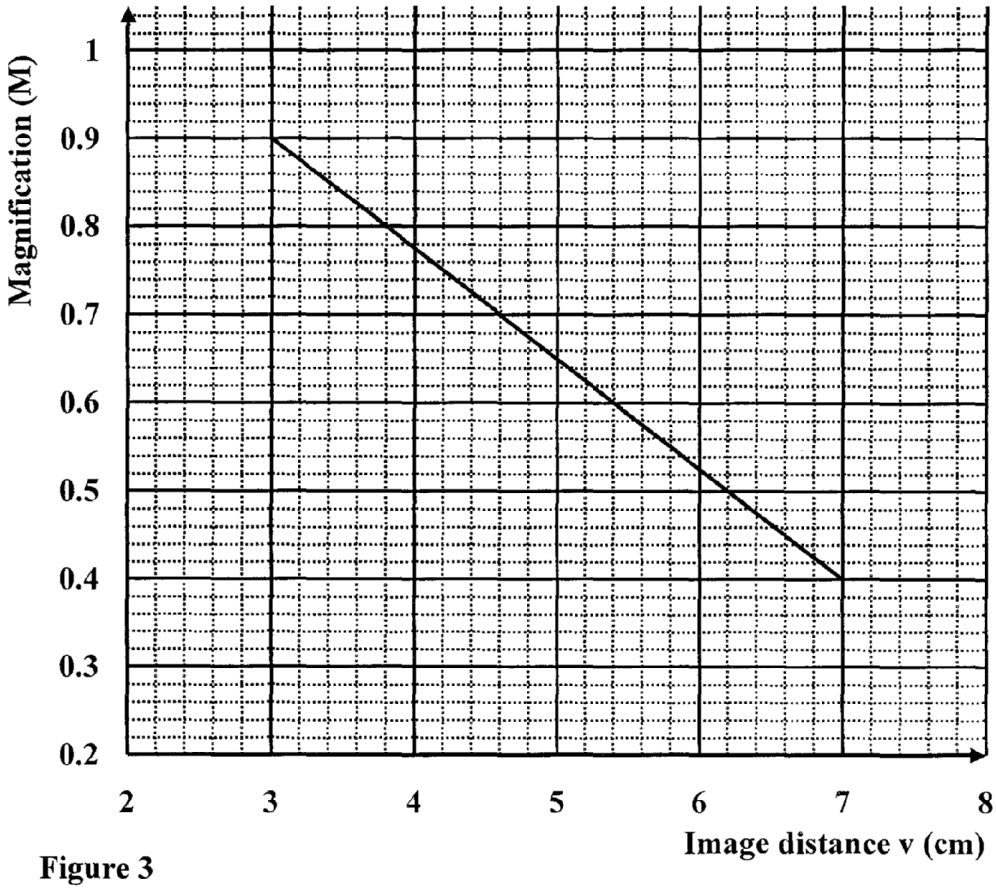


**Figure 3**

Given that M = 1 $\frac{v}{f}$, determine the focal length f of the mirror. (3mks)

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6. A hair dryer is rated 2500W, 240V. Determine its resistance. (2mks)

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7. **Figure 4** shows the magnetic field pattern round a current-carrying conductor. Indicate on the conductor the direction of the current. (1mk)

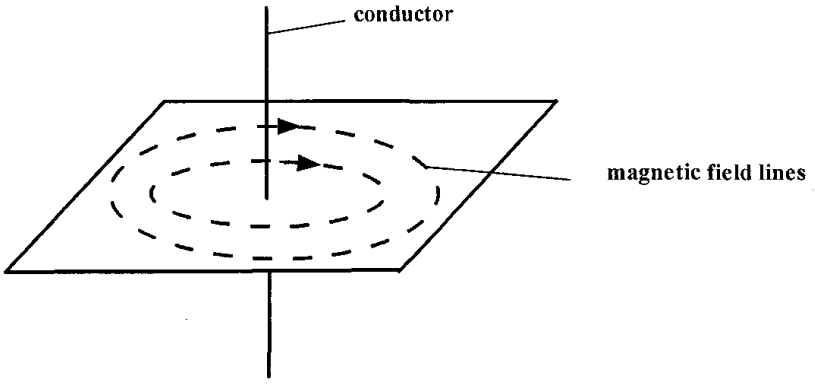

Figure 4

8. Why is repulsion the sure test for a magnet? (1mk)

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9. **Figure 5** shows a ray of light incident on an air bubble which is inside water,

