

FORM 3 END YEAR EXAM

THE BRAIN QUEST SERIES 2023

ALL SUBJECTS

Series 4

*A Series of End Year Assessment Questions
Covering the whole syllabus as per the curriculum
design!*

*Subjects tested: Mathematics, English, Kiswahili,
Biology, Chemistry, Physics, Geography, History,
CRE, Business Studies Agriculture, Home science &
Computer Studies*

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BRAIN QUEST SERIES FORM 3 END OF YEAR
EXAMS 2023
AGRICULTURE FORM 3
PAPER 1 (443/1)

NAME.....ADM NO.....CLASS.....

INSTRUCTIONS TO CANDIDATES

- i. This paper consists of **THREE** sections **A**, **B** and **C**
- ii. Answer **ALL** questions in **sections A** and **B** and **Any TWO** questions in **section C**
- iii. Answer to **ALL** questions **MUST** be written in this booklet.

For Examiners' Use Only

Section	Questions	Maximum Score	Candidate's Score
A	1 - 19	30	
B	20 - 24	20	
C	25 - 27	40	
TOTAL SCORE		90	

SECTION A (30 MARKS)

Answer All The Questions in The Spaces Provided.

1. Name an APPROPRIATE vegetative material in propagating the following crop(2mks)

(i) Cassava.....

(ii) Irish Potatoes

(iii) Sweet potatoes

(iv) Sisal.....

2. Give **two** importance of pruning [1mark]

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

3. Outline four factors that can make shifting cultivation practicable. (2mks)

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

4. State reasons why it is difficult to control the following weeds. (4mks)

i) Oxalis

.....
.....

ii) Couch grass

.....

.....

iii) Black jack

.....

.....

iv) . Stinging nettle

.....

.....

5. State four reasons for staking of tomatoes. (2mk)

.....

.....

.....

.....

6.a) State four factors which determines the farming systems adapted by farmers (2mks)

.....

.....

.....

.....

b) Give the two main farming systems (1mark)

7. List any two ecological factors which affect crop production in Kenya. (1mark)

.....

.....

8. State four effect of soil erosion (2 mark)

.....

.....

.....

.....

9. State four characteristics of a fertile soil. (2marks)

.....

.....

.....

.....

10. State four ways of preparing planting materials before planting. (2mark)

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11. State four deficiency symptoms of nitrogen in plants (2mks)

12. Give four farming practices carried out to achieve minimum tillage (2mks)

.....

.....

.....

.....

13. Give three classes of weeds under growth cycle (1 ½ mks)

.....

.....

.....

14. List three types of records kept by a bean farmer (1 ½ mks)

.....

.....

.....

15. Mention four importance of having a land title deed (2mks)

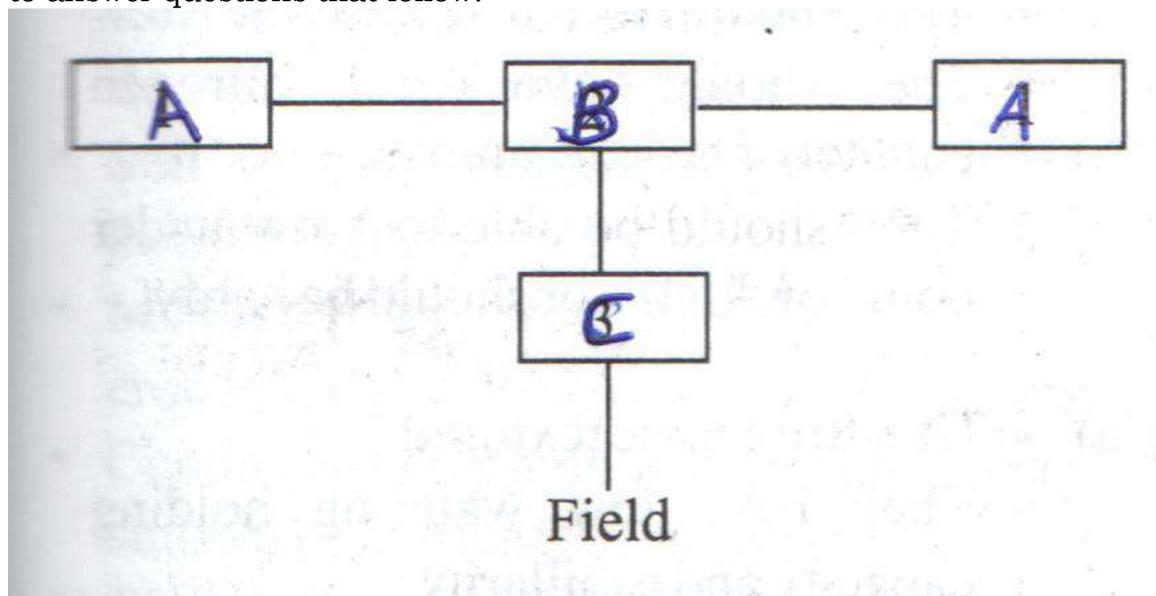
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SECTION B [20 MARKS]

Answer all questions in this section in the spaces provided.

16. The diagram below is an illustration of turning a certain type of manure. Use it to answer questions that follow.



a) Name the type of manure that is prepared using the above method. (1mk)

b) By use of arrows, show how the manure is turned. (1mk)

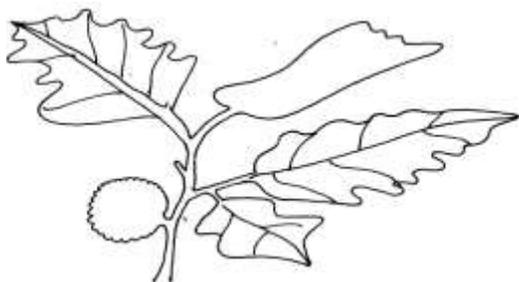
c) What is the significance of adding the following during the preparation of compost manure?

i) Adding well rotten manure. (1mk)

ii) Adding garden soil. (1mk)

.....
iii) Adding ash . (1mk)
.....

.....
17. The diagram below represents a weed.
.....



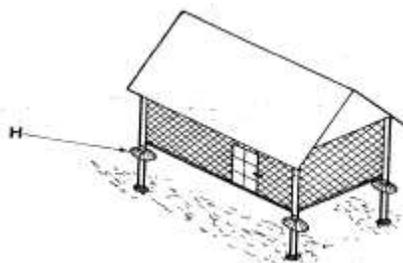
a) Identify the weed. (1mk)
.....

b) Classify the weed according to plant morphology (1mk)
.....

c) State one harmful effect of the weed on livestock. (1mk)
.....

d) Highlight the benefits of weeds (2mks)
.....
.....

18 (a) Below is a diagram of a grain store



(i) Name the part labeled H (1mark)

.....

(ii) State three maintenance practices that should be carried out on the store before storing a crop (3marks)

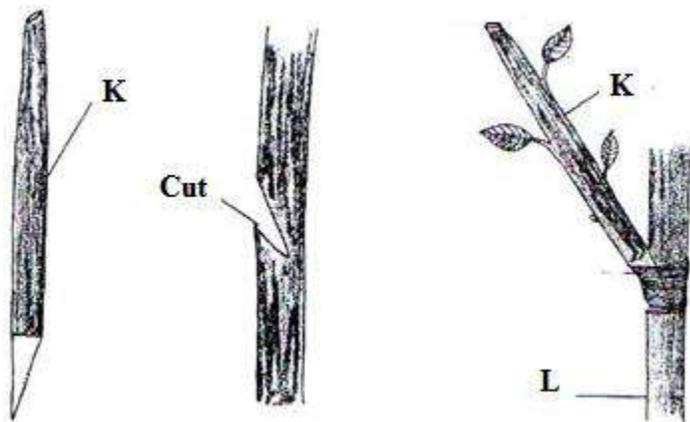
.....

.....

(iii) Why is it important to have some open spaces on the walls of the store? (1mark)

.....

19. Below is a method in crop improvement in crop production. Study it carefully and answer questions that follow;



a) Identify the practice? (1mark)

.....

b) Identify the parts labeled k and l (2mks)

K

L

c) Explain two advantages of the above practice in crop production? (2marks)

.....

.....

.....

.....

NAME..... ADM.....

CLASS.....SIGNATURE.....

SCHOOL.....

AGRICULTURE**FORM THREE PAPER TWO****DURATION: 2 HOURS**

BRAIN QUEST SERIES FORM 3 END OF YEAR EXAMS 2023

INSTRUCTIONS TO THE CANDIDATE

- (a) Write your name and the admission number in the spaces provide above
- (b) This paper consists of three sections A, B, and C
- (c) Answer all the questions in section A and B
- (d) Answer any two questions in section C

For Examiner's use only

SECTION	QUESTION	MAXIMUM SCORE	CADIDATE SCORE
A	1-18	30	
B	19-22	20	
C	Q 23	20	
	Q 24	20	
	Q 25	20	
	<u>Total score.</u>	<u>90</u>	

SECTION A (ANSWER ALL QUESTIONS IN THIS SECTION) 30 MARKS

1. State **two** maintenance's of a cold chisel (1mark)

.....
.....

2. State **four** dairy goats reared in Kenya (2marks)

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.....

3. Define the term predisposing factors (1mark)

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.....
.....

4. State **four** causes of livestock diseases (2marks)

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5. State **two** categories of livestock parasites (1marks)

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.....
.....

6. List **four** factors considered when formulating a livestock ration (2marks)

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

7. State **four** functions of water in the animals diet (2marks)

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.....
.....

8. State **two** reasons why inbreeding can be recommended in livestock (1mark)

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

9. State **four** factors considered when siting an apiary (2marks)

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.....

10. State **four** reasons for handling dairy cattle in livestock production (2marks)

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.....
.....

11.State **three** methods used in selection of a breeding stock (1 ½ marks)

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.....
.....

12.State **four** reasons for dehorning in cattle (2marks)

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.....

13. State **four** factors to be consider when siting for a pigsty in farm (2marks)

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.....
.....

14. State **four** disadvantages of live fences (2marks)

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.....

15.State **two** reasons why calves should be housed in individual pens (1mark)

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.....
.....

16. State **three** viral diseases that affect livestock (1 ½ marks)

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

17. Differentiate between Crutching and raddling (2marks)

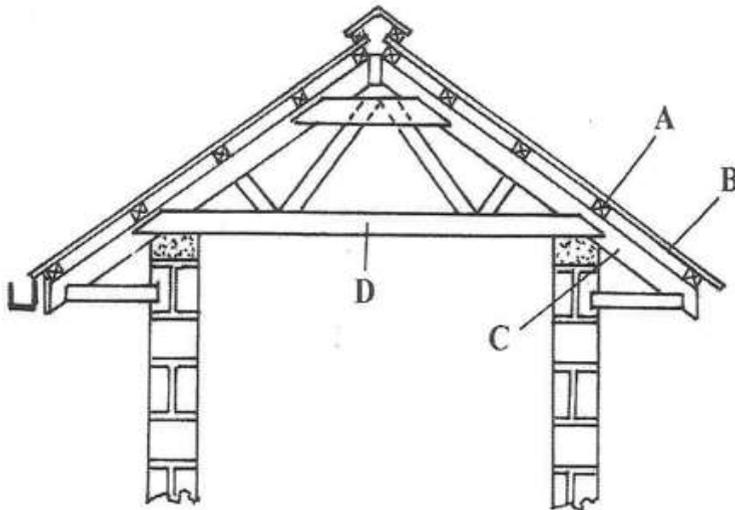
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18. State **four** characteristics of a good vaccine (2marks)

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

SECTION B (ANSWER ALL QUESTIONS IN THIS SECTION) 20 MARKS

19. Below shows parts of the roof use them to answer the following questions



a. Identify parts labelled A and C (2marks)

A.....

C.....

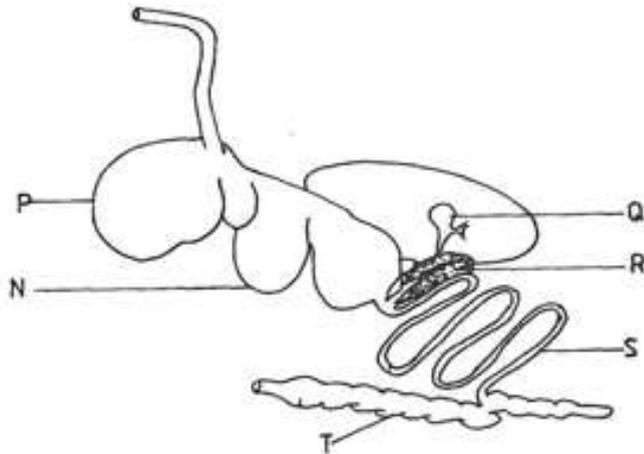
b) State **two** types of materials that maybe used for part labelled D (2 marks)

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

c) State **one** disadvantage of using thatch on part labelled B (1mark)

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

20. The diagram below shows part of the digestive system of livestock



a. Name **one** livestock with the above digestive system(1mark)

.....
.....

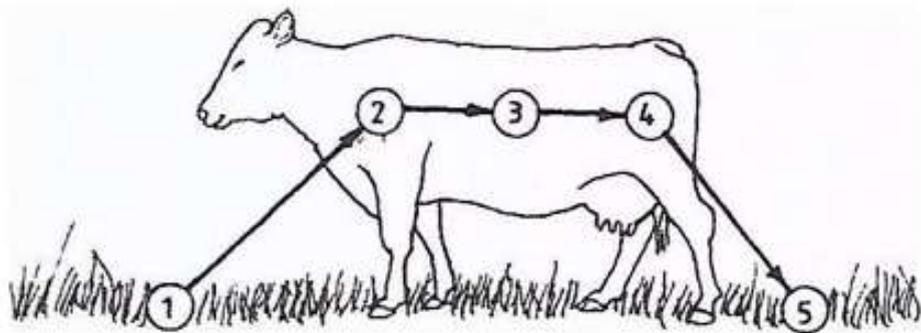
b. Name parts labelled P and N (2marks)

.....
p.....
N.....

c. State **two** functions of part labelled P (2marks)

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

21. The diagram below illustrates stages of lifecycle of ticks study it and answer questions that follow.



a. Classify the tick on the basis of the lifecycle (1marks)

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

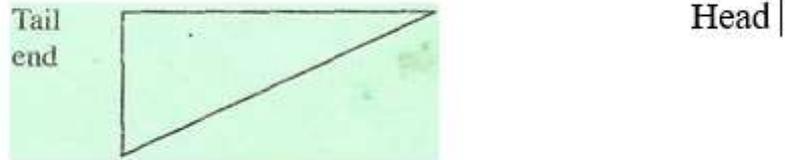
b. Describe the development of ticks in 2,3 and 4 (3marks)

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

c. Give **one** species of ticks with the lifecycle above (1mark)

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

22. Below shows an illustration of a certain type of cattle breed study it and answer the questions that follow



a. Identify the type of cattle breed illustrated above (1mark)

.....
.....

b. give **two** types of the above type of cattle breed (2marks)

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

c.State other **two** physical characteristics of the above breed apart from the one illustrated above (2marks)

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

SECTION C (40 MARKS)

(ANSWER TWO QUESTIONS IN THIS SECTION)

23 a. Outline the procedure of establishing a fish pond (6marks)

b. Describe the process of egg formation in the reproductive system of a hen (14 marks)

24 a. Describe **ten** functions of various parts of a cattle dip (10 marks)

b. Discuss the **ten** signs of ill health in livestock (10marks)

25 a.Describe **five** predisposing factors of livestock diseases (5marks)

b. Describe the procedure of bloodless castration (7marks)

BRAIN QUEST SERIES FORM 3 END OF YEAR
EXAMS 2023

FORM THREE EXAM

CONFIDENTIAL FOR PHYSICS PAPER 3

1. An ammeter (0 – 1.0A)
 - Nichrome wire mounted on a millimetre scale labelled P (SWG 32)
 - One new size D dry cell.
 - Four connecting wires (At least two with crocodile clips at the ends)
 - A switch
 - Cell holder
 - Micrometer screw gauge
 - A soft board
 - A white plane paper
 - 4 office pins.
 - Four optical pins
 - A rectangular glass block.

2. A pendulum bob
 - A Stop watch
 - A metre rule
 - A retort stand, boss and clamp
 - A piece of thread about 1.1 m long.
 - Two small wooden blocks .

NAME _____ ADM _____ FORM _____

BRAIN QUEST SERIES FORM 3 END OF YEAR EXAMS 2023

231/1

BIOLOGY PAPER 1

FORM 3

TIME 2HRS

INSTRUCTION: DO ALL QUESTIONS ON THE SPACE PROVIDED

1. Give a reason why plant cells have a definite shape. (1 mark)

.....
.....

2. State three structural adaptations of the gills of a bony fish to gaseous exchange. 3 marks

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

3. (a) Name the cell division and the stage of meiosis where crossing-over takes place.

(i). Division (1 mark)

.....

(ii). Stage (1 mark)

.....

(b). State the importance of crossing over mentioned in 3(a). (1 mark)

.....
.....

4. State the reason for the following adaptations of the intestine to its function.

(i) Long and coiled structure. (1 mark)

.....
.....
.....
.....
(ii). Presence of lacteal. (1 mark)

.....
.....
(iii) Presence of mucus secreting cells. (1 mark)

.....
.....
5. State the functions of the following structures in the phloem tissues. (2 marks)

(a). Sieve plates

.....
.....
(b). Companion cells

.....
.....
6. State two adaptations of the red blood cells to their functions. (2 marks)

.....
.....
7. State the structural difference between a somatic cell and a gamete. (1 mark)

.....
.....
8 . Give three roles of water during germination of seeds. (3 marks)

.....
.....

9.State two physiological changes that occur in the human body when the internal temperature rises above normal. (2 marks)

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

10. a).Name the enzyme in the human body responsible for blood clotting.(1 mark)

.....
.....

(b). State two effects of excessive bleeding. (2 marks)

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

11.State the functions of the following parts of the light microscope. (2 marks)

(i). Objective lens.

.....

(ii). Diaphragm

.....

12. Give three ways by which flowering plants encourage cross-pollination. (3 marks)

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.....
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.....

.....
.....

13. What two adaptations of chloroplasts that make them site of photosynthesis. (2 marks).

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14 .State two ways in which the **root** system of xerophytes assists them to survive in dry areas. (2 marks)

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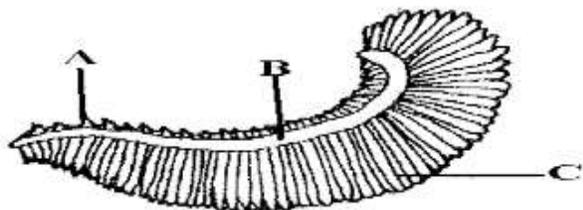
15. Give three precautionary measures that can be taken to control the outbreak of cholera. (3 marks)

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

16.State the distinguishing characteristic / features of the class Insecta. (3 marks).

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

17. The diagram below shows the system of gaseous exchange in a certain animal.



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

.....

(b).State the functions of the labelled parts.(3mks)

A.....

B.....

C.....

18. What advantages are there in man for breathing through the nose than through the mouth.
(2 marks)

.....

19. Name the cell organelles responsible for the following functions.(3mks)

(i). Packaging of synthesized materials.

.....

(ii). Provides sites for formation of protein

.....

(iii).Destruction of foreign particles that enter the cell.

.....

20. Below is a chemical equation representing the oxidation of a food substance in a cell.



(i). From the above equation, calculate the respiratory quotient (RQ).(2marks)

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

(ii).Name the food substance being oxidized from the RQ calculated above. (1 mark)

.....

b)State two uses of the food substrate in a(ii) above the body. (2 marks)

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

21. Below is a photograph showing a seedling during germination.

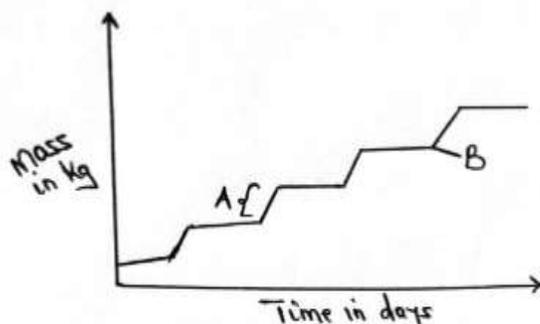


With a reason, name the type of germination shown in the photograph.

(i) Type of germination(1mk)

(ii)Reason.....(1mk)

22. The graph below represents the growth of animals in a certain phylum. Study it and answer the questions that follow.



- a) Name the type of growth pattern shown on the graph
(1mk)
- b) Identify the process represented by letter B..... (1mk)
- c) Name the hormone responsible for the process in(b)above.....(1mk)

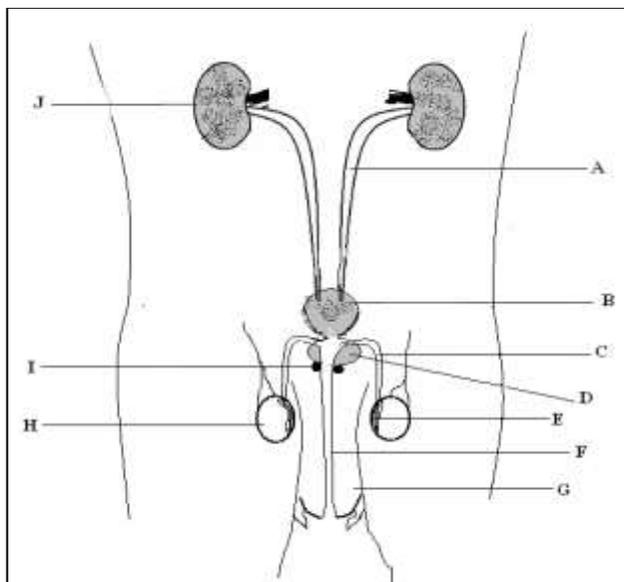
23. Below is an image of a biological vector. Use it to answer questions that follow.



- (a) Identify the parasite transmitted into human blood by the organism. (1 mark)

- (b) Name the blood cells that are destroyed by the parasite in (a) above.
 (1mark).....
- (c) State one biological method used to eradicate the larvae of this organism.
 (1mark)

24. Diagram below shows front view of male human urino-genital system. Study it to answer the questions that follow.



a) Name the parts labeled **J**, **A**, **B** and **F**. (4 marks)

- J.....
- A.....
- B.....
- F.....

b) State the function of parts labeled **H** and **E**. (2 marks)

- H.....
-
-
- G.....
-

25. An experiment was carried out to find out the concentration of ions in the cell sap of an aquatic plant and that of the pond water in which they were found.

Ions	Concentration in	
	Cell sap	Pond water
Na ⁺	50	1.2
K ⁺	49	0.5
Mg ²⁺	11	3.0
Ca ²⁺	13	1.3
Cl ⁻	101	1.3
SO ₄ ²⁻	13	0.67

(a)(i) Name the process by which the aquatic plant absorbs ions from pond water. 1 mark

.....
 (ii) State the four roles of the process you have named in (a)(i) above in a mammalian body.

4 marks

.....

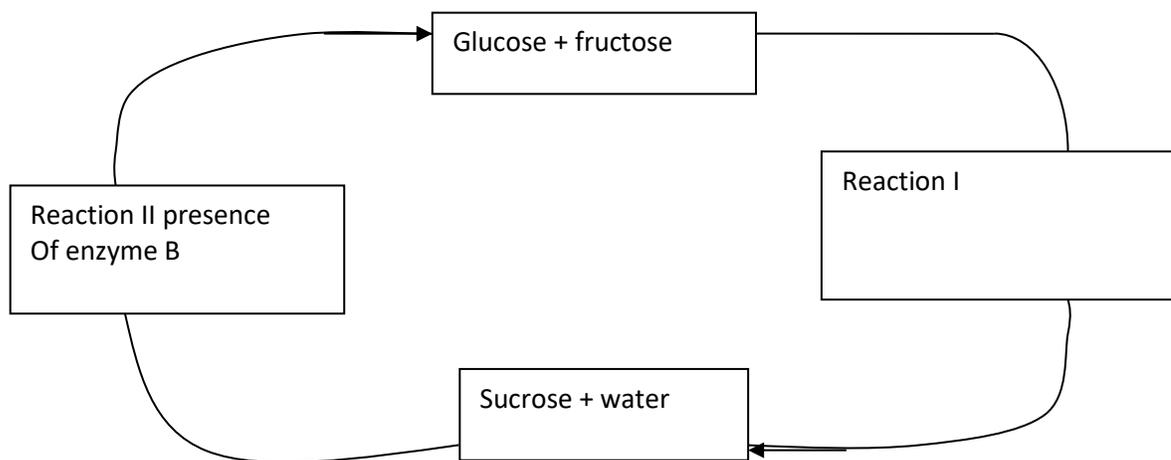
26.(a)State the meaning of apical dominance in plants (1mk)

(b) Briefly describe the effects of the following plant growth hormones

(i) Gibberellins (2mks)

.....

27. The diagram below shows chemical reaction I and II which are controlled by enzyme A and B



Name the reaction I and enzyme B (2mrks)

Reaction

I.....

Enzyme

B.....

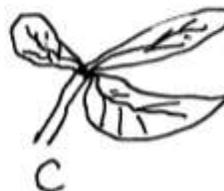
28. Explain why menstrual periods stop immediately after conception? (2mks)

.....

.....

.....

29. Below are diagrams of three leaves A, B and C. Construct a two steps dichotomous key which can be used to identify each of them. (2mks)



.....

.....

.....

NAME _____ ADM _____ FORM _____

231/2

END TERM 3 FORM 3

BIOLOGY PAPER 2

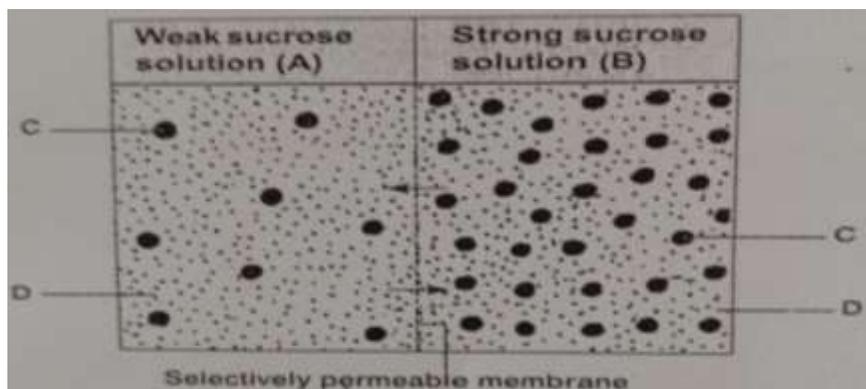
BRAIN QUEST SERIES FORM 3 END OF YEAR EXAMS 2023

INSTRUCTIONS:

This paper consist of two sections A and B .

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

1.Study the diagram below and answer the questions that follows



(a) Name the process by which molecules

(i) D move from solution A to solution B (1mk)

.....

(ii) C move from solution A to solution B (1mk)

.....

(b) State three ways in which the process named in (a) (i) above is significant to plants (3mks)

.....

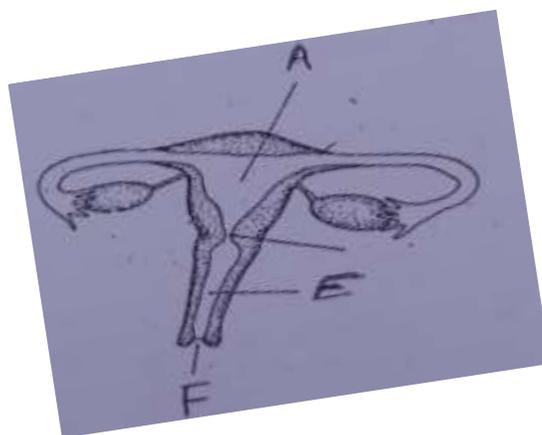
(c) Give any one factor that influence the process named in a (ii) above (1mk)

.....

(d) Explain why when animal cells are placed in distilled water, they burst while the plant cells placed in distilled water remain intact (2mks)

.....

2. The diagram below shows the mammalian female reproductive system.



(a) Name the parts labeled A, E and F (3mks)

A-

E-

F-

(b) On the diagram indicate and name the part where each of the following takes place

(i) Fertilization (1mk)

.....

(ii) Meiotic cell division (1mk)

.....

(c) Give three ways in which the human sperm is structurally adapted to perform its functions (3mks)

.....

