

2023 OCTOBER-NOVEMBER FORM 4
KCSE PREDICTION 3 EXAMS



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They have been well prepared by top experienced examiners in regard to 2023 December KCSE

(PREDICTION 3)

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

AGRICULTURE PAPER 1

Kenya Certificate of Secondary Exams

TIME:2HRS

INSTRUCTIONS TO CANDIDATES

- Write your name, index number and class in the spaces provided above.
- This paper consists of **THREE SECTIONS, A, B and C.**
- Answer all questions in sections **A and B** and two questions in section **C.**
- All your answers must be written in the spaces provided in this question paper.

FOR EXAMINERS USE ONLY

SECTION	QUESTIONS	MAXIMUM SCORE	CANDIDATES SCORE
A	1-17	30	
B	18-21	20	
C	22-24	40	
TOTAL		90	

SECTION A (30 MARKS)

Answer all questions from this section

1. What do the following terms mean? (1 ½ mks)

a) Gross domestic product (G.D.P)

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b) Gross national income (GNI)

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c) Per capita income

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.....

2 a) What does the term opportunity cost in farming mean? (1mk)

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b) State **two** situations when opportunity cost is nil or zero (2mks)

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3. List **four** advantages of individual owner tenure system (2mks)

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4. State **two** ways to show how check dams reduce soils erosion (1mks)

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5. Identify four soil constituents. (2mk)

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6. Mention **four** ways of classifying herbicides (2mks)

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7 (a) List **two** ways of controlling smut disease in the field. (1mk)

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(b) Name any **two** pests that attack bean pods in the field (1mk)

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8.What **four** factors should a farmer consider for effective control of pests in the field (2mks)

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9. Mr. Wotsula Applied 150kg N.P.K 25:20:15 to his one hectare of groundnuts in his Kakamega farm. Calculate how many kilograms of each of the fertilizer element he applied. (3mks)

10.State five marketing functions

(2 ½mks)

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11. State five functions of cooperative societies

(2½ mks)

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12. List three characteristics of green manure crops

(1 ½ mks)

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13.Name three types of water pumps to be used on the farm.

(1 ½ mks)

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14. Name four species of trees commonly used in agroforestry

(2mks)

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15. List four factors that determine the competitive ability of weeds

(2 mks)

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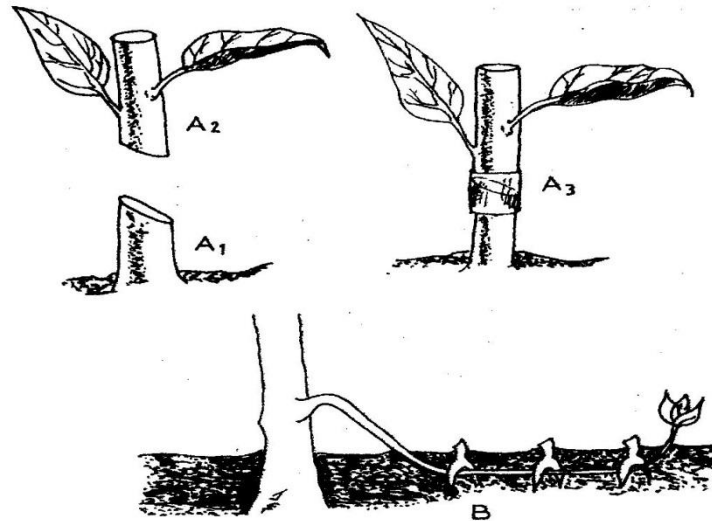
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SECTION B: (20 MARKS)

Answer all questions in this section

16. The diagrams labeled A₁, A₂, A₃, and B below illustrate materials and methods of vegetative propagation. Study them and answer the questions that follow.



(a) Name the parts labeled A₁, and A₂

(2 mks)

A₁ -

A₂ -

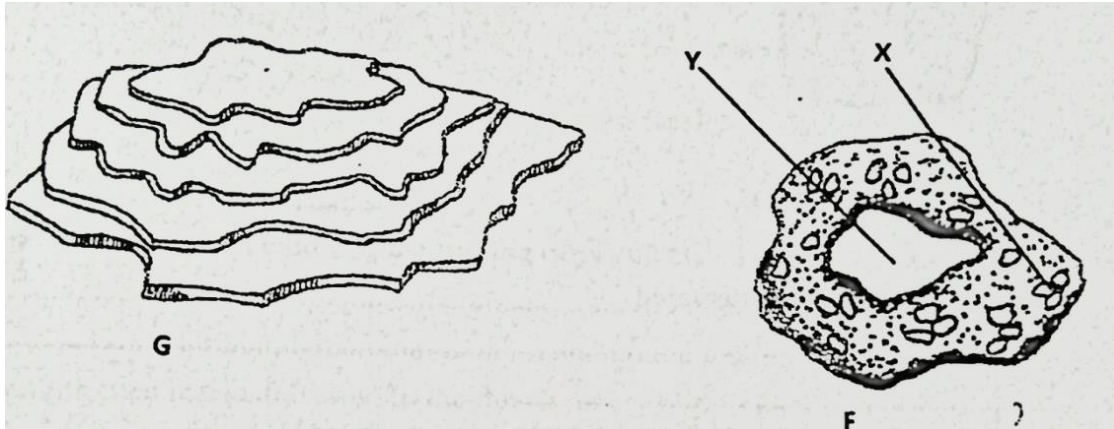
(b) Name the methods of propagation illustrated in diagrams A₃ and B

(2 mks)

A₃

B-

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



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

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

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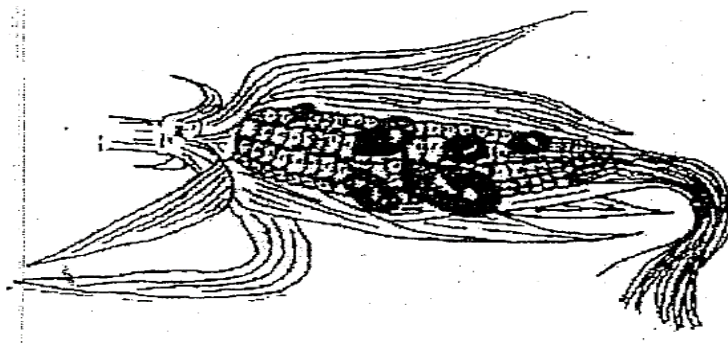
c) State two ways through which structure G influences crop production (2mks)

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18. Below is an illustration of a maize cob attacked by smut disease. Study it carefully and answer the questions that follow:



a) Beside what is visible on the maize cob, state two other symptoms of the disease (2mks)

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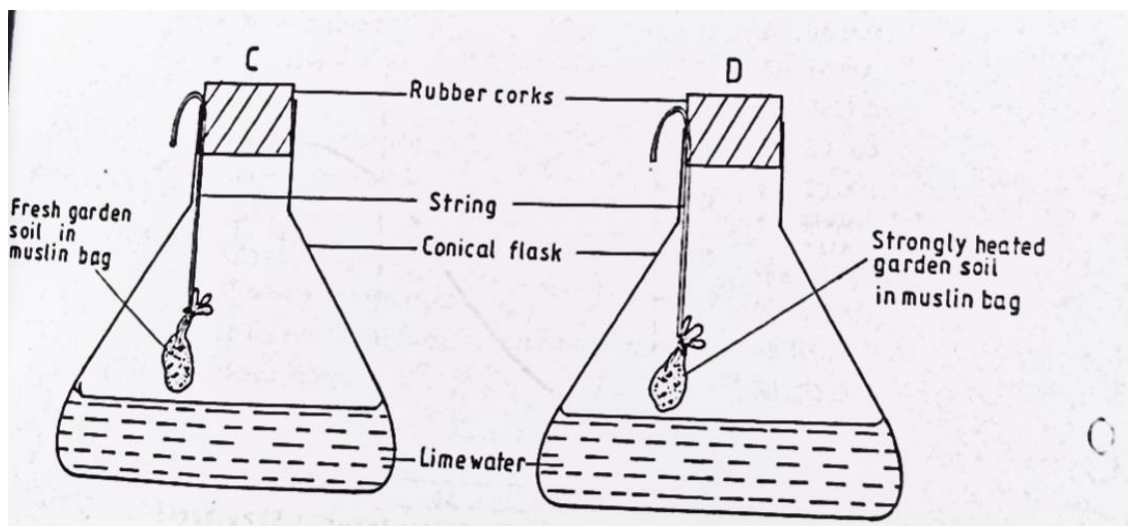
b) State three control measures of the above disease. (3mks)

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19.The diagram below shows a set up used to study an aspect of soil. The set up was left undisturbed for five hours. Study it and answer the questions that follow.



a) What was the aim of the experiment? (1mk)

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b) State one observation that was made in each of the flasks labelled C and D (2mks)

C-

D-.....

c) Give a reason for your answer in (b) above (2mks)

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- d) Apart from the aspect under the study above, state any other soil component that could be studied (1mk)

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SECTION C: (40 MARKS)

Answer any TWO questions from this section

20. The following table shows an illustration of production of maize (in tons) using various levels of inputs.

Units of variable input (Man hours)	Total output of maize (Tons)	Marginal Product	Average product
0	0		
1	6		
2	18		
3	33		
4	40		
5	45		
6	48		
7	48		
8	40		

- a) Work out the marginal product and average product and fill in the table (9mks)
- b) On the same graph paper, plot the graph showing total output, marginal product and average product against variable input (8mks)
- c) On the graph draw lines to show the following zones (3mks)
- Increasing return production function
 - Decreasing return Production function
 - Diminishing return production function
- 21 (a) Outline **five** benefits of trees and shrubs to the economic wellbeing of Kenyans (5mks)
- (b) Explain **7** ways on how farmers overcome risks and uncertainties in a farming business (7mks)
- (c) Explain the factors that influence the type of irrigation to be used in a farm (8 mks)
- 22 (a) State the principles involved in planning a crop rotation programme. (6mks)
- (b) Discuss the production of maize under the following subheadingsMaize
- Seedbed preparation (2mks)
 - Planting (2mks)
 - Weed control (2mks)
 - Field management practices (2mks)
 - Pests control (2mks)
 - Disease control (2mks)
 - Harvesting (2mks)

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

AGRICULTURE PAPER 2

Kenya Certificate of Secondary Exams

TIME:2HRS

INSTRUCTIONS TO CANDIDATES

- Write your name, index number and class in the spaces provided above.
- This paper consists of **THREE SECTIONS, A, B and C.**
- Answer all questions in sections **A and B** and two questions in section **C.**
- All your answers must be written in the spaces provided in this question paper.

FOR EXAMINERS USE ONLY

SECTION	QUESTIONS	MAXIMUM SCORE	CANDIDATES SCORE
A	1-17	30	
B	18-21	20	
C	22-24	40	
TOTAL		90	

SECTION A: (30 MARKS)
Answer all the questions from this section.

1. State the use of each of the following tools (1½mks)

(i) Strip cup:

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(ii) Sickle:

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(iii) Stock and die:

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2. Name **two** reasons why rabbits hutches should be raised above the ground. (1mks)

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3. Name **two** predisposing factors of coccidiosis,. (1mks)

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4. Define the following terms as used in livestock production.

(i) Crutching

(1mk)

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.....

(ii) Farrowing:

(1mk)

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5. Name the infective stage of the liver fluke in livestock. (1mk)

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6. State **four** disadvantages of using human power instead of tractors as a source of power in a farm. (2mks)

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.....
7. Name **two** tractors drawn implements attached to the tractor at one- point hitch. (1mks)

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.....
8. Distinguish between pen mating and flock mating in poultry. (2mks)

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9. Give **two** ways in which proper breeding and selection helps to control livestock diseases. (1mk)

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10. (a) Name **two** types of feed additives. (1mk)

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(b) Give **two** reasons why it is important to include additives in commercial feeds. (1mk)

11. (a) Name four pig breeds commonly reared in Kenya. (2mks)

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(b) Name four characteristics of dairy cattle breeds. (2mks)

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12. Outline four qualities of eggs used for incubation. (2mks)

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13. (a) Name two hormones that control milk let down in dairy cow. (1mk)

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(b) State four factors that influence milk let – down. (2mks)

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14. State four reasons why bees may swarm from a hive . (2mks)

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15. Name **three** sources of water in the body of livestock. (1½mks)

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16. Name **four** cattle diseases whose outbreak calls for quarantine. (2mks)

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17. State **two** functions of ventilation in a pig house. (1mk)

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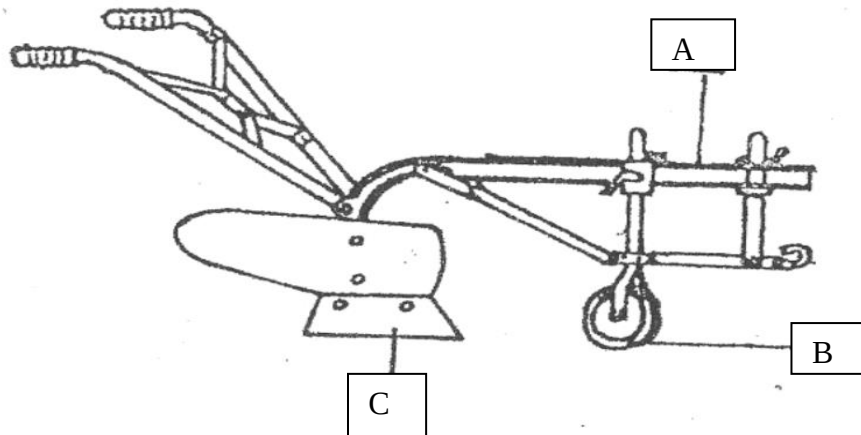
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SECTION B: (20MARKS)

Answer all the questions from this section.

18. The diagram below shows a farm implement used by small scale farmers for several operations in the farm. Study it carefully and then answer the questions that follow.



(a) Identify the implement.

(1mk)

.....

(b) State the function of the part labeled A, B and C.

(3mks)

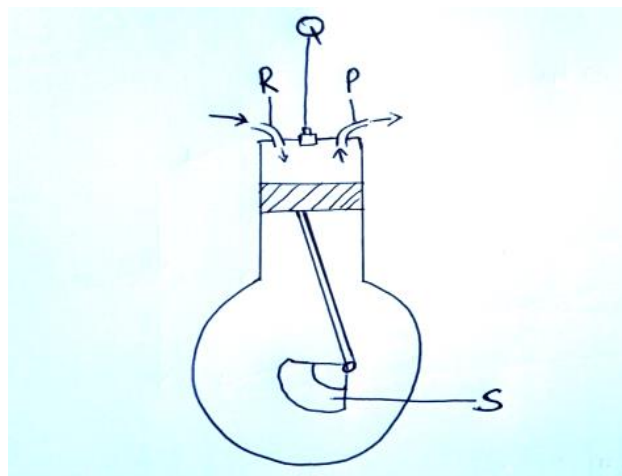
A
 B.....
 C

(c) Apart from land preparation, state any other one operations that can be done using the above implement.

(1mk)

.....

19. The illustration below shows an engine cylinder.



(i) Identify the parts labeled **P, Q, R** and **S** (2mks)

P

Q

R

S

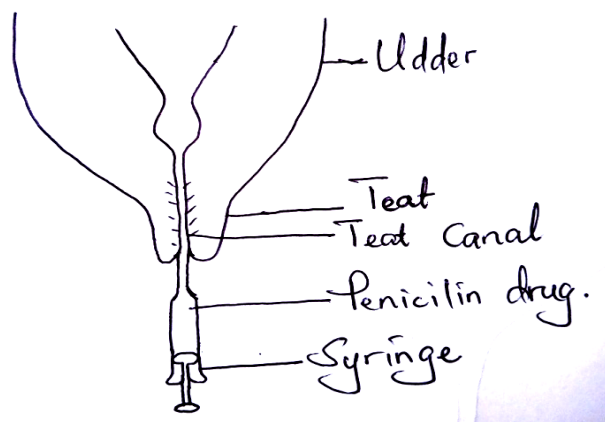
(ii) Give the function of the part labeled **Q** above. (1mk)

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(iii) Give two disadvantages of four-stroke engines. (2mks)

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20. The activity illustrated below indicates a task undertaken in farm animals.



(i) Name the above activity. (1mk)

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(ii) State the importance of the above activity. (1mk)

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.....

(iii) Name the disease controlled by the above practice. (1mk)

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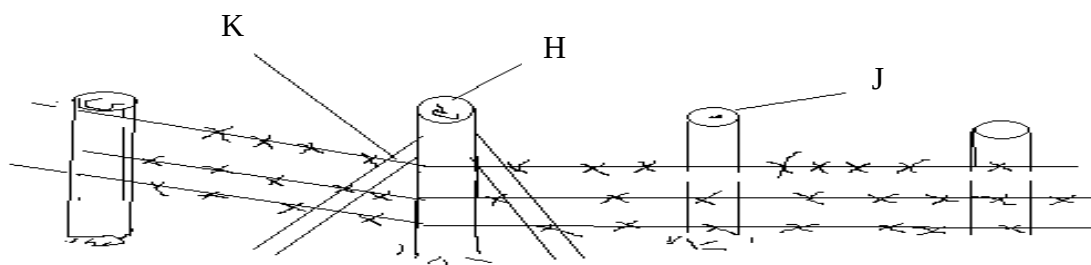
(iv) Name two other diseases that only attack female cattle. (2mks)

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21. Below is a diagram showing parts of a fence. Use it to answer the questions that follow.



(a) Identify the type of fence above. (1mk)

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.....

.....

(b) Name the parts labeled **H** and **J**. (2mks)

H

J

(c) What is the role of the part labeled **K**? (1mk)

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

BIOLOGY PAPER 1

Kenya Certificate of Secondary Exams

TIME:2HRS

INSTRUCTIONS

- Write your **Name** and **Index Number** in the spaces provided above.
- Sign and write the date of examination in the spaces provided above.
- This paper consists of **TWO** sections: **A** and **B**.
- Answer **ALL** the questions in section **A** in the spaces provided after each question
- In Section **B**, answer question **6 (compulsory)** in the spaces provided and either question **7** or **8** in the spaces provided after question **8**.
- Answers must be written in English only.

For Examiner's Use Only:

QUESTIONS	MAXIMUM SCORE	CANDIDATE'S SCORE
1- 31	80	

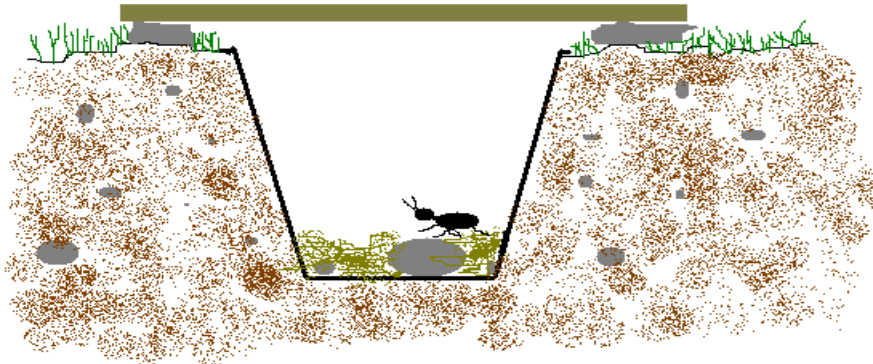
1. State the branch of Biology that would be used in solving the problem of disputed parentage. (1mark)

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2.A young scientist observed a bird laying her eggs in a nest and later the eggs hatched into chicks. Name two characteristics shown by the chicks that show a chick is a living thing but an egg is not. (2marks)

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.....
.....

3. Study the diagram below and answer questions that follow



(i) What is the name given to the apparatus shown above (1 mark)

.....
.....

(ii) What is its use in Biological studies? (2 marks)

.....
.....

4. a) A form two student observed the leaf shown below.



- a) Name the process shown by the leaf. (1mark)

- b) Differentiate between the process shown above and transpiration (2marks)

5. A certain species of flowering plant relies entirely on sexual reproduction for propagation. The Chromosome number of the cell in the ovarian wall is 16.
- a) The pollen tube nucleus. (1mark)

- b) A cell of the endosperm. (1mark)

6. a) What are fossils? (1mark)

- b) State two limitations of the use of fossils as an evidence of evolution. (2marks)

7. Name the disease of the blood characterized by,

a) Abnormally large number of white blood cells

(1mark)

.....
.....

b) Crescent –shaped hemoglobin

(1mark)

.....
.....

8. (a) State two roles of hydrochloric acid secreted by the stomach wall.

(2marks)

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.....

(b) Name the cells that secrete the above component.

(1mark)

.....
.....

9. Name the organisms that cause each of the following diseases.

i) Amoebic dysentery.

(1mark)

.....
.....

ii) Bilharzia

(1mark)

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.....

10. Explain how marine fish regulate their osmotic pressure.

(3marks)

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11. A rhinoceros in a national park was found to be infected with ticks. State the trophic level occupied by the :

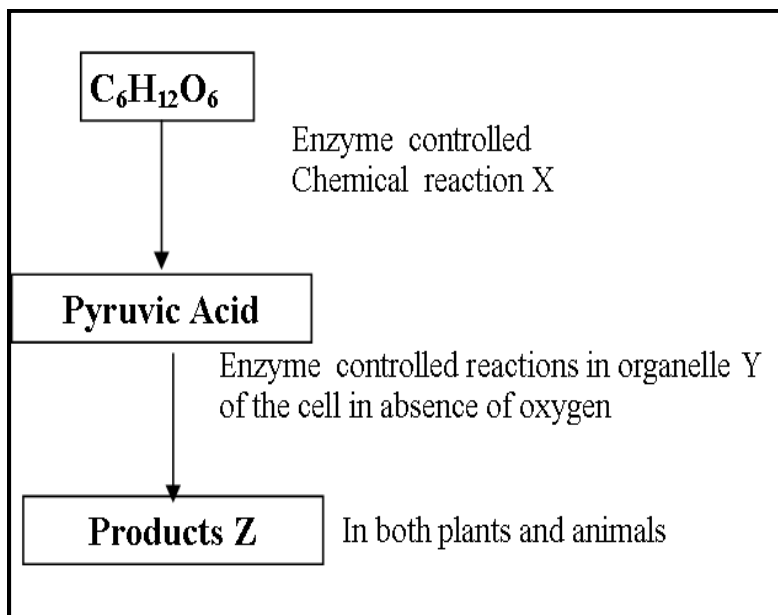
(i) Rhinoceros. (1mark)

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.....