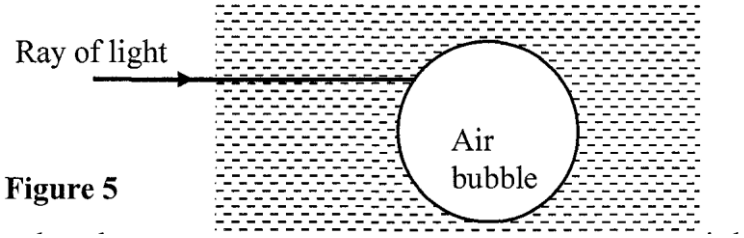


**Figure 5**

Complete the ray to show the path it follows through the air bubble. (1mk)

10. Explain how polarization of a cell increases the cell' s internal resistance.

(2mks)

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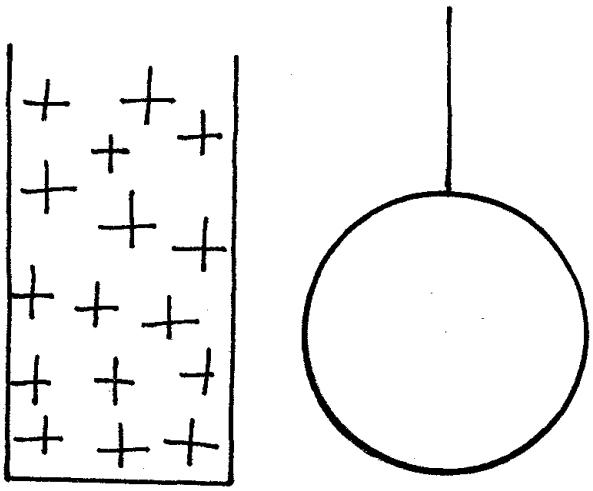
11.

1. A positively charged material was brought close to an insulated metallic ball as shown in Fig 4. State and explain the distribution of charge in the ball (2mks)

**Fig. 4**



Explain why sound cannot be heard from far when one shouts in a forest (1mk)

12. Using the variation of resistance with temperature, differentiate between a conductor and a semiconductor. (1mk)

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13. A cell of internal resistance O.5 Ω is in a circuit containing a 10 Ω resistor. A current of 2A flows in the circuit. Determine the emf of the cell. (2mks)

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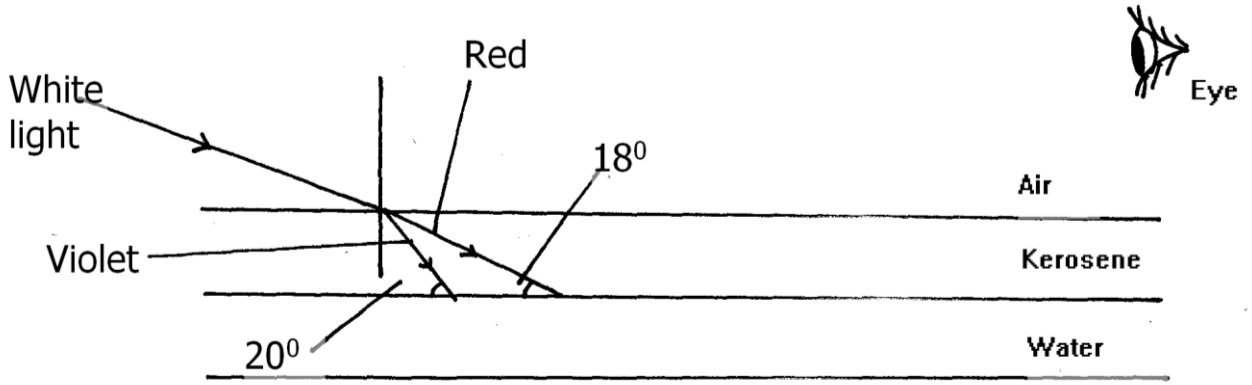
**Section B (55 marks)**