.....
.....
3 (a) Distinguish between pyramid of numbers and pyramid of biomass (2mks)

.....
.....
.....
(b) Give three reasons for loss of energy from one trophic level to another in a food chain (3mks)

.....
.....
.....
(c) Give any three assumptions made while estimating population through capture recapture method (3mks)

.....
.....
.....
4. Give the reasons for the following activities in the mouth

(a) (i) chewing food (2mks)

.....
.....
.....
(ii) mixing the food with saliva (2mks)

.....
.....
.....
(b) Give any four ways in which the ileum is adapted to perform its functions (4mks)

.....
.....
.....
5. (a) Give two advantages of red blood cells being involved in the carriage of carbon (IV) oxide (2mks)

.....

 (b) Give two ways in which white blood cells protect the body from infection
 (2mks)

.....

 (c) Give reasons for the following in blood transfusion

(i) Blood group O are universal donors (1mk)

.....

 (ii) Blood group AB are universal recipients. (1mk)

.....

 (d) Differentiate between Acquired and Natural Immunity (2mks)

.....

 6. In an experiment to investigate the population growth of mice under laboratory conditions.
 The procedure was as follows:

Twenty young mice were placed in a cage.

The amount of food available to the mice everyday was kept constant.

The results obtained were as shown in the table below.

Time in Minutes	0	2	4	6	8	10	12	14	16	18
Number of mice	20	20	65	115	310	455	450	190	145	160

(a) Using a suitable scale, plot a graph of number of mice against time (6mks)

(b) With reference to the graph, account for the changes in mice population between

(i) 0 to 2 months (1mk)

.....
.....
(ii) 2 to 10 months (1mk)

.....
.....
(iii) 10 to 12 months (1mk)

.....
.....
(iv) 12 to 16 months (1mk)

.....
.....
C . (i) Between which two months was the population was the change the greatest (1mk)

.....
.....
(ii) Calculate the rate of population change over the period you have given in C (i) above (3mks)

(d) What population changes would be expected if the investigation continued for further 24 months (2mks)

.....
.....
(e) Assuming the human population growth rate in Kenya does not decrease over the next 40 years. Suggest your social –economic problems that the society may face. (4mks)

.....
.....
.....
.....
7. Describe the role of the liver in homeostasis in human body (20mks)

NAME _____ ADM _____ FORM _____

231/3

BIOLOGY FORM 3

END OF TERM 3

TIME: 1¼ HOURS

BRAIN QUEST SERIES FORM 3 END OF YEAR
EXAMS 2023

INSTRUCTIONS TO CANDIDATES

1. Write your Name, Admission Number, and Class in the spaces provided above.
2. This paper contains **THREE Sections**. Answer **ALL** the questions in the spaces provided **IN THIS PAPER**.
3. **ALL** the answers must be clear and precise.
4. Answer all the questions using correct English.

FOR EXAMINER'S USE ONLY

SECTION	MAX. SCORE	CANDIDATE'S SCORE
1	13	
2	13	
3	14	
TOTAL	40	

This paper consists of 5 printed pages. Candidates should check the question paper to ascertain that all pages are printed as indicated and no questions are missing.

1. You are provided with two pieces of petioles of kale each 4cm long, two solutions labeled **J** and **K** in separate beakers, means of timing, and a scalpel.
 - i. Using a scalpel, split halfway through the middle of each piece of the petiole longitudinally.
 - ii. Place one piece in liquid **J** and the other in liquid **K**.
 - iii. Allow the setup to stand for 30 minutes

- a. Remove the pieces after 30 minutes. Examine the appearance of the pieces at the end of the experiment. Also, press the pieces gently between your fingers to feel them. Record your observations in the table below. (4mks)

A piece placed in;	Observation
Solution J	
Solution K	

- b. Account for the observations above made in the pieces. (6mks)

A piece placed in;	Account
Solution J	
Solution K	

- c. Identify the physiological process is represented in the experiment above? (1mk)

- d. Give two importance of the physiological process identified in (c) above in plants. (2mks)

2. You are provided with photos of specimens labeled A, B, C, D, E, F, G and H. A dichotomous key shown below can be used to identify them.



1. a) Jointed legs presentgo to 2
- b) Jointed legs absentgo to 6
2. a) Three pairs of legsgo to 3
- b) More than three pairs of legsgo to 5.
3. a) Wings present.go to 4
- b) Wings absent.Cimicidae

4. a) Two pairs of wings **Lycaenidae**
 b) One pair of wings **Apoidea**
5. a) Antennae present **Scorpionoidea.**
 b) Antennae Absent. **Acari**
6. a) Shell Present **Gastropoda**
 b) Shell Absent **Go to 7**
7. a) Prominent clitellum **Megadrilacea**
 b) No clitellum visible **Hirudinea.**

a. Use the dichotomous key to identify each of the animal specimens provided. In each case, show in sequence the steps in the key that you followed to arrive at the identity of each specimen. (12marks)

Specimen	Steps Followed	Identity
A		
B		
D		
E		
F		
H		

b. Name the phylum into which organisms in photographs A, B, D, F, and H belong. (1mk)

.....

3. You are provided with olive oil, liquids labeled **L₁** and **L₂**, and Irish potato. Label test tubes A and B. Place 2cm³ of distilled water into each test tube. Add 8 drops of olive oil into each test tube. To test tube A, add 8 drops of liquid **L₁**. Shake both test tubes. Allow them to stand for 2 minutes.

(a)

(i) Record your observations

Test Tube A

(1mk)

.....
Test Tube B (1mk)
.....

(ii) Name the process that has taken place in test tube A (1mk)
.....

(iii) State the significance of the process named in (a) above (1mk)
.....

(v) Name the digestive juice in humans that has the same effect on oil as liquid L₁ (1mk)
.....

(v) Name the region of the alimentary canal into which the juice is secreted (1mk)
.....

(b)

(i) Label a test tube C. Place 2cm³ of liquid L₂ into the test tube. Add a drop of iodine solution into the test tube. Record your observation. (1mk)
.....

(ii) Suggest the identity of L₂ (1mk)
.....

(c) Label another two test tubes as D and E. Then cut a cube whose sides are 1cm³ from the Irish potato. Cut the cube into two halves. Crush one-half using pestle and mortar to obtain a paste. Place the paste into a test tube labeled D and the other half into a test tube labeled E. add 3cm³ into each test tube D and E. Record your observations in test tubes D and E (2mks)
.....

(d) Account for the result in (c) above (3mks)
.....
.....
.....

.....
.....
(e) Write down a word equation for the reaction responsible for your observation in (c) above. (1mk)

.....
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NAME OF SCHOOL:

NAME..... ADM NO.CLASS.....

FORM THREE BUSINESS STUDIES. Paper 1 (565/1)**END OF TERM 3 EXAMINATION****TIME: 2 HOURS****BRAIN QUEST SERIES FORM 3 END OF YEAR****EXAMS 2023****INSTRUCTIONS TO CANDIDATES**

1. Write your name and admission number in the spaces provided above.
2. Answer ALL the questions
3. ALL answers must be written in the spaces provided in this booklet.
4. This paper consists of 8 printed pages.
5. Candidates should check the question paper to ascertain that all the pages are printed as indicated and no questions are missing.

FOR EXAMINERS'S USE ONLY

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

Question	13	14	15	16	17	18	19	20	21	22	23	24	25

TOTAL**MARKS**

--

1. Highlight **four** features of basic human wants. (4 marks)

- a)
- b)
- c)
- d)

2. List **four** characteristics of direct production. (4 marks)

- a)
- b)
- c)
- d)

3. Mention **four** benefits of National Transport and Safety Authority (NTSA) to the Kenyan people. (4 marks)

- a)
- b)
- c)
- d)

4. Outline **four** factors to consider when deciding on a suitable location of an office (4 marks)

- a)
- b)
- c)
- d)

5. Complete the following table by indicating the account to be debited and the one to be credited. (4 marks)

	Transaction	Account Dr	Account Cr
a)	Started a business with sh. 50,000 cash		
b)	Received a cheque from a debtor		
c)	Bought office equipment by cheque		
d)	Paid creditor in cash		

6. Outline **four** reasons that can make a cheque be dishonored (4 marks)

a)

b)

c)

d)

7. Watamu Enterprises had the following assets and liabilities on 1st May 2014.

Particulars	Shs.
Equipment	800,000
Capital	1,200,000
Creditors	100,000
Debtors	200,000
Stock	250,000
Cash at Bank	50,000

The following transactions took place on 2nd May 2014.

i) Bought goods for resale shs. 150,000 on credit

ii) A debtor paid shs. 100,000 by cheque

iii) Sold the equipment for sh. 900,000 cash

Required: Prepare Watamu Enterprises balance sheet after the above transactions (4 marks)

8. State **four** functions of a pro-forma invoice (4 marks)

- a)
- b)
- c)
- d)

9. Outline **four** characteristics of economic resources (4 marks)

- a)
- b)
- c)
- d)

10. Highlight **four** disadvantages of carbon copying (4 marks)

- a)
- b)
- c)
- d)

11. Outline **four** reasons that would make an entrepreneur prepare a business plan (4 marks)

- a)
- b)
- c)
- d)

12. On 2nd November 2006, Oromo received an invoice for sh. 12,000. Terms of payment were trade discount 5% and cash discount 10%, if payment is made within 30 days. Determine the amount paid if payment was made on 28th November 2006. (4 marks)

13. Differentiate between a partnership and a co-operative society (4 marks)

Partnership		Co-operative society	
a)		a)	
b)		b)	
c)		c)	
d)		d)	

14. Highlight **four** ways in which an efficient transport system can enhance trade. (4 marks)

- a)
- b)
- c)
- d)

15. Outline **four** factors to be considered when choosing a channel for distribution (4 marks)

- a)
- b)
- c)
- d)

16. By use of the book keeping equation, determine the missing values in the table below (4 marks)

Capital (Ksh.)	Current Assets (Ksh.)	Liabilities (Ksh.)
900,900	✓ a).....	1,151,600
✓ b).....	2,172,100	1,953,750
1,010,000	✓ c).....	664,030
1,260,860	1,450,050	✓ d).....

17. State **four** advantages of promoting goods using radios (4 marks)

- a)
- b)

- c)
- d)
- 18. Robert Kagoie insured his property whose value was shs. 1,000,000 for shs. 600,000 against the risk of fire. Later fire broke out and the property was burnt causing a loss of shs. 500,000. Calculate his compensation. (4 marks)

19. Outline **four** benefits of bonded warehouse to the government (4 marks)

- a)
- b)
- c)
- d)

20. State **four** types of complaints that a consumer organization may receive from consumers (4 marks)

- a)
- b)
- c)
- d)

21. Name **four** documents that may be required by the registrar of companies in order to register a public limited company (4 marks)

- a)
- b)
- c)
- d)

22. State the line of communication involved in each of the following: (4 marks)

	Statement	Line of communication
a)	The manager of ABC company Ltd talking to manager of XYZ company Ltd.	
b)	A secretary asking for time off from her boss.	
c)	The production Manager giving instructions to the secretary of the sales manager.	
d)	The store keeper giving explanations to the chief accountant	

23. The information given below was extracted from books of Mienco Traders on 31st December 2014
(4 marks)

Details	Amount Shs.
Furniture and Fittings	234,000
Debtors	67,500
Capital	157,900
Commissioned earned	13,200
Creditors	34,750
Drawings	21,800
5 Year Bank Loan	114,450
Discount received	3,000

Required: prepare Birika Traders Trial Balance as at 31st December 2014

(4 marks)

24. Highlight **four** factors that may cause the supply curve to shift to the right. (4 marks)

- a)
- b)
- c)
- d)

25. Study the cash book below and answer questions that follow. (4 marks)

Date	Details	D. All Shs.	Cash Shs.	Bank Shs.	Date	Details	D. Rec Shs.	Cash Shs.	Bank Shs.
2014					2014				
Dec. 1	Bal b/d		72,000		Dec. 1	Bal b/d			356,000
Dec. 4	James			600,000	Dec. 12	Dominic	5,000		100,000
Dec. 20	Sales		40,000		Dec. 20	Bal c/d		112,000	144,000
			112,000	600,000			5,000	112,000	600,000
Dec. 20	Bal b/d		112,000	144,000					

Required:

State the meaning of the transactions that took place on:

a) Dec 1st 2014 (2 marks)

.....

b) Dec 4th 2014 (1 mark)

.....

c) Dec 12th 2014 (1 mark)

.....

**BRAIN QUEST SERIES FORM 3 END OF YEAR
EXAMS 2023**

565/2

BUSINESS STUDIES**Paper 2****FORM 3****2½ hours**

NAME:.....ADM NO.....DATE.....

CLASS:.....SIGNATURE.....

Instructions to candidates

1. This paper consists of **six** questions.
2. Answer any **five** questions.
3. Write your answers in the answer sheets provided.
4. All questions carry equal marks

FOR EXAMINER'S USE ONLY

QUESTION	1	2	3	4	5	6	TOTAL
MARKS							

- 1a). Draw a diagram to show the effect of a shift in demand curve to the right on equilibrium point, price and quantity. (10 marks)
- b). Explain **five** challenges that may be experienced by entrepreneurs in Kenya today. (10mks)
- 2a). Outline **five** circumstances under which personal selling may be appropriate (10mks)
- b). Explain **five** factors that may contribute to low level of National Income. (10mks)
- 3a). The following transactions relates to Patu traders in Kakamega in the year 2018.
- July 1st : Started a business with kshs. 150,000 in cash.
July 2nd: Opened a bank account and deposited kshs. 30,000.
July 3rd: Bought buildings in cash ksh 60,000.
July 4th : Borrowed a loan in cash kshs. 20,000
July 5th: Bought stationary by cheque worth ksh. 6,000
July 6th: Repaid part of the loan by cheque kshs. 10,000.
- Required**
Record the above transactions in their various ledgers accounts and balance them off (10mks)
- b). Explain **five** differences between a public corporation and a private limited company (10mks)
- 4a). Explain **five** benefits that a country would get by encouraging investors to locate businesses in rural areas (10mks)
- b). Explain **five** circumstances under which cash on delivery will be preferable rather than the use of cheque in transaction (10mks)
- 5a). Kamau imported a probox car from Dubai. Illustrate **five** channels that he could have used to import the car. (10mks)
- b). Explain **five** positive effects of internal business environment to business organizations (10mks)
- 6a). Outline the procedure for claiming compensation by the insured (10mks)
- b). On 1st May 2010 Musa Traders had sh. 15, 000 cash in hand and Sh. 160, 450 at bank. During the month, the following transactions took place.

May 2 Bought goods for Sh. 5, 400 and paid by cheque.

May 8 Received sh. 7, 200 cash from a debtor

May 15 Paid a creditor Sh. 18, 300 by cheque

May 16 Paid salaries sh 4, 200 in cash

May 18 Sold goods for sh. 9, 200 and was paid by cheque

May 20 Withdrew sh. 30, 000 from bank for office use

May 25 Received sh.8,000 cash from a debtor

May 28 Paid general expenses sh. 4, 000 cash.

May 29 Deposited sh.10,000 cash in bank

May 30 Paid for electricity sh. 2,500 by cheque

Record the above transactions in a two column cash book and balance it off. (10 Marks)

Name:Adm. No.....

School.....

233/1

CHEMISTRY

PAPER 1 THEORY

FORM 3

2 HOURS

BRAIN QUEST SERIES FORM 3 END OF YEAR
EXAMS 2023

Instructions to Candidates

- a) Write your name and admission number in the spaces provided.
- b) Answer all the questions in the spaces provided.
- c) Mathematical table and electronic calculator may be used.
- d) All working must be clearly shown where necessary.
- e) Students should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

For Examiner's Use Only

Question	Maximum Score	Candidate's Score

1. It is advisable to use non-luminous flame of a Bunsen burner for heating instead of the luminous flame. Give two reasons why this is so. (2 Marks)

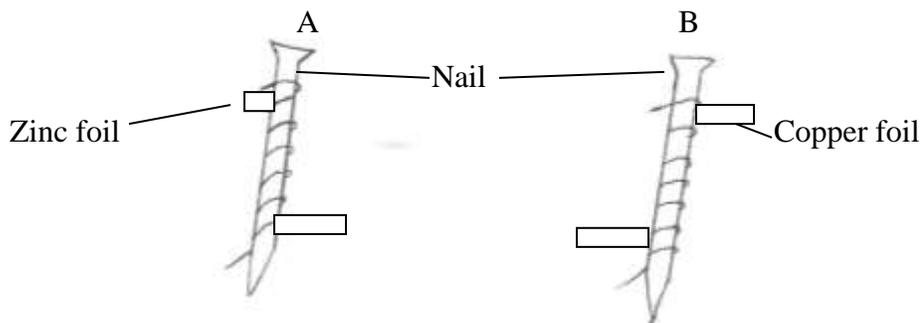
2. Explain why the melting points of metallic elements in a group decrease down the group. (2 Marks)

3. When 8.53 grams of Sodium Nitrate were heated in an open test-tube, the mass of oxygen produced was 0.83g.

i) Write the balanced equation for the reaction. (1 Mark)

ii) Calculate the percentage of Sodium Nitrate that was converted to Sodium Nitrite. (Na=23, N=14, O=16). (3 Marks)

4. The diagram below represents two iron nails with some parts tightly wrapped with Zinc and Copper foils respectively.



Given that Zinc is the most reactive and Copper the least reactive;

- a) State the observations that would be made at the exposed parts of the nails A and B after being left in the open for a long time. (2 Marks)
- b) Name the process being illustrated above. (1 Mark)
5. Calculate the mass of marble chips that produces 11.2cm^3 of Carbon (IV) Oxide at r.t.p when reacted with dilute hydrochloric acid. (Molar gas volume = 24.0dm^3 , C=12, O=16, Ca=40) (3 Marks)
6. a) Starting with Calcium Carbonate, describe how a solid sample of Calcium Sulphate can be

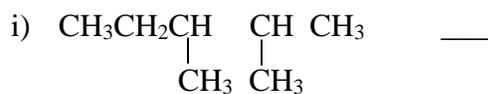
prepared.

(3 Marks)

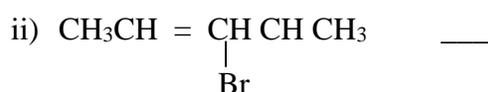
b) Give one use of Calcium Sulphate.

(1 Mark)

7. Give the systematic names of the following: -



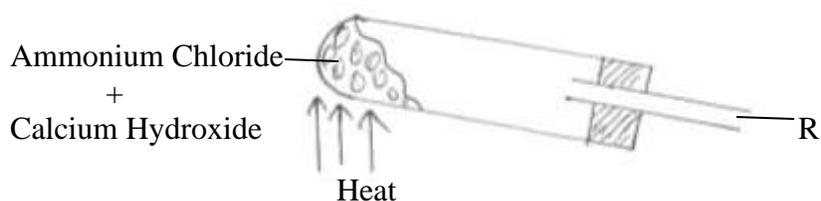
(1 Mark)



(1 Mark)

8. The diagram below represents an incomplete set up for the preparation for a dry sample of gas R.

a) Complete the diagram to show how a sample of dry gas R can be collected. (3 Marks)



b) Write a chemical equation for the reaction that produces gas R.

(1 Mark)

9. Study the information in the table below and answer the questions that follow.

Liquid	Boiling point °C
Propanone	56
Water	100
Ethanoic acid	118

Suggest with an explanation the most suitable method for separating the mixtures.

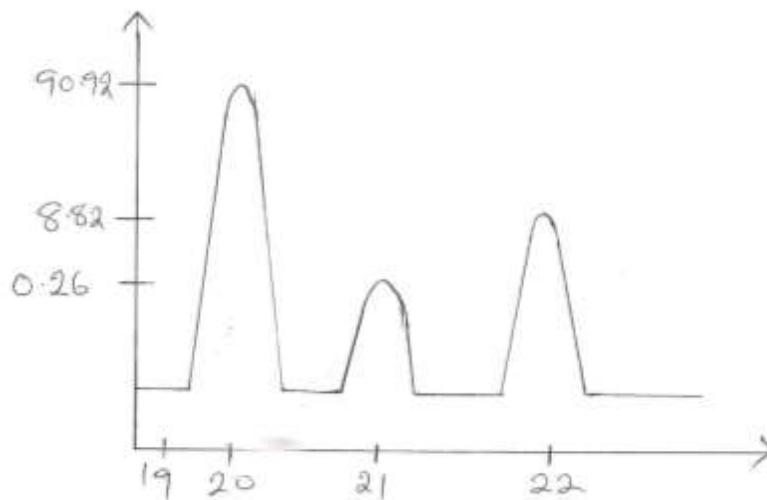
i) Propanone and water.

(1 Mark)

ii) Ethanoic acid and water.

(1 Mark)

10. Analysis of a sample of neon gas in a mass spectrometer gave the following results.



a) Given that the atomic number of neon is 10. Write down the symbols of the isotopes.

(1 ½ Marks)

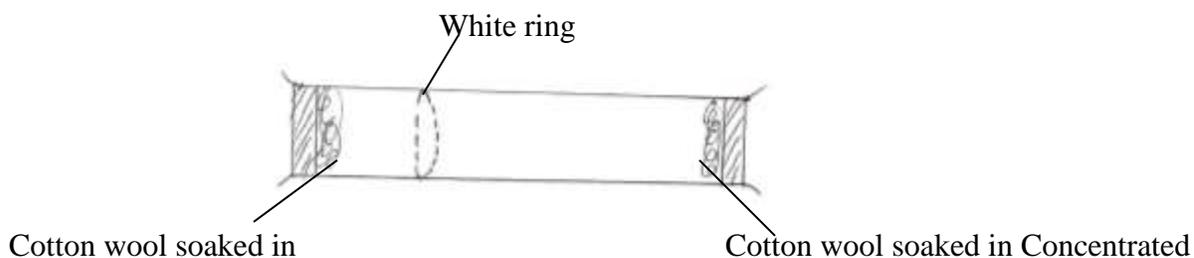
b) Which of the isotope is commonly found?

(½ Mark)

c) Calculate the R.A.M. of neon.

(3 Marks)

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

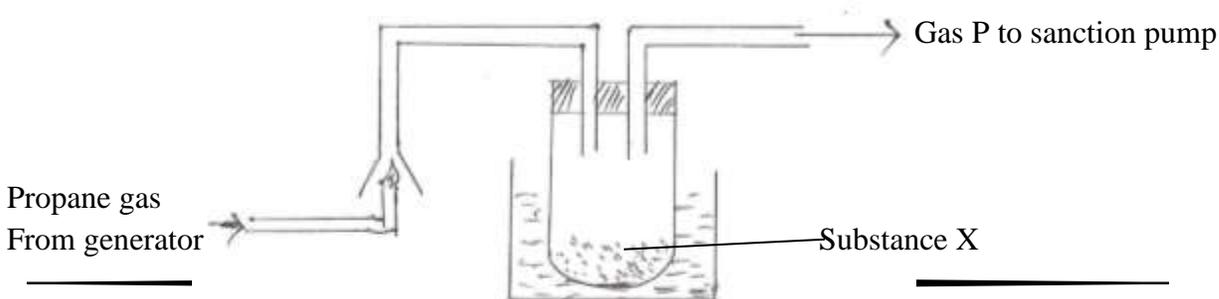


Concentrated Hydrochloric acid

solution of X

- a) Explain why the cotton wools were soaked in the concentrated solutions of hydrochloric acid and X. (1 Mark)
- b) Why did the white ring form near the end with hydrochloric acid? (1 Mark)
- c) Equal volumes of hydrogen chloride and gas X required 30 seconds and 20 seconds respectively to diffuse through a jet of the same size. Calculate the molecular mass of gas X (H=1, Cl=35.5). (3 Marks)

12. The diagram below shows the combustion of propane gas.



Ice cold water

- a) Identify substance X. (1 Mark)
- b) Write the equation for the complete combustion of propane gas. (1 Mark)
- c) What is the purpose of ice cold water in the experiment? (1 Mark)
- d) The pH of substance X was found to be less than seven (7). Explain this observation. (1 Mark)

13. The table below has information about elements E, F, G and H. (Letters not actual symbols)

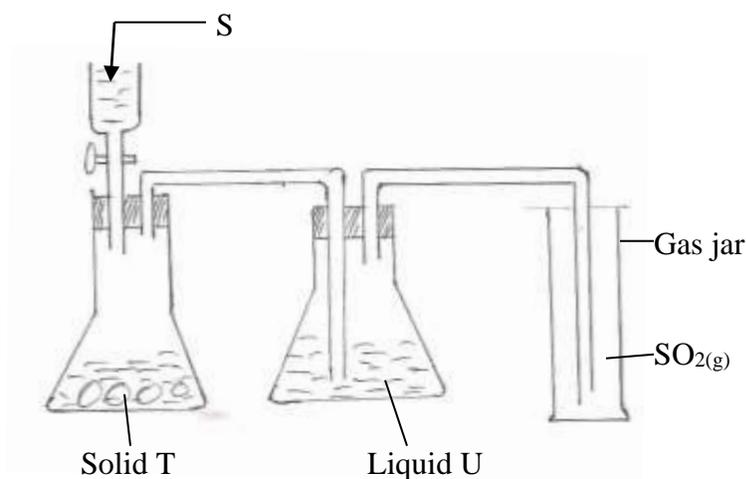
Element	Electron arrangement	Atomic radii	Ionic radii
E	2.2	0.110	0.046
F	2.7	0.071	0.136
G	2.8.1	0.157	0.102
H	2.8.2	0.136	0.065

- a) Which two elements have similar chemical properties? Explain. (2 Marks)
- b) Identify a non-metal. Explain. (2 Marks)

c) Write a chemical formula for the oxide of E. (1 Mark)

14. A solution of dilute Sulphuric acid is made by dissolving 2.45g of concentrated sulphuric acid in 240cm^3 of solution. Calculate the molarity of the hydrogen ions in the solution. (3 Marks)
(S=32, H=1, O=12)

15. The diagram below shows the preparation and collection of Sulphur (IV) Oxide gas.



i) Name the substance represented by letters. (3 Marks)

S:

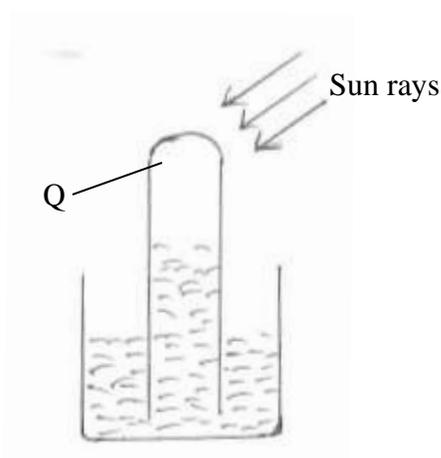
T:

U:

ii) Write the equation of the reaction taking place between T and liquid S. (1 Mark)

- iii) State and explain what would happen if dry red and blue litmus papers were placed in a gas jar of the collected sulphur (IV) oxide. (2 Marks)

16. Chlorine gas was bubbled through water for sometimes. The green yellow solution formed was poured into a long glass tube as shown below. Use the set up to answer the questions that follow.



- i) Which compounds are present in the yellow solution? (1 Mark)
- ii) Name substance Q. (1 Mark)
- iii) Write an equation for formation of Q. (1 Mark)
17. a) State Boyle's law. (1 Mark)

b) At a temperature of 25°C, a gas occupies a volume of 300 litres and a pressure of 540mmHg. What would be the pressure if the gas at a temperature of 30°C occupies a volume of 600 litres. (3Marks)

18. a) Draw dot and cross diagram to show bonding in carbon (IV) oxide gas. (2 Marks)

b) Explain why graphite is a better lubricant compared to oil. (1 Mark)

19. State the most appropriate technique used to obtain: -

i) Ammonium Chloride from mixture of Ammonium Chloride and Calcium Chloride. (1mk)

ii) Water from salt solution. (1mk)

iii) Kerosene from water – kerosene mixture. (1mk)

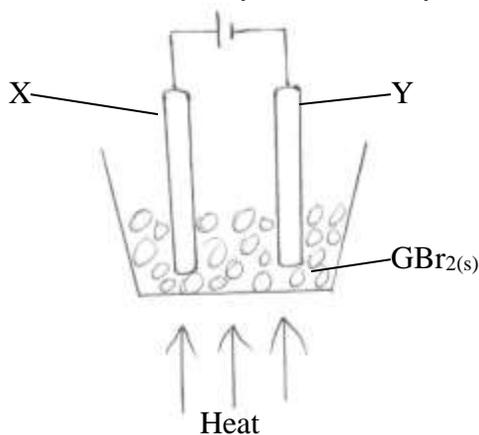
20. a) State Gay Lussac's law.