(ii) Ticks (1mark)

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.....

12. Study the flow chart below of a process that takes place in both plants and animals.



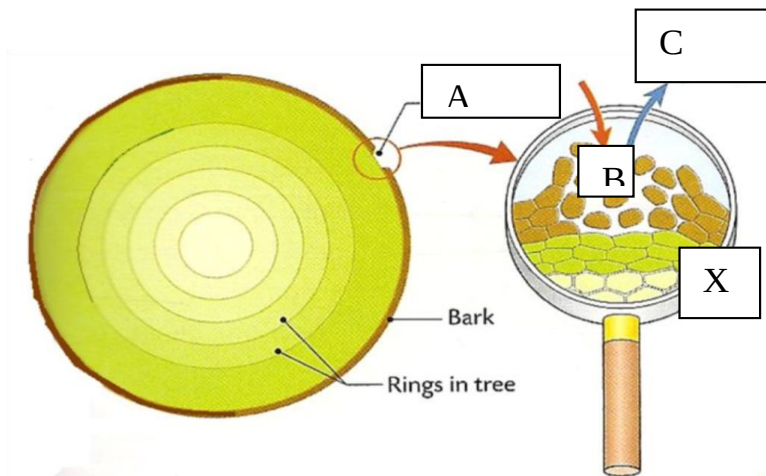
a) Name the above process. (1mark)

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.....

b) In the above process name the chemical reaction represented by X. (1mark)

.....
.....

13. The diagram below shows a gaseous exchange structure in the stems of angiosperms.



Name;

a)Part labelled A.

(1 mark)

.....

.....

b)Apparatus X.

(1 mark)

.....

.....

c)Substances represented by arrows B and C.

(2 marks)

B.....

C.....

14. When blood is flowing through a vena cava, which main blood vessel will it flow through next?

(1mark)

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15. 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)**

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(b) Name the blood cells that are destroyed by the parasite in **(a)** above. **(1 mark)**

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.....

(c) State one biological method used to eradicate the larvae of these organisms. **(1 mark)**

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16. Give the structural adaptations of the following in an insect pollinated plant.

(a) Pollen grain. **(1 mark)**

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.....

(b) Stigma. **(2 mark)**

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17. Use the illustration below to answer questions that follow.



(a) Identify the type of pollution that has such an effect. (1 mark)

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.....

(b) State two effects of the type of pollution identified in (a) above to the organism. (2 marks)

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.....

18. Identify the following types of responses:

(a) Pollen tube growing towards the ovary (1 mark)

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.....

(b) Maggots moving away from light. (1 mark)

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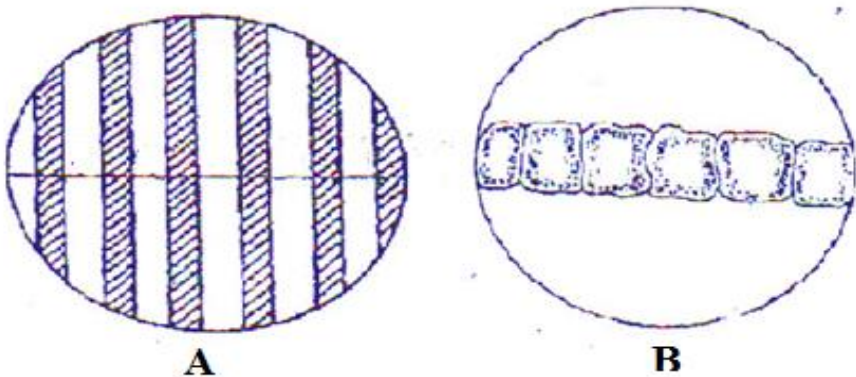
19. State two activities of the cell that are controlled by the nucleus. (2 marks)

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20. The field of view of a light microscope appeared as shown below in diagram A and the diameter in A was occupied by cells as shown in B.



Calculate the length of one cell. (3 marks)

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21. State two importance of water in germination of seeds. (2 marks)

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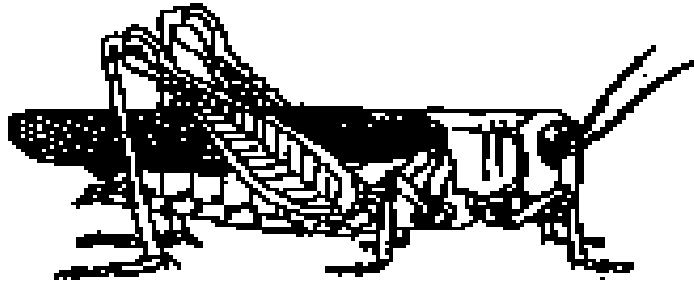
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22. Why is sexual reproduction advantageous in flowering in plants? (2 marks)

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23. Below is an illustration of an organism captured by students during a practical lesson.



(a) Identify three features that enable the organism to be placed in the phylum Arthropoda.

(3marks)

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(b) Explain why the organism will die when Vaseline is applied on its thorax.

(1 mark)

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24. State the significance of natural selection.

(2 marks)

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25. Explain why a plant shoot develops lateral branches when its tip is removed.

(2 marks)

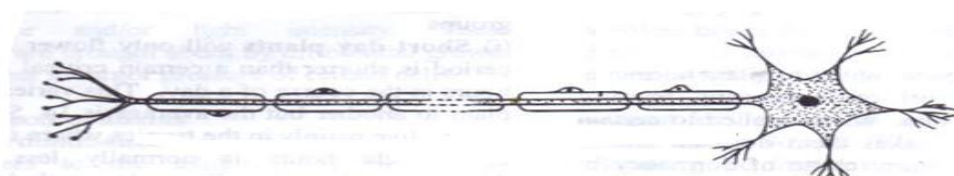
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26. The diagram below shows the structure of a neurone.



(a) Identify the neurone and state its function

(2 marks)

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(b) Name the part of the brain that is involved in learning and memory.

(1 mark)

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27. Explain what happens to the structures of the human eye when a student reading a white printed paper on a bright sunny day enters a dark room for examinations. (3 marks)

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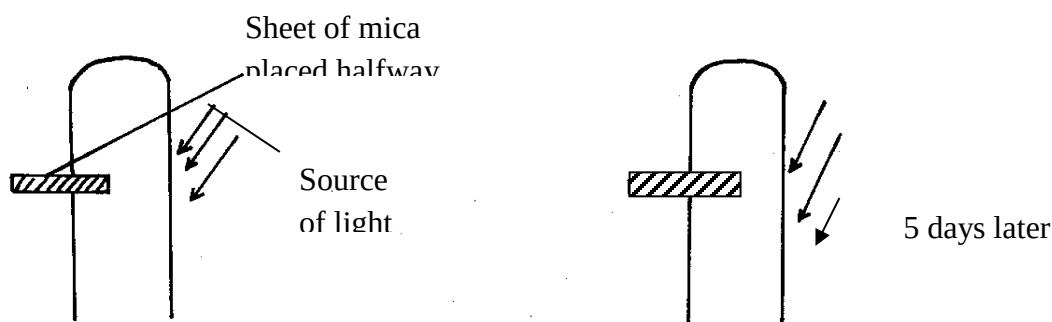
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28. The experiment below was carried out by form four students. The result was recorded below:



Explain why the shoot doesn't bend towards the light.

(3marks)

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29. In an investigation, a group of students came across animals living in the following habitats. What was the likely main nitrogenous waste product of each in its habitat? (3marks)

Habitat	Nitrogenous waste
Terrestrial	
Fresh water	
Marine	

30. State the functions of each of the following parts of male reproductive system. (3marks)

a. Sertoli cells

.....

b. Epididymis

.....

c. Seminiferous tubules

.....

31. The diagram below shows various types of gene mutations..

Mutation 1:

A	B	C	D	E	F	G
---	---	---	---	---	---	---

 →

A	B	C	F	G
---	---	---	---	---

Mutation 2:

A	B	C	D	E	F	G
---	---	---	---	---	---	---

 →

A	B	C	F	E	D	G
---	---	---	---	---	---	---

- a. Identify the type of gene mutation shown above. (2marks)

Mutation 1

Mutation 2

- b. Distinguish between gene and chromosomal mutations (2mark)

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

BIOLOGY PAPER 2

Kenya Certificate of Secondary Exams

TIME:2HRS

INSTRUCTIONS TO CANDIDATES

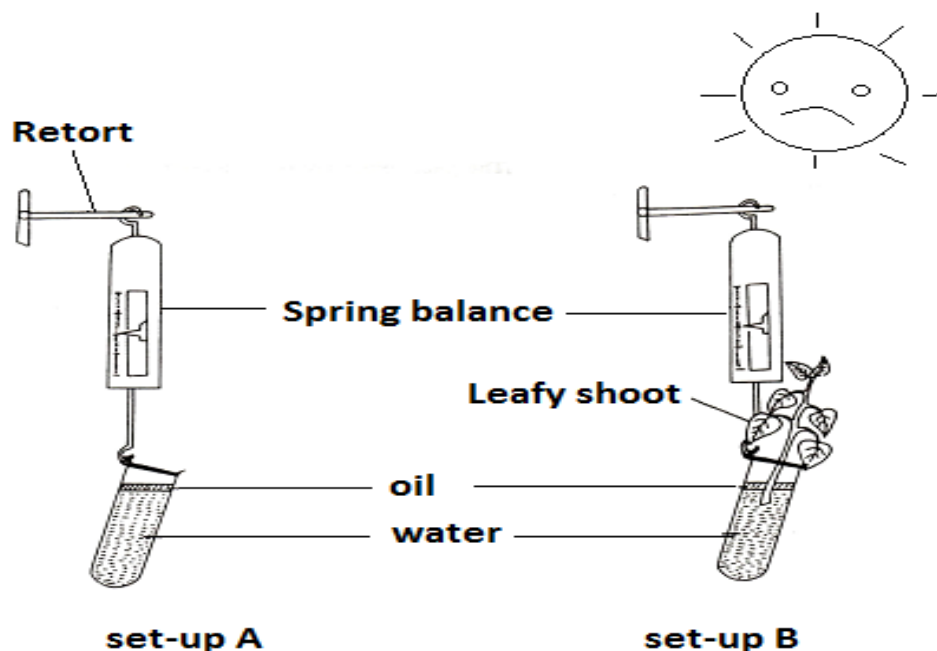
- Write your name, school and index number in the spaces provided above.
- This paper consist of **TWO** sections; **A** and **B**.
- Answer **all** the questions in the section **A** in the spaces provided.
- In section **B** answer Question **6(compulsory)** and either question **7** or **8** in the space provided after question **8**.
- Check to ascertain that all pages are printed and that no questions are missing.

SECTION	QUESTIONS	MAXIMUM SCORE	CANDIDATES SCORE
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
	TOTAL	80	

SECTION A (40 MARKS)

Answer all questions

1. The set below was used to investigate a certain physiological activity in plants. The two set ups were left under a hot sun for several hours. Study it carefully to answer the questions that follow.



(a) What physiological process was being investigated?

(1 mark)

.....

.....

.....

.....

(b) What was observed in set-up A and B at the end of the experiment

(2 marks)

A.....

.....

B.....

.....

2.(a) Explain your answer in the (d) above for set-up B.

(2 marks)

.....

.....

(b)What do you understand by the terminology guttation? **(1 mark)**

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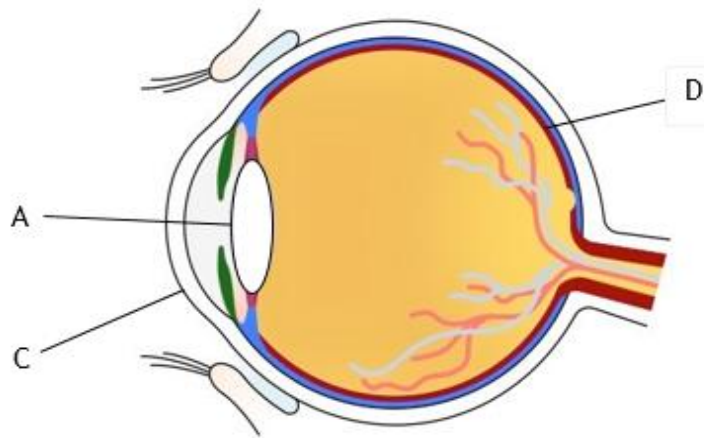
(c)Explain how wilting of leaves during a hot day is advantageous to a plant. **(2marks)**

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3. The diagram below illustrates the structure in the human eye.



(a)

(i)State one way in which the part labelled c is suited to its functions. **(1mark)**

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(ii)State the functions of the cells in the part labelled D **(2marks)**

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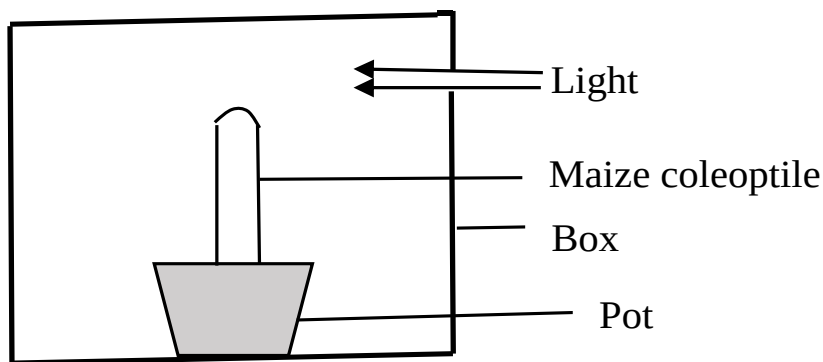
(iii) State the changes that occur in part A to facilitate vision of a distance object. (2marks)

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b) A student set up an experiment as shown below.



The set up was left for three days.

Account for the expected results after three days (3marks)

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4. Tongue rolling is dominant over the inability to roll tongue. The father of a family can roll his tongue while the mother cannot. Half of their children can roll the tongue while the other half cannot. Use letter R to denote the tongue rolling trait.

a) Explain with the help of a diagram why only half of the children in the case above inherit the tongue rolling trait from their father. (4 marks)

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b) If all children could roll the tongue, then what would be the genotype of the mother and father?
Explain your answer using a punnet square. **(4 marks)**

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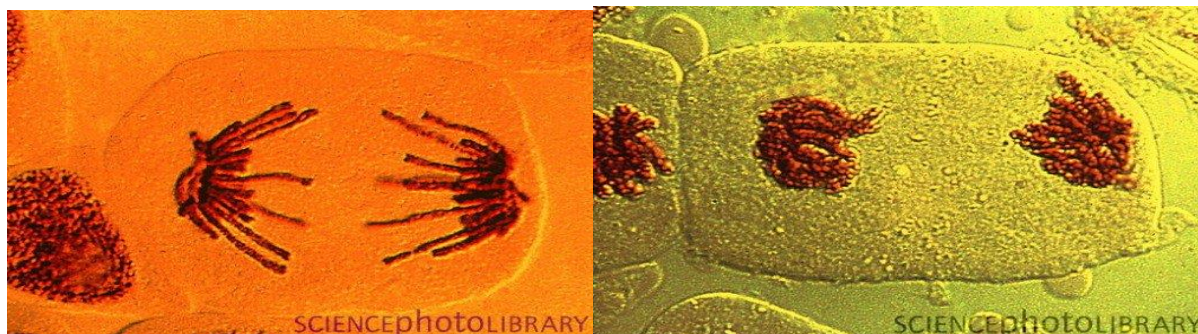
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c) The micrographs below are of a tissue showing mitosis. Examine it and answer the questions.

R

T



a.) i. Identify the tissue from which the micrographs were obtained **(1mark)**

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

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R.....

T.....

(2 marks)

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(2marks)

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d) During a laboratory investigation, a scientist extracted gastric juice from the mammalian stomach. He used it to carry out tests on a food sample B which was suspected to contain proteins. He divided the food sample B into three portions and treated them as below.

I. On the 1st portion of B, he added Gastric juice and mixed them thoroughly before adding sodium hydroxide followed with copper (II) sulphate drop by drop.

II. On the 2nd portion of B, he added boiled gastric juice and mixed them thoroughly before adding sodium hydroxide followed with copper (II) sulphate drop by drop.

III. On the 3rd portion of B, he added Gastric juice, sodium bi-carbonate and mixed them thoroughly before adding sodium hydroxide followed with copper (II) sulphate drop by drop.

(3marks)

1st portion.....

2nd portion.....

3rd portion.....

(1mark)

.....

.....

c) Name the property of the chemical being investigated in these tests.

(1mark)

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.....

d) Account for the observations made in 2 (a) above.

(3marks)

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SECTION B (40MARKS)

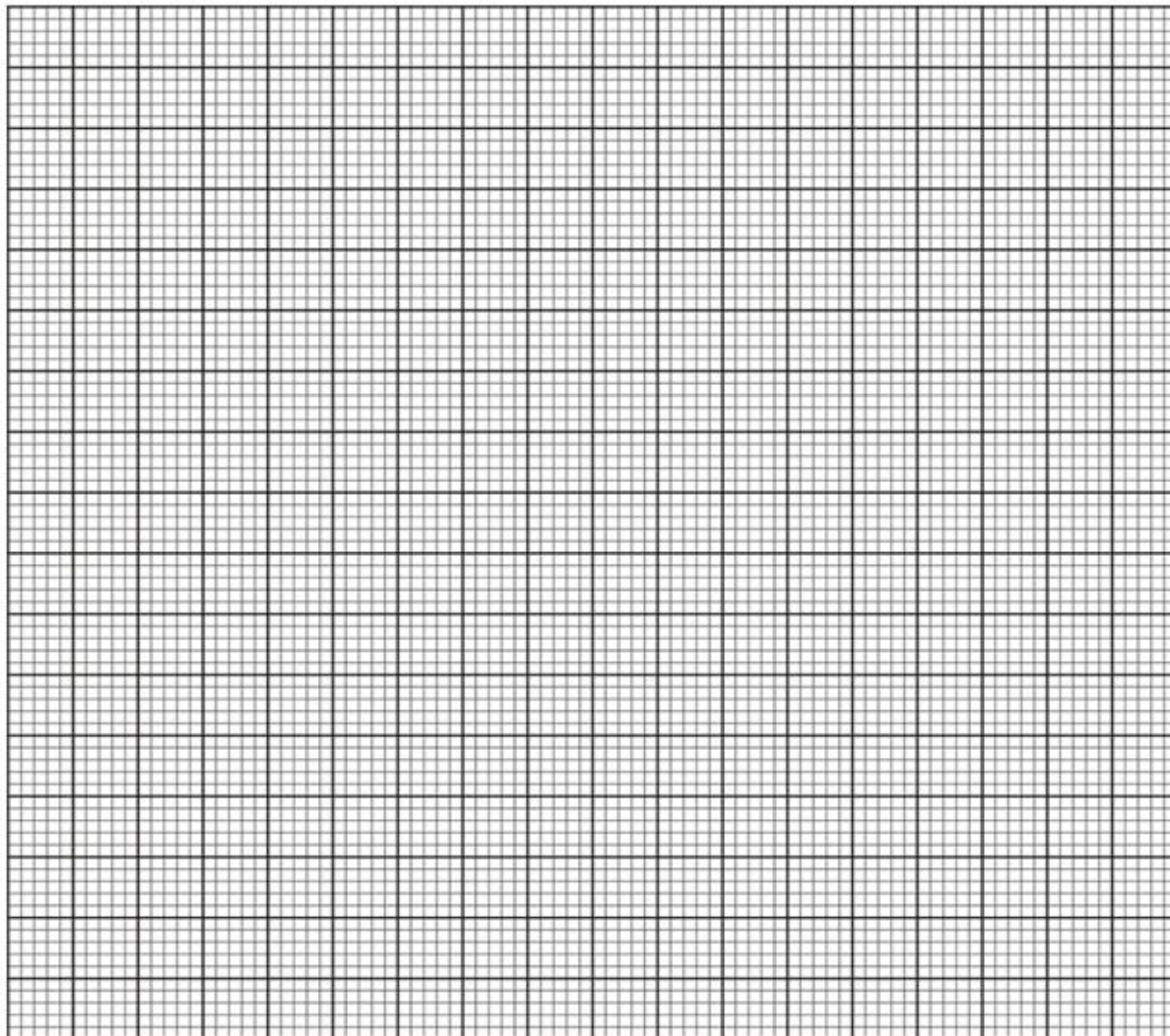
Answer question 6 (compulsory) then choose any between question 7 and 8

6. An experiment was carried out to investigate the effects of dilute sulphuric acid on the growth of plant seedlings. Batches of seedlings were grown in glass dishes on filter paper to which dilute sulphuric acid was added. The dishes were then incubated. The root and shoot lengths were measured after 65 hours. The results obtained are shown in the table below.

Sulphuric acid concentration (mol/dm ⁻³)	Mean root length (mm)	Mean shoot length (mm)
0	55.5	25.2
1 x 10 ⁻³	63.4	18.4
3 x 10 ⁻³	6.5	9.5
4 x 10 ⁻³	2.0	4.6
6 x 10 ⁻³	1.8	0.8
7 x 10 ⁻³	1.5	0.5
8 x 10 ⁻³	1.3	0.3
9 x 10 ⁻³	1.3	0.0
10 x 10 ⁻³	1.0	0.0

- (a) Plot a graph of the mean root length and the mean shoot length against the sulphuric acid concentration on the same grid.