**14.** (a) (i) State Snell's law of refraction of light (1mk)

(ii) Give two advantages of totally internally reflecting prisms over plane mirrors. (2mks)

(b) A ray of light is incident on a kerosene water interfaces as shown in figure 7

Fig. 7




Given that the refractive index of water and kerosene are 1.33 and 1.44 respectively, Determine

(i) the refractive index for the kerosene – water interface (3mks)

(ii) determine and show on the figure the path of the rays of light between the Kerosene-water surface (3mks)

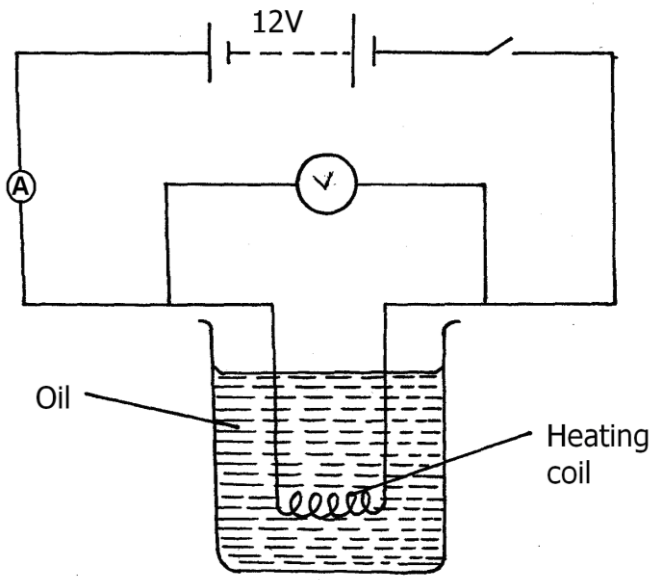
(iii) Why does the colours of the light separate at the kerosene layer. (1mk)

(iv) State and explain the observation that the eye above the two surfaces would see (2mks)

15. (a) State Ohm's law (1mk)

(b) The figure 8 below shows a circuit with a coil used to warm oil in a beaker.

**Fig. 8**




(i) Explain how heat is produced in the coil (2mks)

(ii) Given that the reading of the ammeter is 2.4A determine the resistance of the coil. (3mks)

(iii) How much heat is produced in the coil in a minute? (3mks)

(iv) Give two changes that can be made in the set up in order to produce more heat per minute. (2mks)

16. (a) Define capacitance of a capacitor (1mk)

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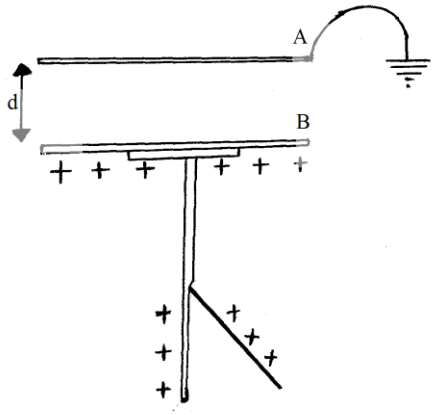
The figure below shows a charged electroscope two aluminium plates A and B arranged a shown




State and explain the observations made when:

(i) d is reduced (2mks)

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(ii) the plate A is more horizontally (2mks)

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(iii) a sheet of polythene is placed between A and B (2mks)