(1 Mark)

b) 100cm³ of hydrogen gas was reacted with 150cm³ of chlorine gas. Calculate the final volume of gases of the resultant mixture.

(3 Marks)

21. The setup below was used to electrolyse GBr₂. Study it and answer the questions that follows.



a) Identify the electrodes.

(1 Mark)

X:

Y:

b) Write the equation of the reaction at electrode Y.

(1 Mark)

- c) Why should the experiment be carried out in a fume chamber? (1 Mark)
22. State two uses of helium gas. (1 Mark)
23. Calculate the number of atoms in 4.6g of Sodium. ($\text{Na} = 23, L = 6.0 \times 10^{23}$). (2 Marks)
24. The electron arrangement of ions X^{3+} and Y^{2-} are 2.8 and 2.8.8 respectively.
- a) Write the electron arrangement of the elements. (1 Mark)
- X :
- Y :
- b) Write down the formula of the compound that would be formed between X and Y. (1 Mark)

NAME: ADM

SCHOOL: DATE :

FORM 3*Kenya Certificate of Secondary Education (K.C.S.E.)***CHEMISTRY****PAPER 2****TIME: 2 HOURS****BRAIN QUEST SERIES FORM 3 END OF YEAR
EXAMS 2023****INSTRUCTIONS TO CANDIDATES**

- Mathematical tables and non-programmable electronic calculators may be used.
- ALL working must be clearly shown where necessary.

FOR EXAMINER'S USE ONLY

QUESTIONS	MAX SCORE	CANDIDATE'S SCORE
1	13	
2	11	
3	12	
4	12	
5	9	
6	12	
7	11	
TOTAL	80	

1. Study the information in the table below and answer the questions that follow.

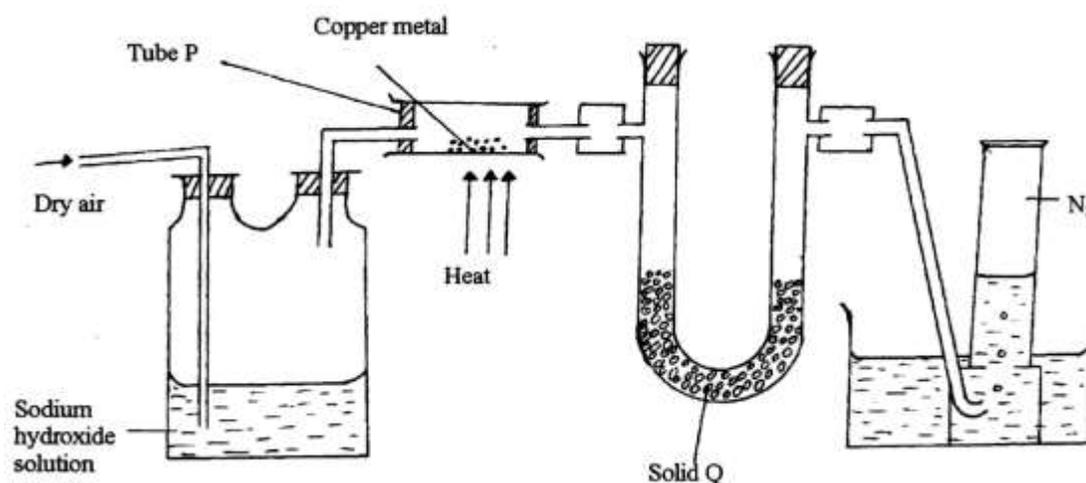
The letters do not represent the actual symbols of the elements.

Elements	Electronic configuration	Ionization energy kJmol^{-1}
P	2:1	519
C	2:8:1	494
R	2:8:8:1	418

- (i) What is the general name given to the group which elements P, C and R belong? (1mk)
- (ii) What is meant by ionization energy? (1mks)
- (iii) Explain why element P has the highest ionization energy. (2mks)
- (iv) (a) When a piece of element “C” is placed on water, it melts and hissing sound is produced as it moves on the surface of the water. Explain these observations. (2mks)
- (b) Distinguish between organic and mineral acids. Give an example of each. (2mks)
- (c) Neutralization is one of the methods of preparing salts.
- i. What is meant by neutralization? (1mk)
- ii. Describe how you would prepare crystals of sodium nitrate starting with 200cm^3 of 2M sodium hydroxide. (3mks)

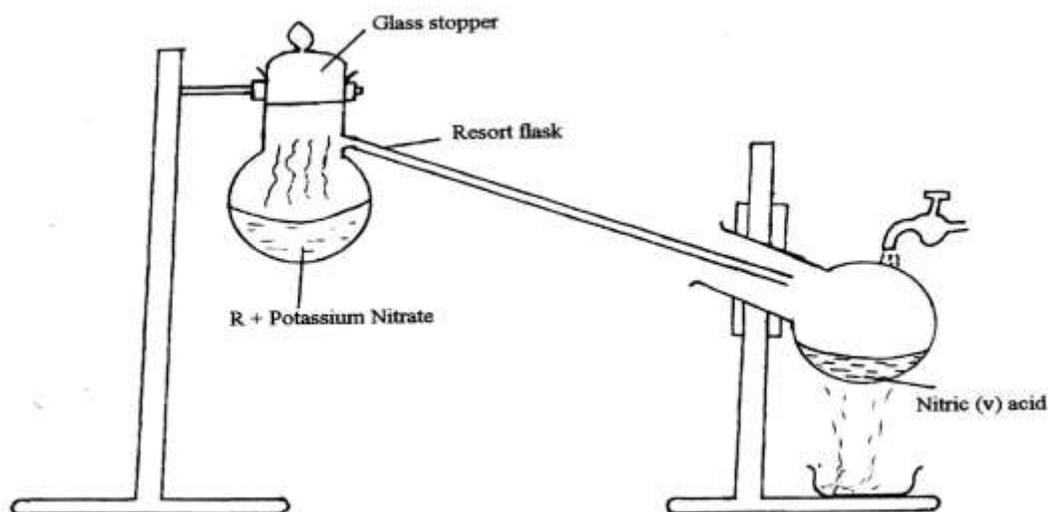
iii. Write an equation for the reaction that takes place when a solid sample of sodium nitrate is heated. (1mk)

2. The diagram below represents a set-up that was used to obtain dry nitrogen from air. Study it and answer the questions that follow.



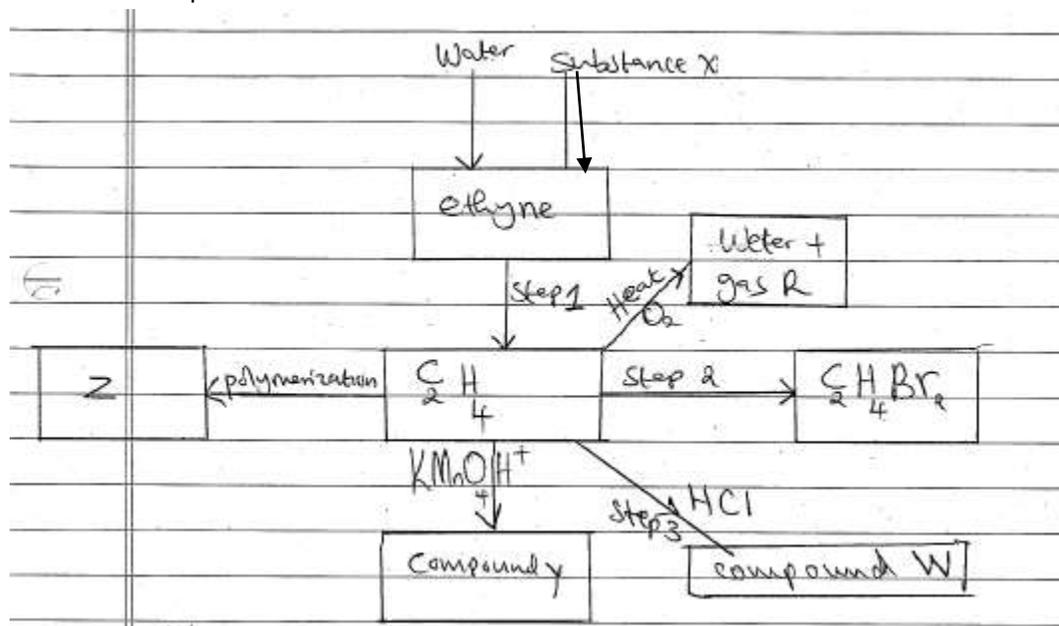
- (i) Name solid Q. (1mk)
- (ii) What is the purpose of $\text{NaOH}_{(\text{aq})}$? (1mk)
- (iii) Write an equation for the reaction which took place in tube P. (1mk)
- (iv) Give the name of one impurity in the nitrogen gas obtained. (1mk)
- (v) Why is liquid nitrogen used for storage of semen for artificial insemination? (1mk)

(b) The set-up below was used to prepare nitric acid.



- (i) Give the name of liquid R. (1mk)
- (ii) Write an equation for the reaction which took place in the retort flask. (1mk)
- (iii) Explain the following:-
(a) Nitric acid is not stored in clear / transparent glass. (2mks)
- (b) The reaction between copper metal with 50% nitric acid (one volume of acid added to an equal volume of water) in an open test tube produces brown fumes. (2mks)

3. Study the reaction scheme below that starts with water and substance X to prepare ethyne gas to answer the questions that follow



a) Name the reagents used in steps 1 and 2

1 (1mk)

2 (1mk)

a) State one applications of the reaction taking place in step 1 (1mk)

b) State the observation made in step 2 (1mk)

c) Name

i. Polymer Z (1mk)

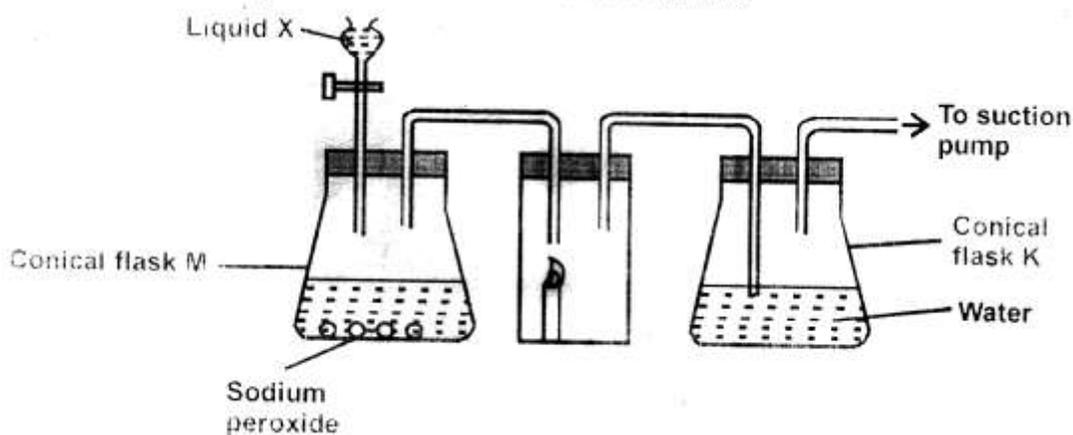
ii. Compound Y (1mk)

iii. Gas R (1mk)

iv. Substance X (1mk)

- d) Write an equation for the reaction taking place in;
- Step 1 (1mk)
 - Step 2 (1mk)
- e) Draw the structure of compound W and name the type of reaction in step 3 (2mks)

4. a) The diagram below shows a set up that was used to prepare oxygen gas and passing it over burning candle. The experiment was allowed to run for some time.



- Name liquid X (1mk)
- Suggest the pH of the solution in conical flask K. Explain (2mks)

iii) Write an equation for the reaction taking place in the conical flask M.

(1mk)

b) State and explain the two observations made when hydrogen sulphide is bubbled into the solution containing iron (III) chloride.

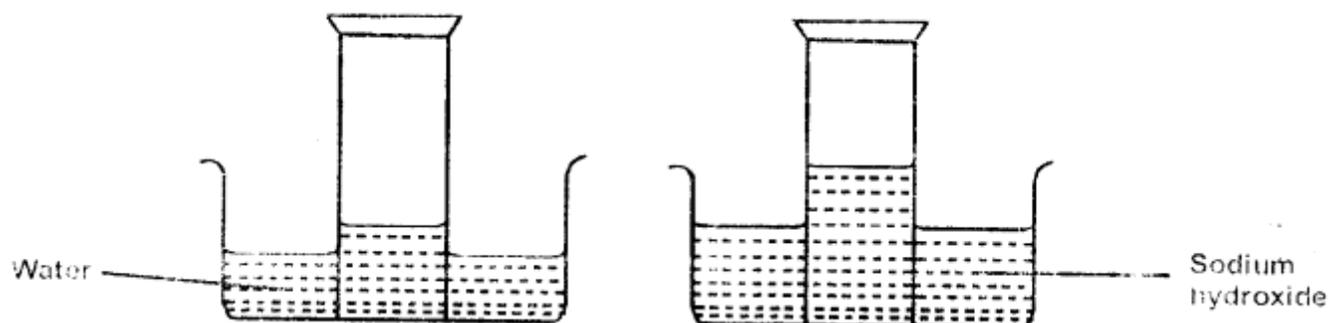
(2mks)

c) i) Describe a simple chemical test that can be used to distinguish between carbon (IV) oxide and carbon (II) oxide gases. (3mks)

ii) Give one use of carbon (II) oxide.

(1mk)

d) A form two student inverted a gas jar full of carbon (IV) oxide over water and sodium hydroxide solution as shown below.



Explain the observations made.
(2mks)

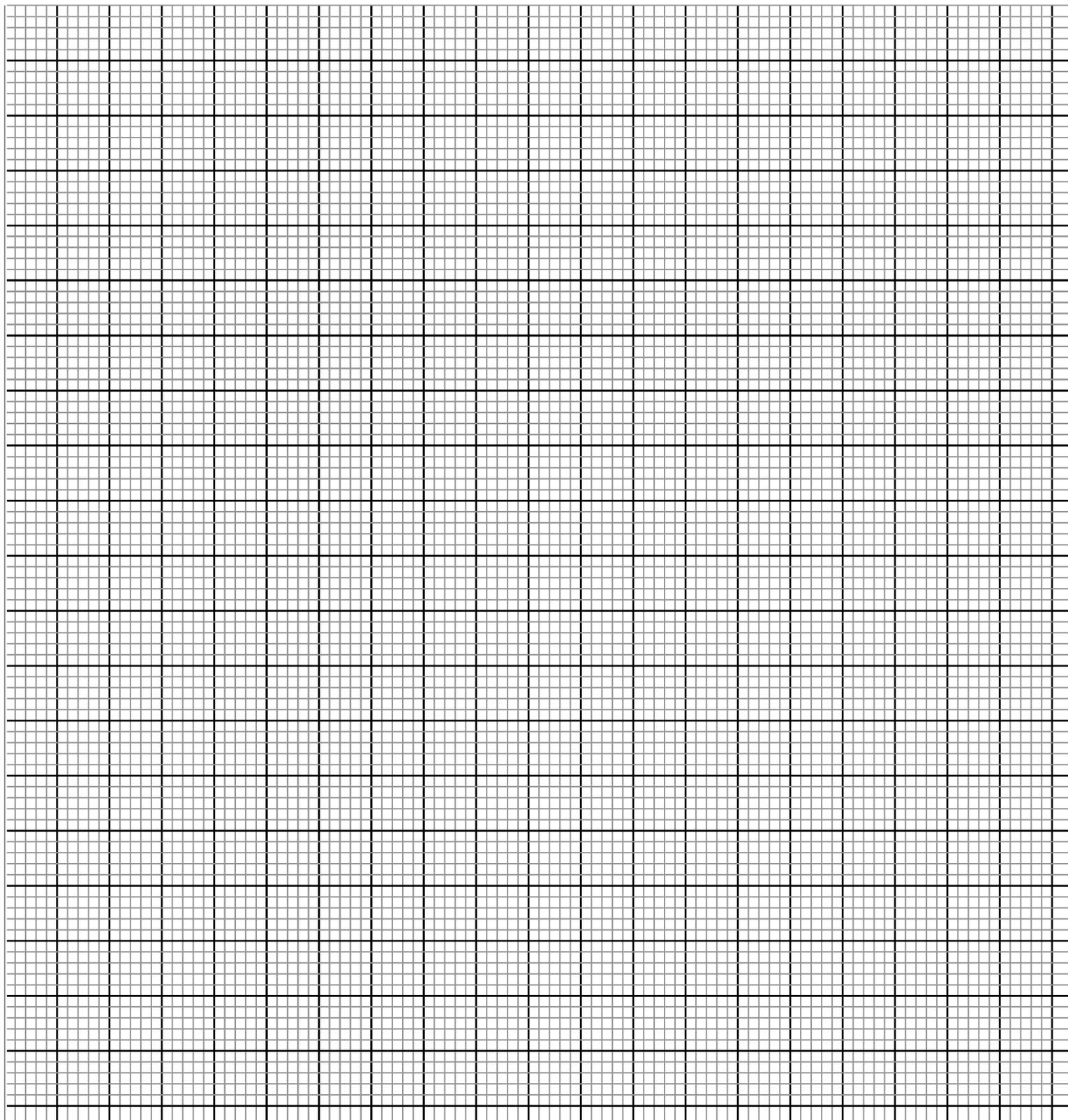
5. a) *State* Boyles' Law.

(1mk)

b) The table below shows the relationship between the pressure and volume of a fixed mass of ozone gas.

Pressure (K pa)	1	4	8	16	20	160
Volume (cm ³)	140	40	20	10	8	1
Inverse of volume 1/v (cm ⁻³)						

- i) Complete the table by filling the inverse of volume. (3mks)
- ii) *Draw* a graph of pressure against the reciprocal (*inverse*) of volume.
(3mks)



- (c) Using the graph, *determine* the volume of ozone if pressure is 12Kpa. (2mks)

6, Below is part of the set-up for the preparation of Carbon (iv) oxide

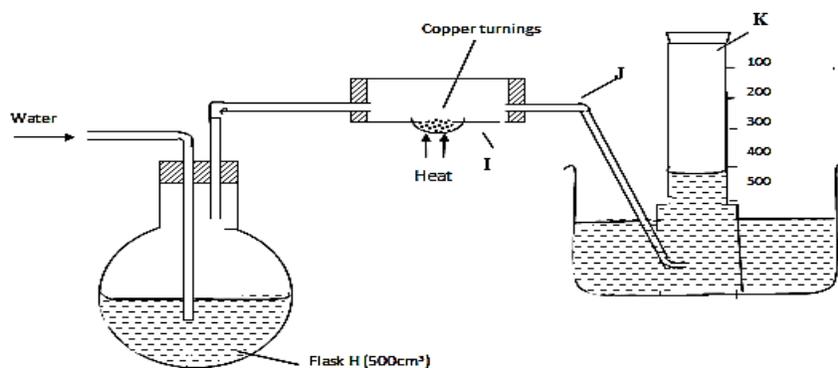
- b) Complete the set-up to show how dry carbon (iv) oxide may be prepared and collected (3mks)



- c) Write a balanced chemical equation for the reaction that occurs in the conical flask containing calcium carbonate (1mk)
- d) State and explain the observation made when carbon (iv) oxide bubbled through calcium hydroxide solution for a long time (2mks)
- d) Give two reasons why carbon (iv) oxide is used by a fire extinguisher (2mks)

e) State two environmental effects of the increase of carbon (iv) oxide in the atmosphere (2mks)

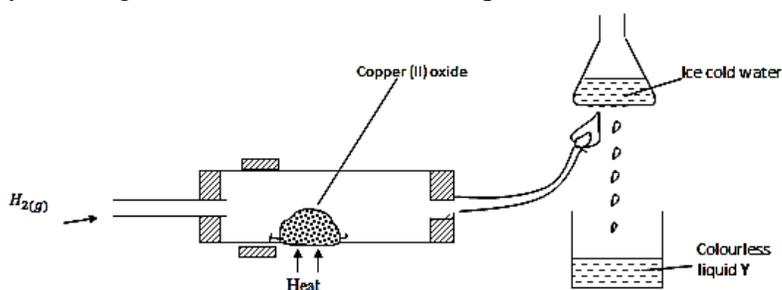
7. a). In an experiment to determine the percentage of oxygen in air, the apparatus below were set up. Study the set up and the information provided to answer the questions that follow.



A 500cm³ measuring cylinder **K** was filled with water and assembled for gas collection. Copper turnings were heated red hot and water was slowly passed into 500cm³ flask **H** until it reached the 500cm³ mark. A colourless gas was collected in **K**.

- (i) What was the purpose of passing water into flask **H**? (1 mark)
- (ii) What observations were made in the tube **I**? Explain (2 mark)
- (iii) Name one of the gases that is likely to be found in **J**. (1 mark)
- (iv) What was the volume of the gas collected in the measuring cylinder at the end of the experiment? (1 mark)
- (v) Calculate the percentage of oxygen in air using the above results. (2 mks)

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



- (a) Give *one* observation made in the combustion tube after some time. Explain (2mk)
- (b) Write an equation for the formation of the colourless liquid Y. (1 mark)
- (c) Name the property of hydrogen demonstrated in the above experiment (1mk)
- e) Name any other two gases that can be used instead of hydrogen in the above experiment (2marks)

Name:Adm. No.....

School.....

233/1

CHEMISTRY

PAPER 3 PRACTICAL

FORM 3

2 HOURS

BRAIN QUEST SERIES FORM 3 END OF YEAR
EXAMS 2023

Instructions to Candidates

- a) Write your name and admission number in the spaces provided.
- b) Answer all the questions in the spaces provided.
- c) Mathematical table and electronic calculator may be used.
- d) All working must be clearly shown where necessary.
- e) Students should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

1. You are provided with:

- 1.0g of solid **M** - impure calcium carbonate.
- Solution **A**, dilute hydrochloric acid.
- Solution **B**, 0.2M sodium hydroxide solution.

You are required to determine:

- Concentration of dilute hydrochloric acid.
- The percentage of calcium carbonate in the mixture solid **M**.

Procedure I

Pipette 25.0 cm³ of **solution B** into a conical flask. Add 3 drops of methyl orange indicator. Titrate with dilute hydrochloric acid, **solution A** from the burette until the indicator just turns pink. Record the results in the table I below. Repeat the titration two more times to complete the table.

Table 1

	I	II	III
Final burette readings			
Initial burette readings			
Volume of solution A used (cm ³)			

[4 marks]

(a) Calculate the:

(i) Average volume of solution **A** used. [1 mark](ii) the number of moles of sodium hydroxide, solution **B** contained in 25.0 cm³ of 0.2M sodium hydroxide. [2 marks]

(iii) Write the equation of reaction between sodium hydroxide and the hydrochloric acid. [1 mark]

(iv) Calculate the number of moles of hydrochloric acid, solution **A** contained in volume used. [1 mark]

- (iv) Calculate the molarity of hydrochloric acid solution **A**. [1 mark]

Procedure II

Using all the mixture **M** provided into a clean conical flask and add 100 cm³ of the dilute hydrochloric acid solution **A**, swirl the contents of the flask until effervescence stops. Label this solution as **C**.

Using a clean pipette, transfer 25.0 cm³ of solution **C** into a clean conical flask. Add 3 drops of methyl orange indicator and titrate with the 0.2M sodium hydroxide, solution **B** from the burette until the indicator just turns from pink to yellow. Repeat the titration two more times to complete the table II below.

Table 2

	I	II	III
Final burette readings			
Initial burette readings			
Volume of solution B used (cm ³)			

[4 marks]

- (b) Calculate the:

- (i) Average volume of sodium hydroxide used. [1 mark]

- (ii) number of moles of sodium hydroxide present in the average volume of the Solution. [2 marks]

-
- (iii) Number of moles of hydrochloric acid in the 25.0cm³ of solution C used. [1 mk]
- (iv) number of moles of hydrochloric acid contained in 100 cm³ of solution C. [1 mk]
- (v) number of moles of hydrochloric acid contained in 100 cm³ of solution A. [1 mk]
- (vi) number of moles of hydrochloric acid that reacts with calcium carbonate present in solid M. [1 mark]
- (vii) Write an equation for the reaction between calcium carbonate and hydrochloric acid [1 mark]
- (viii) Number of moles of calcium carbonate that reacted with the acid. [1 mark]
- (ix) Mass of calcium present in 2.0g of the mixture (Ca = 40; O = 16). [2 marks]
- (x) Determine the percentage of Calcium Carbonate present in the mixture. [1 mark]

Observations	Inferences
[1 mark]	[1 mark]

(b) Put all the remaining solid **Q** into a boiling tube and add about 10cm³ of distilled water and shake well to dissolve. Divide the solution into three equal portions.

(i) To the first portion, add 3 drops of acidified potassium manganate (VII) and warm.

Observations	Inferences
[1 mark]	[1 mark]

(ii) To the third portion, add all the sodium hydrogen carbonate provided.

Observations	Inferences
[1 mark]	[1 mark]

(iii) To the fourth portion, add 3 drops of universal indicator.

Observations	Inferences
[1 mark]	[1 mark]

NAME _____ ADM NO _____

CLASS _____

SIGNATURE _____

451/1 Paper one
COMPUTER STUDIES(Theory)
FORM 3
ENDTERM 3 EXAMS
2 ½ HOURS

BRAIN QUEST SERIES FORM 3 END OF YEAR EXAMS **2023**

INSTRUCTIONS TO CANDIDATES

1. Write your name and Admission number in the spaces provided above
2. Answer all questions in section A
3. In section B, answer question 16(compulsory) and any other three questions

FOR EXAMINER'S USE ONLY

SECTION	QUESTION	CANDIDATE'S SCORE
A	1-15	
B	16	
	17	
	18	
	19	
	20	
TOTAL SCORE		

1. List down three common operations carried out on a file. (3 Marks)

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

2. List four stages involved in the data processing cycle (2 Marks)

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

3. (a) **What** is disk partitioning? (2Marks)

.....
.....

(b) **Give two** reasons for partitioning a disk. (2Marks)

.....
.....

4. Write the following Acronym in full;

a) WIMP.....(1 mark)

b) IRQ.....(1 mark)

c) CMOS.....(1 mark)

d) BIOS.....(1 mark)

5. State the cursor action when the following keyboard keys are pressed. (2Marks)

i) Delete key

.....
.....

ii) Insert key

.....
.....

iii) Pgup (page up) key

.....
.....

iv) Pgdwn (page down) key

.....
.....

6. State two advantages of using a Digital versatile Disc (DVD) over Compact Disk (CD). (2 Marks)

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.....

7. a) Oscar a form four student says computers can be classified according to size or processing power. Outline categories of this class. (2 Marks)

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

b) Rose wants to send an email to Jack. Explain two items that must be present for the mail to be sent. (2 Marks)

.....
.....

8. State two ways of recovering data lost through accidental erasure. (2 Marks)

.....
.....

9. Give two examples of transcription errors. (2 Marks)

.....
.....

10. Give any THREE functions of the central processing unit (CPU) (3Marks)

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.....

11. Today, many companies are re-engineering their products to implement the USB connection to the computer. State any two reasons for the drift. (2 Marks)

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.....
.....

12. Kanjama high school managed to construct a computer laboratory but did not have funds for equipping it with computers. A British company offered to donate some computers to the school

a. After an assessment, it was identified that the supplied computers were the third generation of computers, state any two characteristics of third-generation computers. (2 Marks)

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.....

13. (a) It was noted that after every lesson, the students complained of itchy eyes and mild headache. State any two reasons for this problem. (2 Marks)

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.....

(b) State any one solution of the problem mentioned in (13a) above. (1 Mark)

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.....

14. Kigio secondary school principal wishes to replace the current manual systems with a computerized one. (i) Describe the main areas that must be evaluated to justify replacement. (3 Marks)

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.....
 15. Spreadsheet is the dream software for accountants due to their ability to handle numeric oriented data

(a) Identify the type of cell referencing used in the expressions below: (2 Marks)

=RANK (\$C\$3:\$A\$10, 0)

.....
 =SUM (A\$3:A12)

SECTION B (60mks) question 16 compulsory and other three

16 (a) There are several stages taken during program development. State the stage of in which: (3 Marks)

(i) The likely input, processing activities and the expected output is determined.

.....
 (ii)The programmer would check whether the program does as required.

.....
 (iii)The newly developed program is delivered and installed for the user to start using it.