(7 marks)



(b) Describe the relationship between the concentration of sulphuric acid and the:-

(i) Growth of shoots

(2 marks)

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(ii) Growth of the roots

(2 marks)

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(c) Estimate the mean root and the mean shoot lengths when the concentration of sulphuric acid is 5×10^{-3} (2 marks)

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(d) State two other effects of acid rain. (2 marks)

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(e) State three ways of preventing acid rain. (3 marks)

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(f) Name two other gases with the same effect Sulphur (IV) oxide gas in the atmosphere. (2 marks)

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7. a) Describe the mechanism of inhalation and exhalation in mammals (14marks)

b). Explain three factors that affect rate of breathing (6marks)

8.a) Describe the process of double fertilization in flowering plants. (15marks)

b) Describe what happens to the various parts of a flower after fertilization. (5 marks)

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[illegible]

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

BIOLOGY PAPER 3

Kenya Certificate of Secondary Exams

TIME:2HRS

Instructions to candidates

- a) Write your name, index number in the spaces provided above.
- b) Answer **ALL** questions in the spaces provided.
- c) You are required to spend the first **15 minutes** of the **1 ³/₄ hours** reading the whole paper carefully before commencing your work.
- d) This paper consists of **6** printed pages
- e) Candidates should answer the questions in English

FOR EXAMINER'S USE ONLY:

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1	16	
2	11	
3	13	
TOTAL	40	

1. You are provided with a specimen labelled **Q**, use it to answer the questions that follow.

(a) (i) Sketch a drawing and label the specimen on the space provided. **(2 marks)**

(ii) Make a transverse section of the specimen and label. **(3 marks)**

(b) What type of fruit is specimen Q? **(1 mark)**

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c) Slice off about 2cm² cube from the specimen. Peel it. Tie one end of the 8cm LONG transparent visking tubing provided. Place the banana cube and tie the other end to ENSURE THERE IS NO LEAKAGE AND BOTH ENDS OF THE TUBING.

Rinse the outside of the tubing with water. Immerse the tubing with its content in 100ml beaker containing iodine solution. Allow standing for 20 minutes.

(i) Record your observations in the table below. **(4 marks)**

	Contents inside tubing	Iodine solution
		Outside tubing

Before the experiment		
After the experiment		

(ii) What was the physiological activity under test? (1 mark)

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.....

(ii) Account for the results obtained in c (i) above. (3 marks)

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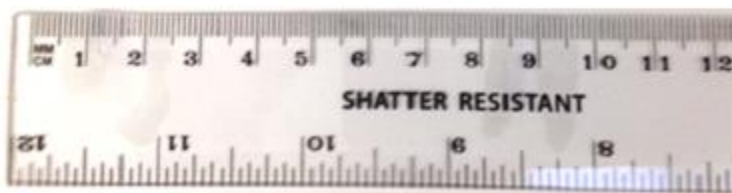
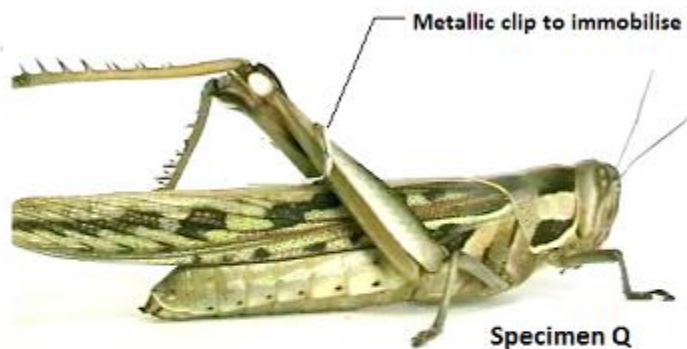
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2. You are provided with specimen **Q, R S T** and **U**. Study them to answer the questions below.



- (a) Work the actual length of specimen T, given that the shatter resistant ruler measures Q from tip of mouth to tip of abdomen. **(3 marks)**

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- (b) Aboy immobilised specimen Q and attempted to drown and suffocate it in water by placing its head in water. Using observable features, explain why he couldn't succeed. **(2 marks)**

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- (c) Use the features in order given below and construct a dichotomous key that can be used to identify the specimen above.

Wings, long or short hind limbs, number of legs, antenna.

(8 marks)

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(d) State three ways in which specimen **Q** is adapted to evade its predators in its ecological niche. (3 marks)

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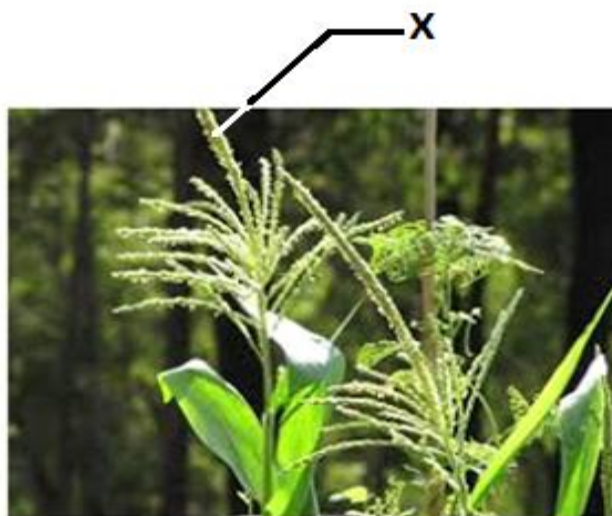
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3. You are provided with two photographs below of maize plant (*Zea mays*) taken from the school farm. Use them to answer the questions that follow.



photograph A



photograph B

(a) Classify the specimen into Division, Sub-division and Class where it belongs.

Division

(1 mark)

.....

Sub-division

(1 mark)

.....

Class

(1 mark)

.....

(b) Give one reason why you classified it into sub- division above.

(1 mark)

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(i) What type of leaf arrangement is shown in photograph A above.

(1 mark)

.....

(ii) Giving reasons, give the **term** used to describe the above flower based on the agent of pollination.

(1 mark)

.....
Reasons (2 marks)

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iii) On the photographs, label where the pollen grain produced and where stigma is likely to be found respectively. (2 marks)

iv) With respect to floral arrangement, what term is used to describe maize plant? (1 mark)

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

BUSINESS PAPER 1

Kenya Certificate of Secondary Exams

TIME:2HRS

INSTRUCTIONS TO CANDIDATES.

- Write your name, admission number and stream in the spaces provided above.
- This paper consists of 25 questions. Check to ascertain that all pages are printed as indicated and that no question is missing.
- Candidates should answer all questions in the spaces provided in English.

FOR EXAMINERS USE ONLY.

QUESTION	1	2	3	4	5	6	7	8	9	10	11	12	13
SCORE													

QUESTION	14	15	16	17	18	19	20	21	22	23	24	25
SCORE												

**TOTAL
SCORE**

1. Name **four** forms of economic integration. (4 marks)

(a).....

(b)

(c)

(d)

2. Outline **four** reasons that may lead to slow growth of entrepreneurship in Kenya. (4 marks)

(a)

(b)

(c)

(d).....

3. In the table given below, indicate using a tick whether each of the following factors influence demand or supply of a commodity. (4 marks)

	FACTOR	DEMAND	SUPPLY
a	Change in number of firms in the industry.		
b	Change in levels of income.		
c	Change in population.		
d	Change in cost of production.		

4. Joyce Pauline, a newly employed teacher, has joined Mwalimu Sacco in Kisumu. Outline four benefits she will get as a result of her membership. (4 marks)

(a)

- (b)
- (c)
- (d)
5. State **four** factors that should be considered when choosing a method of producing documents.
- (a)
- (b)
- (c)
- (d)
6. List **four** types of terminals in transport. **(4 marks)**
- (a)
- (b)
- (c)
- (d)
7. Outline four challenges that may be faced by a country whose population is largely made up of a young population. **(4 marks)**
- (a)
- (b)
- (c)
- (d)
8. Highlight four reasons that make it necessary for a country to have a development plan. **(4 mks)**
- (a)

(b)

(c)

(d)

9. The table below contains levels of production and occupations under each level. Complete the table by writing the appropriate business activity at each level. **(4 marks)**

LEVEL	BUSINESS ACTIVITY	OCCUPATION
Primary	(a).....	Quarrying, fishing.
Secondary	(b)..... (c).....	Flour milling, oil refining. Baking, textile making.
Tertiary	(d).....	Hairdressing, communication.

10. The balance sheet prepared Caldera Traders on 1st January, showed capital of Sh. 420,000.

During the year ended 31st December 2022 it was found that:-

- (a) Additional investment was Sh. 150,000.
(b) Drawings were Sh. 130,000.
(c) Profits realized by the business was Sh. 210,000.

Required.

Determine Caldera's capital on 31st December, 2022.

(4 marks)

11. State four ways of differentiating products under monopolistic competition. (4 marks)

(a)

(b)

(c)

(d)

12. Highlight four measures that may be put in place to control demand pull inflation. (4 marks)

(a)

(b)

(c)

(d)

13. State the term given to each of the following forms of advertising. (3 marks)

	DESCRIPTION	TYPE OF ADVERTISING
a	Creates awareness of a product to potential clients about entry of the new product into the market.	
b	Promotes a particular brand of a product where the brand name features more prominently.	
c	Persuades customers to buy the product implying that the product is better than any other in the market.	

14. Highlight four ways through the government can ensure a clean environment. (4 marks)

(a)

- (b)
- (c)
- (d)

15. State four internal economies of scale that a firm may experience. (4 marks)

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

16. Mazeras Traders had the following account balances as at 30th June, 2023.

Sh.	Sh.
Cash at bank.....42,600	Furniture.....5,000
Capital.....90,000	Purchases.....46,000
Sales.....40,000	Musa (debtor).....2,650
Advertising expense.....400	Wakesho (creditor).....1,400
Purchases returns.....600	Cash in hand.....28,000
Sales returns.....350	Drawings.....7,000

Required.

Prepare Mazeras Traders trial balance as at 30th June, 2023. (5 marks)

17. Highlight **four** disadvantages to a customer who operates a fixed deposit account. (4 marks)

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

18. Explain the entries on 5th and 9th in the two column cash book given below. (4 marks)

Date	Details	Folio	Cash	Bank		Date	Details	Folio	Cash	Bank
2023			Sh.	Sh.		2023			Sh.	Sh.
April 5	Balance		2,500			April 5	Balance			4,000
April 8	Sales		7,200			April 9	Bank	C1	6,300	
April 9	Cash	C1		6,300						

April 5th

- (a) (1mark)
- (b) (1 mark)

April 9th

- (c) (2marks)

19. Outline **four** advantages of mail order businesses. (4 marks)

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

20. Outline **four** circumstances under which the government may find it necessary to participate in business activities. (4 mark)

(a)

(b)

(c)

(d)

21. Outline **four** reasons why it is necessary to have an interviewee appear personally before an interviewing panel during job interviews. (4 marks)

(a)

(b)

(c)

(d)

22. Highlight **four** uses of a general journal. (4 marks)

(a)

(b)

(c)

(d)

23. The table below contains descriptions of terms used in public finance. Write the appropriate term that best fits each description. (4 marks)

	DESCRIPTION	TERM USED
a	An indirect tax charged on certain goods and services produced for domestic use.	

b	A major part of government spending made to people who are not productive in economic sense.	
c	Is a tax paid to the government by individuals during sale and transfer of land and real estate.	
d	This is revenue that is borrowed to finance activities that do not generate any revenue, for example, recurrent expenditure.	

24. Highlight ***four*** characteristics of general insurance. (4 marks)

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

25. State ***four*** types of spending that are considered when measuring the national income of a country using expenditure approach. (4 marks)

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

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

BUSINESS PAPER 2

Kenya Certificate of Secondary Exams

TIME:2½HRS

Instructions to candidates

- Write your **Name** and **Index number** in the spaces provided above.
- Sign and write the date of the examination in the spaces provided above.
- Answer **any Five** the questions in the spaces provided in the question paper.
- This paper consists of 3 printed pages.**
- Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.
- Candidates should answer the questions in English.

FOR EXAMINERS' USE ONLY

1	
2	
3	
4	
5	
6	

- Explain **five** Office etiquette expected of office worker. (10 marks)
 - Describe **five** types of unemployment. (10 marks)
- Explain **five** differences between sole proprietorship and public limited company(10 marks)

b. The following trial balance was extracted from the books of Kiliku Enterprises on 31 December 2009.

Account Title	Dr.	Cr.
	Sh.	Sh.
Gross profit		440,000
Capital		1,530,000
Furniture	900,000	
Land	600,000	
Advertising	40,000	
Bank overdraft		100,000
Cash	340,000	
Stock	140,000	
Creditors		130,000
Debtors	180,000	
	<u>2,200,000</u>	<u>2,200,000</u>

Additional information:

- i. The gross profit of Kiliku Enterprises average at a margin of 20%
- ii. Stock on 1st January, 2009, was valued at Sh. 104,000.

Calculate:

- i) Cost of sales
- ii) The value of purchases
- iii) Rate of stock turnover
- iv) Working Capital.
- v) Current ratio

(10 marks)

3. a. Explain five factors that may limit the effectiveness of a warehouse.
- b. Explain five reasons for maintaining books of original entry.

(10 marks)

(10 marks)

4. a. Explain five factors that Siaya county government may consider before incurring any expenditure. (10 marks)
b. Explain five reasons why per capita income is not a good indicator of standards of living. (10 marks)
5. a. Explain five benefits that Kenya may enjoy by being a member of African Development Bank (AfDB). (10 marks)
b. Explain five benefits that an organisation may enjoy by preparing a business plan. (10 marks)
6. a. Explain five reasons that accounts for the continued use of handcarts as a means of transport in Kenya. (10 marks)

b, Baraka started a business on 1st January 2023 with sh.15,000 in cash and sh. 130,000 in bank.

The following transactions took place during the month:

January 2023-

- 2 Cash purchases sh, 70,000
- 4 Paid rent sh. 10,000 in cash
- 10 Cash sales paid directly into the bank sh. 64,000
- 13 Deposited sh.50,000 into the bank from cash till
- 17 Paid wages in cash sh.4,000
- 19. Bought furniture for sh.36,000 paying sh.27,000 by cheque and the balance was to be paid later
- 20 Received sh.16,000 cash from a customer
- 23 Bought goods for sh. 190.000 by cheque
- 28 Received a loan of sh.210,000 from Maria in cash
- 30 Deposited all cash into the bank except sh.8,000

Required; Prepare a single column cash book duly balanced. (10 marks)

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

CHEMISTRY PAPER 1

Kenya Certificate of Secondary Exams

TIME:2HRS

INSTRUCTIONS TO CANDIDATES

- a) Write your name and index number in the spaces provided above.
- b) Sign and write the date of examination in the spaces provided above
- c) Answer all the questions in the spaces provided
- d) Mathematical tables and electronic calculators may be used
- e) All working must be clearly shown where necessary.

FOR EXAMINERS USE ONLY

QUESTION	MAXIMUM SCORE	CANDIDATES SCORE
1 - 29	80	

1. State and explain the change in mass that occur when the following substances are separately heated in open crucibles.

a) Copper metal

(1 $\frac{1}{2}$ marks)

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.....

b) Copper (II) nitrate

(1 $\frac{1}{2}$ marks)

.....
.....

2. (a) State Graham's law of diffusion

(1 mark)

.....
.....

(b) A volume of 120 cm^3 of nitrogen gas diffused through a membrane in 40 seconds, how long will 240 cm^3 of carbon (IV) oxide diffuse through the same membrane?

(2 marks)

3. A reaction of Propane with chlorine gas gave a compound of formula $\text{C}_3\text{H}_7\text{Cl}$.

a) What condition is necessary for the above reaction to take place.

(1 mark)

.....
.....

b) Draw the structural formula of the compound $\text{C}_3\text{H}_7\text{Cl}$

(2 marks)

4. Name a gas which is used together with Oxygen in welding.

(1 mark)

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

(The letters are not the actual symbols of the elements)

Element	B	C	D	E	F
---------	---	---	---	---	---

Atomic number	18	5	3	5	20
Mass number	40	10	7	11	40

(i) Which two letters represent the same elements? Give reason. (2 marks)

.....

(ii) Give the number of neutrons in an atom of element D. (Show your working) (1 mark)

6. A hydrated salt of copper has the formula $\text{CuSO}_4 \cdot n\text{H}_2\text{O}$. About 25g of the salt was heated until all the water evaporated. If the mass of the anhydrous salt is 16.0g, find the value of n. (Cu = 64.0, S = 32.0, O = 16.0, H = 1) (3 marks)

7. The table below shows the pH values of the solutions I, II, III and IV

Solution	I	II	III	IV
pH	2	7	11	14

a) Which solution is likely to be that of calcium hydroxide? (1 mark)

.....

b) Select the solution in which a sample of aluminum oxide is likely to dissolve. Give a reason for your answer. **(2 marks)**

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c) Select a pair of solutions that would likely give a pH of 7 when equal volumes are reacted with each other. **(1 mark)**

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8. Sodium chloride has a higher melting point than hydrogen chloride, explain. **(2 marks)**

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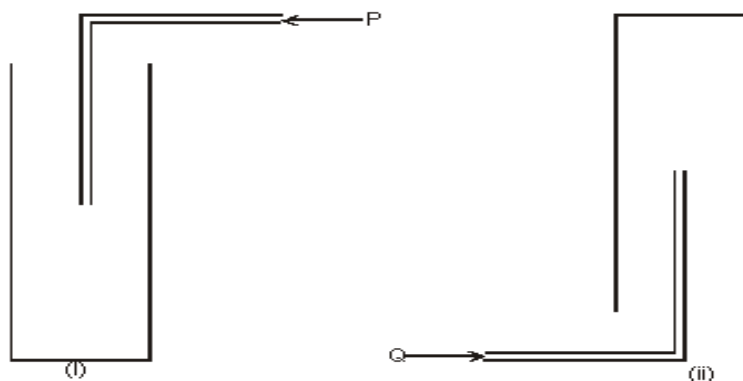
9. Study the table below and answer the questions that follow

substance	M.pt °C	B.pt °C	Electrical conductivity in solid state	Electrical conductivity in molten state
J	365	463	Nil	Nil
K	1323	2773	Good	Good
L	1046	1680	Nil	Good
M	2156	2776	Nil	Nil

Place J, K, L and M in the appropriate categories from the following:

- i. Metallic solid**(1 mark)**
- ii. Covalent network solid**(1 mark)**
- iii. Ionic solid.....**(1 mark)**
- iv. Covalent molecular solid.....**(1 mark)**

10. The diagram below shows how two gases, P and Q were collected.



a) Name the two methods used. (2 marks)

(i).....

(ii)

b) State properties of P and Q that enable them to be collected through the methods shown.

(2 marks)

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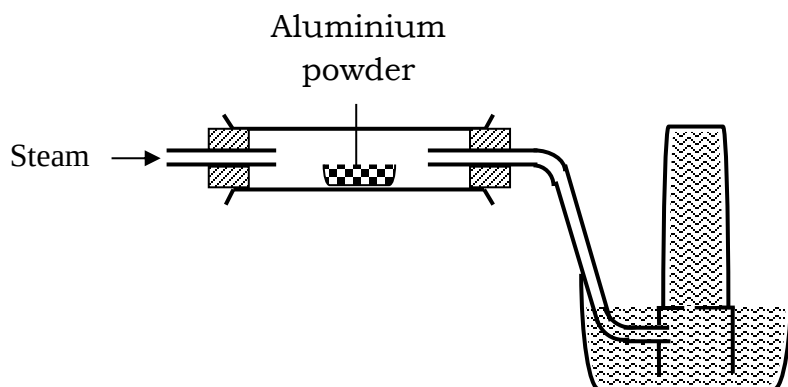
11. Study the information in the table below and answer the questions in the table below and answer the questions below the table

Bond	Bond Energy (KJmol ⁻¹)
C-H	414
Cl-Cl	244
C-Cl	326
H-Cl	431

Calculate the enthalpy change of the following reaction



12. Study the diagram below used to investigate the property of steam on aluminium



(a) Explain why no gas was collected in the set up above.

(1 mark)

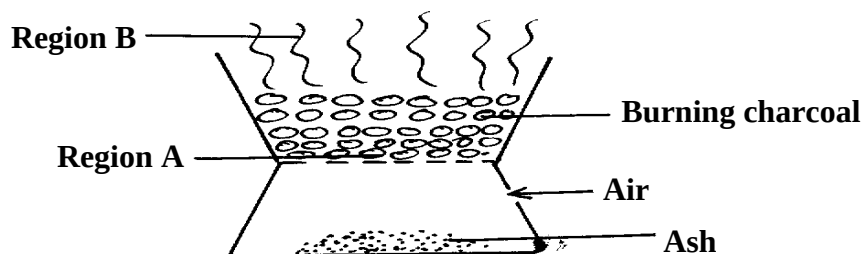
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(b) Explain why the reaction between aluminium and steam stops after a short time. (2 marks)

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13. A pupil analyzed a commercial vinegar solution by titration and found that 24.5cm^3 of 0.09 M sodium hydroxide solution was required for titration of 10 cm^3 of vinegar. Calculate the molarity of ethanoic acid CH_3COOH in vinegar. (3 marks)

14. The diagram below shows a 'jiko' when in use. Study it and answer the questions that follow



(a)Identify the gas formed at region **B** (1 mark)

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(b)Using an equation, explain what happens at region **A** (2 marks)

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15. Sodium chloride is contaminated with copper (II) oxide. Explain how pure sodium chloride can be obtained from the mixture. (3 marks)

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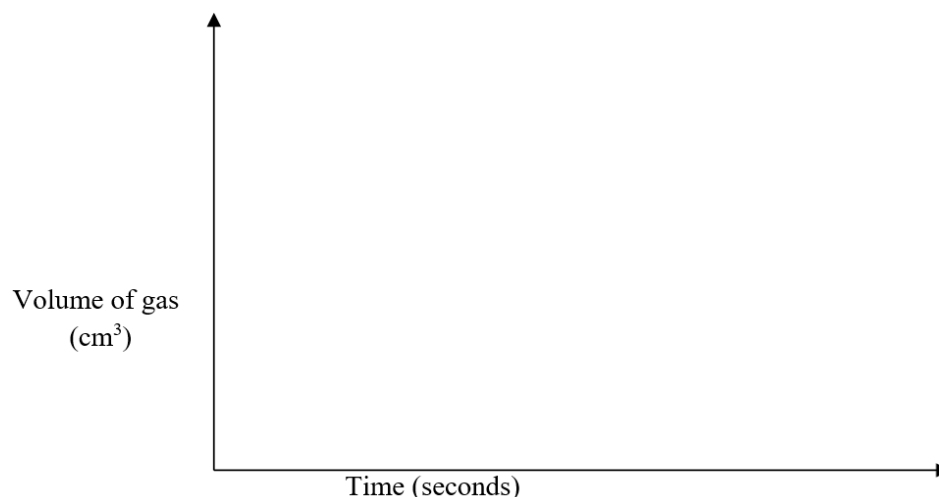
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16. The table below gives three experiments on the reaction of excess sulphuric (VI) acid and 0.5g of zinc done under different conditions. In each the volume of gas was recorded at different time intervals.