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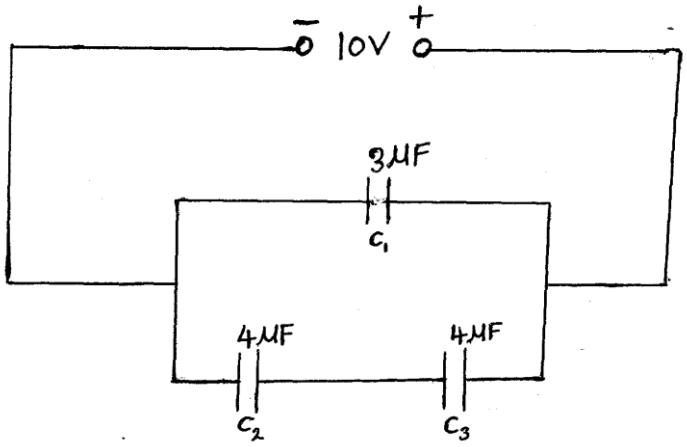
(b) Three capacitors are connected to a 10V battery as shown below.

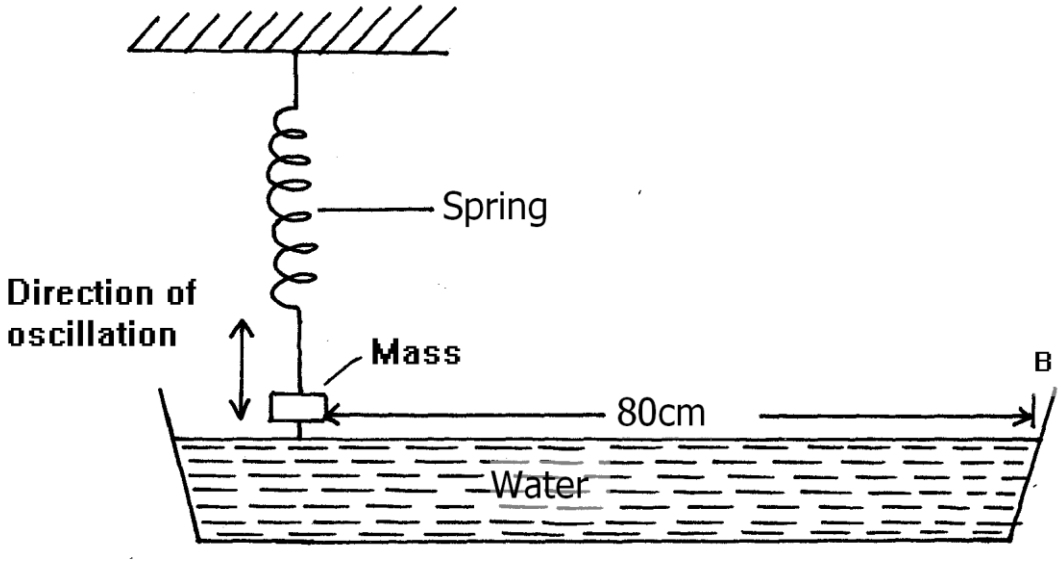



(i) Calculate the combined capacitance (3mks)

(ii) What is the charge on the 3 $\mu$ F capacitor (3mks)

17. Students set up a mass attached to spring such that when it oscillates it taps on water surface in a wide shallow tank.

**Fig. 6**




The students measured time for 20 oscillations and found that the mass takes 36 seconds.

(i) Determine the periodic time of the mass (2mks)

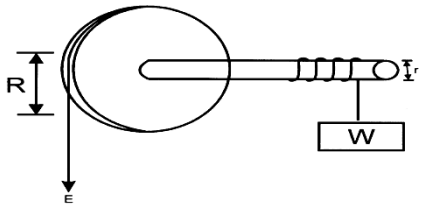
(ii) Calculate the frequency of the waves produced on the water surface (3mks)

(iii) Given that the student counted four ripples between the mass and end B of the tank, Determine the speed of the waves. (3mks)

18.

a. A machine is a device that enables work to be done more easily and conveniently. State any two ways in which a machine makes work easier. (2 marks)