.....
 b) List **two** functions of a compiler (2 Marks)

.....
 (c) State three methods you would use in error detection during program testing (3 Marks)

.....
 d). List down **four** selection controls used in writing a program (2 Marks)

.....
 e) Study the program algorithm below

Start

Set year to 1

Set A to 5

Set profit to 200

Repeat

Set A to $A * Profit$

Set Year to $Year + 1$

Output A

Until Year becomes 5

Set P to $A * Year$

Output P

Stop.

- i) Draw a flowchart for the algorithm above (5 marks)

17. a) State **three** parameters that determines the magnitude of a number. (3 Marks)

.....

.....

.....

.....

.....

- b) Using two's complement, show how the arithmetic below would be carried out on a 8 - bit computer system $(+54) - (+29)$. (5 Marks)

c) Differentiate between a word and a word length.

(2 Marks)

.....

.....

.....

d) State and explain the three parts of a task bar.

(3Marks)

.....

.....

.....

.....

e) Describe two computer crimes taking place in society citing control measures that can be put in Place to curb them.

(2Marks)

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18. a) Michuki Teacher’s college has decided to automate its library for effective services to the Students. Identify **four** methods they are likely to use to gather information during system development (4 Marks)

.....

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.....

.....

b) Explain the following system characteristics.

(2 Marks)

i) Entropy

.....

.....

.....

ii) Sub-systems

c) i) What is a closed system?

(1 mark)

ii) Give **two** characteristics of a closed system.

(2 Marks)

d) Highlight three ways of minimizing threats to data integrity.

(3 Marks)

e) Optical storage media are preferred as compared to magnetic media give three reasons.

(3 Marks)

19. a) List four attributes considered when designing a file in system development

(2 Marks)

b) Meru county wants to computerize their services. Explain three factors that made them develop an information system (3 Marks)

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

c) i) Define the term system implementation (1 mark)

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.....
.....

ii) Differentiate between the parallel change over giving one advantage and one disadvantage (3 Marks)

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

iii) Outline any two areas to be addressed during system implementation (2 Marks)

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

iv) The Chairman IEBC has called upon a System Analyst to implement an electronic rating system. He intends to use voter's fingerprints, Identity cards and voter's cards as security measures to ensure free and fair elections. Recommend with reasons four input devices that they should use/buy. (4 Marks)

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.....

20. a) Indicate the type of cell reference depicted by the following.

(2Marks)

i) \$H\$5

.....
ii. H \$ 5

b) List three components of a spreadsheet.

(3Marks)

c. A student set up a spreadsheet to compare share prices in six companies over five years.

	A	B	C	D	E	F	G	H
1	Name of company	Share price	Share price	Share price	Share price	Share price	Average share price	Highest share price
2	Year:	2005	2006	2007	2008	2009		
3	Global Oil	81	190	305	130	140	169	305
4	GSD	619	722	622	325	324	522	722
5	KLN	60	71	71	63	45	62	71
6	Nesto	316	418	522	600	640	499	640
7	Takkco	149	316	394	202	122	237	394
8	Uniway	122	135	254	365	570	289	570

(iii) If the data in cell E4 was changed to 725, which cells would be automatically updated?

(2Marks)

(iv) State the cells that are needed to create a line graph to show the share prices for years 2006 to 2008.

(2 Marks)

vi) Highlight three advantages of DTPs over Word Processors.

(3 Marks)

(d) Explain the following in relation to graphics

(3 Marks)

(i) Cropping

(ii) Text Wrap

NameAdm Number.....

Date:Sign:

451/2

COMPUTER STUDIES**Paper 2****(PRACTICAL)****FORM 3****Time: 2½ HOURS****BRAIN QUEST SERIES FORM 3 END OF YEAR
EXAMS 2023****Instructions to candidates**

- a) *Indicate your name and index number at the top right hand corner of each printout.*
- b) *Write your name and index number on the CD/Removable provided.*
- c) *Write the name and version of the software used for each question attempted in the answer sheet.*
- d) *Answer all the questions*
- e) *All questions carry equal marks.*
- f) *Passwords **should not be used** while saving in the CD/Removable provided.*
- g) *All answers must be saved in your CD/Removable provided.*
- h) *Make a printout of the answers on the answer sheet.*
- i) *Arrange your printouts and staple them together.*
- j) *Hand in all the printouts and the CD/Removable used.*
- k) ***This paper consists of 5 printed pages.***
- l) *Candidates should check the question papers to ascertain that all the pages are printed as indicated and that no questions are missing.*
- m) *Candidates should answer the questions in English.*

1. The extract below shows a spreadsheet used to compute the toll charges for a highway based on the type of vehicle, tonnage and charge per kilometer for usage.

<u>HIGHWAY TOLL CHARGES</u>						
Registration	Vehicle Type	Weight	Distance	Normal Charge	Penalty Charge	Total Charge
KCY 789 M	PickUp	6	12			
KCR 769 L	Car	4	40			
KCF 724 C	PickUp	6	32			
KCM 737 N	Truck	12	25			
KCA 745 W	Lorry	20	28			
KCP 756 H	Truck	10	12			
KCU 778 J	Car	4	8			
KCZ 701 A	PickUp	8	25			
KCB 781 E	Car	6	4			
KCV 743 H	PickUp	4	20			
KCQ 735 X	Truck	8	32			
KCT 721 K	Lorry	10	25			
KCD 792 V	Truck	12	28			
KCZ 784 P	Car	6	12			
KCB 756 C	Truck	10	8			
KCE 734 D	Car	4	25			
KCF779 E	PickUp	6	32			
KCG 700 F	Lorry	12	25			
KCH 723 K	Truck	20	28			
KCJ 711 W	PickUp	10	12			
KCR 712 D	Car	4	8			
KCD 774 B	PickUp	8	25			
KCS 756 M	Truck	6	4			
KCA 745 W	Car	4	20			
Total						

- (a) Create a workbook and save the workbook as **Toll**. (2 Marks)
- (b) Fill the data in the *sheet1* and rename the worksheet as **TollOriginal** (14 Marks)
- (c) (i) The **Normal Charge** column is calculated based on the table below. (4 Marks)

Vehicle Type	Max Allowed Weight (Tns)
PickUp	6
Car	4
Truck	8
Lorry	10

- (ii) The **Penalty Charge** column is calculated based on the table below. The penalty is based on any weight above Maximum allowed weight for a vehicle type for every kilometer of the usage. (4 Marks)

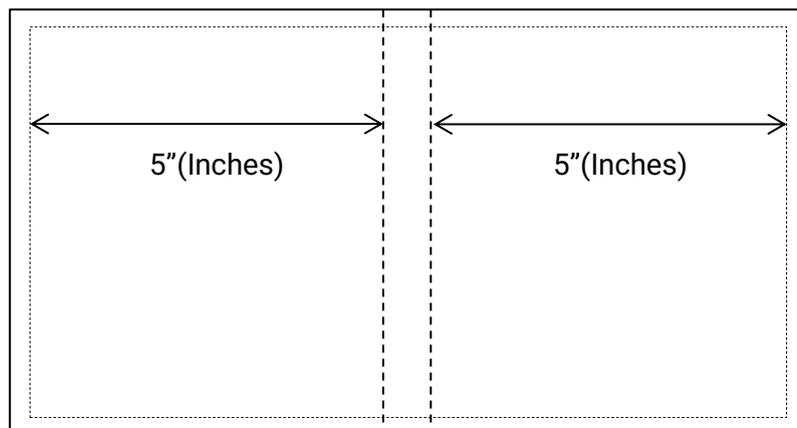
Vehicle Type	Penalty Charge (Ksh)per Km
PickUp	10
Car	5
Truck	15
Lorry	20

- (iii) The **Total Charge** is based on summation of **Normal Charge** and **Penalty Charge**. Create a column **Total Charge** and use a function to Calculate the **Total Charge** (2 Marks)
- (iv) Create the running totals for **Normal Charge**, **Penalty Charge** and **Total charge** (3 Marks)
- (b) (i) Copy The data in the **OriginalToll** to another sheet rename the worksheet as **Sorted** (2Mark)
- (ii) Sort the Data in ascending order of **Vehicle type** Sorted worksheet. (4 Marks)
- (iii) Create subtotals on **Normal Charge**, **Penalty Charge** and **Total Charge** based on the vehicle Type (4 Marks)
- (iv) Draw a column chart based on the **Vehicle Type subtotals** and **Total Charge** (8 Marks)
- (c) Print **OriginalToll**, **Sorted** and the **Chart** (3 marks)

2. The Marketing Director of Teenie Counselors organization would like to have brochures. As a Desktop Publishing expert, you have been tasked to design the brochure for the officer.

- (a) (i) Open a Desktop Publishing program and set the page layout as follows:

- Paper size: A4
- Margins: 0.25" (Inches) all round
- Orientation: Landscape
- Guidelines: Apply guidelines within the printable area as illustrated below:



(4 Marks)

- (ii) Save the publication as **Teenie Brochure** (1 mark)
- (b) Design the brochure as it appears on the next page using the page you prepared in (a) (i) above. (43 marks)
- (c) Print out the publication on the provided A4 paper. (2 marks)

What Is Teen Counseling?

Teen counseling is a therapeutic approach specifically for teens. With counseling, teens participate in talk therapy in a safe environment with a mental health professional with the aim to better understand and express their feelings, identify and solve problems, and develop healthy coping mechanisms. Counseling can be in the form of one-on-one talk therapy sessions or group therapy. Having your teen talk to a skilled therapist can support and help them through this crucial period of their life.

When Does a Teen Need Counseling?

Therapy can support a teen through a variety of things, such as self-discovery, stress, life events, or mental health issues. Therapy can also be used to prevent minor issues from turning into problems later on.

Sometimes, even just a few therapy sessions can make a big difference to your teen’s overall well-being. Common reasons and conditions for which teens attend counseling include:¹ Anxiety disorders, Attention-deficit/hyperactivity disorder (ADHD)² and Autism

Other Issues include:

Behavioral problems

- ◆ Coping with a chronic health condition
- ◆ Cultural or racial discrimination
- ◆ Depression³
- ◆ Discovering sexuality, sexual orientation, and/or gender identity
- ◆ Eating disorders
- ◆ Grief
- ◆ Loneliness
- ◆ Obsessive-compulsive disorder (OCD)
- ◆ Personality disorders

- ◆ Problems with self-awareness, self-esteem, or self-worth

Relationship problems

- ◆ School and social-related issues like bullying
- ◆ Self-harm, suicidal thoughts, or risky behaviors
- ◆ Stress management
- ◆ Substance use
- ◆ Trauma

For More Information Please Contact

Clifford Abunuasi

Marketing Department

Mobile: (+254) 722 444 111

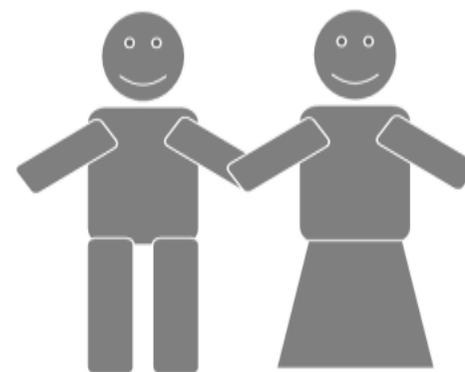
Contact 0724333200/0795491185 for marketing schemes or

(+254)-0-723-123123

<http://www.teeniecounsel.co.ke>



P.O. Box 28000-10204
Genesis Plaza Bld. 2nd Floor,
Kiriaini—Kenya
info@teeniecounsel.co.ke



TEENIE COUNSELLORS

The
Troubles of
Adolescence eventually
go away—it’s just like a
really long, bad cold.

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Restoring God’s Original Plan in Our Teens

Name..... Adm No..... Class.....

FORM 3
313/1
C.R.E.
Paper 1
Time: 2 ½ Hours

**BRAIN QUEST SERIES FORM 3 END OF YEAR
EXAMS 2023**

Instructions to candidates:

This paper consists **six** questions.

Answer any **five**

Each question carries 20 marks

For examiners use only

1	2	3	4	5	6	TOTAL

1

- a) Explain **Seven** differences between the First and the Second accounts of creation (7mks)
- b) From the story of the fall of man in Genesis 3, state the effects of sin (7mks)
- c) Give reasons why Christians in Kenya take care of the environment (6mks)

2

- a) Outline the commandments that guide on human relations (Exodus 20:2-17) (6mks)
- b) Describe the incident where the Israelites broke the Sinai covenant (Exo32: 1-28) (8mks)
- c) Outline **Six** lessons that Christians learn about God from the renewal of the Sinai covenant (6mks)

3

- a) Outline ways in which King David promoted the worship of Yahweh in Israel (7mks)
- b) Explain how the cautions given by Samuel were fulfilled during the reign of King Solomon (6mks)
- c) State **Seven** ways in which Christians show respect for places of worship today (7mks)

4

- a) Explain the vision of the basket of summer fruits shown to prophet Amos by God (Amos8:1-3) (6mks)
- b) Outline **Seven** teachings of prophet Amos on the day of the lord (7mks)
- c) State **Seven** ways in which Christians help the church leaders to perform their duties effectively (7mks)

5

- a) Outline the content of prophet Jeremiah's letter to the exiles in Babylon (6mks)
- b) Give **Seven** reasons why prophet Jeremiah condemned the practice of human sacrifice in Judah (7mks)
- c) Identify ways in which Christians can help to reduce human suffering today (7mks)

6

- a) State the **role** of elders in Traditional African communities (7mks)
- b) Outline **Six** requirements that one has to fulfill to be made an elder in traditional African communities (6mks)
- c) Identify **Seven** factors that are undermining the role of elders in Kenya today (7mks)

Name..... Adm No..... Class.....

FORM 3

313/2

C.R.E.

Paper 2

Time: 2 ½ Hours

BRAIN QUEST SERIES FORM 3 END OF YEAR
EXAMS 2023

Instructions to candidates:This paper consists **six** questions.Answer any **five**

Each question carries 20 marks

For examiners use only

1	2	3	4	5	6	TOTAL

1

- a) Explain Isaiah's prophecy concerning the suffering servant (7mks)
- b) Outline the events that took place on the night that Jesus was born (7mks)
- c) Give **Six** ways in which Christians in Kenya celebrate the birth of children (6mks)

2

- a) Give **Six** reasons why Jesus was rejected in Nazareth (6mks)
- b) Describe the call of the first disciples of Jesus (Lk 5:1-11) (8mks)
- c) Identify the lessons that Christians learn from the call of the first disciples (6mks)

3

- a) Describe the parable of the sower (Lk 8: 4-15) (7mks)
- b) State **Six** reasons why Jesus used parables in his teachings (6mks)
- c) Give reasons why some Christians find it difficult to help the needy in society (7mks)

4

- a) Identify the events that took place between the death and burial of Jesus Christ (Luke 23:44-56) (7mks)
- b) Give **Six** reasons why Peter denied Jesus (6mks)
- c) Give the lessons that Christians learn from the suffering and death of Jesus (7mks)

5

- a) Identify the gifts of the holy spirit according to Saint Paul (8mks)
- b) How was the life of Peter transformed on the day of Pentecost? (6mks)
- c) Explain **Six** ways in which the gifts of the Holy Spirit are abused in the church today (6mks)

6

- a) Explain how the unity of believers is expressed in the image of the body of Christ (8mks)
- b) State **Six** reasons why the gifts of the Holy Spirit brought disunity in the church at Corinth (6mks)
- c) In what ways do the Christians in Kenya demonstrate the New Testament teaching on unity (6mks)

NameSchool:

Adm. No.Date

101/1

ENGLISH

Paper 1

Time: 2 Hours

BRAIN QUEST SERIES FORM 3 END OF YEAR
EXAMS 2023

INSTRUCTIONS TO CANDIDATES

- ❖ Write you name, school and admission number in the spaces provided above
- ❖ Write the date of the examination
- ❖ Answer **ALL** question in this paper in the spaces provided.

For Examiner's Use Only

	Question	Maximum score	Candidate's score
1	FUNCTIONAL WRITING	20	
2	CLOZE TEST	10	
3	ORAL SKILLS	30	
		60	

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2. CLOZE TEST (10MKS)

Fill in each blank space in the following passage with the most appropriate word.

Most parents innocently believe that parental guidance (1) regard to television watching means making sure (2) your child does not (3) too close to the set. They believe that sitting close to the TV can hurt their eyes. (4)the harmful effects of (5) media go much deeper than (6) the physiological damage of X- rays (7) the brain and eyes.

This is especially (8)with children under the age of seven, (9) senses are only just beginning to develop. Electronic media has been discovered to hamper young children’s (10)to create their own inner pictures – which is the foundation of all creativity.

3. POETRY (10MKS)

Read the following poem and answer the questions that follow.

CHRISTMAS EVE AT SEA -John Masefield

The wind is rustling “south and soft,”
Cooing a quiet country tune
The calm sea sighs, and far aloft
The sails are ghostly in the moon.

Unquiet ripples lisp and purr,
A block there pipes and chirps I' the sheave,
The wheel-ropes jar, the reef-points stir
Faintly - and it is Christmas Eve.

The hushed sea seems to hold her breath,
And o'er the giddy, swaying spars,
Silent and excellent as Death,
The dim blue skies are bright with stars.

The moon goes nodding down the west,
The drowsy helmsman strikes the bell;
The King of the Jews is born.
I charge you, brothers, sing 'Nowell, Nowell',
The King of Jews is born.

Questions

- a. Identify any four sets of rhyming words. (4mks)
.....
.....
.....
.....
- b. Describe the rhyme scheme for this poem. (2mks)
.....
.....
.....
- c. Identify and illustrate two sound devices in this poem other than rhyme. (4mks)

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

d. How would you perform line 9 and 10 of this poem? (2mks)

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

(b) In each of the following group of words, underline the odd consider the pronunciation of the letters in bold and underline the odd one out. (3mks)

- i. Said, maid, gate, bait
- ii. Cheer, machete, mulching, chores
- iii. Gestures, get, log maggot

(c) For each of the words below, provide another word that has the same pronunciation but different spelling. (3mks)

- i. wail
- ii. blue
- iii. led

(d) Underline the silent letters in the following words. (3mks)

- i)History
- ii)Debris
- iii)rapport

(e) For each of the following words, underline the stressed part. (3mks)

- a. Ac.cess
- b. Sup.ply
- c. Per.for.mance

(f) Read the following dialogue and supply the missing responses

JAMES. Would you mind to leave the meeting room now? (1mk)

TERRY

.....

JAMES. With all due respect, you know you were not invited, don't ...

TERRY

.....

JAMES. Nobody is leaving you out. This is a private affair. It's not the Tour Club meeting. (1mk)

TERRY

.....

JAMES. Lucy asked us to help her in some challenge she is facing. Did she ask you? (1mk)

TERRY

.....

JAMES Okay. If you insist. We'll leave you here and you can have the meeting with yourself.

BRAIN QUEST SERIES FORM 3 END OF YEAR
EXAMS 2023

ENGLISH PAPER 2

END OF TERM THREE 2023

TIME 2 HOURS 30 MINUTES

NAME.....

ADM NO :

CLASS :

INSTRUCTIONS TO CANDIDATES

- a) Write your name, admission number and the class in the spaces provided.
- b) Answer all the questions in this paper.
- c) Candidates should check and ensure that no question is missing.

COMPREHENSION (20 MARKS)

Read the following passage and then answer the questions that follows .

At the head of the court is a high seat where the judge sits. Down below is a table for officers of the court ,and to the left and to the right of the table are other seats. Some of these seats form a block that is enclosed,and they are for the jury if they is a jury. In front of the table are other seats arranged in arcs of circles, with curved tables in front of the seats, and it is there that the lawyers sit. And behind them is the dock, with a passage leading to some place that is underground, and from this place that is underground will be brought the men that are to be judged. At the back of the court there are seats rising in tiers, those on the right for Europeans, those for le left for non Europeans, according to the custom.

You may not smoke in this court , you may not whisper or speak or laugh. You must dress decently, and if you are a man , you may not wear your hat *unless such is your religion.*This is in honour of the judge and in honour of the king whose officerhe is; and in honour of the law behind the judge , and in honour of the people behind the law. When the judge enters you will stand and you will not sit till he is seated. When the judge leaves you will stand and you will not move till he has left. This honour of the judge and of the things behind the judge.

For the judge is entrusted a great duty, to judge and pronounce sentence even sentence of death. Because of their high office , judges are called Honourable, * and precede most other men* on great occasions. And they are held in great honor by men both white and black.

Because the land is a land of fear, a judge must be without fear, so that justice may be done according to the law; therefore a judge must be incorruptible.

The judge does not make the law. It is the people that make the law. Therefore, if the law is unjust , and if the judge judges according to the law, that is justice, even if it is not just.

It is the duty of the judge to do justice, but it is only that the people that can be just. Therefore, if justice be not just, that is not to be *laid at the door of the judge,*but at the door of the people, which means, at the door of the white people, for it is the white people that make the law.

In South Africa men are proud of their judges, because they are not incorruptible. Even the black men are proud of their judges, because they believe they are incorruptible. Even the black men have faith in

them, though they do not always have faith in the law . In a land of fear this incorruptibility is like *a lamp set upon a stand*,giving light to that are in the house.

Questions (20 marks)

a) What factors determine where you sit near the front of the court? (2 marks)

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.....
.....

b) What does the seating arrangement at the back of the court reveal about the society? (2 marks)

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

c) Certain rules must be strictly observed inside the court. What would non - observance of the rules imply?

(2 marks)

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

d) Why must a judge be fearless? (2 marks)

.....
.....

e) How has judges in South Africa earn respect and admiration? (2 marks)

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

f) Although the judge has great responsibilities and power, he has limitations. What are his limitations? (4 marks)

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

g) What does the second last paragraph reveal about the status of the black people? (2 marks)

.....
.....

h) Explain the meaning of the the following expressions as used in the Passage.

i) Unless such is your religion. (1 mark)

.....
.....

ii) and precede most other men (1 mark)

.....
.....

iii) Laid at the door of the judge. (1 mark)

.....
.....

EXCERPT (25 Marks)

Read the following excerpt and answer the questions that follows.

"What are your expectations? Please don't get me started !

I expect the summit to be a historical moment. If adopted, Way Omega will change African politics dramatically. Just think: no more rigged elections; well, no more foul play, period."

"Dr Afolabi, not all the heads of state assembled here are fair players. In fact, a few are out - and - out foul players - they rose to power through military coups or rigged elections. Those won't be walking along Way Omega any time soon, will they?"

"Change is always like that, Ms McKenzie. One side of it has defenders of existing arrangements. These, sure about their loss if those arrangements end, fight tooth and nail to keep them. The other side has

challengers of existing arrangements. These not yet sure about their gain if new arrangements replace old arrangements, do not fight so hard to win them."

" Huh? What did you just say, Dr Afolabi?"

You are not listening to me anymore, are you, Ms McKenzie? Anyway, I was saying Way Omega will put Africa on a new course, free from the obstacles that have defeated it's past efforts. Imagine this, Ms McKenzie: Africa without coups, without civil wars, without..." He stopped himself. Look who is rambling on now, Ms McKenzie? Yet can you blame me? I told you not to get me started, remember?"

"Yes, I remember and yet we have your book : Failure of States. Dr Afolabi, may I ask you something? What makes you this optimistic about Africa's future now ,when in that book you were very pessimistic? Is it the content of Way Omega or the prestige of it's author?"

Questions

1. Describe African leadership as potrayed in the excerpt.

(2 marks)

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

2. Make notes on Dr. Afolabi's trait. (5 marks)

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.....

3. Is Dr. Afolabi justified to be optimistic at the summit? Support your answer. (2 marks)

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

4. Referring to elsewhere in the book, explain why there is irony in what Dr. Afolabi tells Fiona about the Way Omega

(6 marks)

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

5. Comment on any two features of style used in the excerpt. (4 marks)

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

6.What events follow after this extract (3 marks)

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

7.Compare Fiona and Dr Afolabi's relationship now and later in the book. (3 marks)

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

3. POETRY. (20 Marks)

Read the following poem and answer the questions that follow.

WHEN I WAS ONE - AND - TWENTY

When I was one - and -twenty

I heard a wise man say,

"Give crowns and pounds and guineas

But not your heart away;

Give pearls away and rubies

But keep your fancy free"

But I was one - and - twenty,

No one use to talk to me

When I was one - and - twenty

I heard him say again'

"The heart out of bossom

Was never given in vain;

" Tis paid with sighs a - plenty

And sold for endless rue."

And lam two - and - twenty

And oh, ' tis true, tis true.

(A.E Housman)

a) Who is the speaker in this poem? (3 marks)

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

b) What advise does the wise man to the speaker? Does the speaker follow the advice ? Explain. (3 marks)

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

c) How much time has passed between the first and second stanza? Explain (2 marks)

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

d) Identify and illustrate the style used in the poem. What does the poet achieve by using them? (6 Marks)

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

e) Explain the meaning of the following lines. (2 marks)

But I was one and twenty

No use to talk to me

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

4. GRAMMAR (15 MARKS)

A) Change the following sentences into direct speech. (2 marks)

i) He said that when he saw them they were playing squash.

.....
.....

ii) The pupils said that they wished they did not have to take exams.

.....
.....

B) Fill in the blank space with the most appropriate preposition. (3 marks)

i) Cat jumped the mantel piece.

ii) The cook dipped the cup the porridge.

iii) Some students were sent home for going the perimeter wall.

C).Write the following sentences according to instructions given. (5 marks)

i) The child would have drowned were it not for the quick action taken by the life saver. (Begin But...)

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

ii) Someone is watching us (Rewrite in the passive)

.....
.....

iii) As soon as you see him inform the police. (Rewrite using no sooner)

.....
.....

iv) Moses Set out for Canaan. His brother accompanied him (Begin with : setting)

.....
.....

v) If he comes, he will not be punished.

.....
.....

D) Explain the meaning of the underlined expressions.

(2 marks)

i) Abdi will tidy up the room *When pigs begin to fly*

.....
.....

ii) My mother has *green fingers*

.....
.....

E) Complete the underlined verb to make the appropriate phrasal verb . (3 marks)

i) The immigrant complained about being discriminated because of his face

ii) I boarded the car and was dropped at the mall.

.....

iii) As she was was cleaning her gun , it went and killed her.

.....

**BRAIN QUEST SERIES FORM 3 END OF YEAR
EXAMS 2023**

END OF TERM THREE 2023

FORM THREE

ENGLISH PAPER THREE

TIME : 2 HOURS 30 MINUTES

NAME:

ADM NO :

CLASS :

INSTRUCTIONS TO CANDIDATES

- a) Write your name, admission number and class in the spaces provided.
- b) Answer all the questions given.
- c) Each question must not exceed 450 words.
- d) Candidates must answer the questions in English.
- e) Candidates should check the question paper to ascertain that no question is missing.

Answer all the questions

1a) Write a composition beginning with the following sentence.

"The night was different from all previous nights..."

(20 marks)

b) Write a composition explaining the importance of co-curricular activities in achieving a wholesome education in Kenya schools. (20 marks)

c) Despite having gained Independence, Many African nations still grapple with Neo - colonialism which adversely affects lives. Justify this assertion with illustration from Father's of Nations by John Lara (20 marks)

Name:.....School.....

Class:.....Adm No:.....Index:.....

FORM 3

GEOGRAPHY

312/1 PAPER ONE

TIME 2HRS 45 MIN.

BRAIN QUEST SERIES FORM 3 END OF YEAR
EXAMS 2023

INSTRUCTION TO CANDIDATE.

- This paper has two sections A and B.
- Answer All questions in section A.
- In section B, Answer question six and any other two questions.

For examiners use only

SECTION	QUESTION	MAXIMUM SCORE	CADINDATE SCORE
A	1-5	25	
B	6	25	
		25	
		25	
TOTAL SCORE			

SECTION A

Answer ALL questions in this section.

1. (a) Define weather (2marks)
(b) State four factors considered when siting a weather station. (4marks)
2. (a) State two ways that make it possible for geographers to study the earth's interior. (2marks)
(b) State 3 changes that may occur in a rock after it has undergone metamorphism. (3marks)
3. (a) Differentiate between folding and faulting. (2marks)
(b) Citing an example on each period, state 4 orogenesis periods in fold mountain formation. (4marks)
4. (a) Differentiate between a spring and a well. (2marks)
(b) State three ways by which springs develop. (3marks)
5. Give three ways in which mulching improves soil. (3marks)

SECTION B

Answer question 6 and any other two questions from this section

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

6. You are provided with a map of Kijabe East Africa 1: 50,000(KENYA) sheet 134/3, use it to answer the following questions.