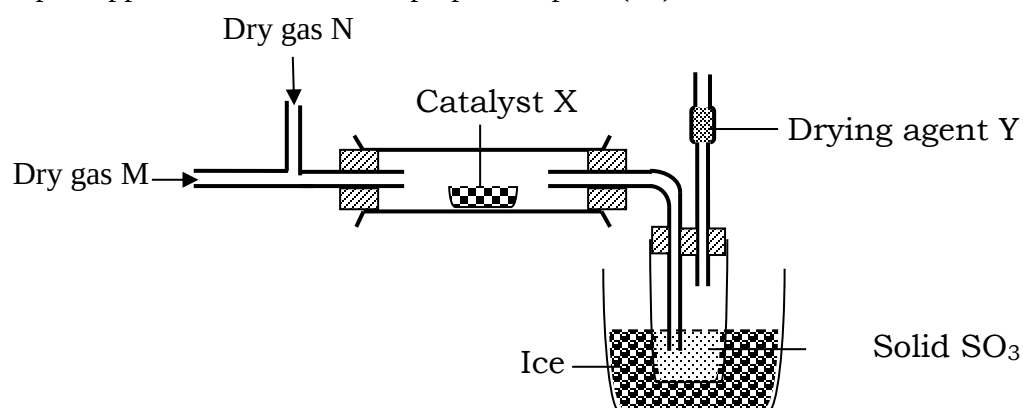
Experiment	Form of zinc	Sulphuric (VI) acid solution
I	Powder	0.8M
II	Powder	1.0M
III	Granules	0.8M

On the axis below, draw and label the **three curves** that could be obtained from such results.

(3 marks)



17. The set-up of apparatus below used to prepare sulphur (VI) oxide:



(i) Name Gas N..... and Gas M..... (1 mark)

(ii) Catalyst X (1 mark)

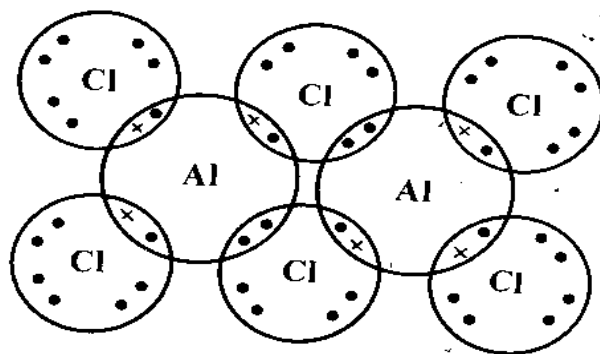
(iii) Why is it necessary to use drying agent Y? (1 mark)

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18. State and explain the observation made when chlorine gas is bubbled into potassium iodide solution. (2 marks)

.....

19. The diagram below shows an arrangement of electrons in Aluminium chloride dimer.



(i) Write down the formula of the above molecule.

(1 mark)

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(ii) On the diagram, indicate using an arrow the dative bond.

(1 mark)

20. When Magnesium metal is burnt in air, it reacts with both oxygen and nitrogen gases giving a white solid with black specs. Write two equations for the reactions that take place.

(2 marks)

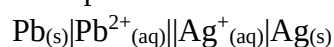
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21. Below is a representation of an electrochemical cell.



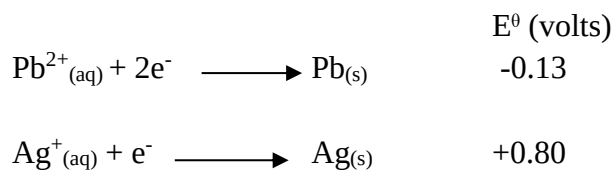
a) What does || represent?

(1 mark)

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b) Given the following:



Calculate the E.M.F of the electrochemical cell

(2 marks)

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22. When hot concentrated nitric (V) acid is added to sulphur, a red – brown gas and a colourless liquid are formed.

(i) Write an equation for the reaction. (1 mark)

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(ii) Identify the oxidizing agent in the reaction above. (1 mark)

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(iii) State **one** environmental hazard of the nitrogen compounds. (1 mark)

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23. Draw the dot (.) and cross (x) structure of:

a) Carbon (II) oxide - CO (2 marks)

b) Ammonium ion - NH_4^+ (2 marks)

24. Using sodium hydroxide solution, describe a chemical test that can be used to distinguish between copper (II) ions and iron (II) ions. (3 marks)

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25. State and explain what would be observed if concentrated sulphuric (VI) acid is added to:

(a) Sugar crystals (1 ½ marks)

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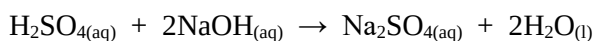
(b) Copper (II) sulphate crystals (1 ½ marks)

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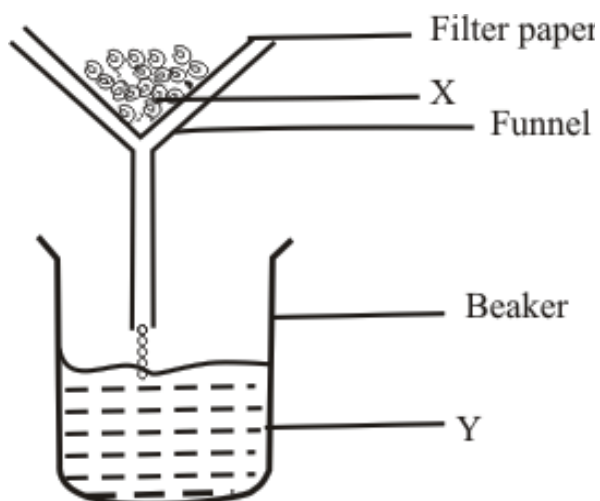
26. When 100 cm³ of 0.5 M sulphuric acid solution, H₂SO₄, react with 100 cm³ of 1 M sodium hydroxide solution, NaOH, the temperature rises by 6.85 Kelvins.

(Density = 1.0g/cm³, specific heat capacity = 4.2kJkg⁻¹K⁻¹)

Calculate the molar heat of neutralization described by the equation: (3 marks)



27. Filtration is carried out in the apparatus shown

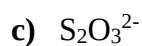


a) Name X ($\frac{1}{2}$ mark)

b) State one property that makes it possible to separate mixtures using filtration. ($\frac{1}{2}$ mark)

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28. Calculate the oxidation numbers of sulphur in the following species: (3 marks)



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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

CHEMISTRY PAPER 2

Kenya Certificate of Secondary Exams

TIME:2 HRS

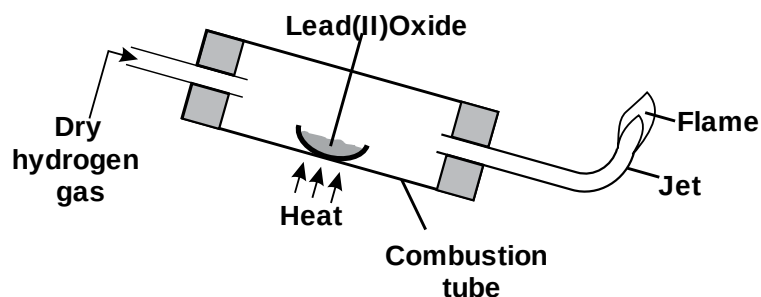
INSTRUCTIONS TO CANDIDATES

- a) Write your **name** and **index number** in the spaces provided.
- b) Sign and write the date of the examination in the spaces provided above.
- c) Answer **all** the questions in the spaces provided.
- d) Mathematical tables and silent electronic calculators may be used.
- e) All **working must be clearly shown** where necessary.
- f) This paper consists of **13 printed pages**.

FOR EXAMINERS USE ONLY

Questions	Maximum Score	Candidate's Score
1	11	
2	14	
3	12	
4	11	
5	12	
6	10	
7	10	
TOTAL	80	

1. The diagram below shows an experiment to demonstrate the properties of hydrogen as a reducing agent. Study it and answer the questions that follow.



- a) Before lighting hydrogen gas at the jet, it is important to drive off all the air in the combustion tube. Explain. (1 mark)

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- b) State what would be observed in the boat containing lead (II) oxide at the end of the experiment. (1 mark)

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- c) Write chemical equations for the reaction taking place;

- i) In the combustion tube. (1 mark)

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- ii) At the jet as the flame burns. (1 mark)

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- d) Why should the supply of hydrogen continue until the apparatus are cool? (1 mark)

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- e) Why is it important to clamp the glass tube or combustion tube in a slanting position?

(1 mark)

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.....
f) i) Cars in Mombasa rust faster than in Kisumu. Explain. (1 mark)

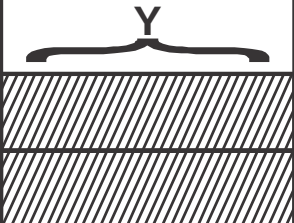
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ii) Give the factors that are necessary for rusting. (1 mark)

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iii) Name two methods used to prevent rusting. (1 mark)

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iv) Explain why a nail placed in a sealed tube containing tap water rusts while a nail placed in a sealed tube containing boiled water fails to rust. (1 mark)

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.....
v) State two industrial uses of oxygen gas. (1 mark)

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.....
2. The grid shown below represents part of the periodic table. Study it and answer the question that follow. The letters do not represent the actual symbol of the elements.

									A
					B		C		
	D				E		F	G	

a) What type of bonds would be formed between C and G. Explain. (2 marks)

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b) Write the formulae of the compounds that would be formed between:

i) D and G (1 mark)

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ii) E and G (1 mark)

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c) State and explain how the compounds formed in (b) above compare in their melting points in terms of structure and bonding. (2 marks)

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d) Give the formulae of the oxides of the elements D and F and state the nature of each oxide.

i) D oxide (2 marks)

Formulae

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Nature

.....

ii) F oxide (2 marks)

Formulae

.....

e) Which of the elements shown does not form an oxide? Explain.

(1 mark)

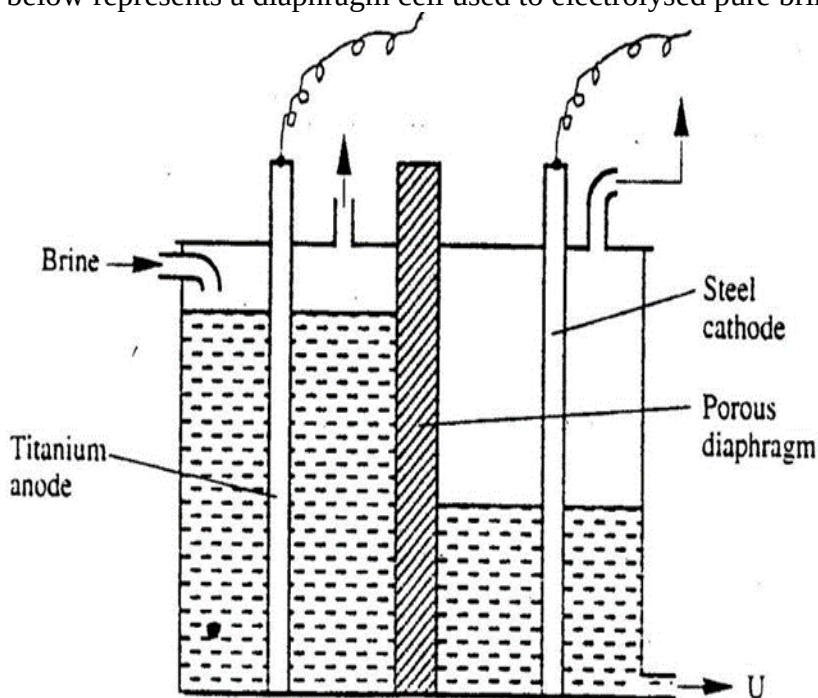
f) Which two elements shown on the grid are good conductors of electricity? Explain. (2 marks)

g) What name is given to the group of elements represented by letter Y in the periodic table?

(1 mark)

3. (a) Brine usually contains soluble calcium and magnesium salts. Explain how sodium carbonate is used to purify brine. (2 marks)

(b) The diagram below represents a diaphragm cell used to electrolyse pure brine



(a) Write the equations for the reactions that take place at :-

I Cathode

(1 mark)

.....
.....

II Anode

(1 mark)

.....
.....

(b) Name: I Product at U.

(1 mark)

.....
.....

II Another material that can be used instead of titanium

(1 mark)

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.....

III The impurity present in the product at U

(1 mark)

.....
.....

IV State two functions of the diaphragm

(2 marks)

.....
.....

c) Give one industrial use of the product at U.

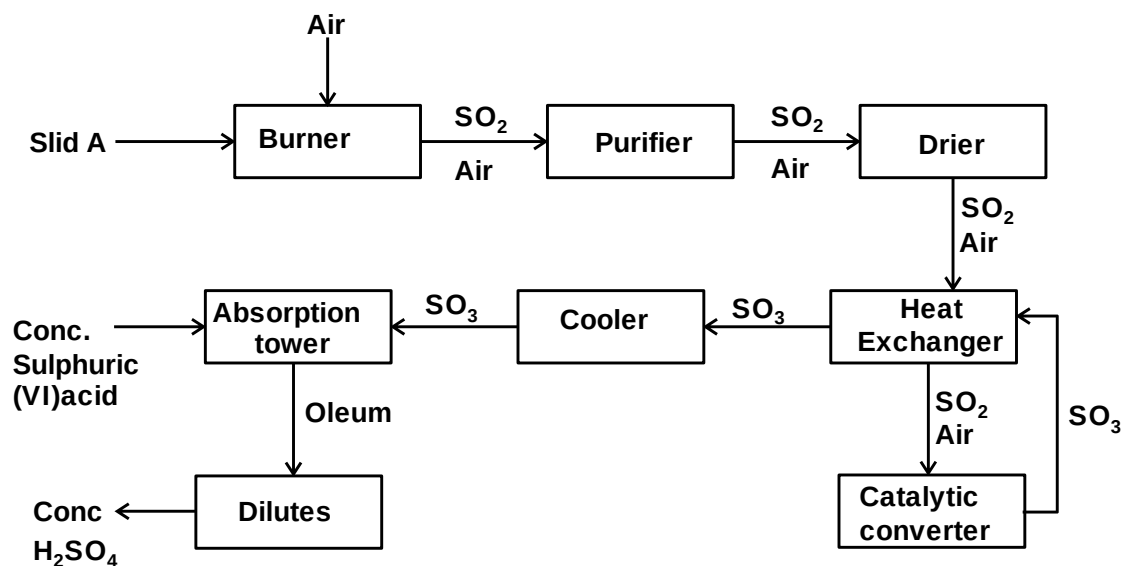
(1 mark)

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.....

d) State two environmental hazards associated with extraction of sodium metal

(2 marks)

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-
-
4. The diagram below illustrates the contact process for the manufacture of sulphuric (VI) acid.
- Study it and answer the questions that follow.



- a) Name three possible identities of solid A. (1½ marks)

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- b) i) Name two impurities removed by the purifier. (1 mark)

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- ii) Why is it necessary to remove the impurities? (1 mark)

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- c) Write down the equation for the reaction that takes place in the catalytic converter.

(1 mark)

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d) i) Name two catalysts that can be used in the converter. (2 marks)

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ii) Which of the two catalysts is most commonly used and why? (1 mark)

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.....
e) Why is sulphur (VI) oxide not absorbed directly into water? (1 mark)

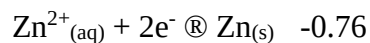
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.....
f) Give the equation for the reaction that takes place in the absorption chamber. (1 mark)

.....
.....
g) Name the main pollutant in the contact process. (½ mark)

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.....
h) Name **one** method by which the pollution is controlled in the contact process. (1 mark)

5. Study the table below and answer the questions that follow;

<u>Reduction Half-reaction</u>	<u>E^o(Volts)</u>
$\text{Ag}^+_{(\text{aq})} + \text{e}^- \rightleftharpoons \text{Ag}_{(\text{s})}$	+ 0.80
$\text{Cu}^{2+}_{(\text{aq})} + 2\text{e}^- \rightleftharpoons \text{Cu}_{(\text{s})}$	+ 0.34
$2\text{H}^+_{(\text{aq})} + 2\text{e}^- \rightleftharpoons \text{H}_{2(\text{g})}$	0.00



- a)** Which is the strongest reducing agent in the above half equations? Explain. **(2 marks)**

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- b)** Calculate the electromotive force of a cell consisting of Zinc and silver electrodes immersed in solutions of their respective ions. **(2 marks)**

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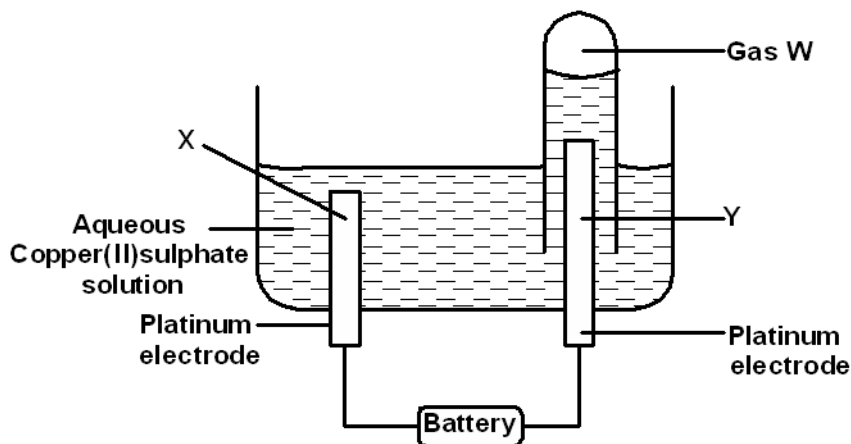
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- c)** Give the cell representation of the cell in (b) above. **(1 mark)**

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.....

- d)** The diagram below represents an experiment set up used for the electrolysis of aqueous copper (II) sulphate solution. Study it and answer the questions that follow;



i) Name electrodes X and Y.

(2 marks)

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ii) Name gas W.

(1 mark)

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iii) Write the overall equation of the reactions taking place at electrodes X and Y.

(1 mark)

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iv) If a current of 0.4A was passed through the cell for 15 minutes, calculate the mass of copper that would be liberated. (*Relative atomic mass of copper = 64, 1F = 96,500C*)

(3 marks)

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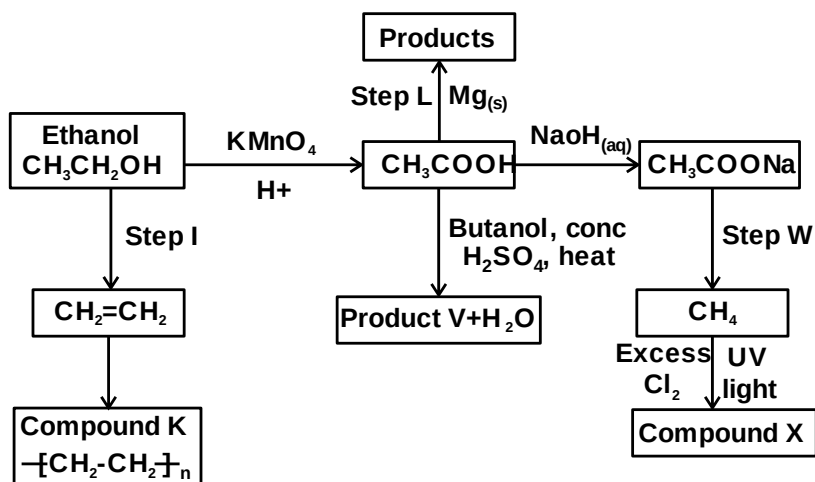
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6. The scheme below shows a series of reactions starting with ethanol. Study it and answer the questions that follow.



a) Give the type of reaction, the reagent(s) and the condition(s) necessary for step 1 to take place. (1 mark)

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b) Write the equation for the reaction that takes place in step L. (1 mark)

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c) Name product V and give the equation responsible for its formation. (2 marks)

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d) Give the reagent(s) and condition(s) necessary for step W to take place. (1 mark)

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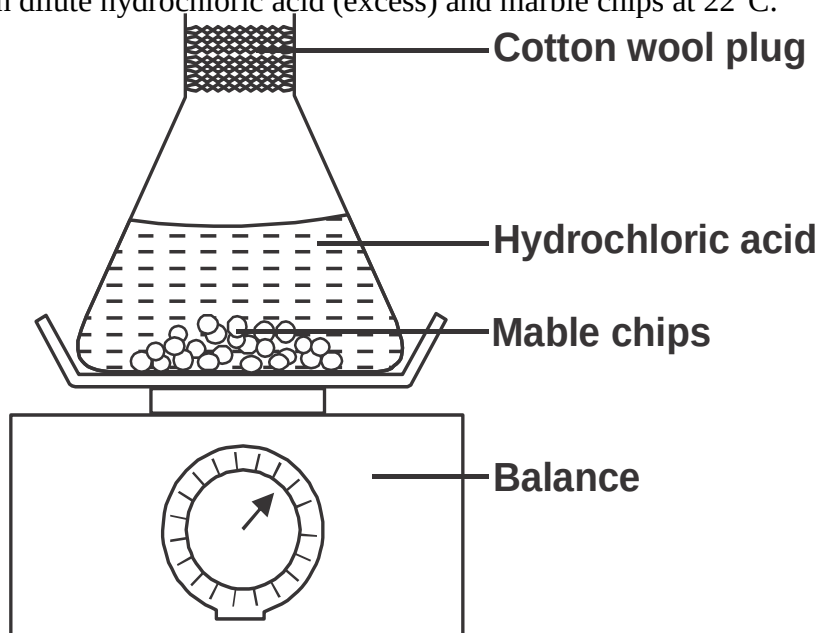
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e) Give the IUPAC name and structural formula of compound X. (1 mark)

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.....
f) Name compound K and state the type of reaction involved in its formation. (2 marks)

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g) If the relative molecular mass of K is 44800, determine the value of n. ($C = 12$, $H = 1$) (2 marks)

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7. The set up below is used to measure the change in mass during the course of the reaction between dilute hydrochloric acid (excess) and marble chips at 22°C.