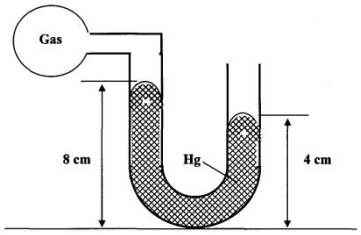
b. Figure 7 shows a wheel and axle being used to raise a load W by applying an effort E. The radius of the wheel is R and of the axle is r.




i) Show that the velocity ratio (V.R) of this machine is given by $\frac{R}{r}$ (3 Marks)

ii) Given that r = 5cm and R = 50cm, determine the effort required to raise a load of 200N if the efficiency of the machine is 90%. (3 mks)

c. An airtight flask containing a gas is connected to a mercury manometer. The levels of mercury in the two limbs of the manometer are as shown in the diagram below.




Calculate the pressure of the gas (Density of mercury = $1.36 \times 10^4$ kg/m$^3$ and atmospheric pressure = $1.0 \times 10^5$ N/m$^2$) (3mks)

d. State one way of making the surface tension of a liquid stronger. (1mk)

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# PHYSICS CONFIDENTIAL FORM 3
# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**INSTRUCTION TO THE PHYSICS TEACHER:**

**The physics teacher should plan with school management to ensure availability of the following apparatus for the learner to carry-out this practical examination.**

**QUESTION ONE:**

**Each candidate to be provided with the following apparatus:**
- One dry cell (size 'D')
- A cell holder
- A volt-meter (0-3V)
- An ammeter (0-1A)
- A switch
- Amounted resistance 'nichrome' wire labelled AB (diameter of 0.28mm)

**QUESTION TWO**

**Each candidate to be provided with the following apparatus:**
- a metre rule
- 3 optical pins
- 2 small wooden blocks (for holding the pins as shown in the figure 1 below)

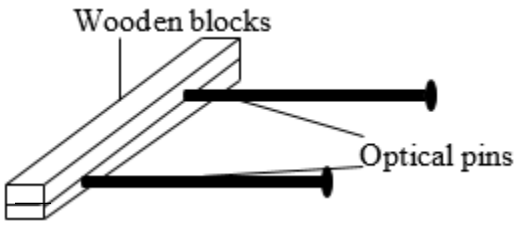


***Figure 1***

- a stop watch
- a stand, a boss and clamp
- a piece of sello-tape (about 30 cm long)

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# PHYSICS PAPER 3 FORM 3

# MIDTERM 2 SET 1 2023 EXAM

NAME:_____STREAM_____DATE:_____

**INSTRUCTIONS:**

- Answer all the questions in this paper
- You are supposed to spend the first 15 minutes of the $2\frac{1}{2}$ hours allowed for this paper reading the whole paper carefully before starting your work.
- Marks are given for clear record of the observations made, their suitability and accuracy and the use made of them.
- Candidates are advised to record observations as soon as they are made
- Mathematical table and electronic calculators may be used.
- **The earth's gravitational pull, $g = 10Nkg^{-1}$**

**For Examiner's use only:**

| QUESTION | TOTAL MARKS | CANDIDATE'S SCORE |
|---|---|---|
| 1 | **20** | |
| 2 | **20** | |
| GRAND TOTAL | **40** | |

***This paper consists of 7 printed pages. Candidates should check the question paper to ensure that all the pages are printed as indicated and no questions are missing.***

**QUESTION 1**

**You are provided with the following apparatus:**

- A cell holder
- A volt-meter (0-3V)
- An ammeter (0-1A)
- A switch
- Amounted resistance wire labelled AB

a) Set up the apparatus as shown in the circuit below, figure 1

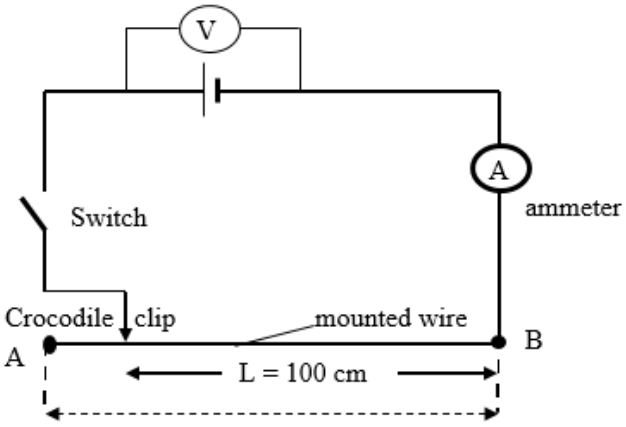



**Figure 1**

b) While the switch is open, record the voltmeter reading, $V_0$

$V_0 =$ ..... (1mark)