- a) (i) Give the six figure grid reference of the trigonometrical station (2610m) (2mks)
(ii) What is the general flow of River Gatamaiyu (2mks)
- b) (i) measure the length of Nairobi-naivasha railway to the west of easting 27 and east of easting 24 give your answer in kilometers (2mks)
(ii) Citing evidence from the map, identify three social services offered in the area covered by the map (6mks)
- c) (i) Explain three physical factors favouring cattle rearing in the area covered by the map. (6mks)
(ii) Identify three physical features found at grid square 2695 (3mks)
- d) (i) On the graph paper provided draw a rectangle measuring 12cm by 8cm to represent the area bordered by Easting 26 and 29 and northing 94 and 96 (2mks)
(ii) On it mark and label
 - All weather road loose surface (1 mk)
 - Power line (1 mk)

7. (a) Define the term vulcanicity (2mks)
(b) Give four characteristics of a composite volcano. (4marks)
(c) Describe how a lava plateau is formed. (4marks)
(d) Explain four negative effects of vulcanicity. (8marks)
(e) You intend to carry out a field study of an area affected by vulcanicity.
(i) Give four sources of information that you would use in the preparation of the study (4marks)
(ii) Give three factors that would make it difficult for you to collect accurate data during the field study. (3marks)
- 8 (a) Give three agents of weathering (3marks)
(b) Describe frost action as a process of weathering. (4marks)
(c) Explain how an exfoliation dome is formed. (5marks)
(d) (i) Explain 3 factors that influence the rate of mass wasting. (6marks)
(ii) State four types of slow mass wasting. (4marks)
e) Give three positive effects of mass wasting. (3marks)
9. (a) (i) State three factors that influence transportation of materials in the sea. (3marks)
(ii) Draw a simple well labeled diagram of a sea wave. (3marks)
(iii) Give three ways in which islands are formed. (3 marks)
(b) Explain the following processes of wave erosion.
(i) Hydraulic action (3marks)
(ii) Solution (2marks)
(c) Describe the formation of a spit. (5marks)
(d) Explain 3 economic importances of coastal landforms. (6marks)
10. (a) State four physical factors that contribute to development of deserts. (4marks)
(b) Give four characteristics of desert landscape. (4marks)
(c) Explain three factors that influence wind transport in the desert. (6marks)
(d) Describe how a deflation hollow is formed. (4marks)
(e) You carried out a field study in a desert landscape.
(i) State four preparations for your study. (4marks)
(ii) List three water depositional features you identified. (3marks)

NAME.....ADM.NO.....CLASS.....

312/2

GEOGRAPHY

FORM THREE

TIME: 2HRS 45MINS

**BRAIN QUEST SERIES FORM 3 END OF
YEAR EXAMS 2023**

INSTRUCTIONS TO CANDIDATES:

- This paper consists of two sections, A and B.
- *This paper consists of 4 printed pages, students to confirm this and ensure that all the questions are printed as indicated.*

FOR EXAMINER'S USE ONLY

Question	Maximum Score	Actual Score
Section A	25	
6	25	
	25	
	25	
Total	100	

SECTION A (25 marks)**Answer All the Questions in this Section**

1. a) Define the term mining. (2 marks)
b) State **three** forms in which minerals occur. (3 marks)
2. a) Distinguish between physical environment and human environment. (2 marks)
b) Name **three** divisions of human and economic geography (3 marks)
3. a) What is horticulture? (2 marks)
b) Give **three** economic factors that influence agricultural activities. (3 marks)
4. a) Name two places where limestone is found in Kenya. (2 marks)
b) List **three** uses of soda ash. (3 marks)
5. a) Differentiate between a ground general view photograph and ground oblique photograph (2 marks)
b) Mention **three** uses of a photograph. (3 marks)

SECTION B: 75 MARKS**QUESTION 6 IS COMPULSORY, ANSWER ANY OTHER TWO QUESTIONS FROM THIS SECTION**

6. Study the table below and answer the questions that follow

Oil consumption in Kenya in the year 2010 in different economic sectors expressed as Percentage of oil consumed

OIL CONSUMPTION IN KENYA THE YEAR 2010	
ECONOMIC SECTOR	PERCENTAGE OF OIL CONSUMED
Agriculture	4
Aviation	21
Commercial and industry	22
Power	7
Rail	6
Road	30
Shipping	6
Others	4
Total	100

- a) Draw a simple pie chart to represent the information above. (8 marks)
- b) Mention **two** demerits of using the method above to represent data. (2 marks)
- c) i) List **three** countries where oil is produced in the Middle East. (3 marks)
ii) Explain **three** contributions of oil in the economy of the countries in the Middle East (6 marks)
- c) Describe how petroleum oil is formed. (6 marks)
7. a) Name **two** wheat growing counties in Kenya (2 marks)

- b) State **five** conditions favoring wheat farming in Kenya. (5 marks)
- c) Describe wheat farming from planting to harvesting stage. (8 marks)
- d) Give **two** selling points of wheat in Kenya. (2 marks)
- e) Differentiate wheat farming in Kenya and Canada. (8 marks)
8. a) Differentiate between forests and forestry (2mks)
- b) Explain four factors influencing distribution of natural forests in Kenya (8mks)
- c) i) Identify three uses of forest product (3mks)
- ii) Give four characteristics of coniferous forests (4mks)
- d) Explain factors that have led to the decline of the area under forest cover in Kenya (8mks)
9. a) Discuss nomadic pastoralism in Kenya under the following sub-headings
- i) The cattle breeds kept (2 marks)
- ii) The pattern of movement (2 marks)
- iii) Marketing of the animals (2 marks)
- b) i) Give **four** reasons why nomadic pastoralists keep large heads of animals. (4marks)
- ii) Explain **four** measures taken by the government of Kenya to improve beef cattle farming. (8 marks)
- c) Give **four** challenges facing nomadic pastoralism in Kenya (4 marks)
- d) Name **three** indigenous breeds of dairy cattle reared in Kenya. (3 marks)
- 10.a (i). Define plantation farming. (2mks)
- (ii). Name **two** crops grown in plantations in Kenya highlands East of Rift Valley (2mks)
- (iii). Outline **four** characteristics of plantation farming (4mks)
- b. Explain **three** benefits of plantation farming in Kenya (6mks)
- c). Students from a school in Naivasha carried out a field study on a flower farm near their school.
- (i). Give **three** farm activities they may have identified (3mks)
- (ii). State **three** reasons why they needed a working schedule (3mks)
- d(i). Apart from flowers name **two** other crops grown in horticultural farming (2mks)
- (ii). State **three** benefits of growing flowers in a green house. (3mks)

311/1

HISTORY AND GOVERNMENT

PAPER 1

FORM THREE.

BRAIN QUEST SERIES FORM 3 END OF YEAR EXAMS 2023

INSTRUCTIONS TO CANDIDATES.

THIS PAPER CONSISTS OF THREE SECTIONS A, B AND C.

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

SECTION A ; ASWER ALL QUESTIONS IN THIS SECTION. (25MKS)

- 1.State two forms of oral traditions used as source of information in History and Government. (2 marks)
- 2.Name the main economic activity of the Luo in the pre-colonial period. (1mk)
- 3.State two cultural practices that were adopted by the Maasai from the Cushites. (2 mks)
- 4.Give two natural factors that facilitated contact between Kenyan Coast and the outside world by 1500 AD. (2 mks)
- 5.Give two duties of Portuguese captains along the East African coast. (2mks)
- 6.Name one community in Kenya which played a leading role in the long distance trade. (1 mk)
- 7.Give one type of human right which is violated if a person is unlawfully detained. (1mk)
- 8.Identify two methods used by the British to establish colonial rule in Kenya. (2mks)
- 9.Give the main reason why some African communities resisted the establishment of British rule in Kenya. (1 mk)
- 10.give two duties given to African chiefs during the colonial period. (2mks)
11. Name the cash crop that was introduced in Kenya by the missionaries. (1mk)

- 12.State two grievances which the Africans had against the colonial government. (2mks)
- 13.State two problems faced by early political organizations in Kenya up to 1939. (2 mks)
- 14.Identify the main ideological difference between KANU and KADU. (1 mk)
- 15.Name the first African to be nominated to the legislative council in 1944 in Kenya. (1 mk)
- 16.Give one qualification a person must fulfil in order to be allowed to register as a voter in Kenya. (1 mk)
- 17.Who is the administrative head of parliament in Kenyan. (1 mk)

SECTION B; ANSWER ANY THREE QUESTIONS (45MKS)

- 18 a) Identify five sub-tribes of the Mijikenda. (5mks).
- (b)Describe the social organization of the Mijikenda in the 19th C. (10 mks)
- 19 a) State three functions of Nairobi as a modern urban Centre. (3 mks)
- b) Explain six factors that led to the growth of Nairobi as a modern urban Centre. (12 mks)
- 20 a) State five challenges experienced during the construction of the Uganda railway. (5 mks)
- b) Explain five ways in which the construction of the Uganda railway promoted economic development in Kenya. (10 mks)
- 21 a) Name three aims of the Ukamba Members Association. (3 mks)
- b) Describe six grievances presented by Africans in Kenya between 1945 and 1963. (12 mks)

SECTION C; ANSWER ANY TWO QUESTIONS(30MKS)

22. a) State three characteristics of a good constitution. (3 mks)
- b) Explain the main features of Kenya's independence constitution. (12mks)
- 23 a) Give three reasons why elections are held regularly in Kenya. (3 mks)
- b) Explain six functions of the Independent Electoral and Boundaries Commission (IEBC). (12 mks)
- 24 a) Give five reasons that may lead to a presidential by-election kenya. (5 mks)
- b) Explain five factors which may interfere with free and fair elections. (10 mks)

NAME: _____ ADM.NO: _____

SIGN: _____ DATE: _____

311/2**HISTORY AND GOVERNMENT****PAPER 2****FORM 3****TIME: 2 HOURS 30 MINS****BRAIN QUEST SERIES FORM 3 END OF YEAR
EXAMS 2023****INSTRUCTIONS TO CANDIDATES.**

- . This paper consists of three sections A, B and C.
- . Answer all questions in section A, three questions in section B and two questions in section C
- . All answers must be written in the answer booklets provided.

FOR EXAMINERS USE ONLY.

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
A	1 - 17	25	
B		15	
		15	
		15	
C		15	
		15	
TOTAL		100	

SECTION A(25 MARKS)

Answer all questions in this section.

- 1 . State one limitation of using electronics as a source of information on history and government (1mk)
2. Give two reasons that made early human beings live in groups during the stone age period (2mks)
3. Give two developments which were made by homo erectus that improved his way of life (2mks)
4. Identify the earliest form of writing in Mesopotamia (1mks)
5. State the main factor that facilitated the exchange of goods between various communities .(1mk)
6. Give two reasons why camel is referred to as “the ship of the desert” (2mks)
7. Outline two uses of copper in pre colonial Africa. (2mks)
8. Identify the contribution of Joseph Lister in the field of medicine in the 19th century (1mk)
9. State two factors that contributed to the decline of Kilwa as an early urban centre in Africa.(2mks)
10. Mention one importance of the royal fire among the Shona kingdom. (1mks)
11. Identify two Communes which were established by the French in Senegal (2mks)
12. Identify two methods used by Europeans to acquire colonies in Africa. (2mks)
13. State two ways in which the invention of wheel revolutionised transport in Europe before the 19TH century (2mks)
14. State one importance of rock art to early man. (1mk)
15. State one duty of Emirs of Northern Nigeria. (1mk)
- 16.Name one treaty signed between Lobengula and British during the process of colonization of Africa (1mk)
17. Identify the European power that colonised Mozambique (1mk)

SECTION B (45MKS). (Answer three questions from this section.)

- 18.(a). State five challenges encountered by Tran-Saharan traders. (5mks)

- (b). Discuss five factors that led to the decline of Trans-Atlantic trade. (10mks)
19. (a). Outline five positive impacts of scientific inventions on medicine. (5mks)
- (b). Explain five factors which have influenced industrialization in India. (10mks)
- 20.(a). State five factors that led to the growth of a strong Asante kingdom. (5mks)
- (b). Describe the political organisation of the Shona during the pre-colonial period (10mks)
- 21.(a). Identify five reasons why man started Agriculture. (5mks)
- (b). Discuss five effects of agrarian revolution in the United States of America (10mks)

SECTION C (30MKS)

Answer two questions from this section.

- 22.(a)state three social factors that led to the Scramble for Colonies in Africa by European powers (3mks)
- (b). Discuss six reasons why Lewanika of Lozi collaborated with the British. (12mks)
- 23.(a). Outline three reasons why British applied indirect rule in Northern Nigeria. (3mks)
- (b) Explain six challenges which were experienced in the implementation of the Assimilation policy (12mks)
- 24(a). Identify three methods used by Mozambican Nationalists to struggle for Independence . (3mks)
- (b). Explain six factors that led to the development of African Nationalism in Ghana (12mks)

BRAIN QUEST SERIES FORM 3 END OF YEAR
EXAMS 2023

441/1 -HOME SCIENCE
FORM3

Paper 1(THEORY)

- 2 ½ HOURS

Name: ADM No:

Candidate's Signature Date

Instructions to candidates

- (a) Write your **name**, **ADM number** and the **name** of your school in the spaces provided above.
- (b) **Sign** and **write** the **date** of examination in the spaces provided above.
- (c) This paper consists of **3 sections A, B and C**. Answer **all questions in section A and B** and **any two** from section **C**. All answers must be written in the answer booklet provided.
- (d) All Answers must be written in **English**

FOR EXAMINER'S USE ONLY

Section	Question	Maximum score	Candidates score
A		40	
B		20	
C		20	
		20	
		20	
Total score		100	

Section A- Compulsory -40 marks

Answer all questions in this section

1. State 2 reasons for cooking food (2mks)

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.....
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.....

2. Highlight 3 reasons for sieving baking flour (3mks)

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.....
.....

3. State 3 benefits of attending post natal clinic for the mother (3mks)

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.....
.....

4. Define the term immunization (1mk)

.....
.....

5. Give 2 other determinants of safe parenthood other than age (2mks)

.....
.....

6. State 2 uses of gathers on a garment (2mks)

.....
.....

7. Give 2 functions of the presser foot when used together with the feed dog (2mks)

.....

.....
8. Identify 2 cooking methods suitable for an invalid (2mks)

.....
.....
9. State 3 principles of wise buying (3mks)

.....
.....
10. Identify any 4 types of services given to the consumer (2mks)

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.....
.....
11. Differentiate between fainting and suffocation (2mks)

.....
.....
12. Give 2 reasons for buffing the floor after polishing (2mks)

.....
.....
13. Mention 2 safety measures to observe when using an electric cooker (2mks)

.....
.....
14. Suggest 3 ways of reducing fatigue when performing house chores (3mks)

.....
15. Give 2 uses of starch in laundry work (2mks)

.....
.....
16. Define the term impulse buying (1mk)

.....
.....
17. Give 2 ways of paying for goods and services (1mk)

.....
.....
18. State 2 causes of obesity (2mks)

.....
.....
19. List 4 fabrics that should not be wrung during laundry (2mks)

.....
.....
20. State the reason why common salt should be iodised (1mk)

Section B- compulsory

Answer question 21 in the space provided

Your parents are away for the weekend and have asked you to clean the house thoroughly.

a) Describe how you would weekly clean a glass window (8mks)

b) Describe how you would launder a silk blouse (7mks)

c) Explain how to clean a tooth brush (5mks)

Section C- 40 marks

Choose any 2 questions from this section and answer in the space provided below.

22a) Highlight 3 importance of learning home science to an individual (3mks)

b.i) Outline 4 functions of fat when baking a cake (4mks)

ii) State 5 signs and symptoms of kwashiorkor (5mks)

c) Using 2 diagrams explain the preparations for an interfaced waistband in readiness for attachment (8mks)

23.a) Explain 4 reasons for cleaning a house (4mks)

B.i) List 4 items used when setting a table (2mks)

ii) Explain 4 factors to consider when setting the table (4mks)

c) With the aid of any 2 diagrams, describe how to make a machine fell seam (7mks)

d) State 3 dangers of poor sanitation (3mks)

24.a) Explain 3 problems related to early weaning (3mks)

b) State 6 points to consider when choosing fabric for making school uniform (6mks)

c) State 5 points to consider when working hand made stitches (5mks)

d) Describe the management of snakebite (6mks)

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JinaNambari ya Mtahiniwa

Sahihi ya Mtahiniwa

102/1

Karatasi ya 1

INSHA

Muda : Saa 1³/₄

**MTIHANI WA KISWAHILI
MWISHO WA MUHULA WA TATU
KIDATO CHA TATU**

**BRAIN QUEST SERIES FORM 3 END OF YEAR
EXAMS 2023**

Maagizo

- (a) Andika jina lako na nambari yako ya mihani katika nafasi ulizoachiwa hapo juu.
(b) Tia sahihi yako katika nafasi uliyoachiwa hapo juu.
(c) Jibu maswali **MAWILI** pekee.
(d) Swali la **kwanza** ni la **lazima**.
(e) Chagua swali lingine **moja** kutoka kwa sehemu zilizosalia.
(f) Majibu yote **lazima** yaandikwe kwa lugha ya Kiswahili.
(g) Watahiniwa ni lazima wahakikishe kwamba kurasa zote za karatasi hii zimepigwa chapa sawasawa na kuwa maswali yote yamo.

Kwa matumizi ya mtahini pekee.

Swali	Upeo	Alama
1	20	
2	20	
Jumla	40	

JinaNambari ya Mtahiniwa

Sahihi ya Mtahiniwa

102/2

KISWAHILI

Muda : Saa 2^{1/2}

**MTHANI WA MWISHO WA MUHULA WA TATU
KIDATO CHA TATU**

BRAIN QUEST SERIES FORM 3 END OF YEAR EXAMS
2023

Maagizo

- (a) Andika jina lako na nambari yako ya mthani katika nafasi ulizoachiwa hapo juu.
(b) Tia sahihi yako katika nafasi uliyoachiwa hapo juu.
(c) Jibu maswali yote.
(d) Majibu yote **lazima** yaandikwe kwa lugha ya Kiswahili.
(e) Watahiniwa ni lazima wahahakishe kwamba kurasa zote za karatasi hii zimepigwa chapa sawasawa na kuwa maswali yote yamo.

Kwa matumizi ya mthani pekee.

Swali	Upeo	Alama
A	15	
B	15	
C	40	
D	10	
Jumla	80	

SEHEMU A UFAHAMU:ALAMA 15**Soma taarifa ifuatayo kisha ujibu maswali**

Nchini Kenya, pamoja na kuwa mwanamke amepewa hadhi kubwa ikilinganishwa na hapo awali, kumetokea visa vingi vya unyanyasajiwa wanawake. Visa hivi haviwakati wengi maini, bali ni vyombo vya kuwazindua viongozi kuona kwamba hali haijafika kiwango cha kuridhisha. Visa vya ubakaji wa watoto wa kike na wazee, na wakati mwingine baba zao, vimetokea katika miaka ya hivi karibuni. Isitoshe, akina mama wengi wamekuwa wahasiriwa wa mivua ya makonde kutoka kwa waume zao, hata kwa makosa madogo madogo. Hivi majuzi mmoja wa wanawake hawa, ambao maisha kwao ni shairi tu, alichomwa vibaya na mumewe, kisa na maana amejitia kujua kuwa kuna siku ya wapenzi, yaani Valentine day. Mwanamke huyu, baada ya kutoka mashambani kuja kujumuika na mumewe kusherehekea siku ya wapenzi, alipata sherehe za kuchoma moto huku mumewe akilalamika kuingiliwa uhuru wake. Mama huyu bado anauguza majeraha ya mwili na moyo!

Mwanamke aliyesoma na kupewa fursa ya kufanya kazi na ajira ofisini naye amekabiliwa na changamoto nyingi. Huyu lazima atekeleze majukumu yake kama mama, mke na mfanyikazi. Wengi wa wanawake wanaofanya kazi mjini hulalamika wanafanya kazi maradufu ya wanaume. Mwanamke kama huyu, kama alivyolalamika mmoja wao ambaye ni afisa wa utawala wa mikoa, huanza siku yake alfajiri na mapema kuitayarishia familia staftahi, kisha kuelekea ofisini ambapo anakabiliwa na migogoro mingi ya kusuluhisha. Arejeapo nyumbani jioni, hali huwa hiyo hiyo, kutayarisha chajio, kushughulikia kazi za shule za watoto na kuichangamsha familia. Maisha yake huwa hivyo, siku nenda siku rudi. Utashangaa mja huyu atayabeba mangapi?

Hali huwa mbaya zaidi kwa wanawake ambao wameingia siasa. Hawa mikasa yao haihesabiki. Mara watupiwe mabezo ya kila aina na wanasisia wenzao, mara washutumiwe na kutiwa midomoni na wanajamii kwa kuonekana wakichapa kazi na kuwa na uhusiano wa karibu na wazalendo wenzao wa kiume. Maisha yake hupigwa darubini hata nyakati ambazo hayahitaji kuangazwa.

Mwanamke amekuwa kinyago cha kufanyiwa mzaha. Juzi karibu mbingu zianguke alipojitokeza mwana vitimbi mmoja aliyejitia kufanyia utani yasiyohitaji. Alimwasiri mwanamke kama aliyechangia kukosewa heshima kwake kwa kule kutamani kufanywa hivyo. Ingawa wanawake walimshinikiza mhusika huyu kuomba msamaha, upayukaji wake haupaswi kuchukuliwa kama mzaha. Ni ishara ya hisia ya ndani za watu wengi kuhusu mwanamke; kwamba ingawa wakenya wamejitahidi kupigania haki za wanawake; baadhi yetu bado wana zile fikira za kijadi kuhusu wanawake.

Uchumi wa nchi kamwe hauwezi kuendelea bila kumhusisha kila mtu. Nchini humu, baada ya kutambua haya, mwanamke amepewa nyadhifa mbalimbali katika serikali. Ingawa kuna baadhi ya wanawake waliohusika na kashfa mbalimbali za kifisadi, Kuna wale ambao wametumia nyadhifa zao kuhifadhi nchi. Mmoja wa wanawake amejaribu kwa jino na ukucha kuyalinda mazingira dhidi ya mapapa. Nani asiyekumbuka matusi na mabezo aliyopata mwanamke huyu anayejitoa mhanga kuikinga sehemu Fulani ya burudani dhidi ya kunyakuliwa na wanaostahili? Hakuyajutia yaliyompata. Aliowatisha walijaribu kummeza mzimamzima lakini mwishowe walisalimu amri na kuliacha eneo hilo. Hiki kilikuwa kitendo cha ujasiri na uzalendo mkubwa. Matunda yake yamewafaidi wengi, vijana kwa wazee. Kila mwisho wa wiki huwaona watu wakimiminika kwenye eneo hili kujipumbaza. Hii si fahari kwake tu, bali kwa nchi kwa jumla. Wale waliompinga na kumwita punguani wakati huo wamebaki kuinamisha nyuso tu; bila shaka wamefunzwa mengi.

Wanawake sasa wana haki ya kumiliki mali mathalani shamba. Kutokana na hili tumeshuhudia ongezeko kubwa la uzalishaji wa chakula mashambani na kwa hivyo kupunguza njaa na umaskini. Biashara ndogondogo zinazoendelezwa sokoni na mitaani, kwa kiasi kikubwa, huhusisha wanawake. Biashara hizi huchangia pakubwa katika kuimarisha uchumi wa nchi kwani hutoa ajira ya kibinafsi kwa maelfu ya watu. Ushuru na leseni zinazokatiwa biashara hizi huongezea serikali pato la ndani.

Mgala muuwe na haki umpe. Ni ukweli kwamba tumekuwa na visa vya hapa na pale vya ukiukaji wa haki za wanawake. Hata hivyo, ni dhahiri kwamba nchi hii imejitahidi mno kuendelea kumkwamua mwanamke kwayo. Hata mashirika ambayo hapo awali hayakupenda kuwaajiri wanawake, sasa yanawapa nafasi sawa na wanaume. Vyuvo vikuu vya kibinafsi vimeanzishwa kuwasajili wanawake. Jijini humu, mna chuo kikuu cha sayansi cha wanawake. Aidha kumeanzishwa kituo (shule) cha kuwasajili wasichana kutoka familia maskini kujiunga na kidato cha kwanza. Wasichana hawa watapata wadhamini kutoka mashirika na watu mbalimbali ili kujiendeleza kimasomo.

Kumheshimu mwanamke ni miongoni mwa haki za kibinadamu ambazo sharti zitekelezwe. Hata hivyo, wanawake wakumbuke kwamba hata wanapopuliza siwa kuhusu kupewa haki, lazima wao pia wawajibike. Wao ndio walimu wa kwanza wa wanao; ikiwa basi wataonekana kwenye vyombo vya habari wakining'inia juu ya magari ya wachunga magereza kwa kuzitafutia pesa za mayatima matumizi bora, watakuwa wanapotosha watoto wao. Wawe watu wa vitendo zaidi ya upayukaji.

Maswali

a)Kwa mujibu wa taarifa, ni mambo yapi yanayoonyesha ukiukaji wa haki za wanawake.

Alama 3

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b)Fafanua jinsi mwanamke aliyesoma huteseka maradufu zaidi ya mwanamume.

Alama 3

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c)Ni faida gani ambazo zimepatikana kutokana na wanawake kupigania haki zao?

Alama 3

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d) Hatimaye wanawake wanahimizwa kufanya nini?

Alama 2

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e) Eleza maana ya msamiati ufuatao jinsi ulivyotumiwa katika makala
Kinyago...

Alama 1

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Mabezo

Alama 1

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f) Andika mfano wa mbalagha na uhuishi uliotumiwa katika makala haya

i) Mbalagha

Alama 1

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ii) Uhuishi

Alama 1

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.....

SEHEMU B UFUPISHO :ALAMA 15

Soma makala yafuatayo kisha ujibu maswali

Nchi nyingi za ulimwengu wa tatu huathirika na biashara ya kimataifa. Biashara hiyo inaweza kuwa inafanywa kwa uagizaji ama uuzaji wa bidhaa za nchi nyingine.

Biashara ya kimataifa ina umuhimu mkubwa. Kwanza, inawezesha nchi kupata bidhaa ambazo haitengenezi mbali na kusaidia kuwepo na uhusiano kati ya nchi mbalimbali. Uhusiano huu huiwezesha nchi kupata bidhaa kwa bei rahisi kuliko ambavyo ingekuwa kama zingetengenezwa kwao, hasa ikiwa nchi inayohusika haina malighafi yanayohusika katika utengenezaji wa bidhaa hizo. Pia husaidia wakati

nchi imekumbwa na dharura au majanga kwani itauniwa na nchi nyingine ingawa hali kama hii haihakikishwi, ushirikiano huu vile vile huchochea upatikanaji wa nafasi za kazi kwa wengi.

Kwa sababu za kushughulikia utengenezaji wa bidhaa na utoaji huduma nyingine kutokana na uzoefu wa muda na kuwepo raslimali, nchi huwa na uzoefu fulani. Ni kwa sababu hii nchi inawezeshwa kupata pesa za kigeni na kuuza bidhaa za ziada.

Hata hivyo kuna matatizo yanayozikumba nchi za kiasia katika biashara hii. Kwanza, biashara ya aina hii hutatiza viwanda vichanga katika nchi zinazoendelea kwa ushindani usio sawa. Ajabu ni kwamba nchi zilizoendelea zimetumia bishara hii ‘kutupa’ bidhaa za hali ya chini ama zenye athari kwa hali za kijamii. Urafiki haukosi. Ikiwa nchi inategemea uagizaji wa bidhaa, haitaweza kuikosea ama kuhitilifiana na nchi ambayo inategemea, hivyo kuathiri uhuru wa nchi kama hiyo.

Hata hivyo, nchi mbalimbali zimeweka mikakati ya kulinda viwanda kutokana na athari ya biashara kama hii. Baadhi zimeweka ushuru wa juu kwa bidhaa zinazoagizwa kutoka nje kwa wasio washirika wa kibiashara. Licha ya hayo, baadhi ya bidhaa zinazonunuliwa kutoka nje kwa matumizi ya kielimu, utafiti wa kisayansi na bidhaa za maonyesho huagizwa bila ushuru huo. Wakati mwingine ni benki kuu ndiyo hutoa leseni kwa niaba ya serikali kama njia ya kudhibiti bidhaa kutoka nje. Njia nyingine ya kuvisaidia viwanda nchini ni kuuza bidhaa kwa njia ya kuvipunguzia ushuru, usafirishaji nafuu na kuvipa ushuru.