Changes in mass were noted at one minute intervals and were as follows.

a) Give an equation for the reaction taking place in the flask. (1 mark)

b) Why did the mass of the flask change with time?

(1 mark)

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.....

c) What is the role of cotton wool at the mouth of the flask?

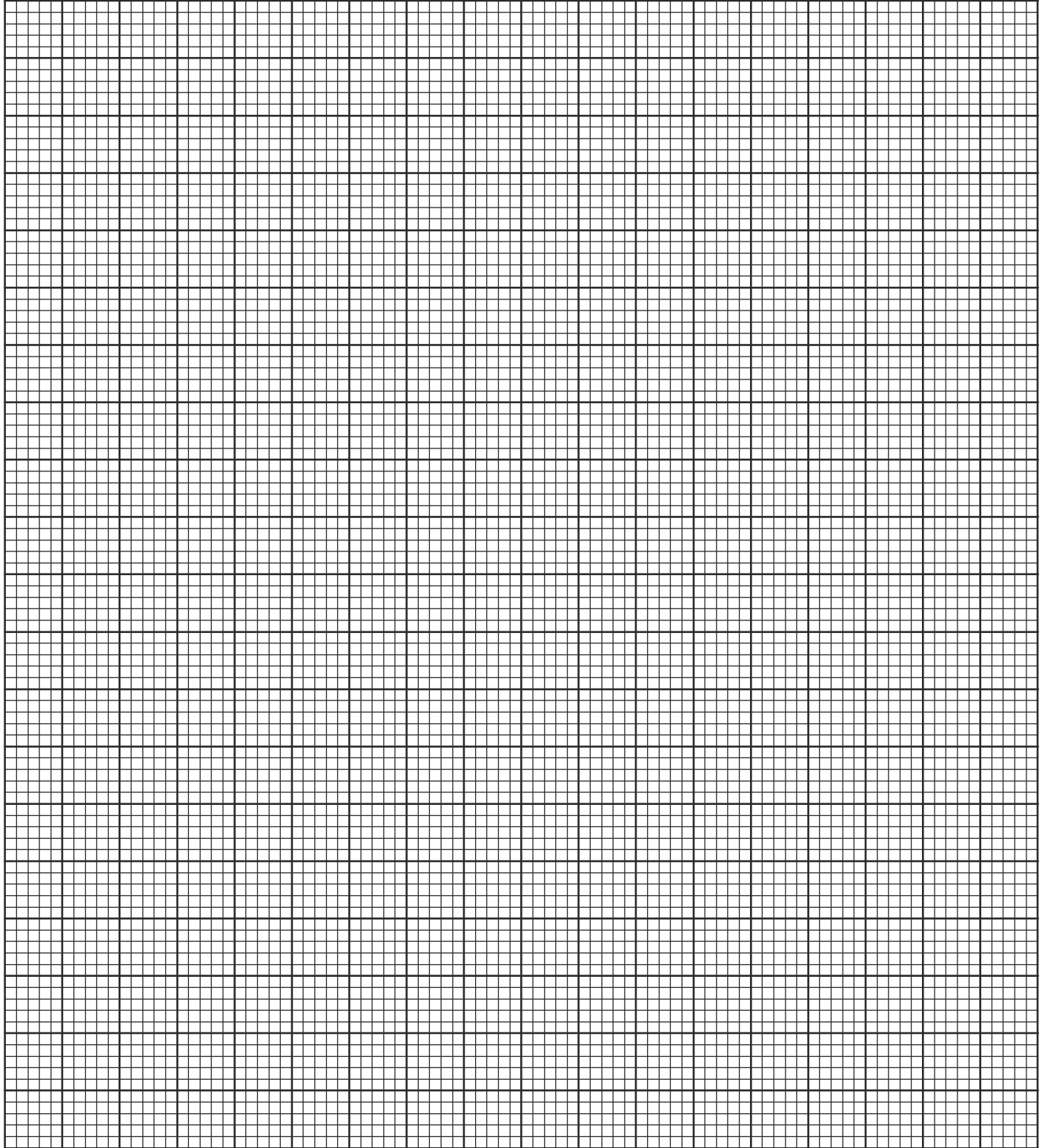
(1 mark)

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d) Plot a graph of loss in mass (Y-axis) against time (X-axis). Label the curve 22°C. **(3 marks)**

Time (min)	1	2	3	4	5	6	7
Loss in mass(g)	0.26	0.46	0.60	0.69	0.73	0.73	0.73



e) On the graph same axis as in (d) above, sketch the graph you would expect to obtain if the experiment was repeated at 35°C. Label the curve 35°C. (2 marks)

f) State what would happen if the marble chips were replaced with the same mass of marble powder.

Explain (2 marks)

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g) Why is it not advisable to use sulphuric (VI) acid in place of hydrochloric acid in this experiment? (1 mark)

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

CHEMISTRY PAPER 3

Kenya Certificate of Secondary Exams

TIME: 2¹/₄ HRS

Instructions to Candidates

- a) Write your **Name** and **Index numbers** in the spaces provided above.
- b) Sign and write the date of examination in the spaces provided above.
- c) Answer **ALL** the questions in the spaces provided in the question paper.
- d) Mathematical tables and silent electronic calculators may be used.
- e) All working **MUST** be clearly shown where necessary.
- f) Candidates should check the question paper to ascertain that **all** pages are printed as indicated and that no questions are missing.

For Examiner's Use Only

Question	Maximum Score	Candidate's Score
1	20	
2	10	
3	10	
TOTAL SCORE	40	

1. You are provided with:

- 6.2 g of an alkanoic acid labelled **solid A** in a boiling tube.
- 2 M sodium hydroxide solution labelled **solution B**.

You are required to:

- i) Determine the solubility of solid A at different temperatures.
- ii) Find the molar mass of the alkanoic acid.

Procedure 1

- i) Using a burette, add 10cm³ of distilled water to **solid A** in the boiling tube. Heat the mixture while stirring with the thermometer to about 75 °C. When the entire solid had dissolved, allow the solution to cool while stirring with the thermometer. Note the temperature at which crystals of solid M appear. Record this temperature in table I.
- ii) Using the burette, add 2cm³ of distilled water to the contents of the boiling tube. Warm the mixture while stirring with the thermometer until all the solid dissolves. Allow the mixture to cool while stirring. Note the temperature at which crystals of **solid A** appear.
- iii) Repeat procedure (ii) two more times and record the temperatures in table I.

Retain the contents of the boiling tube for use in procedure II.

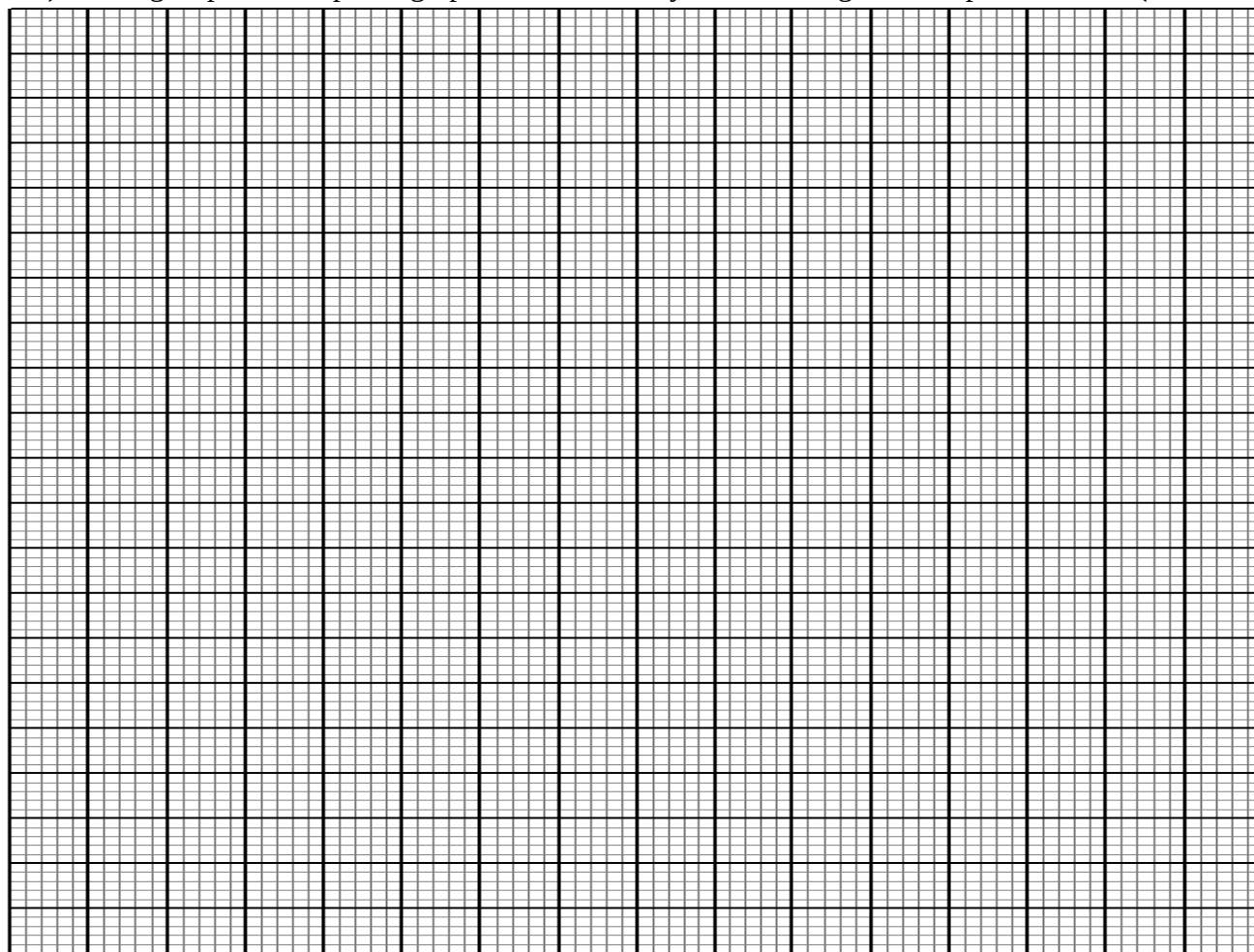
- a) i) Complete table I by calculating the solubility of solid A at different temperatures. (6 marks)

Table I

Volume of water in the boiling tube (cm ³)	Temperature at which crystals of solid A appear (°C)	Solubility of A (g/100g water)

10		
12		
14		
16		

ii) On the grid provided, plot a graph of the solubility of solid A against temperature. **(3 marks)**



iii) Using the graph determine the temperature at which 52 g of solid A would dissolve in 100cm³ of water. **(1 mark)**

Procedure II

- i) Transfer the contents of the boiling tube in procedure I into a 250ml volumetric flask. Rinse both the boiling tube and the thermometer with distilled water and add it to the volumetric flask. Add more distilled water to make up to the mark. Transfer the solution into a 250ml beaker. Label this **solution E**. Rinse the volumetric flask with distilled water ready for use in step (ii).
- ii) Using a measuring cylinder, place 25cm^3 of solution B into a 250ml volumetric flask. Add about 200cm^3 of distilled water and shake well. Add more distilled water to make up to the mark. Label this **solution F**.
- iii) Fill the burette with **solution E**. Using a pipette and a pipette filter, place 25cm^3 of **solution F** into a conical flask. Add 2 – 3 drops of **phenolphthalein indicator** and titrate with **solution E**. Record your results in table II. **Repeat** the procedure (iii) two more times to complete the table.

Table 2

Titration	1	2	3
Final burette reading (cm^3)			
Initial burette reading (cm^3)			
Volume of solution E used (cm^3)			

(4 marks)

Determine:

i) Average volume of solution E used. (1 mark)

ii) Concentration of solution F in moles per litre (1 mark)

iii) Number of moles in 25cm^3 of solution B (1 mark)

iv) Moles of alkanoic acid, solution E used (1 mark)
(1 mole of acid reacts with 2 moles of base)

v) Concentration of solution E in moles per litre (1 mark)

vi Relative formula mass of the alkanoic acid, solid B. (1 mark)

2. You are provided with solid E, carry out the tests below and record your observations and inferences in the spaces provided

a) Place all the solid E provided into a test tube. Add about 6cm^3 of distilled water and shake thoroughly. Filter and rinse the residue thoroughly with distilled water. Keep the Residue for use in procedure (c). Divide the filtrate into four portions.

i. To the first portion add sodium hydroxide solution dropwise until in excess

Observations	Inferences
--------------	------------

(½ mark)	(1 mark)

- ii. To the second position dip a clean glass rod and hold its tip in the non-luminous Bunsen burner flame.

Observations	Inferences
(1 mark)	(1 mark)

- iii. To the third portion add two drops of barium nitrate solution

Observations	Inferences
(1 mark)	(1 mark)

- iv. To the fourth portion add two drops of acidified potassium manganite (VII)

Observations	Inferences

(1 mark)	(1 mark)
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b. Put the residue in a boiling tube and add about 5 cm³ of dilute nitric (V) acid provided and shake thoroughly.

Observations	Inferences
(½ mark)	(½ mark)

Divide the solution into two equal portions.

i. To the first portion add sodium hydroxide solution dropwise until in excess

Observations	Inferences
(1 mark)	(1 mark)

ii. To the second portion add two drops of sodium iodide solution.

Observations	Inferences
(½ mark)	(1 mark)

3. You are provided with liquid L in stoppered container. Carry out the tests and record your observations and inferences.

a) Place about 3 drops of liquid L on a watch glass and ignite using a Bunsen burner flame.

Observations	Inferences
(1 mark)	(1 mark)

b) Divide the remaining liquid L into four portions in test tubes.

(i) To the first portion, add about 6cm³ of distilled water and shake well.

Observations	Inferences
(½ mark)	(½ mark)

(ii) To the second portion, add the sodium hydrogen carbonate solid provided.

Observations	Inferences
(½ mark)	(1 mark)

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

COMPUTER PAPER 1

Kenya Certificate of Secondary Exams

TIME: 2 HRS

INSTRUCTIONS TO CANDIDATES

-This paper consists of **TWO** sections **A** and **B**

-Answer **ALL** the questions in section A.

-Answer questions **16** and any other **THREE** questions from section B

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SECTION	QUESTION	SCORE
A	1- 15	
	16	
	17	
	18	
	19	
	20	
	TOTAL SCORE	

SECTION A (40 Marks)

Answer all the questions in this section

1. Explain disk formatting (2mks)

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2.(a) Explain why the following controls should be implemented for computer based system (2mks)

(i) Data Back- ups

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(ii) Password

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(b) List two examples of utility software in operating systems (2mks)

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3.Differentiate between source code and object code (4mks)

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4.The cells P3 to P20 of a worksheet contain remarks on students ' performance such as very good, good, fair and fail depending on the average mark. Write a formula that can be used to count ALL students who have the remark "very good". (3 mks)

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5.(a) State the purpose of registers in a computer system (1 mk)

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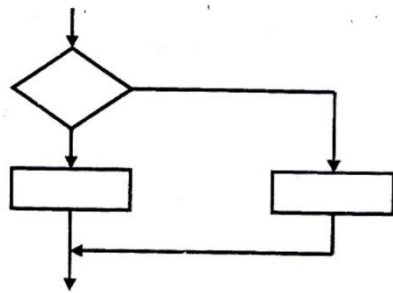
6. Give Three advantages of using GUI based operating system over a command line interface (3mks)

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7. (a) Name the control structure depicted by the flowchart below (1 mk)



(b) Explain the following terms as used in system implementation (2 mks)

(i) parallel running

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(ii) Direct change over

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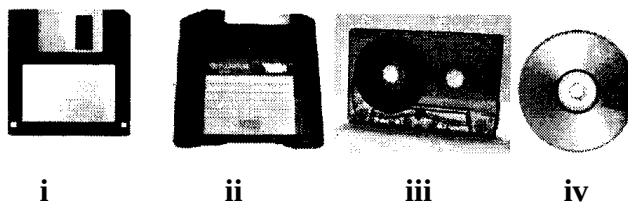
8.(a) Name two methods of representing signed numbers in computers (2 mks)

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(b) Identify the four types of storage media shown below. (2 marks)



c) Compare the storage device (i) and (iii) above.

(1 mark)

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9. Differentiate between Random and indexed-sequential file organization methods

(2mks)

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10. Name two types of relationships that can be applied in database design.

(2mks)

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11. Explain the following terms as used in word processing:

(3 mks)

a) **Indenting**

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b) **Alignment**

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c) **Word wrap**

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12. Outline two ways in which computers can be applied in hotels.

(2mks)

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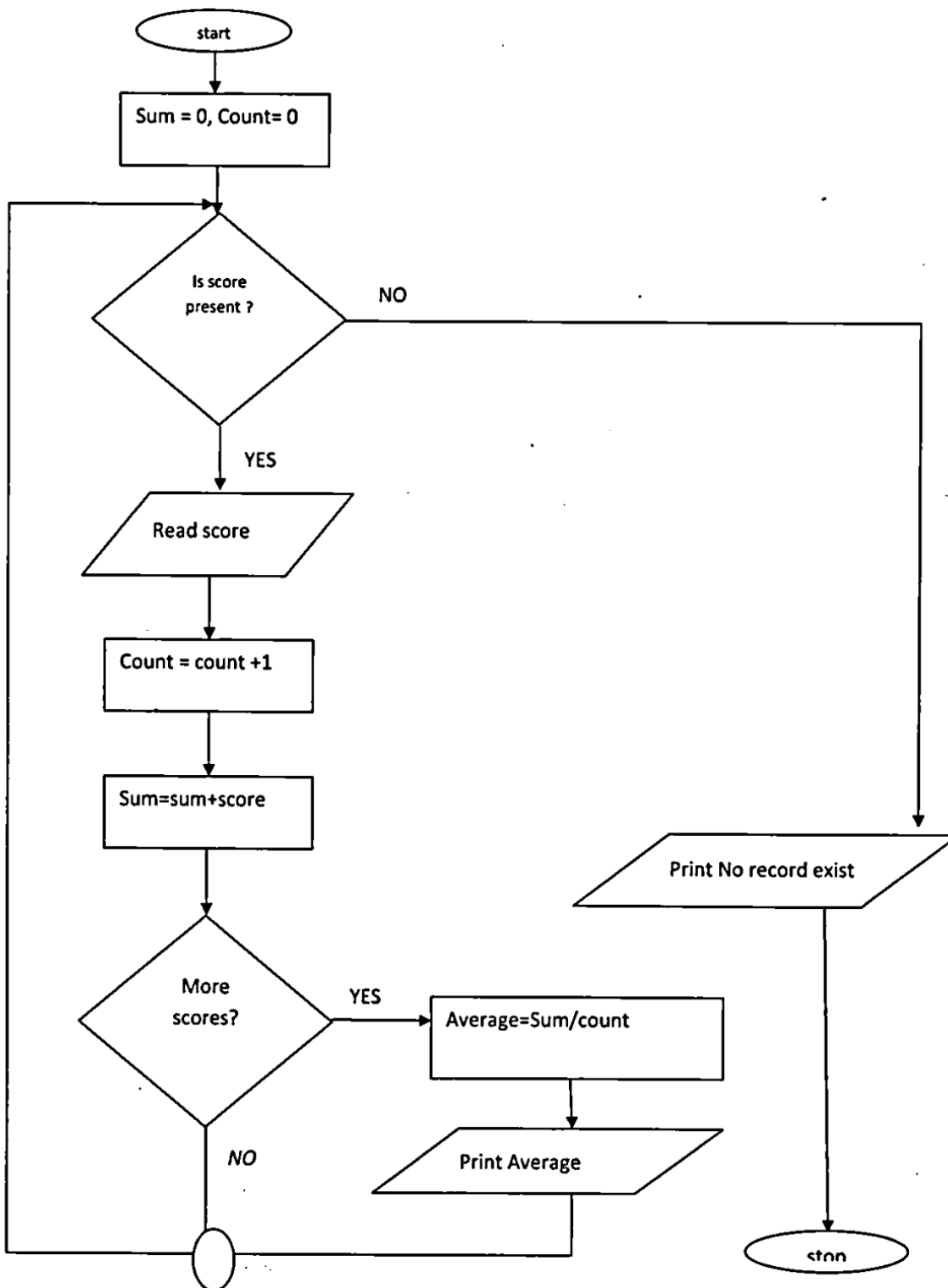
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13. a) Explain binary coded decimal code of data representation.

(1mk)

Study the flowchart below and answer the questions that follow.



b) Translate the following flowchart into a pseudo code. (8 marks)

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c) Assuming the following score are entered 0, 20 and 60 respectively what would be output from the flowchart. (3 marks)

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17.a) Convert each of the following binary numbers to decimal equivalent given that the left most digit Is a sign bit. (4 marks)

i) 00101101₂

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.....

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ii) 11001001₂

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b) Convert the decimal number 0.42 to 6 bit binary notation. (4 marks)

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c) Using two's complement, subtract 11_{10} from 8_{10} , leaving your answer in binary notation.

(3 marks)

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d) Perform the following binary operation.

(2 marks)

$$11001_2 + 1101_2 + 101_2$$

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e) Using place value method, convert 45_{10} to its binary equivalent.

(2 marks)

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18.a) What is virtual reality?

(1 mark)

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b) Explain the following interactive sensory equipment used in virtual reality.