c) Put on the switch. While the crocodile clip is at A (i.e. L = 100 cm) take the volt-meter reading (V) and the ammeter reading (I). Record V and I in the table 1 below.

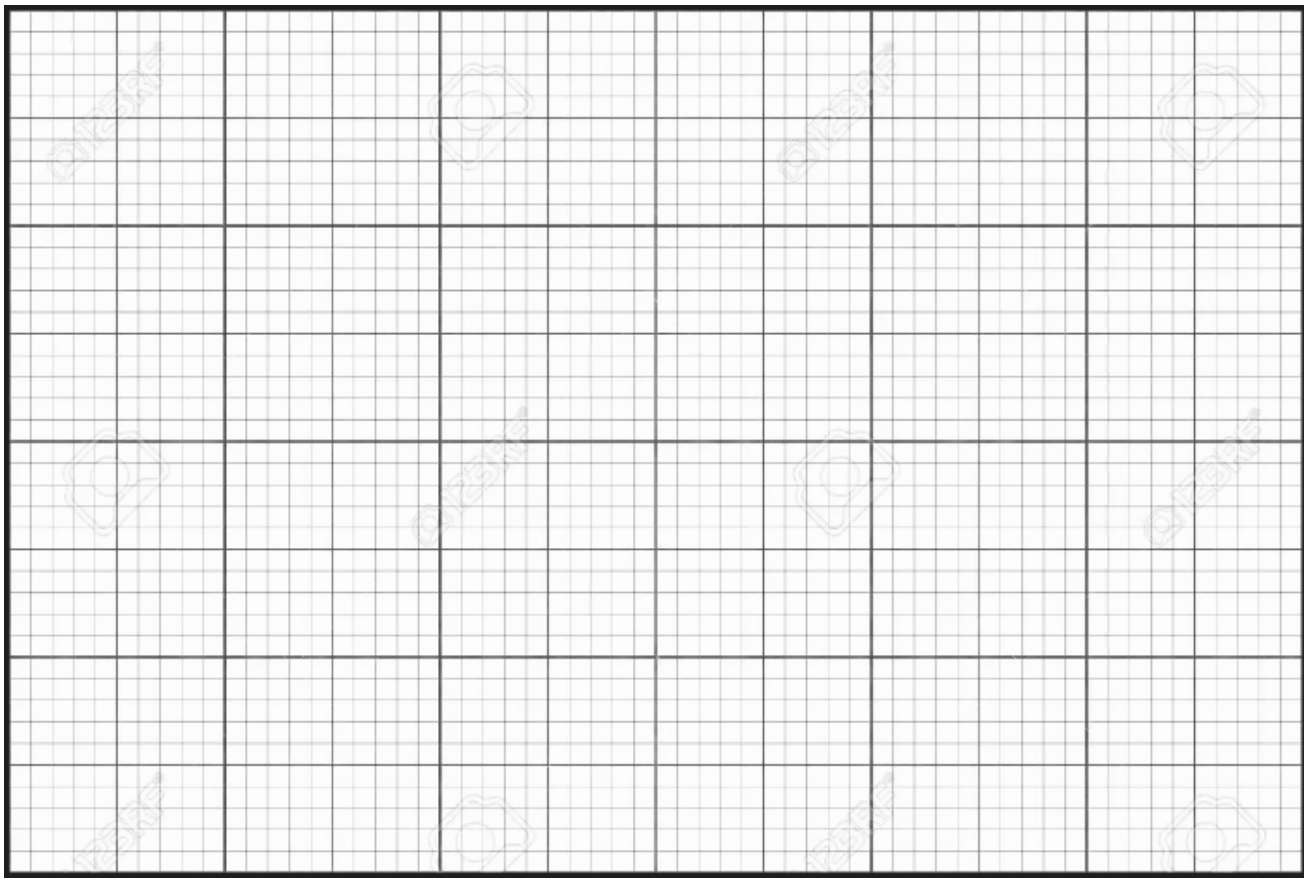
***Table 1***

| **Length, *L* (cm)** | **100** | **80** | **60** | **40** | **20** | **0** |
|---|---|---|---|---|---|---|
| Voltage (V) | | | | | | |
| Current, I (A) | | | | | | |

(8marks)

d) Repeat the procedure in (c) above for the lengths shown and complete the table 1 above.

e) Plot a graph of voltage (Y-axis) against current (X-axis) (5marks)



f) Determine the slope of the graph
(3marks)

g) The voltage and current are related by the equation: $\boldsymbol{V = V_0 - b.I}$. Determine the value of b (2marks)

h) What physical quantity does the slope of the graph represent? (1mark)