Serikali nyingine huhakikisha kuwa ni bidhaa kiasi fulani tu ambazo zinaweza kuagizwa kwa kipindi fulani. Kwa mfano, kuna idadi fulani ya magari kutoka nje yanayoweza kuagizwa kuja Kenya kwa mwaka mmoja. Hata hivyo, wakati mwingine, serikali husitisha uagizaji wa bidhaa kama vile dawa, sinema, maandishi ya kisiasa na vitabu kutoka nje; bidhaa ambazo zinachukuliwa kuwa hatari kwa nchi. Licha ya matatizo haya, biashara imekuwepo na inaendelea kujiimarisha.

Maswali

(a) Kwa mujibu wa mwandishi wa makal haya, bishara ya kimataifa itaendelea kujiimarisha.

Eleza (alama 8,1 ya mtiririko)

(maneno 80-90)

Matayarisho

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Jibu

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(b) Dondoa hoja muhimu zinazojitokeza katika aya mbili za mwisho.(alama 5,1 ya mtirirko) (maneno 40-50)

Matayarisho

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Jibu

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b) Bainisha miundo minne ya ngeli ya A-WA

Alama 2

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c) Tumia mzizi –ingine kama:

Alama 2

i) Kivumishi

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.....

ii) Kiwakilishi

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d) Badilisha maneno yaliyopigiwa mstari kuwa viwakilishi.

Alama 2

Rais atahudhuria mkutano Marekani.

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.....

e) Andika katika ukubwa wingi.

Alama 2

Kibuzi cha kijitu kile kimepotea kichakani.

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f) Huku ukitolea mfano, eleza dhana ya sauti mwambatano.

Alama 2

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g) Mama alimsuka mtoto nywele. (Badilisha katika kauli ya kutendata.

Alama 1

-
.....
h) Tunga sentensi mojamoja ukitumia viakifishi vifuatavyo:
i) Kibainishi

Alama 2

-
.....
ii) Dukuduku

-
.....
i) Mwanariadha attuzwa medali kadhaa. (badilisha katika wakatib uliopo hali timilifu)

Alama 2

-
.....
j) Eleza maana mbili zinazojitokeza katika sentensi ifuatayo.

Alama 2

Alimwonyesha njia mbili za kufika mtaani.

-
.....
k) Tambua aina za chagizo katika sentensi ifuatayo.

Alama 2

Alisuluhisha kesi kiungwana baada ya kuvutana sana.

-
.....
l) Bainisha shamirisho katika sentensi ifuatayo.

Alama 2

Mwanahamisi alinunuliwa sharubati na amu yake.

-
.....
m) Tunga sentensi katika ngeli ya YA-YA ukitumia kihusishi cha kiwango.

Alama 2

n) Bainisha vishazi.

Alama 2

Angalifika mapema, angalimopata angali hai.

o) Kwa kutumia jedwali changanua sentensi ifuatayo.

Alama 4

Hivyo vinavyohitajika sana vilikuwa vimeoza.

p) Andika upya sentensi ifuatayo kwa kutumia visawe vya maneno yaliyopigiwa mistari.

Alama 3

Mvulana aliramba sukari ya **nyanya** .

q) Eleza matumizi ya na na kwa katika utungo ufuatao.

Alama 2

Walisameheana na Juma walipofika kwao.

r) Unganisha kauli zifuatazo kuwa kauli moja kwa kutumia ‘O’ rejeshi kati

Alama 2

Mwanafunzi alishinda mbio.

Mwanafunzi alituzwa medali.

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s) Andika kinyume cha sentensi ifuatayo.

Alama 1

Ujana ni moshi ukienda haurudi.

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t) Jaza pengo kwa kutumia maneno mwafaka.

Alama 2

i) Kuzunguka mbuyu ni kwa kutoa hongo.....ni kwa kudanganya.

ii) Shada ni kwa maua.....ni kwa ndizi.

SEHEMU D ISIMUJAMII :ALAMA 10

1. Umeitwa kuwahutubia wanafunzi wa shule uliyosomea kuhusu mbinu za kufaulu katika mitihani ya kitaifa. Eleza mikakati yeyote kumi utakayotumia kufanikisha uwasilishaji wako. Alama 10.

BRAIN QUEST SERIES FORM 3 END OF YEAR
EXAMS 2023

MTIHANI WA MUHULA WA TATU-2023

KISWAHILI-FASIHI

KARATASI YA 3

KIDATO CHA TATU

MUDA:2^{1/2}

JINA.....NAMBARI.....

DARASA.....SAHIHI YA MTAHINIWA.....TAREHE.....

MAAGIZO:

Jibu maswali manne

Kila swali ni alama 20

Swali la kwanza ni la lazima

Maswali hayo mengine yatoke katika sehemu hizo zingine

Mwanafunzi asijibu maswali mawili kutoka sehemu moja

Majibu yaandikwe kwa lugha ya kiswahili

SEHEMU A: TAMTHILIA

T.Arege: Bembea Ya Maisha

- 1a). Jadili maudhui ya utamaduni katika jamii ya Bembea ya maisha. (A1.10).
b). Fafanua sifa za mhusika Sara. (A1.10)

SEHEMU B: RIWAYA

C.Momanyi

- 2). Eleza namna maudhui ya ubinafsi yalivyoshughulikiwa katika riwaya hii. (A1.20).
3). Mwanao? Mimi mwanao mimi? Tangu siku ile uliyonila kivuli, mimi si mwanao tena.....'
a) Weka dondoo hii katika muktadha wake (A1.4)
b).Tambua na ueleze tamadhali mbili za usemi zilizotumiwa katika dondoo hii. (A1.4)
c). Taja na ueleze sifa za msemaji. (A1.6)
d). Taja na ueleze umuhimu wa msemewa. (A1.6)

SEHEMU C: USHAIRI

4). Soma shairi lifutalo kisha ujibu maswali yanayofuata;

Akufaaye kwa dhiki, huyo ndo rafiki
Usije kumhiliki , wala usimdhihaki
Kummudhi sidiriki, utavunja urafiki
Akufaaye kwa dhiki, simlipe unafiki.
Anayekusaidia , shida ikikikufika,
Huyo kwa kweli tambua, ndiye wa kutegemea,
Popote atakufaa, atakuonesha njia,

Akufaaye kwa dhiki, simlipe unafiki.

Madhali ameamua, huyo mtu elewa

Muhali kukubagua, yeye ameshapania,

Anayo nzuri tabia, usimlipe udhia

Akufaaye kwa dhiki, simlipe unafiki.

Simtoe maanani , alokutoa jauani,

Kakutika kivulini, amejaliwa Imani,

Amekuvukisha mtoni, umadharau kwa nini?

Akuffaye kwa dhiki, simlipe unafiki

Wengi sana duniani, wachoyo sana baini,

Wakusaidie kwani, wewe ni wa kwao nini?

Wachache wenye Imani , hao ndio wenye thamani,

Akufaaye kwa dhiki, simlipe na unafiki.

(Riziki M. Juma , Tamthilia ya Maisha)

Maswali:

a)Fafanua bahari ya shairi hili ukizingatia :

i)Mpangilio wa vina.

(Alama 4).

b)Taja aina nne za urudiaji

(Alama.4)

- c) Eleza matumizi ya swali la balagha katika shairi. (Alama 2).
- d) Fafanua toni katika shairi hili. (Alama 2).
- e) Taja nafsi nenewa katika shairi. (Alama 2).
- f) Andika mifano ya tamathali za usemi zinazojitokeza katika ubeti wa nne. (Alama 4).
- g) Fafanua mbinu mbili ambazo mshairi ametumia kutosheleza mahitaji ya kiarudhi. (Alama 2).

5). Soma shairi lifuatalo kasha ujibu maswali.

Nikiwa na njaa nammatambara mwilini,

Nimehudumika kama hayawani,

Kupigwa na kutukanwa,

Kimya kama kupita kwa shetani,

Nafasi ya kupumzika hakuna,

Yakulala hakuna.

Yakuwaza hakuna,

Basi kwani hili kufanyika,

Nikosa gani lilotendeka,

Liloniletea adhabu hii somalizika?

Ewe mwewe urukaye juu angani,

Wajua lililomo mwangu moyoni,

Niambie pale mipunga inapopepea,

Ikatema miale ya jua,

Mamangu bado angali amesimama akinisubiri?

Je nadhari hujitokeza usoni Ikielekea huku kizuizini?

Mpenzi mama,nitarudi nyumbani,
Nitarudi hata kama ni kifoni,
Hata kama maiti yangu imekatikakatika,
Vipande elfu,elfu kumi,
Nitarudi nyumbani.

Nikipenya kwenye ukuta huu Nikipitia mwingine kama shetani
Nitarudi mpenzi mama...
Hata kama kifoni.

Maswali

- a)Lipe shairi hili kichwa mwafaka (a1.1)
- b)Tambua nafsi neni katika shairi hili (A1.2)
- c)Eleza toni katika shairi hili (a1.2)
- d)Taja mambo manne ambayo mshairi analalamikia (A1.4)
- e)Fafanua dhamira katika shairi hili (a1.2)
- f)Thibitisha kuwa hili ni shairi huru (a1.2)
- g)Taja na ufafanue sifa mbili za mshairi (a1.2)
- h).Fafanua mbinu tatu za kimtindo zilizotumika katika ubeti wa ne. (A1.3)
- i)Eleza maana ya maneno yafuatoyo kama yalivyotumiwa katika shairi hili (A1.2).
- i). Hayawani
- ii). Nadhari

SEHEMU D: FASIHI SIMULIZI

6). Soma kifungu kifuatacho kisha ujibu maswali.

Hapo zamani za kale paliishi sungura na ndovu.Wanyama hawa waliishi baharini. Maulana alikuwa amewatunukia mapenzi si haba. Makazi yao yalikuwa yamepambwa yakapambika.

Walitegemea matunda mbalimbali yaliyokuwa baharini kama mapera, matomoko, matikitimaji na kadhalika. Siku moja usiku wa manane, maji yakaanza kupwa. Ndovu aliathirika zaidi. Alijaribu kuinama majini lakini hakuweza. Alimwita sungura amsaidie lakini sungura alikuwa ametoweka.

Ndovu aliamua kwenda kumtafuta sungura. Alimtafuta hadi msituni lakini hakumpata. Alihofia kurudi baharini na hadi wa leo yumo msituni.

Maswali

- (a) Tambua utanzu na kijipera chake. (al.2)
- (b) Taja fomyula zingine mbili za kutanguliza kifungu hiki. (al.2)
- (c) Eleza umuhimu wa kijipera hiki. (al.5)
- (d) Eleza sifa za kifungu hiki. (al.5)
- (e) Eleza umuhimu wa fomyula:
 - (i) Kutanguliza (al.3)
 - (ii) Kuhitimisha (al.3)

NAME:.....ADMNO.....CLASS.....

MATHEMATICS
FORM 3 TERM 3
PAPER 1

2 ½ H

BRAIN QUEST SERIES FORM 3 END OF YEAR
EXAMS 2023

INSTRUCTIONS TO DANDIDATES

1. Write your name, index number and class.
2. The paper contains two sections: Section I and II
3. Answer ALL questions in section I and ONLY FIVE questions from section II.
4. All working and answers must be written on the question paper in the spaces provided below each question.
5. Marks may be awarded for correct working even if the answer is wrong.
6. Negligence and slovenly work will be penalized.
7. Non-programmable silent electronic calculators and mathematical tables are allowed for use.
8. This paper consists of 15 printed pages. Candidates should check to ensure that all pages are printed as indicated and no questions are missing

FOR EXAMINER’S USE ONLY

SECTION I

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

GRAND TOTAL

SECTION II

17	18	19	20	21	22	23	24	TOTAL

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Paper1

SECTION I**Answer all questions in this sections**

1. Remove the brackets and simplify (2mks)

$$2p - (4q - p) + 3q$$

2. Evaluate the equation (3mks)

$$\frac{3x-1}{4} - \frac{2x+1}{2} = \frac{3}{8}$$

3. Find all the integral values of x which satisfy the inequalities (3mks)

$$2(3-2x) > 1+3x \geq 2x - 6$$

4. A scientific calculator whose marked price is sh1200 is sold to a customer after allowing him a discount of 18%. If the trader still made a profit of 25%, calculate the profit the trader would have made if no discount was given (3mks)
5. The sum of a two digit number is 15. When the digits are reversed the value of the new number exceeds the original number by 9. What is the original number? (4mks)
6. Two similar solids have surface areas 48cm^2 and 108cm^2 respectively. Find the volume of the smaller solid if the bigger one has a volume of 162cm^3 (4mks)

7. (a) Using a ruler and a pair of compasses only, construct a triangle ABC such that AB=4cm BC=6cm and angle ABC=135° (2mks)

(b) Construct the height of triangle ABC in(a) above taking AB as the base, hence calculate the area of triangle ABC (2mks)

8. Find the values of x and y in (3mks)

$$2^{3x+y} \times 3^{4x-y} = 648$$

9. A boy whose height is 1.5m stands on a horizontal ground and observes that the top of a flag pole, 10m away, makes angle of elevation of 40°. Calculate the height of the flag post (3mks)

10. A Kenyan bank buys and sells foreign currency as shown in the table below.

	Buying (Ksh)	Selling (Ksh)
1 US dollar	75.34	95.87
1 UK pound	124.65	125.13

A tourist arrived in Kenya with 15000 UK pounds which he converted into Ksh at a commission of 8%. He later used half of the money before changing the balance into dollars at no commission. Calculate to the nearest dollar the amount he received (3mks)

11. The point P(5,4) is mapped onto P¹(9,3) under a translation T. Find the co-ordinates of the image of Q(6,3) under the same translation (3mks)

12. Determine the radius of a uniform cylindrical block 1.4m long and a density of 2.2g/cm³ if the mass is 47432g ($\pi = \frac{22}{7}$) (3mks)

13. Given that $\cos(2x) = \sin(2x - 30)^\circ$, calculate the value of x (2mks)

14. Using tables, find the reciprocal of 0.432 and hence evaluate $\frac{\sqrt{0.1225}}{0.432}$ (3 mks)

15. The interior angle of a regular polygon is three and a half times the exterior angle. Determine the sides of the polygon (3mks)

16. Solve the equation (4mks)

$$\frac{x+3}{24} = \frac{1}{x-2}$$

SECTION II (ANSWER ONLY FIVE QUESTIONS)

17. The data below shows marks scored by 48 students in a geography exam

Marks	30-39	40-49	50-59	60-69	70-79	80-89
Students	6	10	X	9	12	2

a) Determine the value of x (2mks)

b) State the modal class (1mk)

c) Calculate the mean mark (3mks)

d) Calculate the median mark (4mks)

18. A solid P is made of a cylindrical part and a conical part. The height of the solid is 4.5m. The common radius of the cylindrical part and the conical part is 0.9m. The height of the conical part is 1.5m. Taking π as $\frac{22}{7}$

- a. Calculate, correct to 1 decimal place
- i. The volume of solid P (4mks)

- ii. The total surface area of solid P (4mks)

- b. A square base pillar of side 1.6m has the same volume as solid P. Determine the height of the pillar, correct to 1 decimal place (2mks)

19. Nyongesa is a sales executive earning a salary of Ksh120,000 and a commission of 8% for the sales in excess of Ksh1,000,000. If in January he earned a total of Ksh480,000 in salaries and commission.

a. Determine the amount of sales he made in the month of January (4 mks)

b. If the total sales in the month of February increased by 18% and the month of March dropped by 30% respectively. Calculate

i. Nyongesa's commission in the month of February (3mks)

ii. His total earnings in the month of March (3mks)

-
20. The average speed of a pick-up was 20km/hr faster than the average speed of a lorry. The pick-up took 45 minutes less than the lorry to cover a distance of 180km.
- a. If the speed of the lorry was x km/hr.
- (i) Write expressions in terms of x for the time taken by the lorry and pick-up respectively to cover the distance of 180km (2mks)
- (ii) Determine the speed of the lorry and that of the pick-up (5mks)
- b. The distance between towns A and B is 240km. On a certain day the pick-up started from town A at 8.30a.m and the lorry started from town B at the same time. Determine the time that the lorry and pick-up met (3mks)

22. Four towns R, T, K and G are such that T is 84 km directly to the North of R. K is on bearing of 295° from R at a distance of 60km. G is on a bearing of 340° from K at a distance of 30km.

a) Using a scale of 1cm represent 10km, make an accurate drawing to show the relative positions of the four towns (5mks)

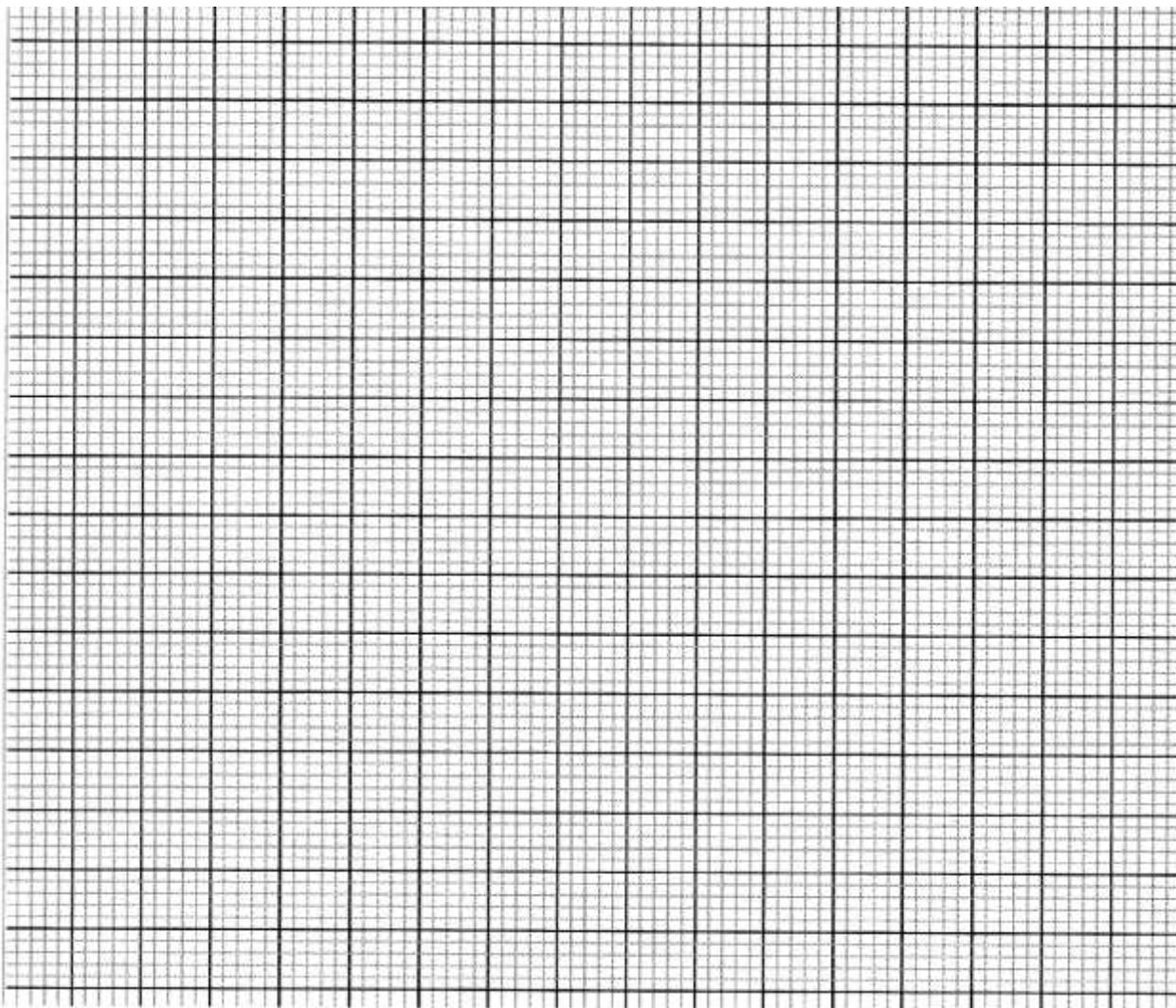
b) Find

i. Distance and bearing of T from K (2mks)

ii. The distance and the bearing of G from T (2mks)

iii. The bearing of R from G (1mk)

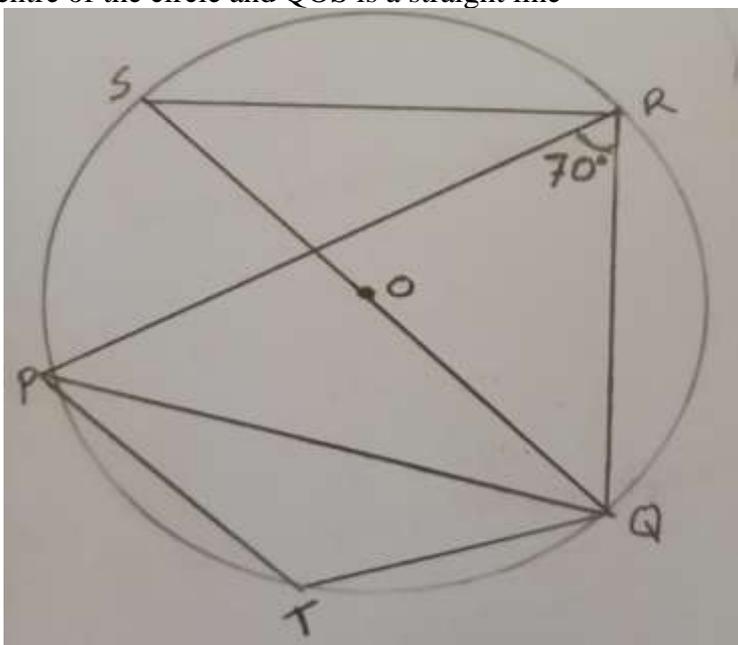
23. (a) On the grid below plot triangle $A(3,6)$ $B(1,4)$, $C(5,5)$ and its image $A^I(-5,6)$ $B^I(-3,4)$ and $C^I(-4,8)$ under a rotation (2mks)



- a) Determine the centre and angle of rotation which mapped triangle ABC onto $A^I B^I C^I$ (2mks)
- b) Triangle $A^I B^I C^I$ was translated by the vector $\begin{pmatrix} 1 \\ -10 \end{pmatrix}$ onto triangle $A^{II} B^{II} C^{II}$. Draw triangle $A^{II} B^{II} C^{II}$ on the same grid (2mks)
- c) Locate the image of triangle $A^I B^I C^I$ under a reflection along the straight line $y=x+2$. Label the image as $A^{III} B^{III} C^{III}$ (2mks)
- (d) State any pairs of triangles that are (2mks)

- i. Oppositely congruent
- ii. Directly congruent

24. In the figure below, PQRS is a cyclic quadrilateral $PR=RQ$. $\angle PRQ=70^\circ$. O is the centre of the circle and QOS is a straight line



Giving reasons for your answers, find the size of angles

- i. $\angle PRS$ (2mks)

- ii. $\angle POQ$ (2mks)

- iii. $\angle RPS$ (2mks)

iv. PSR (2mks)

v. PTQ (2mks)

Name.....

Adm. No.....

School

121/2
MATHEMATICS
PAPER 2
TIME : 2 ½ Hour

BRAIN QUEST SERIES FORM 3 END OF YEAR EXAMS 2023

INSTRUCTIONS TO CANDIDATES

1. Write your name and Index number in the spaces provided at the top of this page.
2. The paper contains two sections: Section I and II.
3. Show all the steps in your calculations, giving your answers at each stage in the spaces below each question.
4. Marks may be given for correct working even if the answer is wrong.
5. Non-programmable silent electronic calculators and KNEC Mathematical tables may be used, except where stated otherwise.

Section I

FOR EXAMINER'S USE ONLY

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

Section II

Question	17	18	19	20	21	22	23	24	TOTAL
Marks									

Grand Total

*This paper consists of 16 printed pages.
 Candidates should check the question paper to ensure that all pages are printed as indicated
 and no questions are missing*

SECTION A (50MARKS)

1. Express 1080 and 1000 in their prime factors, hence evaluate (3mks)

$$\sqrt[3]{\frac{1080}{1000}}$$

2. Simplify (3mks)

$$\frac{3x^2 - 4xy + y^2}{9x^2 - y^2}$$

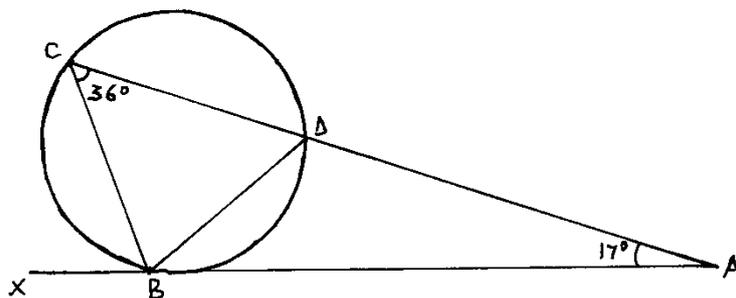
3. Use logarithms in all your steps to work out. (4mks)

$$\sqrt[3]{\frac{4968}{87.36 \div 6.258}}$$

4. Nteei walks for $2\frac{1}{2}$ hours in the morning at km/hr and for $\frac{1}{2}x$ hours in the afternoon at 6km/hr. This makes $38\frac{1}{2}$ km altogether. How far did she walk in the morning. (3mks)

5. Given that $\cos \theta = \frac{15}{17}$ and $270^\circ \leq \theta \leq 360^\circ$. Find without using tables the values of sine θ and tangent θ . (3mks)

6. On the figure below ABX is a tangent, Angle CAB= 17° and Angle ACB = 36° . Calculate angle CBX and angle DBC. (3mks)



7. What is the sum of the roots of the equation. (3mks)

$$\frac{x^2 + 3}{x} = 4$$

8. Ole Koikoi is a real estate agent who is entitled to a commission on all properties bought through him. During a certain month he sold 2 mansions at sh. 2.54 million each, 4 flats at sh. 582,000 each and 5 bungalows at sh. 354,000 each. If he was paid a total commission of sh. 458,900. Calculate the percentage rate of commission he was paid. (4mks)

9. It takes 20 men 10 days to lay 300 metres of pipes. Find how many days it would take 15 men to lay 270 metres of pipes working at the same rate. (3mks)

10. A cylindrical tank of diameter 1.4m and height 1.2m is one-quarter full of water. This water is transferred to an empty rectangular container measuring 1.2m long and 70cm wide. Calculate the height of the water in the container in centimeters. (3mks)

11. Give the integral values of x which satisfies the following inequalities.

$$4 < 3x - 2$$

$$15 - 2x > 4.$$

(4mks)

12. The average mark scored by the first 27 students in a mathematics test is 52. The average mark scored by the remaining 37 is 58. Calculate the mean mark for the whole class.

(4mks)

13. Nkini bought 3 skirts and 2 sweaters at a total cost sh. 1575. If he had bought 2 shirts and 3 sweaters he would have spent sh. 225 more. Find the cost of 5 skirts and 2 sweaters. (4mks)
14. The straight line whose equation is $2y = 3x + 6$ meets the x-axis and the y-axis at P and Q respectively. Write down the coordinates of P and Q. (3mks)
15. Nairobi and Eldoret are 351 km apart. A bus leaves Nairobi towards Eldoret at an average speed of 66km/h. At the same time a car leaves Eldoret traveling at an average speed of 104km/hr towards Nairobi. Along the way the car stopped for 10 minutes to repair a puncture, then resumed the journey traveling at the same average speed. How far from Nairobi did they meet. (4mks)
16. A number P is divided by 12,15 and 18. In each case the remainder is 5. Find the smallest value of P. (3mks)

SECTION II (50 MARKS)

Answer ANY FIVE questions

17. a) A bucket is in the shape of a frustum of a cone. Its diameters at the top and at the bottom are 36cm and 28cm respectively. Its depth is 20cm. What is the full capacity of the bucket in litres. (6mks)

- b) The above container was filled with water and later transferred to a cylinder of height 92cm. Determine to 1dp the radius of the cylinder. (4mks)

18. The cost of making a table consist of transport, labour and raw material in the ratio 4:2:6 respectively. During an inflation year the transport cost increased by 6%, the labour by 9% and raw materials by 20%.

a) Find the percentage increase in producing a table. (6mks)

b) What was the old price of a table if the new price is Kshs. 680.00. (2mks)

c) How much would Raisa have saved if she buys a dozen of tables at the old price? (2mks)

19. a) Narok Teachers College uses three buses A,B and C. On any day the probability of the buses operating are 0.75, 0.4 and 0.5 respectively. Use a tree diagram to find the probability that on a given day.