(2 marks)

i) Head gear

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ii) Body suit

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c) What is Artificial intelligence?

(1 mark)

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d) State and explain three components of an expert system. (6 marks)

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e) Explain method of information gathering in system development. (3 marks)

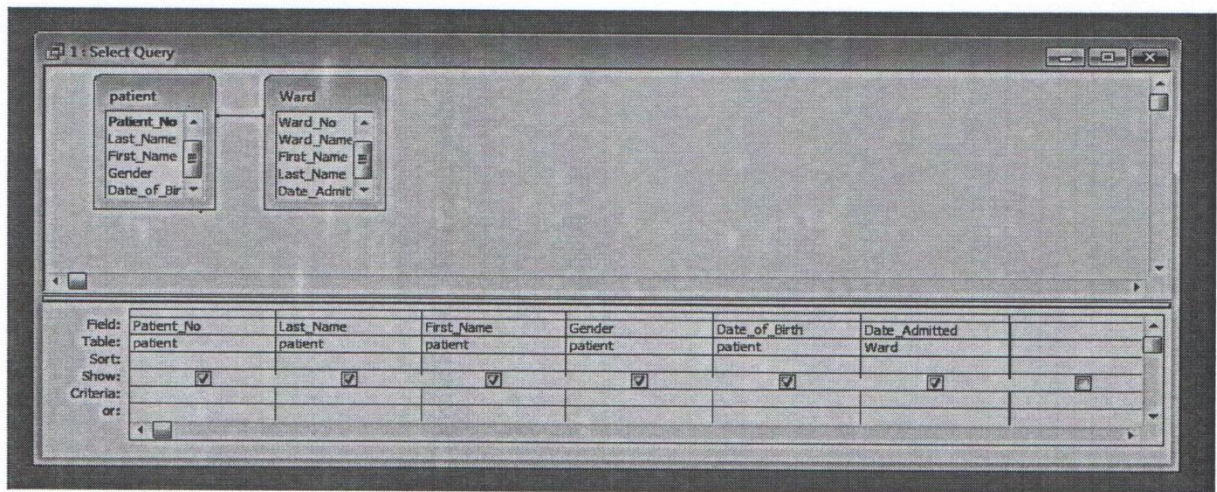
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f) List two application area of virtual reality. (2 marks)

19. a) The following is an extract of a select query (QBE) in Microsoft Access about hospital database.



i) Other than select queries name two other queries used in databases. (2 marks)

ii) Write an expression that will return only those patients who are 20 years' old. (3 marks)

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b) Differentiate between bold and unbold controls as used in database forms. (2 marks)

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c) Give **two** reasons why input screens are better data entry designs than entering data directly into a table. (2 marks)

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d) The figure below is an extract of a worksheet containing information on household items. Use it to answer the following questions:

	A	B	C	D	E	F
1	Item description	No of units	Cost per unit	Total cost		
2	Maize flour	20	210			
3	Tea leaves	64	185			
4	Sugar	77	149			
5	Salt	28	25			

i) Write a formula to calculate the total cost of sugar. (1 mark)

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.....

ii) The prices of all items increased by 10% and the value 10% is placed in cell B8. Using cell addresses with absolute referencing only, write a formula to calculate the new unit of the salt. (2 marks)

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iii) Write a function to display the number of cells in which the cost per unit is equal to 25. (2 marks)

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iv) Write a function to display the least total cost for all items. (1 mark)

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20. A school computer laboratory is scheduled to undergo major renovations.

The lab is scheduled to receive new computer whose specifications are given below:-

Pentium IV 2.8GHz processor

40GB HDD

3½ FDD

256MB RAM

56 x CD ROM

17"SVGA TFT monitor

The computers are going to be networked and will be able to browse the internet.

a) Explain what is meant by the terms:- (2 marks)

i)FDD

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.....
ii)HDD

.....
.....
iii)SVGA

.....
.....
iv)TFT

b)The computer is to be networked, name one extra device that should be fitted on every computer to enable this to happen. (1 mark)

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c)The computer is to receive internet facilities through the server on a dial; up system. Name and describe the function of a special device that needs to be connected to the server to complete the connection. (1 mark)

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c) i)The school has to apply star topology to link up the computer. List two advantages of this type of topology. (1 mark)

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ii) Name the central device used to connect the computers in this topology. (1 mark)

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e) List two other types of topologies that the school could have opted for. (1 mark)

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f)List four advantages of using a network. (2 marks)

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g)i)Data transmission via the internet is done using a mode known as packet switching. Describe this data transmission mode. (1 mark)

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ii) Name two other modes of transmission.

(1 mark)

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h)i) The school's LAN is done using UTP cable. List two advantages of using this type of cable.

(1 mark)

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.....
ii) List two advantages of using fibre cable in networking.

(1 mark)

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.....
i) Data flows in the school's LAN in a duplex manner. Discuss two other types of data transmission in network giving examples.

(2 marks)

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

COMPUTER PAPER 2

Kenya Certificate of Secondary Exams

TIME: 2 ½ Hours

INSTRUCTIONS TO CANDIDATES

- Type your name and index number on the top right corner
- Write your name and index number on the Re-Writable CD provided
- Passwords should not be used
- Answer all the questions
- All questions carry equal marks (50 Marks)
- Answers **MUST** be saved in the Re-Writable CD provided.
- Make a print out on the answer sheets given
- Hand in all the printouts and the Re-Writable CD

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SECTION	Maximum Score	Candidate Score
Question 1	50 Marks	
Question 2	50 Marks	
TOTAL SCORE	100 Marks	

QUESTION 1

a. Open a Spreadsheet Workbook and Save it as **Mzalendo Traders**.

(10 Mks)

K22									
	A	B	C	D	E	F	G	H	I
1									
2		<u>MZALENDO GENERAL SHOP</u>							
3									
4		S.N.	COMMODITY	CATEGORY	BUYING PRICE	SELLING PRICE	V.A.T.	PROFIT	REMARK
5		1	ONIONS	A	5,600.00	5,600.00			
6		2	SUKUMAWIKA	A	5,220.00	5,920.00			
7		3	BREAD	C	3,100.00	4,630.00			
8		4	TOMATOES	A	5,620.00	8,400.00			
9		5	MILK	B	8,700.00	8,700.00			
10		6	JAM	B	2,600.00	2,240.00			
11		7	COOKING OIL	C	8,700.00	11,200.00			
12		8	MARGARINE	C	4,900.00	4,630.00			
13		9	MATCHBOX	A	4,356.00	4,570.00			
14		10	POTATOE	B	12,800.00	18,500.00			
15		GRAND TOTAL							
16									
17									

b. Copy all the data above to sheet 2 and sheet 3 of your workbook

(2 Mks)

c. Rename sheet 1 to “**original**”; sheet 2 to “**filters**” and sheet 3 to “**subtotals**”

(3 Mks)

d. Find the profit or loss given that the profit is selling price less the buying price.

e. Find the V.A.T given that it is 15% of the profit.

(3 Marks)

f. Using formulas on “**original**”, calculate in the appropriate cells, the amounts spent on **buying** all the items and the money obtained from the **sales**

(2 Mks)

g. Include a column named **comment** and use the **IF function** to fill it with either the word “**Profit**”, “**Flat**” or “**Loss**” depending on whether the item fetched a profit, was sold at the same rate (as buying) or a loss was incurred.

(5 mks)

h. On Original sheet, insert a header (Your name and index Number) and footer (Page number)

(4 Marks)

i. On the “**Filters**” sheet, filter the data so that only those items of **category A** that fetched profits are displayed

(3 Mks)

- j. In original, format the buying price, selling price, VAT and the profit into currency KSH. (4 Marks)
- k. In original sheet, insert a column chart to compare between buying price, and the selling price and give it the title “MZALENDU” at the top. (8 Marks)
- l. Copy the chart into sheet 4 and rename the sheet as Chart. (3 Marks)
- m. Print the Original sheet, Filter sheet and the column chart. (3 Marks)

QUESTION 2

Use the following information to answer the questions that follows:

Student Name	Date of Birth	Adm Date	Age	Fee Balance	Adm. No	Address
1. Kibet Rop	12/8/2001	12/1/2020		15,000/=	4017	81 Bomet
2. Steve Bett	12/5/2002/	12/1/2020		7,000/=	4319	31 Mulot
3. Selly Kirui	8/6/2005/	12/1/2020		3,000/=	3982	40 Kericho
4. George Langat	6/8/2000	12/1/2020		11,000/=	4009	38 Sotik
5. Betty Tele	5/6/2002	12/1/2020		8,000/=	4422	230 Kisii
6. Wilson Siele	7/9/2001	12/1/2020		6,000/=	4200	121 Narok
7. Seila Koech	12/6/2004	12/1/2020		1,000/=	4070	73 Nakuru
8. Mary Chebet	11/6/2003	12/1/2020		17,000/=	4222	32 Soimet

- a) (i) Create a database called ADMISSIONS and within it prepare a table called students containing the above information. (12mks)
- (ii) Set an appropriate primary key and data types for the table above (4mks)
- b) Get the age of each student given that Age = Adm Date – Date of Birth. (4 Marks)
- c) In your table under the field of fee balance sort your data in ascending order and save as sortable. (4mks)
- d) Create a query from your table and carry out the following:

- (i) Set a criteria to show students with a fee balance less than 8,500/= (6mks)
 - (ii) Set a criteria to show students names starting with letter S. (6mks)
- e). **Create** a form called records that shows all fields from the above table. (6mks)
- f). **Create** a tabular report from the student's table (8mks)
- g). Print the students table, fee balance less than 8500 query, and student's table report. (4 Marks)

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

CRE PAPER 1

Kenya Certificate of Secondary Exams

TIME: 2 ½ Hours

INSTRUCTIONS TO CANDIDATES

1. Write your Name and admission number in the spaces provided
2. Sign and write the date in the spaces provided.
3. This paper consists of six questions.
4. Answer any **five** questions in the foolscaps provided
5. Each question has **20** marks
6. This paper consists of 2 printed pages.
7. Candidates are expected to write answers in **English**
8. Ensure that all pages are printed as indicated and that no questions are missing.

FOR EXAMINER'S USE ONLY

Question	1	2	3	4	5	6	Total score
Candidates' score							

1. a) Give reasons why C.R.E as a subject is incorporated into the curriculum in Kenyan schools today. (8 Marks)
- b) **Explain** the meaning of the expression, 'the Bible is the Word of God'. (5 Marks)
- c) On what occasions do Christians use the Bible? (7Marks)

2. a) Briefly explain the significance of the events that took place on the night of the Pas sover. (6 Marks)
- b) What qualities did Moses show during his call? (9 Marks)
- c) What lessons do Christians learn from the call of Moses? (5 Marks)

3. a) Give reasons why the Israelites asked Samuel to appoint a king for them. (7Marks)
- b) Show reasons why Elijah was un-compromising in his attitude to Baal worship. (8 Marks)
- c) Why should Christians fight against the spread of devil worship in the society? (5 Marks)

4. a) What were the characteristics of true prophets in the Old Testament? (7 Marks)
- b) Give reasons why Amos proclaimed God's judgment on Israel and Judah? (6 Marks)
- c) What lessons do Christians learn from Amos' teachings on judgment? (7 Marks)

5. a) What responses to God's call did Jeremiah exhibit in Jeremiah 4:4 – 19? (5 Marks)
- b) Explain Jeremiah's teaching on the new covenant. (6 Marks)
- c) How should a Christian respond when offered a job in a hardship area? (9 Marks)

6. a) Give the roles of ancestors in Traditional African Society. (9 Marks)
- b) On what occasion were sacrifices offered in Traditional African Society? (6 Marks)
- c) What aspects of traditional religion have been integrated into the Christian faith? (5 Marks)

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

CRE PAPER 2

Kenya Certificate of Secondary Exams

TIME: 2 ½ Hours

INSTRUCTIONS TO CANDIDATES

1. Write your name, school and admission number in the spaces provided above.
2. Sign and write the date of the examination in the spaces provided above.
3. This paper consists of **six** questions.
4. Answer **any five** questions in the spaces provided.
5. Each question carries **20** marks.
6. This paper consists of **2** printed pages.
7. Candidates are expected to write answers in **English**
8. Candidates should check to ensure that all pages are printed as indicated and no questions are missing.

FOR EXAMINER'S USE ONLY

Question	1	2	3	4	5	6	Total score
Candidates' score							

1. a) Give the characteristics of the suffering servant of Yahweh according to prophet Isaiah (Isaiah 53). **(8 Marks)**
b) In what ways did Jesus fulfill prophecies given to King David by Prophet Nathan? **(5 Marks)**
c) What is the relevance of God's promises to David to Christians today? **(5 Marks)**

2. a) Mention ways in which John the Baptist prepared the way for the Messiah. **(10 Mark)**
b) State reasons why Jesus was rejected in Nazareth. **(4 Marks)**
c) In what ways are church leaders put to test today? **(6 Marks)**

3. a) Give examples from the life and Ministry of Jesus which show that He promoted social equality. **(8 Marks)**
b) Explain how the disciples reacted to the use of parables in Jesus' teachings. **(6 Marks)**
c) What activities does the church engage in to demonstrate love for others? **(6 Marks)**

4. a) Relate the message of Peter on the Day of Pentecost. **(10 Marks)**
b) In what ways did the coming of the Holy Spirit transform the life of Peter on the Day of Pentecost? **(5 Marks)**
c) What activities of the church in Kenya show that the Holy Spirit is working among them? **(5 Marks)**

5. a) From the teachings of Jesus, what role would the Holy Spirit play? **(8 Marks)**
b) Describe the fruits of the Holy Spirit according to Galatians 5: 22 – 26. **(6 Marks)**
c) In what ways do Christians demonstrate the fruit of generosity? **(6 Marks)**

6. a) Explain how the unity of believers is expressed in the symbol of the body of Christ. **(6 Marks)**
b) State teachings of Peter concerning the people of God. (1st Peter 2:9 - 10) **(6 Marks)**
c) How do churches discipline those who cause disunity in the church today? **(6 Marks)**

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

ENGLISH PAPER 1

Kenya Certificate of Secondary Exams

TIME: 2 HOURS

Instructions to candidates:

Write your name and index number in the spaces provided above.

Answer all the questions in this question paper.

All answers must be written in the spaces provided in the question paper.

This paper consists of 8 printed pages

For examiner's use only

Question	Maximum	Score
1	20	
2	10	
3	30	
TOTAL	60	

1. Functional Writing

You are the newly elected president of the Students' Council. The Deputy Principal has asked you to convene your first ever meeting to discuss

- a) Orientation to new roles**
- b) Students' cleanliness**
- c) Council Members dinner**

During the meeting all the eight members are present. The Principal and the Deputy have also attended. Write the minutes of the meeting

[illegible]

[illegible]

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2. Cloze Test (10 Marks)

The digital age has changed the landscape **(a)**..... business, personal life and social life. It’s no wonder that **(b)**..... has had a great **(c)**..... on etiquette.

In some cases, these **(d)**.....have come on quickly leaving some **(e)**..... what proper etiquette is for technology. Even more complicated, there are times when a **(f)**.....gap affects technology etiquette. Younger generations are less likely to **(g)**..... to voicemails and may even find them annoying **(h)**..... inconvenient.

Generation Z **(i)**..... abandon text messaging for messaging apps like snap chat. **(j)**..... the generational differences, there are also questions about the correct way to use technology in work place.

3. Oral Skills (30 Marks)

a) Read the following oral poem and answer questions that follow

One hand cannot manage work
A threshing stick cannot thresh millet with one hand
Some hands breed hatred at eating time
Nobody hates being assisted

Let millet be threshed
Let it be threshed, let it be threshed

Cut a threshing stick for me
A lazy wife
Is taken back to her parents
When rain fails
It blames the wind
And a lazy woman
Blames the threshing stick

Cut a threshing stick for me- ii
My co-wife, cut me a threshing stick
You woman, owner of this occasion
Remember that work is the stomach
Take care not to starve us
The threshing sticks are sounding
Let the millet leave the threshing ground

Take care not to starve us
The threshing sticks are sounding
Let the millet leave the threshing ground

i) Identify and illustrate any two features of an oral poem evident in this poem (4 marks)

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ii) How would you perform the following line? (2marks)

‘My co-wife, cut me a threshing stick’

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b) Against each of the following sentences, state whether you would end with a rising or falling intonation (5 marks)

i. You actually saw the president?

- ii. I am going home.
- iii. Why did you come late?
- iv. Could I come with you, please?
- v. What a nasty experience that was!

c) underline the silent letter in each of the following words (5 marks)

- i. Basically
- ii. Debris
- iii. Debut
- iv. Handkerchief
- v. Psychology

d) Study the genre below and answer questions that follow

Kot took Kot's coat, Kot went to court and the court told Kot to return Kot's coat to Kot

i. Identify the genre above. (1 mark)

ii. identify and illustrate the dominant sound pattern in the item above. (2 marks)

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iii. Give two functions of the genre above. (2 marks)

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iv. What is lost in case the above item is translated into another language (1 mark)

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e) You have been summoned to court of law after being arrested in a swoop targeting hawkers.

Complete the conversation. (8 marks)

Prosecutor: Is your name Japheth Ouma?

You:.....
.....
..... (2 marks)

Prosecutor: (Addressing the magistrate) Sorry for the mix up your honour, the name is Joseph Ouma.(To the defendant) You are accused of contravening the city by laws CAP 16/23 hawking without a licence. What is your plea.

You:.....
.....
..... (2 marks)

Prosecutor: If you were truly coming from school, prove to this court you are really a student

You:.....
.....
.....(2 marks)

Prosecutor: (Passing a document to the magistrate) Your honour, this document looks genuine and has a school stamp(to the defendant) but where were you exactly arrested and what were you doing at that time.

You;.....
.....
..... (2 marks)

Prosecutor: (To the magistrate) Your honour, since the accused is a minor and sounds remorseful, I have no intention of proceeding with this case.

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

ENGLISH PAPER 2

Kenya Certificate of Secondary Exams

TIME: 2 ½ HOURS

INSTRUCTIONS TO CANDIDATES:

- Write your name and Index Number and school in the spaces provided above.
- Answer ALL the questions in this question paper.
- All your answers must be written in the spaces provided in this question paper

FOR EXAMINERS ONLY

COMPREHENSION	20MKS	
EXCERPT	25MKS	
POETRY	20MKS	
GRAMMAR	15MKS	

QUESTION ONE: COMPREHENSION (20MKS)

Read the passage below and answer the questions that follow

The act of giving and helping people in need is fast dying. Occasionally, we talk about a Good Samaritan having come out of the blue and helped us in our hour of need. It is not clear whether it is because people have become more egocentric or it is because of the diminishing culture of communal living.

If we found someone dying beside the road, we are unlikely to help because we first of all think of how helping them would make us late. We would walk away hoping that the next person will not be as busy as we are, and will therefore rescue the person. Whether it is modern life that has made us busier than before is really debatable.

Have you ever noticed that people are always running around, immersed in deep thought with drooping shoulders and with premature wrinkles etched on their foreheads? The common explanation for this is that we are so busy that we do not have time for ourselves, let alone others.

One writer said that people, who claim to be busy, are not really busy. Being busy he said, was a euphemism for an insatiable craving for money, power, status and overwhelming desire to have more and more material possessions. What this culture of being busy does is that it makes us lose some of the essential human values such as loving others, taking care of the sick and meeting other people's needs through generosity.

Let us take the example of hunger and starvation. They kill many people, especially children and the elderly. It is easy to say that hunger and starvation are as a result of a fall in the supply of rain. We can say that this is all an issue of climate. This is true to an extent. When rains fail, people's crops fail and they lose their sole source of food. For those who depend on livestock, their livestock die or become too famished to fetch enough money in the market to enable them buy food. The spiraling cost of foodstuffs does not lessen the pain and suffering of those faced with starvation.

However, the culture of being good Samaritans need not die. If we stopped being too busy and set aside time for our children, we would have time to watch them grow and understand their value system. We can then inculcate the culture of generosity; starting highlighting small ways in which children can be generous. For example, a child can be encouraged to share food with another who does not have or who has come to school without. They can also be encouraged to donate clothes and shoes to a child's home. This gesture will go a long way in clothing another less fortunate child. Later in life, they can find bigger ways of reaching out to those in need. Through small ways, we would have taught generosity to our children, created the good Samaritans that we all wish for when in need and ensured the act of giving lives on generations.

QUESTIONS

a) According to the author, why is the act of giving dying?

(2mks)

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b) What is the main consequence of being too busy? (2mks)

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c) What is the writers attitude towards the culture of “being busy” (3mks)

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d) In what two ways can generosity be inculcated among children? (2mks)

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e) The writer of the passage is a parent; support this (2mks)

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f) What are the benefits of teaching children to share? (2mks)

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g) In note form, state the characteristics of busy people (4mks)

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h) Write an appropriate title for this passage (1mk)

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i) Explain the meaning of the following phrases as used in the passage (2mks)

I).Out of the blue

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II).Reaching out

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QUESTION TWO: THE PLAY, HENRIK, A DOLL'S HOUSE

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

MRS. LINDE: Listen to me, Nora. You are still very like a child in many things, and I am older than you in many ways and have a little more experience. Let me tell you this—you ought to make an end of it with Doctor Rank.

NORA: What ought I to make an end of?

MRS. LINDE: Of two things, I think. Yesterday you talked some nonsense about a rich admirer who was to leave you money-

NORA: An admirer who doesn't exist, unfortunately! But what then?

MRS. LINDE: Is Doctor Rank a man of means?

NORA: Yes, he is.

MRS. LINDE: And has no one to provide for?

NORA: No, no one; but—

MRS. LINDE: And comes here every day?

NORA: Yes, I told you so.

MRS. LINDE: But how can this well-bred man be so tactless?

NORA: I don't understand you at all.

MRS. LINDE: Don't prevaricate, Nora. Do you suppose I don't guess who lent you the two hundred and fifty pounds?

NORA: Are you out of your senses? How can you think of such a thing! A friend of ours, who comes here every day! Do you realize what a horribly painful position that would be?