**QUESTION TWO**

You are provided with the following:

- a metre rule
- 3 optical pins
- 2 small wooden blocks
- a stop watch
- a stand, a boss and clamp
- a piece of sello-tape

**Proceed as follows**:

a) Using the two wooden blocks, clamp two optical pins about 4 cm apart in the stand so that they project out of the blocks in a horizontal plane.
b) Using a piece of sellotape, attach the third optical pin across the metre rule at a distance x = 10 cm from the 50 cm mark. Now suspend the metre rule on the two clamped pins so that it can swing freely in a vertical plan with the third pin as the axis. (See **figure 2**)

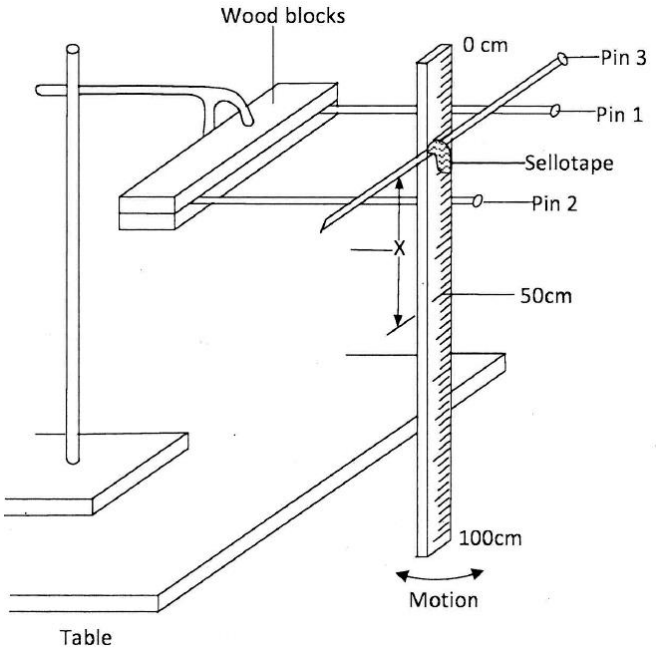



*Figure 2*

c) Displace the lower end of the metre rule slightly and let it oscillate as shown in the **figure 2**. Measure and record in table 2 the time t (s) for 20 oscillations.