(i) All the buses are not operating. (2mks)

(ii) Only one bus is operating. (2mks)

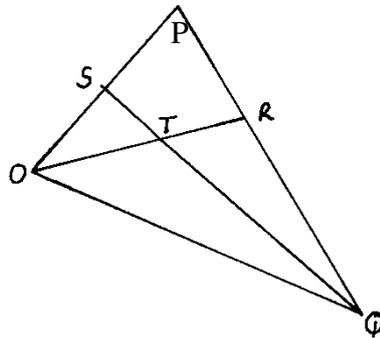
(iii) At least one bus is working. (2mks)

b) A bag contains 5 red balls and 3 white ones. If two balls are picked one at a time, find the probability that a red and a white ball is picked?

i) Without replacement. (2mks)

ii) With replacement. (2mks)

20. The figure shows a triangle OPQ in which $OP = \mathbf{p}$ and $OQ = \mathbf{q}$. Points S and R are mid points of OP and PQ respectively. Lines OR and SQ intersect at T such that $OT:TR=2:1$ and $ST=hSQ$.



a) Express the following vectors in terms of \mathbf{p} and \mathbf{q} .

(i) \mathbf{PQ}

ii) \mathbf{SQ}

iii) \mathbf{OR}

b) Using triangle OST and the fact that $ST=hSQ$, express vector \mathbf{ST} in two ways and hence find the value of h . (4mks)

c) Express vector \mathbf{TQ} in terms of \mathbf{p} and \mathbf{q} and state the ratio $ST:TQ$. (3mks)

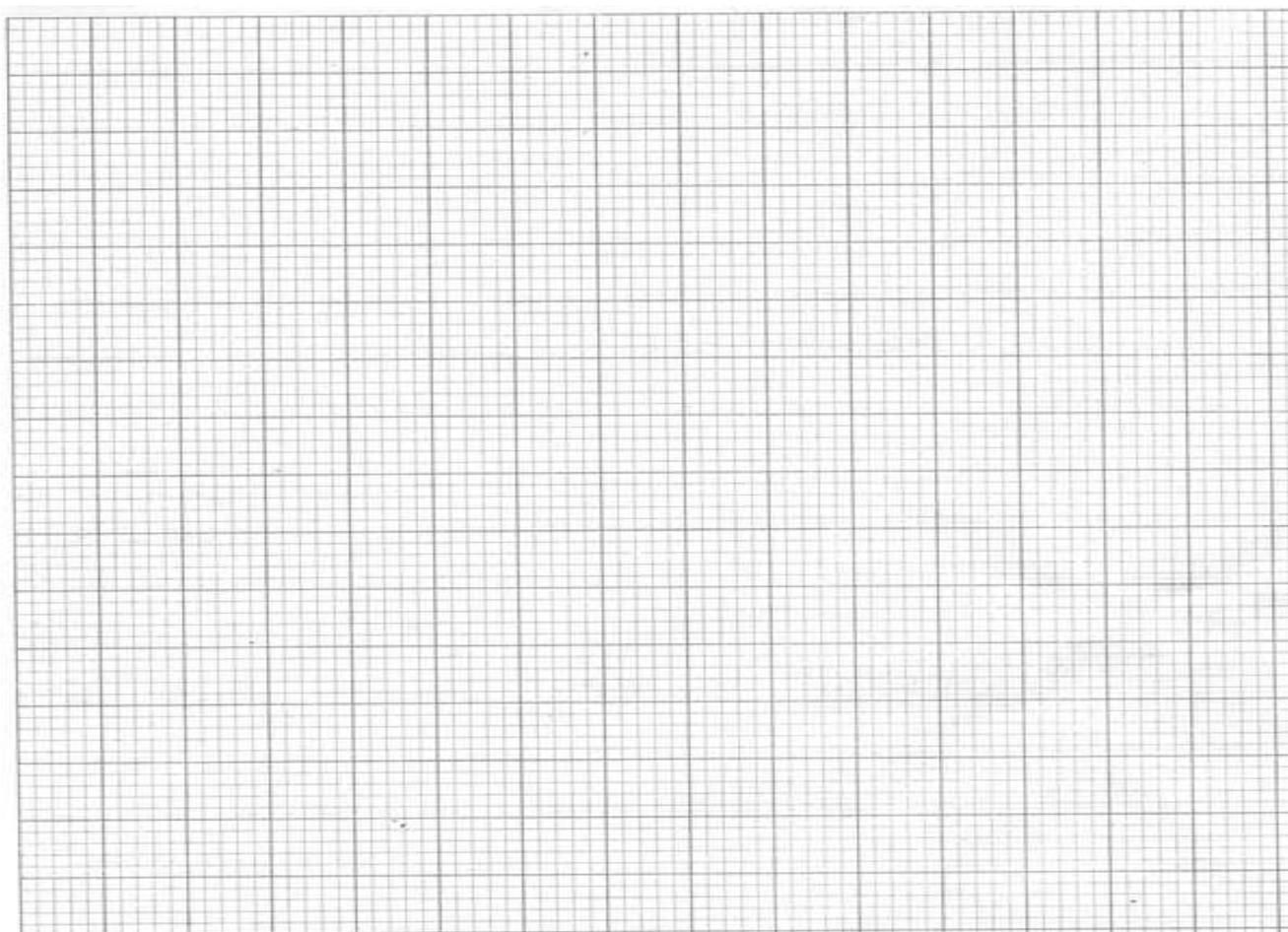
21. (a) Complete the table below

(2 mks)

X	-5	-4	-3	-2	-1	0	1	2	3	4
X ²	25	16	9	4		0	1	4	9	16
3x		-12	-9		-3	0		6	9	
+1	+1	+1	+1	+1	+1	+1	+1	+1	+1	+1
Y	11		1			1		11		29

(b) Draw the graph of $y = x^2 + 3x + 1$ on the grid provided

(4 mks)



(b) Use your graph to solve

(i) $x^2 + 2x - 2 = 0$

(2 mks)

(ii) $x^2 + 3x - 4 = 0$

(2 mks)

22. In June of a certain year, an employee's basic salary was sh. 17000. The employee was also paid a house allowance of sh. 6000 a commuter allowance of sh. 2500 and a medical allowance of sh. 1800. In July of that year, the employee's basic salary was raised by 2%.

a) Calculate the employee's:

(i) Basic salary for July (2mks)

(ii) Total taxable income of July that year (2mks)

b) In that year, the Income Tax Rates were as shown in the table below:

Monthly taxable income (Sh)	% rate of tax per shilling
Up to 9680	10
9681-18800	15
18801-27920	20
27921-37040	25
37041 and above	30

Given that the monthly personal relief was sh. 1056 calculate the net tax paid by the employee. 6mks)

23.a) Given the series $2+4+18+36+\dots+16384$:

(i) Identify the type of series (1mk)

(ii) Find the number of terms in the series (3mks)

(iii) Calculate the sum of the terms in the series (3mks)

b) The first three consecutive terms of an increasing geometric progression are: $3, x$ and $5\frac{1}{3}$. Find the value of x (3mks)

24. (a) Using a ruler and a pair of compass only construct triangle ABC in which $AB = 14\text{cm}$,
 $BC = 7\text{cm}$ and $\angle C = 37.5^\circ$ (4 mks)

(b) Drop a perpendicular from A to BC produced and measure its height (2 mks)

(c) Find the area of triangle ABC (2 mks)

(d) Measure angle ACB and BAC (2 mks)

Name: Class:

School: Candidate's Signature:

Date: Adm. No

PHYSICS

Paper 232/1 (THEORY)

FORM 3**Time: 2 Hours****BRAIN QUEST SERIES FORM 3 END OF YEAR EXAMS**
2023**INSTRUCTIONS TO CANDIDATES:-**

- Write your **Name, Index number, Admission number** and **school** in the spaces provided above.
- This paper consists of **two** sections; **A** and **B**
- Answer **all** the questions in section **A** and **B** in the spaces provided
- All working **must** be clearly shown.
- Mathematical tables and electronic calculators may be used
- Take the earth's gravitational field strength $g = 10 \text{ m/s}^2$.
- This paper consist of 14 printed pages. You are advised to ascertain that all pages are printed as indicated.

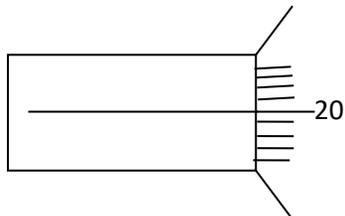
For Examiner's Use Only:

SECTION	QUESTION	TOTAL SCORE	CANDIDATES SCORE
A	1 - 10	25	
B	11	11	
	12	11	
	13	10	
	14	12	
	15	11	
TOTAL		80	

SECTION A (25 MARKS)

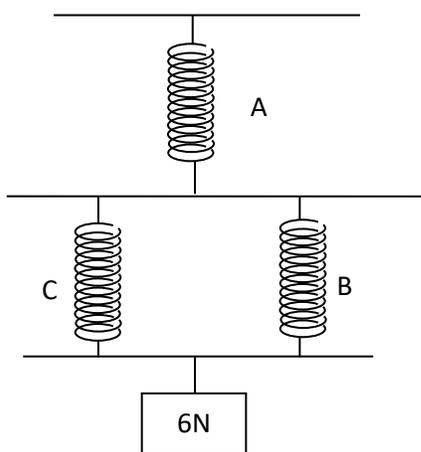
Answer all questions in this section in the spaces provided.

1. The figure below shows a section of partially graduated micrometer screw gauge with a pitch of 0.50mm.



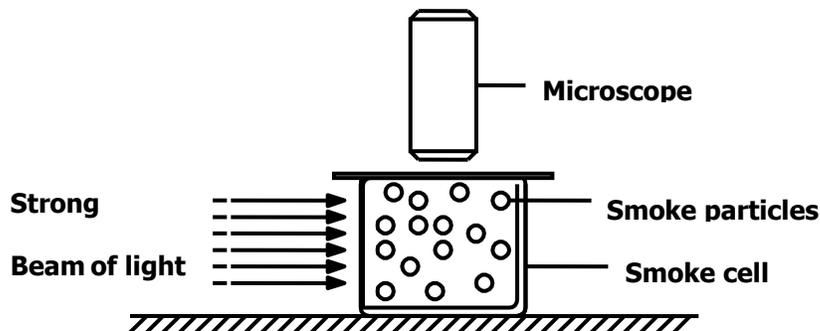
Insert divisions on the sleeve scale to represent a reading of 3.70mm. (1mk)

2. Three identical springs each of spring constant 10N/m and weight 0.5N are used to support a load as shown.



Determine the total extension of the system. (3mks)

3. The figure below shows apparatus used to observe the behaviour of smoke particles in a smoke cell.



The smoke particles are observed to be in constant random motion. If the temperature of the above set up was raised, state and explain the changes that could be observed when viewed through the microscope. (3mks)

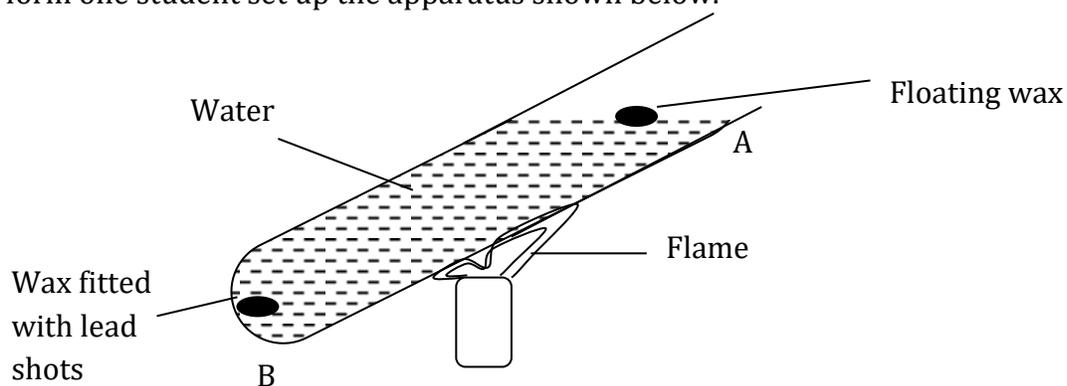
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4. A form one student set up the apparatus shown below.



The boiling tube was heated in the middle as shown.

i. Which wax melted first? (1mk)

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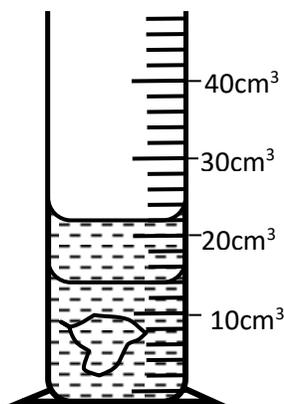
ii. Explain your answer in (i) above. (2mks)

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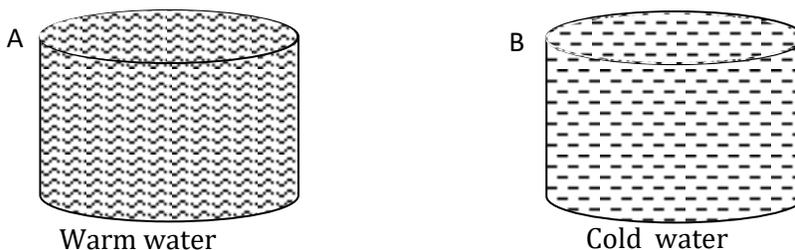
5. The figure below shows the level before and after an irregularly shaped solid was fully immersed.



If the density of the solid is 2890kg/m^3 , calculate the mass of the solid.

(3mks)

6. The figure below shows two beakers A and B full of warm water and cold water respectively.



State with a reason on which water surface it is easier to place a needle without it sinking.

(2mks)

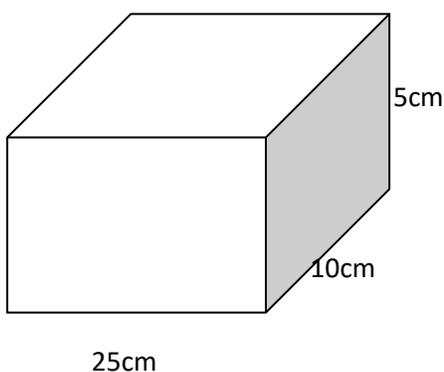
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7. The figure below shows a glass block of dimensions of 10cm by 25cm and 5cm and mass 50kg.

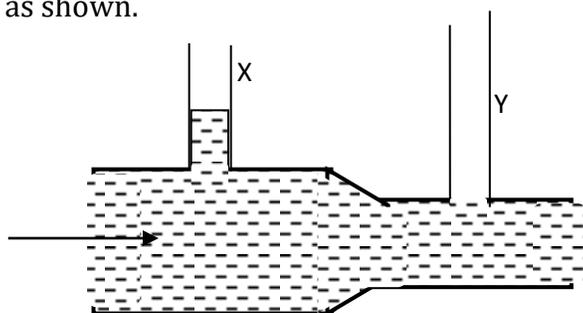


Calculate the minimum pressure it can exert on a flat ground.

(3mks)

8. A ball is thrown vertically upwards from the ground. It rises up to the highest point and then returns to the ground. Taking the upward velocity to be positive, sketch the velocity-time graph for the motion. (2mks)

9. The diagram below shows a set up used by a student to show variation of pressure in a liquid flowing as shown.



- i. Indicate on the diagram the relative level in Y. (1mk)
 ii. Explain your answer above. (2mks)

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10. The figure below shows two metallic tubes A and B made from different materials tightly stuck together.



Explain how the two tubes can be separated by applying a temperature change at the junction given that A expands more than B for the same temperature rise. (2mks)

SECTION B (55 MARKS)

Answer all questions in this section in the spaces provided.

11.

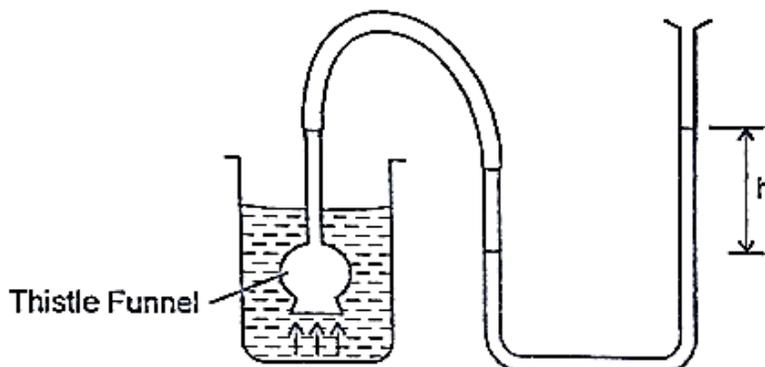
- a) Give two properties which make the oil suitable for use in hydraulic machine. (2mks)

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- b) The diagram below shows a set up used by a student to show variation of pressure in a liquid. Use it to answer the question that follow.



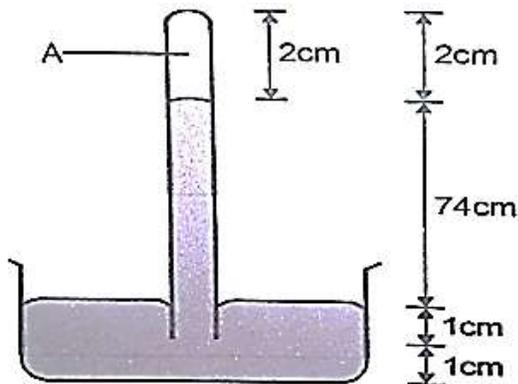
State and explain the effect on the height h when the thistle funnel is moved upwards towards the surface of the liquid. (2mks)

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- c) The figure below shows a simple barometer.



i. What is the name of region A? (1mk)

ii. What keeps the mercury in the tube? (1mk)

iii. What is the value of the atmospheric pressure being shown by the barometer? (1mk)

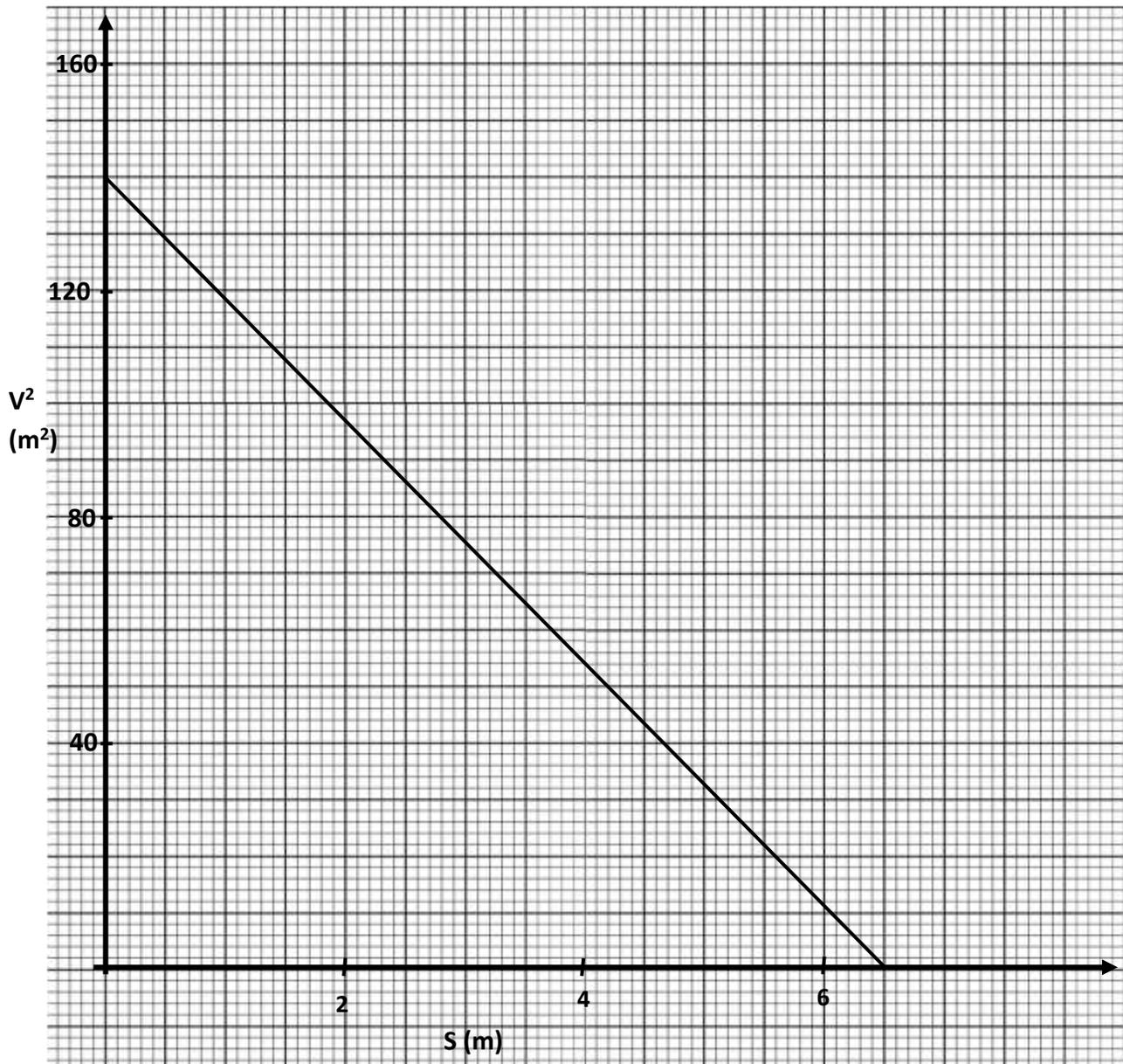
iv. What would happen to the reading if the barometer is taken up a high mountain? (1mk)

v. Give a reason for (iv) above. (1mk)

d) The reading on a mercury barometer at a place is 700mm. what is the pressure at that place in N/m^2 ? (Density of mercury is $1.36 \times 10^4 kg/m^3$). (2mks)

12.
a) Define the term 'Instantaneous velocity'. (1mk)

- b) The graph provided below shows a graph of V^2 against the distance S travelled by a body projected vertically upwards at a point on the surface of the earth.



From the graph above determine;

- The initial velocity of the body. (2mks)
- The maximum height reached by the body. (1mk)

iii.

I. Gradient of the graph. (3mks)

II. From the gradient of the graph, determine the acceleration due to gravity g at that point on earth's surface given that the equation of the graph is $v^2 = u^2 - 2gS$. (2mks)

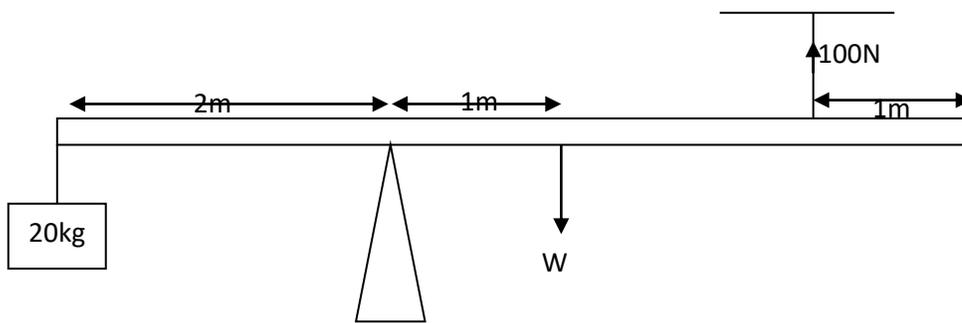
c) Sketch a displacement-time graph for a body moving down a frictionless inclined plane. (2mks)

13.

a)

i. Define Moment of a force. (1mk)

ii. An object of mass 20kg balances on a uniform plank of length 6m as shown below.



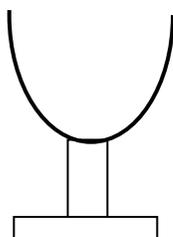
I. Determine the weight W of the plank. (3mks)

II. Calculate the reaction at the pivot. (2mks)

iii. State any one factor that affects the moment of a force. (1mk)

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b) The figure below shows a vessel resting on a horizontal bench.



State and explain the effect on the stability of the vessel when it is filled with water. (3mks)

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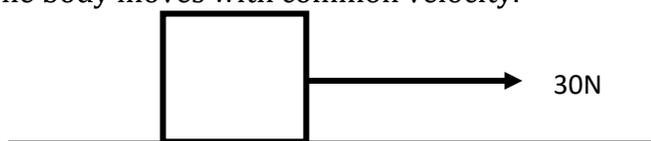
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14.

a) State Newton's first law of motion. (1mk)

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b) A block of mass 10kg is being pulled by a force of 30N on a level bench as shown in the figure below. The body moves with common velocity.



i. Determine the magnitude of the friction between the block and the surface. (1mk)

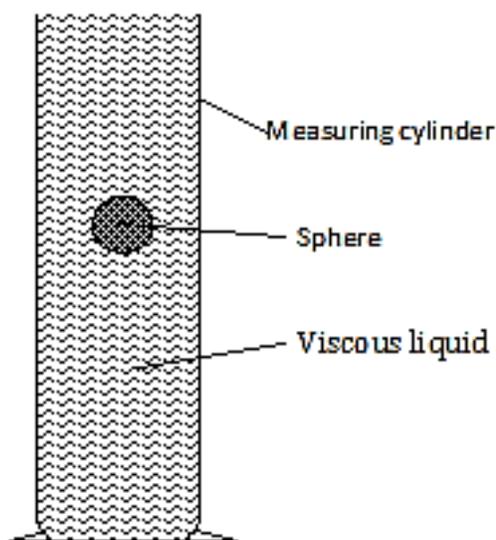
ii. Give a reason for the above answer. (1mk)

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iii. If the applied force is increased to 40N, determine the acceleration of the block. (3mks)

c) A bullet of mass 50g is fired at a velocity of 300m/s from a gun of mass 5kg. determine the corresponding velocity of the gun. (2mks)

d) The figure below shows a sphere moving in a viscous liquid in a tall measuring cylinder.



- i. Indicate on the diagram the forces acting on the sphere as it moves down the viscous fluid. (1mk)
- ii. Write an equation relating the forces in (i) above when the sphere attains terminal velocity. (1mk)

e) A boy places a piece of plasticine on a trolley initially moving at a uniform velocity. State and explain the effect on the velocity of the trolley. (2mks)

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15.
a) What is the meaning of the term transducer? (1mk)

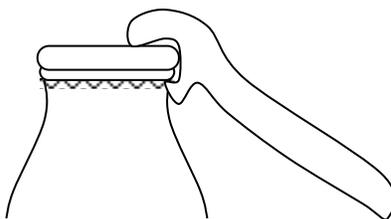
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- b) A body is released from height h and hits the ground after time t . on the grid provided, sketch a graph showing the variation of Potential energy and Kinetic energy against time as the body falls to the ground. (2mks)

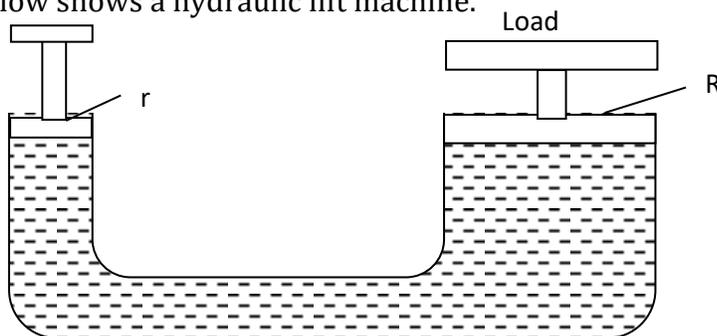


- c) The figure below shows a simple bottle opener being used to remove the bottle top from the bottle.



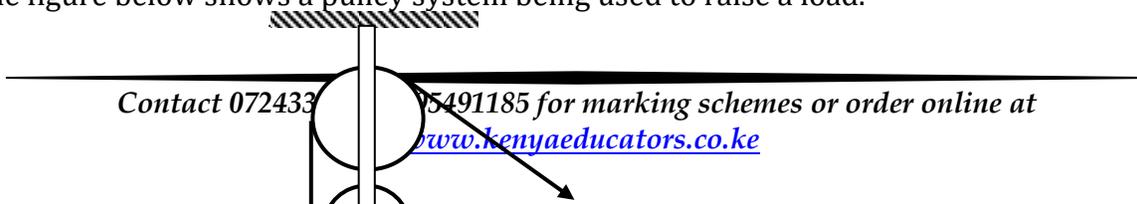
Indicate on the diagram the direction of load and effort. (2mks)

- d) The figure below shows a hydraulic lift machine.