MRS. LINDE: Then it really isn't he?

NORA: No, certainly not. It would never have entered into my head for a moment. Besides, he had no money to lend then; he came into his money afterwards.

MRS. LINDE: Well, I think that was lucky for you, my dear Nora.

NORA: No, it would never have come into my head to ask Doctor Rank. Although I am quite sure that if I had asked him-

MRS. LINDE: But of course you won't.

NORA: Of course not. I have no reason to think it could possibly be necessary. But I am quite sure that if I told Doctor Rank-

MRS. LINDE: Behind your husband's back?

NORA: I must make an end of it with the other one, and that will be behind his back too. I must make an end of it with him.

MRS. LINDE: Yes, that is what I told you yesterday, but-

NORA: *[walking up and down]*. A man can put a thing like that straight much easier than a woman-

MRS. LINDE: One's husband, yes.

NORA: Nonsense! *[Standing still.]* When you pay off a debt you get your bond back, don't you?

MRS. LINDE: Yes, as a matter of course.

NORA: And can tear it into a hundred thousand pieces, and burn it up-the nasty dirty paper!

MRS. LINDE: *[looks hard at her, lays down her sewing and gets up slowly]*. Nora, you are concealing something from me.

NORA: Do I look as if I were?

MRS. LINDE: Something has happened to you since yesterday morning. Nora, what is it?

a) Briefly explain what happens before the events in this extract. (2mks)

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b) Explain why Mrs. Linde says “...I am older than you in many ways and have a little more experience” **(3mks)**

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c) From the dialogue, what do we learn about Nora’s character? **(4mks)**

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d) What is Mrs. Lindes’ view about Doctor Rank and Nora’s relationship? **(2mks)**

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e) Identify and explain the use of hyperbole in this excerpt. **(2mks)**

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f) What does Mrs. Linde think Nora is concealing from her? Is Mrs. Linde right? **(3mks)**

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g) Describe the mood in this except **(2mks)**

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h) Explain the meaning of the following words as used in the extract. **(3mks)**

A man of means

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Prevaricate

.....

Nasty

.....

i) Describe what happens immediately after the events presented in this extract **(3mks)**

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QUESTION THREE; ORAL POEM

Read the poem below and answer the questions that follow:

(20mks)

Don't cry my child
Don't let me bear your sobs
Don't even let me bear the growling
The rumbling complain of your empty stomach
Suckle your finger my child, keep your screams restrained
Suckle your finger my child, keep your screams restrained
Keep the knives of pity from tearing my heart
Don't cry my child
Suckle your tiny finger
I will lullaby you to sleep
Once more we shall cheat this monster that is hunger.

Sleep well my child
Papa loves you, papa cares
Papa is broken in body and soul
But don't worry my child
Sleep is a good meal
Sleep well my child
Dream the sweetest dreams
Dream of abundant fruit
Feast on your tiny dreams
Yet another day is gone.
Hush!
Don't cry my child
Wake up! It's a new dawn
Smile; today is a feast
Suckle your mother's breast
There is a trickle of milk
From the furbished breast

a) Classify this oral poem.

(2mks)

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b) Who is the persona in the poem? (2mks)

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c) Highlight any two character traits of the persona as portrayed in the poem. (4mks)

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d) What is the persona's attitude towards the child? (2mks)

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e) Show how the poet uses any two stylistic devices to effectively convey his message. (4mks)

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f) Supposing you were to collect this piece of oral poem in a community explain two problems you would face during the collection. **(2mks)**

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g) Give another word with a similar phonetical sound as the word below. **(2mks)**

i).soul

.....

ii).Bear

.....

h) Explain the meaning of the following lines as used in the poem

Cheat this monster that is hunger

(1mk)

.....

.....

.....

Feast on your tiny dreams

(1mk)

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QUESTION FOUR: GRAMMAR (15MKS)

a) Rewrite the following sentences according the instructions given

(3mks)

i) Is there life after death or not? This is a question which man has been asking himself for a very long time.

(Rewrite beginning; The question of... Do not use the work question twice).

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ii) I don't think you should go out this afternoon.

(Rewrite beginning; I'd rather.....)

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iii) After a new principal was appointed, results began to improve.

(Rewrite beginning: Subsequent.....)

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b) Each of the following sentences is incorrect. Correct each in two different ways. **(4mks)**

i). The judge ordered us to return back the following morning.

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ii). She asked us what we were discussing about

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c) Fill in the blank spaces using the correct form of the word in brackets. **(4mks)**

i). The criminals behavior in court appalled the judge (scandal)

ii). He walked.....on the wet floor. (caution)

iii). The (close) of the factory dealt a huge blow to the workers

iv). Justin was suspended from his job because his..... (sober) was questionable.

d) Replace the underlined word with the correct phrasal verb formed from the word in brackets.

(4mks)

i). The class teacher promised to solve the problem. (sort)

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ii). The bereaved families accepted their loss and moved on (get)

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iii). My mother asked me why I was so angry. (work)

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iv). The **two** friends are reconciling as we talk. (make)

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.....

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

GEOGRAPHY PAPER 1

Kenya Certificate of Secondary Exams

TIME: 2¾ HOURS

INSTRUCTIONS TO CANDIDATES:

- (a) This paper consists of **two** sections A and B.
- (b) Answer **ALL** questions in Section A.
- (c) In section B answer question **6 (compulsory)** and any other **two questions**.
- (d) All answers must be written in the answer booklet provided.

SECTION A: COMPULSORY

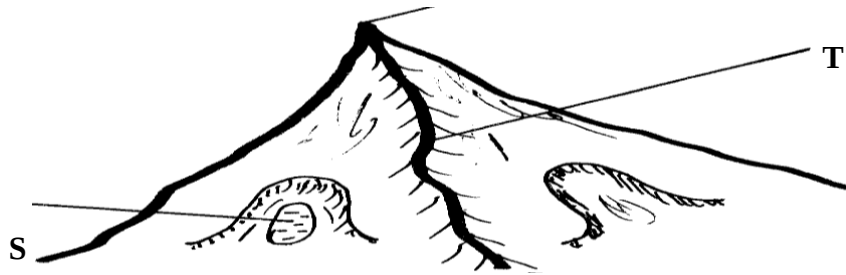
Answer ALL Questions.

- 1. (a) What is dew point? (1mark)
- (b) Describe how convectional rainfall is formed (4marks)
- 2. (a) The diagram below shows a barchan.

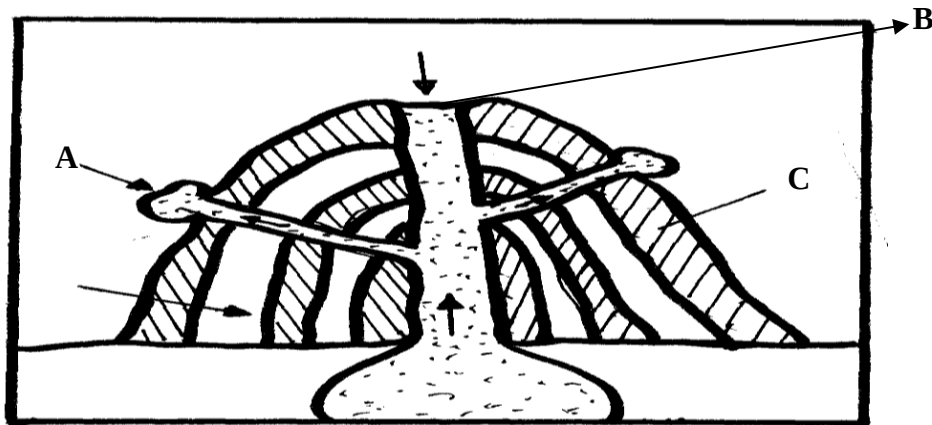


- i) Name the air current marked L (1mark)
- ii) Name the part labeled K (1mark)
- (b) How is an Oasis formed? (3marks)
- 3. The diagram below shows a glaciated upland area. Study it and answer the questions that follow.

R



- (a) Name the features marked **R**, **S** and **T** (3marks)
4. Describe two distinct features of a fiord (2marks)
5. Use the diagram below to answer question 5 (a) and (b)
6. Use the diagram below to answer question 5 (a) and (b)



- (a) Label the parts marked **A**, **B** and **C** (3marks)
- (b) Identify two characteristics of the feature drawn above (2marks)

SECTION B:

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

7. Study the map of Busia 1: 50,000 (sheet 101/1) provided and answer the following questions.
- a) i) Name two types of vegetation found in the area covered by the map (2marks)
- ii) What is the six – figure grid reference Nambobote School? (1mark)
- b) i) Identify two types of scales used to draw the map. (2marks)
- ii) Calculate the area of the land to the west of the international boundary in the N.Western corner of the map (Give your answer in square kilometers) (2marks)
- i) Measure the distance of the weathered surface road C 523 from grid reference 200299 and grid reference 276317 (give your answer in kilometers) (2marks)
- c) Explain three factors which influenced the distribution of settlements in the area covered by the map. (6marks)
- d) Describe the drainage of the area covered by the map. (4marks)

e) Citing evidence from the map explain three factors that favour business in Busia area.

(6marks)

8. a) i) Name two types of desert landscape

(2marks)

ii) State three physical factors contributing to the development of deserts

(3marks)

b) With the aid of a well labelled diagram describe the formation of the following features

i) Rock pedestal

(3marks)

ii) Barchan

(3marks)

c) Suppose you are to conduct a field study on the features formed by water action in the desert.

i) List any three land forms you are likely to study

(3marks)

ii) Outline two methods you would use to collect information

(2marks)

iii) State three reasons why it is important for them to divide themselves into groups

(3marks)

d) Explain three significance of desert land forms to man

(6marks)

9. a) i) Define the term soil

(2marks)

ii) Name three components of soil apart from water.

(3marks)

b) i) Explain how the following factors influence soil formation.

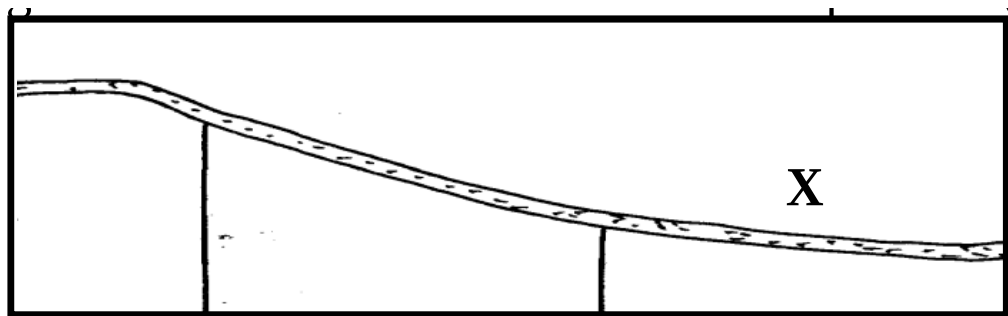
- Plant and animals
- Topography
- Climate

(6marks)

ii) State four characteristic of desert soils

(4marks)

d) Use the diagram of a soil catena below to answer question (c) (i).



i) Give a reason why the area marked x is rich for agriculture.

(1mark)

ii) Explain three significance of soils to human activities

(6marks)

d) Form four students intended to carry out a field study of soil in the school vicinity. State the follow-up activities they would conduct after the study

(3marks)

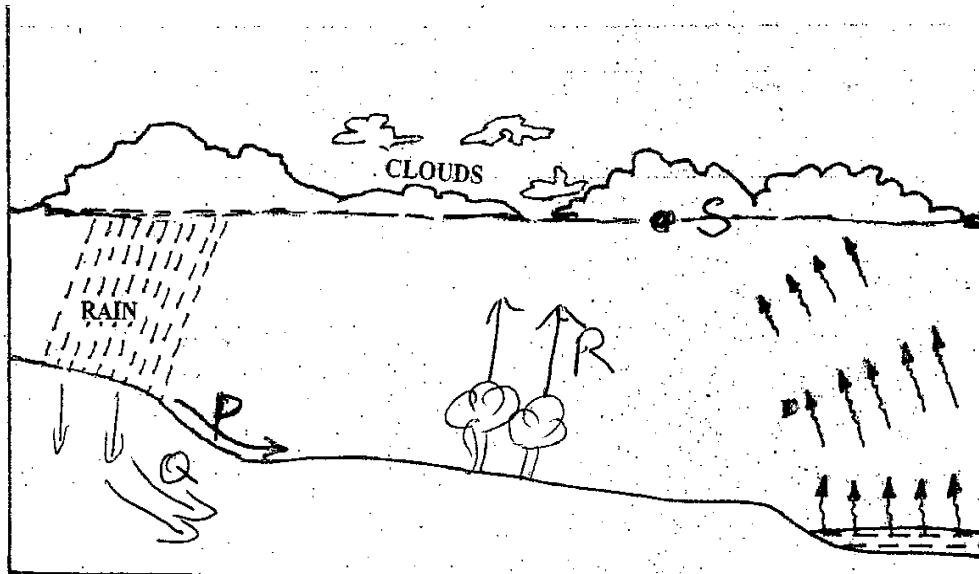
10. (a) (i) Distinguish between a river divide and interfluvies.

(2marks)

(ii) The diagram below shows the processes of hydrological cycle. Name the processes marked

P, Q, R and S

(4marks)



- (iii) Explain two significance of the hydrological cycle. (4marks)
- (b) Describe two processes by which a river transports its load. (4marks)
- (c) Describe the following drainage patterns:
- (i) Superimposed (3marks)
 - (ii) Dendritic (2marks)
- (d) Your class is planning to carry out a field study on a river in its old stage.
- (i) Apart from flood plain, name two other features you are likely to identify (2marks)
 - (ii) State three activities students would engage in during the field study. (3marks)
 - (iii) Describe three characteristics of the flood plain they would identify. (3marks)
- 11.a) i) Give two examples of human-made lakes in Kenya. (2 Marks)
- ii) Apart from human activities, name other three external land forming processes that can lead to the formation of lakes. (3 Marks)
- b) Describe how the following lakes are formed.
- i) Crater lake. (4 Marks)
 - ii) Moraine dammed lake. (3 Marks)
 - iii) An oasis. (3 Marks)
- c) i) State two ways in which a lake modifies the climate of the surrounding area. (2 Marks)
- ii) Apart from modifying the climate, explain four other benefits of lakes. (8 Marks)

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

GEOGRAPHY PAPER 2

Kenya Certificate of Secondary Exams

TIME: 2¾ HOURS

INSTRUCTIONS TO CANDIDATES:

- (a) *This paper consists of **two** sections A and B.*
- (b) *Answer **ALL** questions in Section A.*
- (c) *In section B answer question **6 (compulsory)** and any other **two questions**.*
- (d) *All answers must be written in the answer booklet provided.*

SECTION A (25 MARKS)

Answer all questions in this section in the answer booklet provided

1. (a) List **two** types of minerals (2marks)
(b) State **three** conditions that are necessary for the formation of a petroleum reservoir (3marks)
2. (a) Give **three** physical conditions that favour coffee growing in Kenyan highlands (3marks)
(b) Give **two** economic problems experienced in coffee growing in Kenya. (2marks)
3. (a) State **three** characteristics of Jua –Kali industries in Kenya. (3marks)
(b) State **three** factors that led to the growth of Iron and Steel industry in the Ruhr Region of Germany (3marks)
4. (a) What is Bilateral trade? (2marks)

(b) State two factors that hinder trade among members of East African Community (2marks)

5. (a) Name two main reclamation projects in the Netherlands. (2marks)

(b) State three reasons for reclaiming swamps in Kenya. (3marks)

SECTION B (75MARKS)

Answer question 6 and any other two questions in the answer booklet provided

6. The photograph below shows livestock rearing in Kenya. Use it to answer the questions that follow.



- a) i) Identify the type of photograph. (1mark)
- ii) Describe the features shown in the photograph (4marks)
- b) i) Draw a rectangle measuring 14cm by 10cm to represent the area covered by the photograph (1mark)
- ii) On the rectangle, sketch and label four features shown on the photograph (5marks)
- iii) Using evidence from the photograph, show two indicators which show that the area is dry (2marks)
- c) i) Name two areas in Kenya where the photograph could have been taken (2marks)
- ii) Explain how the following factors would improve livestock rearing in Kenya:
- Ranching schemes (2marks)
 - Cross breeding (2marks)

- Destocking the animals (2marks)
- d) State **four** physical problems facing livestock farmers in Kenya (4marks)
7. (a). (i) Name **two** provinces in Canada where wheat is grown on a large scale. (2marks)
- (ii) State **three** physical conditions that favour wheat farming in Canada. (3marks)
- (b) (i) Compare wheat farming in Kenya and Canada under the following sub-headings
- i. Research (2mark)
 - ii. government policy (2marks)
 - iii. transport (2mark)
- (c) Explain **four** problems that affect wheat farming in Canada. (8marks)
- (d) Your geography class intends to carry out a field study on wheat harvesting in a farm
- (i) State **two** reasons for preparing a working schedule (2marks)
 - (ii) Outline **two** problems that face wheat harvesting you are likely to find out. (2marks)
 - (iii) Suppose during the field study you used the interview method to collect data. State two limitations of the method. (2marks)
8. a) i) Identify **four** types of fishing (4marks)
- ii) Apart from drifting, name **three** other modern methods of fishing. (3marks)
- b) Describe how drifting method of fishing is carried out. (6marks)
- c) Explain **four** factors favoring fishing in the North East Atlantic fishing ground. (8marks)
- d) Give **four** reasons why fish farming is encouraged in Kenya (4marks)
9. (a)(i) List **three** Jua Kali Industries which are located in rural areas of Kenya. (3marks)
- (ii) Suggest **three** ways in which the Kenya government can promote the development of the Jua Kali Industries. (3 marks)
- (b) Explain **three** problems arising from industrialization. (6 marks)
- (c) Explain **four** factors which influenced the location of iron and steel industry in the Ruhr region of Germany in the 19th century. (8 marks)
- (d) Students of a school in Mombasa County went for a field study at the oil refinery in Mombasa.

- (i) List two methods that they used to record data. (2 marks)
- (ii) Give three problems that they might have faced during the study. (3 marks)
10. (a) (i) Distinguish between management and Conservation of Environment. (2marks)
- (ii) Apart from flooding, give two other forms of environmental hazards experienced in Kenya. (2marks)
- (b) (i) Identify three districts that are prone to frequent flooding. (3marks)
- (ii) Explain four measures that are taken to control flooding in Kenya. (8marks)
- (iii) State four problems resulting from flooding. (4marks)
- (c) Explain three reasons why it is necessary to manage and conserve the environment. (6marks)

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

HISTORY PAPER 1

Kenya Certificate of Secondary Exams

TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES

- i. This paper consist of three sections; A, B and C.
- ii. Answer all the questions in section A, three questions from section B and two questions from section C.
- iii. All questions must be answered in the space provided

FOR EXAMINERS USE ONLY

SECTION	QUESTION	Candidates score
A	1-17	
B	18	
	19	
	20	
	21	
C	22	
	23	
	24	
	TOTAL	

SECTION A (25 marks)

Answer ALL the questions in this section.

1. Give **two** limitations of using anthropology as a source of information on History and Government. (2 marks)
2. Name one any one place where the remains of homo sapiens were found in Kenya. (1 mark)
3. Name the dispersal area of the Eastern Bantu. (1 mark)
4. Name the section of the maasai that practiced mixed economy. (1 mark)
5. Give **the main** factor that enabled the early visitors to come to the Kenyan coast by 1500. (1 mark)
6. Outline **two** importance of being a good citizen. (2 marks)
6. Give **two** ways in which education has promoted national unity in Kenya. (2 marks)
7. Identify **two** key changes contained in the New 2010 Constitution. (2 marks)
8. Name any **two** groups that monitor human rights in Kenya. (2 marks)
9. State **one** method that the British used to administer the Kenyan colony. (1 mark)
10. What was the **main** contribution of Thomas Joseph Mboya to the history of Kenya? (1 mark)
11. What was the **main** reason for the formation of Kenya African Democratic Union in 1960? (1 mark)
12. State **two** demands made by the African Elected Members organization (AEMO) in 1957. (2 marks)
13. Why was the independent constitution of 1963 known as a Majimbo constitution? (1 mark)
14. State the **main** function of the correctional services in Kenya. (1 mark)
15. Name the chief administrator and accounting officer of the Judiciary. (1 mark)
16. Identify **two** principles of devolution of government in Kenya. (2 marks)
17. Identify the political event which threatened the stability of Kenya in 1978. (1 mark)

SECTION B (45 marks)

Answer any THREE questions from this section.

18. a) Name **five** communities that comprise the eastern Cushites. (5 marks)
b) Explain **five** results of the interactions between the Bantu and the Cushites in Kenya during the pre- colonial period. (10 marks)
19. a) Give **three** causes of the Somali resistance to the British rule in Kenya during the 19th century. (3 marks)
b) Explain **six** effects of the Maasai collaboration with the British in the early 20th (12 marks)
20. a) Give **five** grievances of Kikuyu Central Association which were presented by Jomo Kenyatta to the Colonial Secretary in 1929. (5 marks)
b) Explain **five** factors that promoted the rise of African nationalism in Kenya after 1945. (10 marks)
21. a) State **five** features that characterized African socialism in Kenya. (5marks)

- b) Explain five ways in which the Harambee philosophy has promoted the development of education in Kenya. (10 marks)

SECTION C (30 marks)

Answer ANY TWO questions from this section in the answer booklet provided.

22. a) Outline **five** rights enjoyed by Children in Kenya. (5 marks)
b) Discuss **five** ways the Kenyan government have promoted national integration since independence. (10 marks)
23. a) Outline **three** sources of the Kenyan law. (3 marks)
b) Describe the stages in the constitution making process in Kenya since independence. (12 marks)
24. a) Give **five** functions of the police service in Kenya. (5 marks)
b) Explain **five** challenges facing the National Intelligence Service in Kenya. (10 marks)

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

HISTORY PAPER 2

Kenya Certificate of Secondary Exams

TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES

- i. This paper consist of three sections; A, B and C.
- ii. Answer all the questions in section A, three questions from section B and two questions from section C.
- iii. All questions must be answered in the space provided

FOR EXAMINERS USE ONLY

SECTION	QUESTION	Candidates score
A	1-17	
B	18	
	19	
	20	
	21	
C	22	
	23	
	24	
	TOTAL	

SECTION A (25 marks)

Answer ALL the questions in this section.