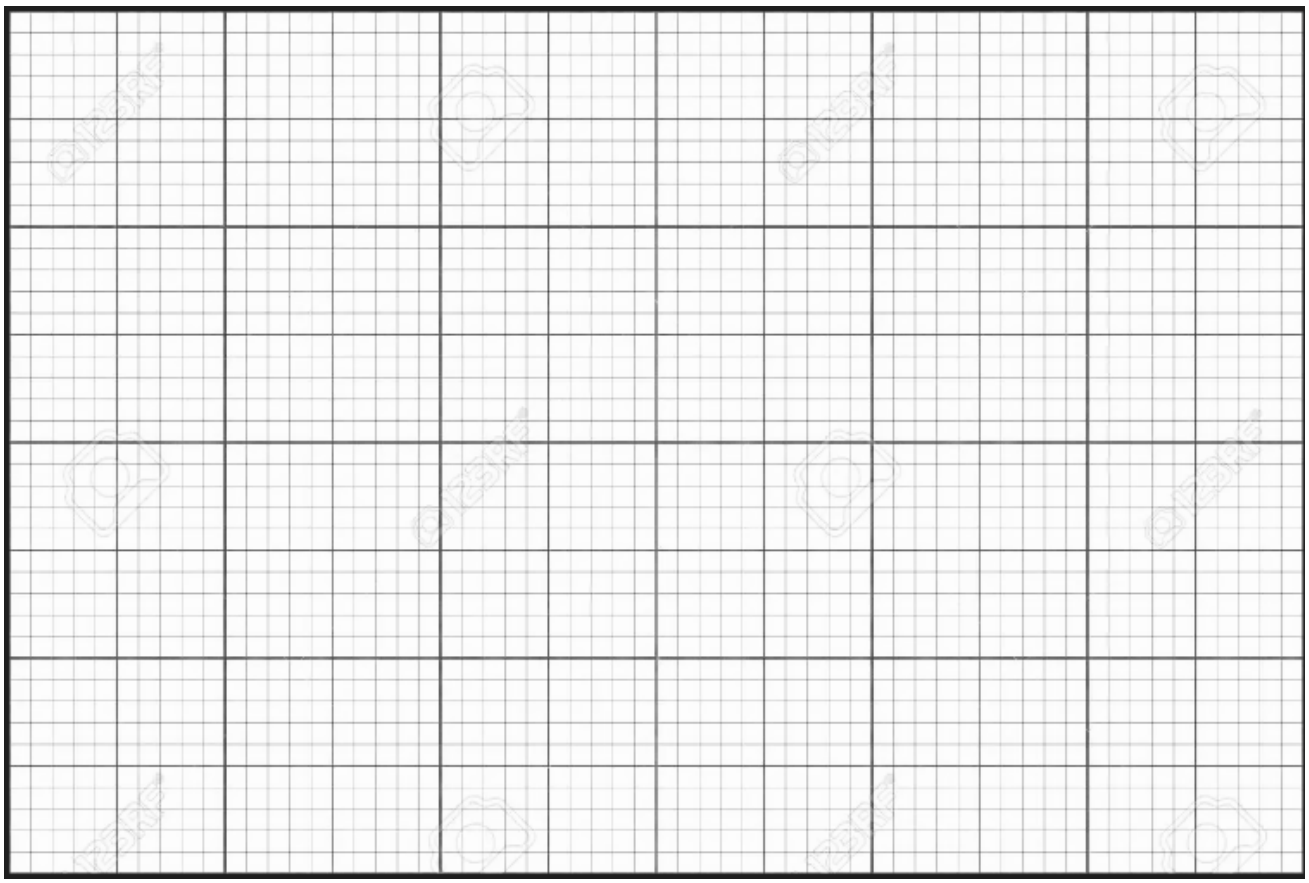
d) Repeat the procedure in (b) and (c) for the values of x shown in table 2.

**e)** For each value of x shown in the table, determine the period T(s), and complete the table. (The period T is the time for one complete oscillation).

| Distance X(cm) | 10 | 14 | 18 | 22 | 26 | 30 |
|---|---|---|---|---|---|---|
| Time t (s) | | | | | | |
| Period T (s) | | | | | | |
| $T^2$. X (correct to 1 decimal place) | | | | | | |
| $X^2$ ($cm^2$) | | | | | | |

**(9 marks)**

**f)** On the grid provided, plot a graph of $T^2$. X (y-axis) against $X^2$ (5marks)



g) From the graph, determine:

i. the slope S of the graph. (3marks)

ii. The value of constant r given that: $rS = 39.5$ (3marks)

**This is the last printed page**