Show that the velocity ratio of the machine $VR = \frac{R^2}{r^2}$ where r and R are radii of effort and load respectively. (2mks)

- e) The figure below shows a pulley system being used to raise a load.



- i. Determine the Velocity Ratio of the system. (1mk)

- ii. If an effort of 35N raises a load of 105N, determine the efficiency of the system. (3mks)

NAME..... CLASS..... ADM NO

SIGNATURE

DATE.....

232/2

PHYSICS

PAPER 2

FORM 3

TIME:2 Hours

BRAIN QUEST SERIES FORM 3 END OF YEAR EXAMS 2023

INSTRUCTION TO CANDIDATES.

- . Write your *name* and *admission number* in the spaces provided above
- . This paper contain **two sections**; Section A and Section B.
- . Answer all the questions in section **A** and B. In the spaces provided
- . 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.
- . This paper consists of 14 printed pages.
- . Candidates should ensure that all pages are printed as indicated and no questions are missing

FOR EXAMINER'S USE ONLY

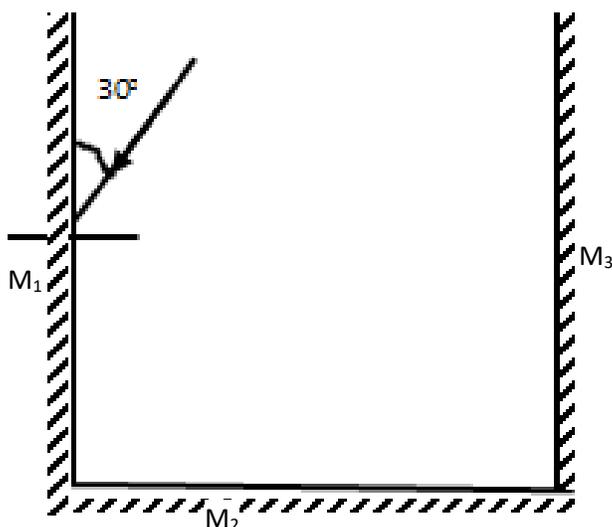
SECTION	QUESTION	MAX MARKS	CANDIDATE'S SCORE
A	1-12	25	
B	13	11	
	14	11	
	15	10	
	16	12	
	17	11	
	TOTAL	80	

SECTION A 25 MARKS

1. a) State the number of images formed when an object is between two plane mirrors placed in parallel. **(1mark)**

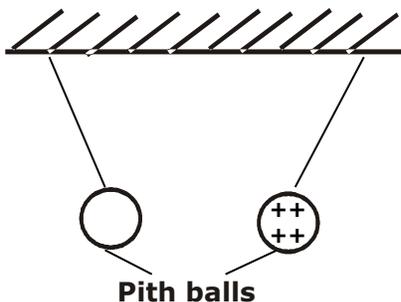
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- b) The figure below shows three mirrors arranged at right angles to each other. A ray of light is incident on one of the mirrors



Complete the diagram to show the path of the ray after reflection on each of the mirrors. **(2marks)**

2. The figure below shows an uncharged pith ball under the attraction of a charged ball.



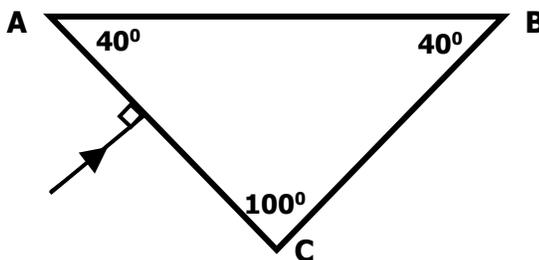
State and explain what would be observed after the two pith ball touch. **(2marks)**

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3. A current of 0.5A flows in a circuit. Determine the quantity of charge that crosses a point in 4 Minutes. (2marks)

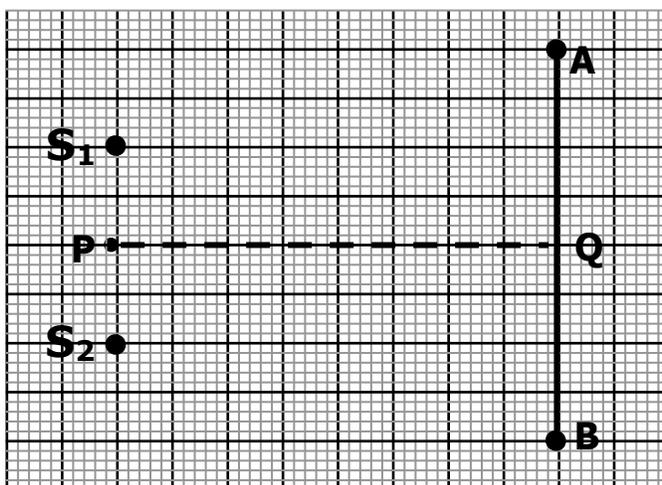
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4. The fig below shows a ray of light incident on a glass prism



Given that the critical angle for the grass is 39° , **sketch** on the diagram the path of the ray through the prism (2 marks)

5. The figure below shows two speakers S_1 and S_2 which produce sound of the same frequency. They are placed equidistant from a line AB and a line PQ. (*PQ is perpendicular to line AB*)



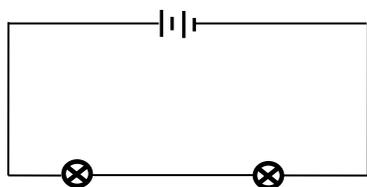
- i) A student walking from **A** to **B** hears alternating loud and soft sounds. Explain why at some point the sound heard is softer (1mark)

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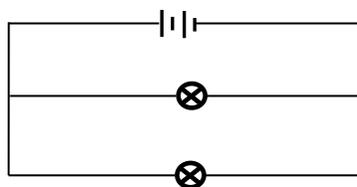
 ii) The student now walks along line **PQ**. State with reason the nature of the sound the student hears. (1mark)

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6. A student was investigating the brightness of bulbs when setup in an electric circuits. She used identical bulbs and cells. The circuits shown in figure (a) and (b) were what she setup.



(a)



(b)

Which setup was the bulb brightest? Give a reason for your answer. (2marks)

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7. In a laboratory there are four metals: tin, nickel, copper and cobalt. Of these materials, name the metals that are:

a) Magnetic. (1mark)

.....

b) Non-magnetic. (1mark)

.....

8. A lady holds a large concave mirror of focal length 1m, 80cm from her face. State two characteristics of her image in the mirror. (2marks)

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9. State two differences between electromagnetic waves and mechanical waves. **(2marks)**

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10. a) Give a reason why the core of the electromagnet of an electric bell is made of soft iron and not steel. **(1mark)**

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b) State one way in which the strength of an electromagnet can be increased. **(1mark)**

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11. State the function of a fuse in a circuit. **(1 mark)**

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12. A girl stands some distance from a high wall and claps her hands
i) What two measurements would need to be made in order to determine the speed of sound? **(2marks)**

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ii The speed of sound in air determined on a warm day is 330m/s. Explain any difference you would expect in the results if the measurement is done on a cold day. **(1 mark)**

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SECTION B (55 Marks)

13. (a) Three resistors of resistance $2\ \Omega$, $3\ \Omega$ and $4\ \Omega$, are to be connected to a cell such that they have the least effective resistance.

(i) On the space provided, draw a circuit to show how they can be connected to achieve this. (2marks)

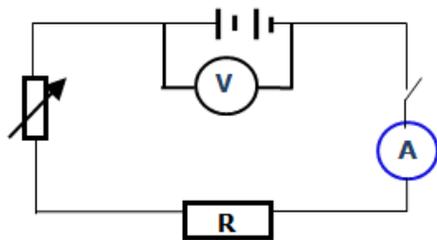
(ii) Determine the least effective resistance of the three resistors. (2marks)

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(iii) State two factors that determine the resistance of a metallic conductor. (2marks)

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(b) Figure shows a voltmeter connected across the cell. The voltmeter reads 1.5V when the switch S, is open and 1.2V when the switch is closed.



(i) What is the e.m.f. of the cell. (1 mark)

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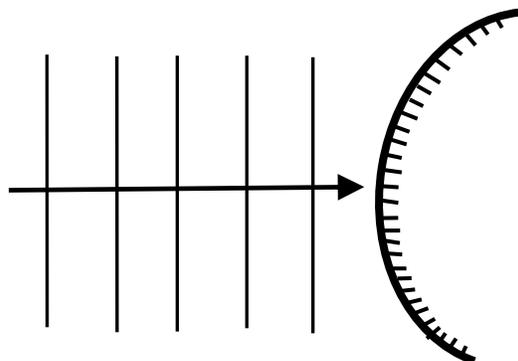
(ii) What is the terminal voltage of the cell. (1 mark)

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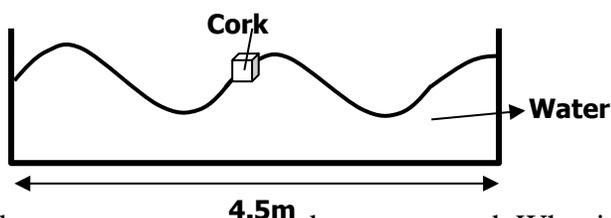
(iii) Calculate the internal resistance of the cell if the ammeter reads 0.05A when the switch is closed. (3 marks)

.....

14. (a) The figure below shows straight wave fronts incident on convex reflector. Complete the diagram to show the reflected wave fronts (2marks)



(b) The diagram below shows a long tank of water in which waves are produced. A small cork is placed along the wave path.



i) If four complete waves are produced every second. What is the period of the waves? (2marks)

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ii) What is the wavelength? (1mark)

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iii) How does the cork move as the wave progress? Explain? (2marks)

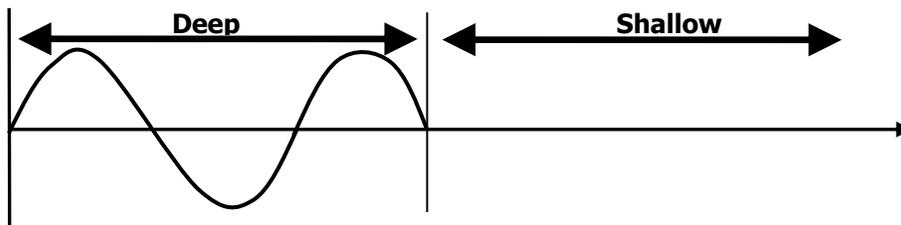
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(c) The fig shows the displacement of a practice in progressive wave incident on a boundary between deep and shallow regions.



(i) Complete the diagram to show what is observed after boundary. (1mark)

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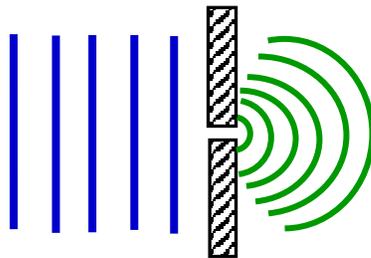
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(ii) Explain the observation in (i) above. (1mark)

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(d) Figure below shows wave front before and after passing through an opening as shown



State what would be observed on the pattern after passing the opening if

(i) wave length is increased (1mark)

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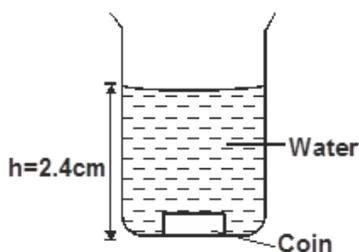
(ii) Gap is increased (1mark)

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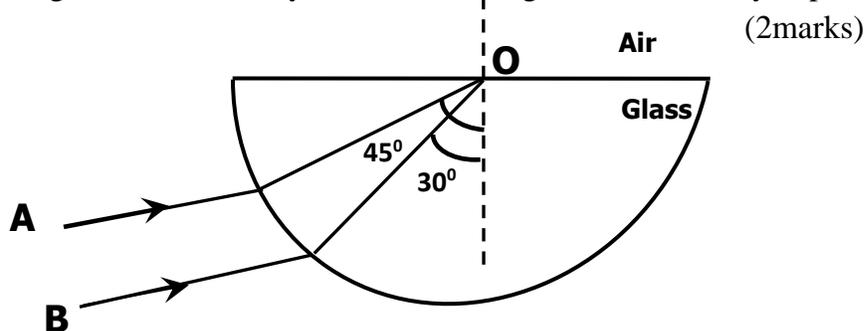
15. (a) State two conditions necessary for total internal reflection to occur (2 marks)

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(b) A coin is placed at the bottom of a beaker filled with water to a height of 2.4cm as shown in the figure below. Given that the refractive index of water is 1.33, determine the apparent depth of the coin. (3 marks)



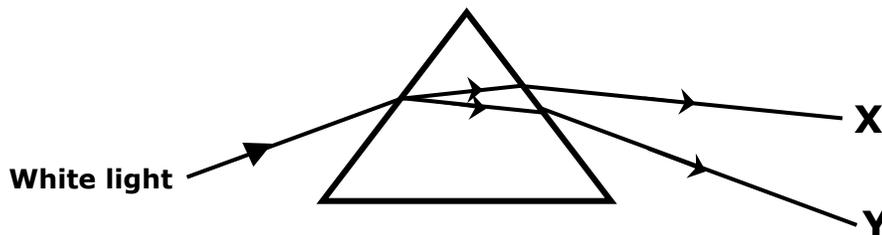
c) The figure below shows two rays A and B entering a semi-circular glass block which has critical angle of 42° . The rays are incident at glass-air boundary at point O



(2marks)

Complete the path of the two rays from point O. Label A^1 and B^1 the corresponding rays.

(d) Fig shows white light falling on a prism.



(i) Name the colour at X and Y

(1 mark)

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(ii) Explain why a prism disperses white light into its component colours.(1 mark)

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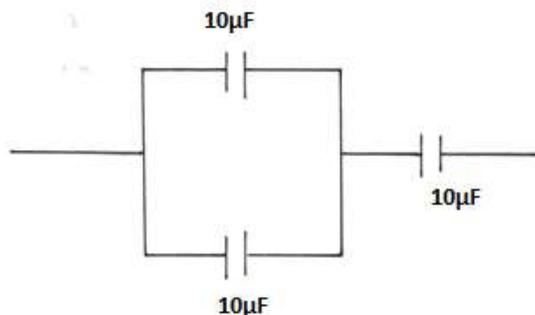
e) The figure below shows the interface between glass and air.

Air

Glass

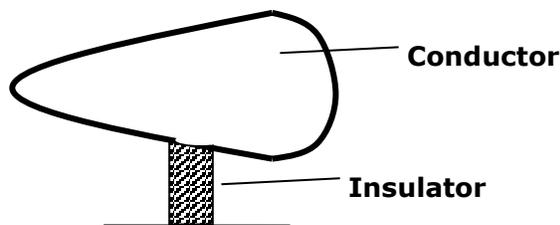
Draw on the figure a ray diagram to illustrate the critical angle. (1mark)

16. (a) Three capacitors of capacitance $10\mu\text{F}$ are arranged as shown. Find the effective capacitance. (3marks)



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(b) The figure below shows a negatively charged rod placed near an uncharged conductor resting on an insulation support.



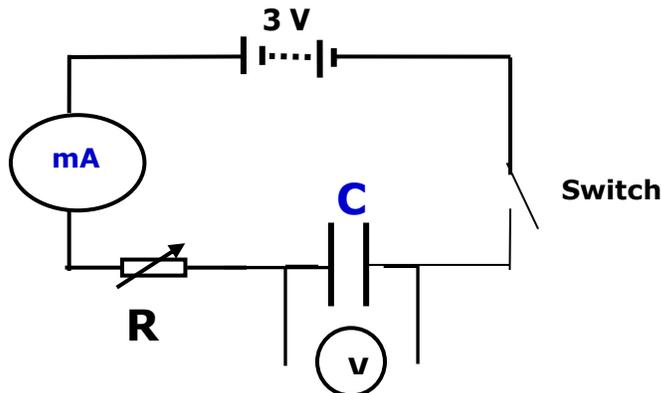
i) Show the charge distribution on the conductor. (1mark)

ii) State the effect of momentarily touching the conductor with a finger while the charged rod is still near the conductor. (1mark)

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iii) In the space provided, sketch a diagram to show how the charge would have been distributed if the conductor was a sphere (1mark)

(c) The figure below shows a capacitor **C** being charged.



(I) (i) State what would be observed on the voltmeter when the switch is closed (1mark)

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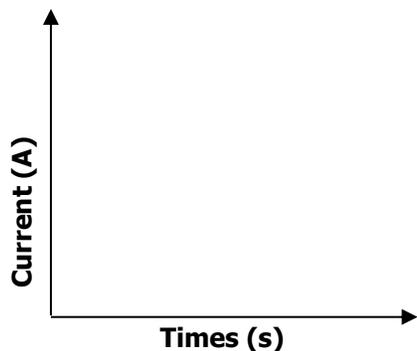
(ii) State the purpose of the resistor **R**. (1mark)

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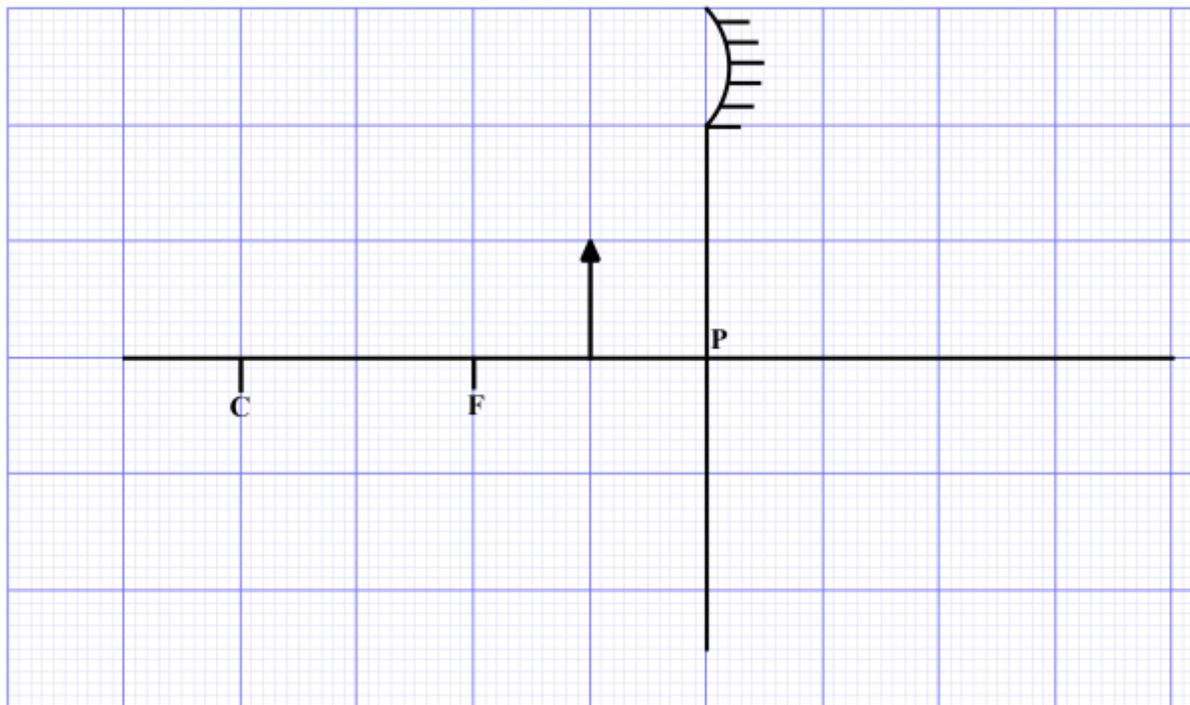
(II) Explain how the capacitor is charged. (3marks)

.....

(III) On the axis provided, sketch the graph of charging Current (I) against time (t) (1mark)



17. (a) The figure below shows an object placed in front of a concave mirror of focal length 10cm. C is the centre of curvature.



i) On the same figure draw a ray diagram showing the position of the image. (3marks)

Use the ray diagram (i) above to determine

ii) The image distance. (1mark)

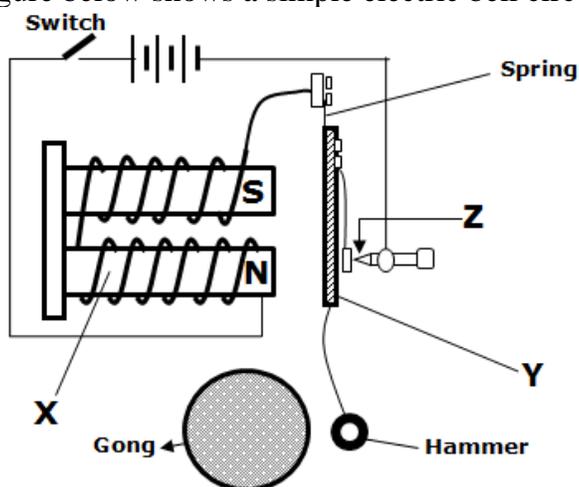
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 iii) Magnification (1mark)

(b) The figure below shows a simple electric bell circuit



i) Name the parts labeled. (3mk)

- I) X
- II) Y
- III) Z

ii) When the switch is closed, the hammer hits the gong repeatedly. Explain why:

- I) The hammer hits the gong. (1mark)

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II) The hammer hits the gong repeatedly (1mark)

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III) State what would happen if the armature is made of steel metal? (1mark)

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232/3

PHYSICS

PRACTICAL

PAPER 3

CONFIDENTIAL.

BRAIN QUEST SERIES FORM 3 END OF YEAR
EXAMS 2023

INSTRUCTIONS TO SCHOOL

QUESTION ONE REQUIREMENTS

- Ammeter
- Voltmeter
- Nichrome wire mounted on a millimeter scale (gauge 28)
- Switch
- A new dry cell
- A micrometer screw gauge
- Connecting wires
- A jockey

QUESTION TWO REQUIREMENTS

- A spiral spring (spring diameter =15mm
Length= 70mm, diameter of spring wire=1.8mm, number of turns=88)
- A complete stand
- 7 masses of 20g each
- A stopwatch
- 2 small pieces of wood for clamping
- A glass block
- 4 optical pins
- A soft board
- One plain paper

Name:..... IndexNo.....

232/3

Candidate's Signature.....

PHYSICS

PRACTICAL

Date.....

PAPER 3

TIME: 2 $\frac{1}{2}$ HRS

BRAIN QUEST SERIES FORM 3 END OF YEAR

EXAMS 2023

INSTRUCTIONS TO CANDIDATES

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

For Examiners Use		
QUESTIONS	MAXIMUM SCORE	CANDIDATE'S SCORE
1	18	
2	22	
TOTAL	40	

This paper consists of 6 printed pages. Candidates should check to ascertain that all pages are printed as indicated and that no questions are missing.

1. QUESTION 1

You are provided with the following apparatus

- Ammeter
- A voltmeter
- A wire mounted on a millimeter scale
- A switch
- A new dry cell
- A micrometer screw gauge
- Connecting wires
- A jockey

Proceed as follows

a) Measure the diameter d of the mounted wire at three different points

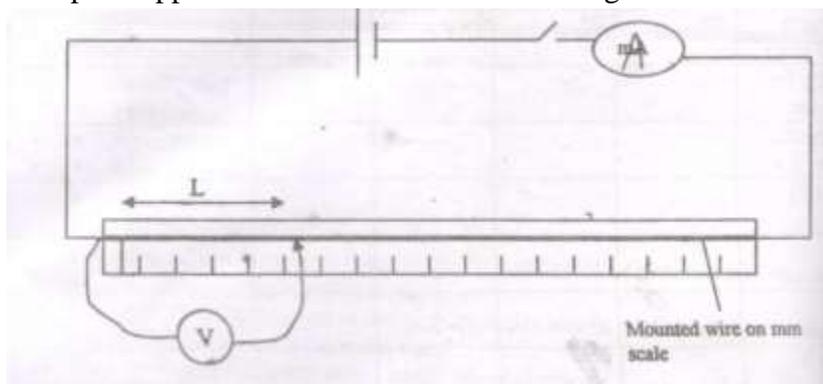
$d_1 =$ _____ mm

$d_2 =$ _____ mm (½mk)

$d_3 =$ _____ mm

Average $d =$ _____ mm (½mk)

b) Set up the apparatus as shown in the circuit diagram.



Close the switch and tap the mounted wire with jockey as shown in the circuit. Ensure that both meters show positive deflection, open the switch.

c) Tap the wire at $L = 20\text{cm}$, close the switch, read and record in the table the ammeter and voltmeter reading.

d) Repeat the procedure in (c) for other values of L shown in the table and complete the table.

L(m)	V(Volts)	I(A)	R=V/I
0.2			
0.3			
0.4			
0.5			
0.6			
0.7			
0.8			

(6mks)

e) Plot a graph of R against L (m).

(5mks)

f) Determine the slope of the graph.

(3mks)

g) Given that $R = p \frac{L}{A}$ where A is the cross-sectional area of the wire and p is a constant for the material of the wire, determine the value of the constant p. (3mks)

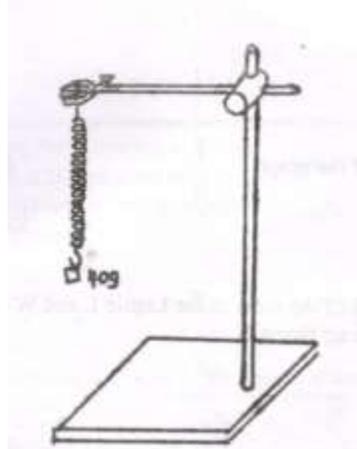
2. **QUESTION 2****Part 1**

You are provided with the following;

- A spiral spring
- A complete stand
- 7 masses of 20g each
- A stop watch
- 2 small pieces of wood for clamping

Proceed as follows

a) Clamp the spiral spring so as to hang from the clamp as shown in the figure below



- b) Hang a 40g mass from the spring and displace the mass slightly downwards so that it executes vertical oscillations as shown.
- c) Measure and record in the table the time for 10 oscillations.
- d) Determine the periodic time T in the table.
- e) Repeat the experiment for other values of mass m shown in the table. Complete the table below.

Mass (m)g	40	60	80	100	120	140
Mass m (kg)						
Time for 10 osc(s)						
Period T (s)						
T^2 (s^2)						

- f) Plot a graph of T^2 (s^2) against mass m (kg). (6mks)
(5mks)
- g) Determine the slope of the graph. (2mks)

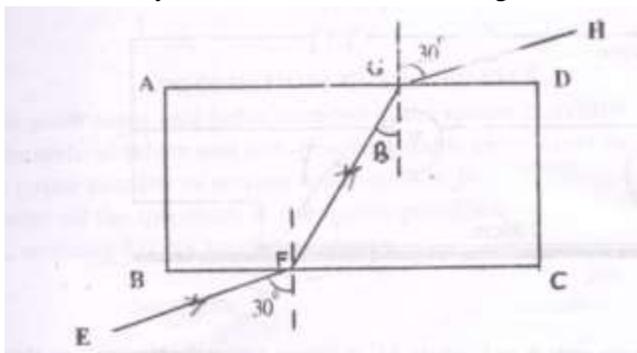
- h) Given that the equation of the graph is $T^2 = \frac{4\pi^2 m}{K}$
Determine the value of K . (3mks)

Part II

You are provided with a glass block, 4 optical pins, a soft board, one plain paper.

- a) Place the rectangular glass block on a sheet of paper fixed on the soft board with one of its longest face uppermost. Mark the outline ABCD as shown in the figure. Remove the glass block and draw a line EF to represent a ray of light making an angle of incidence $i=30^\circ$ with the longest side BC of the block.
- b) Stand pins p1 and p2 on this line as far as possible. Replace the block and mark the emergent ray by looking into the side AD of the block and placing pins p3 and p4 in line

with images of p1 and p2 as seen through the glass block. Remove the block and the pins and draw ray EFGH as shown in the figure below.



a) Draw the normal at G as shown. (1mk)

b) Measure angle B (1mk)

B =

c) Given that $k = \frac{\sin 30^\circ}{\sin B}$
 Calculate the value of k. (2mks)

d) The main paper used should be handed over together with this paper (correct use made of the plain paper) (1mk)