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3. Name the dispersal area of the Eastern Bantu. (1 mark)
4. Name the section of the maasai that practiced mixed economy. (1 mark)
5. Give **the main** factor that enabled the early visitors to come to the Kenyan coast by 1500. (1 mark)
6. Outline **two** importance of being a good citizen. (2 marks)
6. Give **two** ways in which education has promoted national unity in Kenya. (2 marks)
7. Identify **two** key changes contained in the New 2010 Constitution. (2 marks)
8. Name any **two** groups that monitor human rights in Kenya. (2 marks)
9. State **one** method that the British used to administer the Kenyan colony. (1 mark)
10. What was the **main** contribution of Thomas Joseph Mboya to the history of Kenya? (1 mark)
11. What was the **main** reason for the formation of Kenya African Democratic Union in 1960? (1 mark)
12. State **two** demands made by the African Elected Members organization (AEMO) in 1957. (2 marks)
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14. State the **main** function of the correctional services in Kenya. (1 mark)
15. Name the chief administrator and accounting officer of the Judiciary. (1 mark)
16. Identify **two** principles of devolution of government in Kenya. (2 marks)
17. Identify the political event which threatened the stability of Kenya in 1978. (1 mark)

SECTION B (45 marks)

Answer any THREE questions from this section.

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b) Explain **five** results of the interactions between the Bantu and the Cushites in Kenya during the pre- colonial period. (10 marks)
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SECTION C (30 marks)

Answer ANY TWO questions from this section in the answer booklet provided.

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23. a) Outline **three** sources of the Kenyan law. (3 marks)
b) Describe the stages in the constitution making process in Kenya since independence. (12 marks)
24. a) Give **five** functions of the police service in Kenya. (5 marks)
b) Explain **five** challenges facing the National Intelligence Service in Kenya. (10 marks)

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

HOMESCIENCE PAPER 1

Kenya Certificate of Secondary Exams

TIME: 2½ HOURS

INSTRUCTIONS TO CANDIDATES:

- Write your **name** and **index number** in the spaces provided above.
- This paper consists of **three** Sections: **A**, **B** and **C**
- Answer **all** the questions in **sections A** and **B**.
- Answer **any two** questions from **section C**.
- All answers must be written in **English**.
- The paper **consists of 13 printed pages**.

FOR EXAMINER'S USE ONLY

<i>Section</i>	<i>Question</i>	<i>Maximum</i>	<i>Score</i>
A	1-17	40	
B	18	20	
C	19	20	
	20	20	
	21	20	
	Total score	100	

SECTION A (40 MARKS)

Answer ALL the questions in the spaces provided

1. State **two** precautions to take when storing gas cylinders in the home. (2 marks)

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2. Suggest **two** areas in a garment in which darts are used to dispose fullness. (2 marks)

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- 3 Outline **two** characteristics of well-made gathers. (2 marks)

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4. State **two** functions of each of the following ingredients in cake making. (4 marks)

(a) Fat

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(b) Liquid

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5. Mention **three** sections of a garment where facings are applied. (3 marks)

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6. Outline two ways of shortening the cooking time of beef. (2 marks)
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-
-
-
7. Mention two areas where shell tucks can be used on a child's garment. (1 mark)
-
-
-
-
8. What is an air conditioner? (2 marks)
-
-
-
-
9. Suggest two patches that can be used to repair a torn table cloth. (1 mark)
-
-
-
-
10. State three benefits of using lampshades. (3 marks)
-
-
-
-
11. Explain the following terms; (2 marks)
- (a) Inflation
-
-

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.....
(b)Consumer rights
.....
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12. Give two changes which occur in the body of an elderly person affecting the diet. (2 marks)

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13. State two qualities of a well-made zip opening. (2 marks)

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14. Differentiate between a casing and a hem. (2 marks)

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15. State one function of the fishbone stitch. (1 mark)

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16. Give three symptoms of Goitre. (3 marks)

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17. State two reasons why charcoal must red hot before roasting meat. (2 marks)

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18. Mention **four** methods of sterilizing bath towels. (2 marks)

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19. Differentiate between food spoilage and food poisoning. (2 marks)

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SECTION B

This question is compulsory.

Write your answers on the space provided after the question.

20. You mother has requested you to assist her with household chores.
(a) Thorough clean a stained plastic chair. (7 marks)

(b) Launder a coloured cotton handkerchief. (7 marks)

(c) A neglected painted dining table. (6 marks)

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(d) Discuss five factors that determine the efficiency of a detergent.

(5 marks)

This image shows a full page of white paper with horizontal dotted lines, typical of primary school writing paper. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

HOMESCIENCE PAPER 2 CONFIDENTIAL

Kenya Certificate of Secondary Exams

INSTRUCTIONS TO SCHOOLS

Provide the following for each candidate.

1. Light weight plain cotton fabric 60cm x 91cm wide.
2. Sewing thread to match the fabric colour.
3. One large envelope
4. Enough sewing equipment.

FABRIC IN EXCESS OF THE AMOUNT SPECIFIED MUST NOT BE SUPPLIED TO THE CANDIDATES.

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

HOMESCIENCE PAPER 2

Kenya Certificate of Secondary Exams

TIME: 2½ HOURS

A pattern of an apron is provided. You are advised to study the sketches, instructions and the layout carefully before you begin the test. Materials provided

1. Pattern pieces

A	Apron skirt
B	Bib
C	Waistband
D	Frill

2. Plain light weight cotton fabric 80cm long by 90cm wide.

3. Sewing thread to match the fabric

4. A button 1.2 cm diameter

5. One large envelope

THE TEST

Using the materials provided, cut out and make the apron to show the following

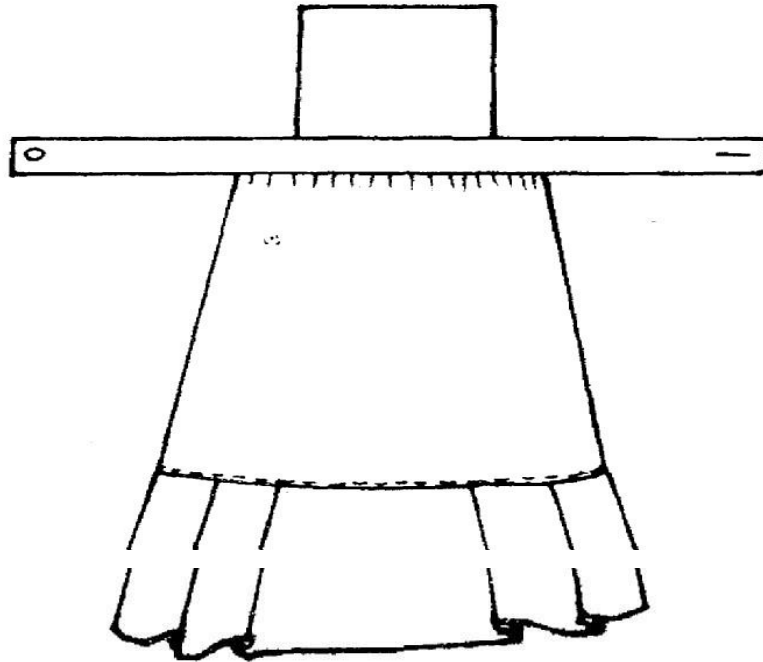
- The preparation of the bib
- The attachment of the bib to the waistband
- The preparation of the pleats of the frill
- Attachment of the frill onto the skirt using an overlaid seam
- Starting from the **right hand** edge, neaten 8cm of the overlaid seam using loop stitches

- f) Machine hemming the **right hand** edge of the skirt
- g) Working of gathers on the skirt
- h) Machining the skirt onto the overlap of the waistband
- i) Holding the under lap onto the skirt using long and short tacking stitches. **Do not hem.**
- j) Working of the buttonhole
- k) Attaching of the buttonhole

At the end of the examination, firmly sew on your work, on a single fabric, a label bearing your name and index number. Remove the needle and pins from your work, then fold your work neatly and place it in the envelope provided.

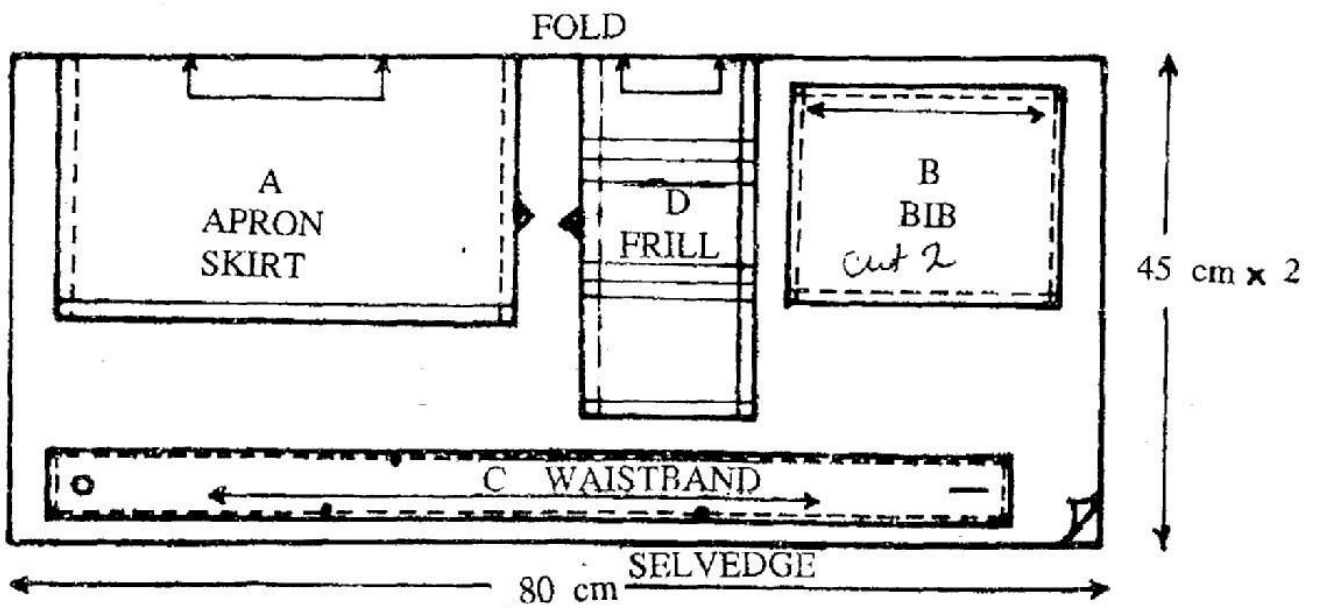
Do not put scraps of fabric in the envelope.

APRON



FRONT VIEW

LAYOUT (NOT DRAWN TO SCALE)



JINA.....NAMBARI YA USAJILI.....

SHULE.....KIDATO.....

TAREHE.....

FORM 4 KCSE PREDICTION 3 EXAMS

KISWAHILI KARATASI YA 1

MUDA: SAA 1¾

Maagizo

a) Andika jina lako na nambari yako ya mtihani katika nafasi ulizoacbiwa hapo juu.

b) Tia sahihi yako kasba uandike tarehe ya mtihani katika nafasi ulizoachiwa hapo juu.

c) Anclika insha mbili. Insha ya kwanza ni ya lazima.

d) Kasha chagua insha moja nyingine kutoka kwa hizo tatu zilizobakia.

e) Kita insha isipungue maneno 400

f) Kila insha ina alama 20

g) Kita insha lazima iandikwe kwa lugha ya Kiswahili

h) Insha zote sharti ziandikwe katika nafasi ulizoachiwa katika kijitabu hiki cha maswali

i) Karatasi hii ina kurasa 2 zilizopigwa chapa

j) Watahiniwa ni lazima wahakikishe kwamba kurasa zote za karatasi hii zimepigwa chapa sawa sawa na kuwa maswali yote yamo

Kwa Matumizi ya Mtahini Pekee

Swali	Upeo	Alama
1	20	
	20	
Jumla	40	

1. SWALI LA LAZIMA

Wewe ni katibu wa Halmashauri ya shuJe ya Baraka. Matokeo katika masomo ya kisayansi yalidorora zaidi katika mtihani wa kitaifa. Andika kumbukumbu za mkutano mliok:uwanao juzi kuhusu visababishi vya matokeo hasi na namna ya kuimarisha masomo hayo shuleni humo.

2. Andika barua kwa mhariri ukipinga mahusiano ya kimapenzi yajinsia moja katika shule za upili huku ukiangazia madhara yake.

3. Andika insha inayobainisha maana ya methali

"samaki mkunje angali mbichi"

4. Endeleza kisa hiki:

Baada ya kupokea matokeo yangu ya mtihani mkuu, iliniwia vigumu kusadiki ukweli wa mambo lakini nilielewa fika kuwa kuanguka mtihani siyo mwisho wa maisha...

JINA.....NAMBARI YA USAJILI.....

SHULE.....KIDATO.....

TAREHE.....

FORM 4 KCSE PREDICTION 3 EXAMS

KISWAHILI KARATASI YA 2(LUGHA)

MUDA: SAA 2 ½

Maagizo

1. Andika jina lako na namba yako katika nafasi ulizoachiwa hapo juu.
2. Jibu maswali yote. Andika majibu yako katika nafasi zilizoachwa katika karatasi ya maswali.
3. Karatasi hii ina kurasa 11 zilizopigwa chapa.
4. Watahiniwa ni lazima wahakikishe kwamba kurasa zote za karatasi hii zimepigwa
5. EPUKA MAKOSA YA SARUFI NA HIJAI YATAADHIBIWA

Kwa matumizi ya mtahini pekee

Swali	Upeo	Alama
1	15	
2	15	
3	40	
4	10	
JUMLA	80	

1. UFAHAMU

(alama 15)

Kabla ya kuzungumzia umataifa, tuanze udadisi wetu kuhusu neno ‘upeo wa Kiswahili’. Neno upeo linaashiria mchakato au tendo linalokwenda mbele hatua kwa hatua.

Ndani ya fikra hii ya upeo tunahitaji kujiuliza kwa nini lugha fulani imekwenda haraka au **inasotasota** katika hali fulani. Nadhani jibu la swali hili haliwezi kukwepa historia ya Kiswahili na jamii mbalimbali za Afrika Mashariki.

Kulingana na Prof. S. A Mohammed, historia au asili ya Kiswahili haijatafitiwa vyema wala kuainishwa vya kutosha kuhusu mchipuko wa asili yake. Hii ni kwa sababu utafiti na uchambuzi wa asili ya lugha ya Kiswahili mpaka sasa hauna **umakinifu** tokea hapo kale. Mtazamo uliotumiwa kwa wakati wote wa historia ya Kiswahili ni mtazamo wa upekee wa kuegemea taaluma moja wa ‘Atomistic Approach’ unaotumiwa katika somo la isimu miundo na isimu historia linganishi.

Hata hivyo, lugha si vipashio tu vya ndani ya muundo wa lugha; lugha si mfumo wa mtazamo wa pekee unaobainika wazi. Kwa hivyo, somo la ziada la **Isimujamii** lazima linahitajika katika kufanya utafiti na kugundua asili ya Kiswahili na hata katika kupambanua lugha kwa mtazamo na mahitaji ya lugha yenyewe katika mapana ya jamii husika za Kiswahili zenyewe.

Hata hivyo, katika kutafuta asili ya lugha ya Kiswahili upana wa mtazamo wa pamoja si mshikamano wa isimujamii tu bali mtazamo mpana zaidi unaotarajiwa kuweka pamoja taaluma kadha wa kadha. Kwa mfano, inakuwaje kuitafiti asili ya lugha ya Kiswahili bila ya kuitafiti jiografia pana na ndefu ya lugha ya Kiswahili na ulingano na mpishano wa tamaduni na maumbile ya mwingiliano baina ya mtu, watu na watu katika jumuiya mbalimbali za Kiswahili.

Au inakuwaje kutotazama uhusiano wa karibu wa kuishi pamoja katika maeneo ya mwambao ya Afrika Mashariki na majirani wao wa Afrika Mashariki? Prof. Mohammed hapa anaelekea kutuambia ni vigumu kutafiti asili ya lugha ya Kiswahili. Na hata tukifanya hivyo, inakuwaje wataalumu wanakimbia **u-nje** wa lugha ulioko ndani ya historia ya Kiswahili katika asili au chipukizi zake? Inakuwaje wataalamu hao kutoangalia mfumo wa maisha ya wazawa wa lugha na wale wasiokuwa wazawa wa lugha hii ambao lugha na tamaduni zao kwa kiasi zinafanana kwa juu au undani zaidi?

Je, kwa nini asili ya Kiswahili haitazamwi na kulinganishwa na kutofautisha katika nyanja mbalimbali za taaluma kama vile fasihi simulizi, ufinyazi, sosholojia, anthropolojia, Historia, simulizi, taaluma za tamaduni za kale zinazohusiana na mizimu, matambiko, harusi, mazishi, vitiba, sadaka n.k.

Maswali

a) Yape Makala haya anwani mwafaka

(alama 2)

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.....
.....

b) Kwa nini historia au asili ya Kiswahili haijatafitiwa vyema kulingana na S. A Mohammed?

(alama 2)

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- c) Je, S. A Mohammed anapendekeza mambo yapi yazingatiwe katika utafiti wa asili ya lugha ya Kiswahili? (alama 5)

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- d) Ni nini umuhimu wa Isimujamii katika utafiti na asili ya Kiswahili? (alama 2)

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.....

- e) Eleza maana ya maneno haya kama yalivyotumika katika kifungu: (alama 4)

- i) Inasotasota

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- ii) Umakinifu

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- iii) Isimu Jamii

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- iv) U-nje

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2. UFUPISHO

(Alama 15)

Soma kifungu kifuatacho kisha ujibu maswali

Runinga kama kifaa kingine chochote cha mawasiliano kina manufaa yake. Kwanza kabisa, ni nyenzo mwafaka ya kufundishia. Vipindi vinavyopeperushwa katika runinga huwa na mafunzo kemkemu kwa mtu wa kila rika. Halikadhalika, runinga huweza kuleta vipindi ambavyo huwafahamisha watu mambo yanayoendelea katika mazingira yao na duniani. Aidha, runinga ikitumika pamoja na michezo ya video huauni katika ukuzaji na ustawishaji wa stadi ya kujifundisha au kujielimisha. Michezo ya video, hasa ya kielimu, huwafanya watu kujenga umakini pamoja na kuchua misuli ya ubongo na kuwafanya watu kuwa macho wanapofanya kazi.

Fauka ya hayo, televisheni ni chemchemi bora ya kutumbuiza na kuchangamsha. Hakuna mtu asiyependa kuchangamshwa. Televisheni ni mojawapo ya vyombo mwafaka vya kutekeleza hayo kutokana na vipindi vyake. Uburudishaji huu huwa ni liwazo kutokana na shinikizo na migogoro tunayokabiliana nayo kila siku. Uburudishaji huu hupatikana kwa urahisi majumbani mwetu.

Vivyo hivyo, runinga hutumika kama nyenzo ya kuendeleza utamaduni, kaida na amali za jamii. Vingi vya vipindi vya runinga huwa ni kioo ambacho huakisi mikakati na amali za jamii.

Kwa upande mwingine, hakuna kizuri kisichokuwa na dosari. Licha ya manufaa yake, televisheni imedhihirika kuwa na udhaifu wake. Kwanza, baadhi ya vipindi vya runinga na video hujumuisha ujumbe usio na maadili, kama vile matumizi ya nguvu za mabavu, ngono za kiholela, lugha isiyo ya adabu, ubaya wa kimavazi na maonevu ya rangi, dini, jinsia, kabila na utamaduni. Si ajabu kuwa baadhi ya vijana wetu wanaiga baadhi ya mambo haya. Vijana wetu siku hizi wameingilia ulevi wa pombe na afyuni, ngono za mapema kabla ya ndoa na mavazi yanaowaacha takribani uchi wa mnyama. Wengi wamekopa na kuyaiga haya kutoka katika runinga. Ukiwauliza wafanyacho, watakujibu kuwa ni ustaarabu kwani wameupata katika runinga.

Matumizi ya runinga na michezo ya video yasiyodhibitiwa huweza kuwa kikwazo cha mawasiliano bora miongoni mwa familia. Matumizi kama haya huwapa wanafamilia fursa ya kujitenga. Imedhihirika kuwa runinga haichangii kujenga uhusiano bora wa kijamii. Ukilinganisha na vyombo vingine vya burudani ambavyo hutoa nafasi ya watu kutangamana na kujenga uhusiano bora, televisheni haichangii haya. Badala yake, tajriba ya televisheni huwa ya kibinafsi. Hali hii inapotokea katika kiwango cha familia, televisheni inaweza kutenganisha wazazi na watoto wao.

Halikadhalika, runinga na video aghalabu hueneza maadili yasiyofaa. Mathalani, baadhi ya vipindi vya televisheni huendeleza hulka ya kuhadaa, ngono za kiholela, kuvunjika kwa ndoa, n.k.

Hulka hizi zisizoendeleza maadili ya kijamii huchukuliwa kama zinazofaa na zinazofuatwa na waliostaarabika. Huu ni upotovu.

Isitoshe, baadhi ya matangazo huhimiza matumizi ya dawa za kulevya kama tembo na sigara. Vitu hivi vinapotangazwa, hupambwa kwa hila na udanganyifu mwingi ambao huwavutia vijana na watoto wengi. Si ajabu mtu anapouliza wanaotumia vileo hivi walivyoanza, watajibu kutokana na athari za matangazo katika runinga na vyombo vingine.

Utafiti umeonyesha kuwa vipindi vya runinga na video ni chanzo cha matumizi ya nguvu za mabavu miongoni mwa wanafunzi. Wazazi wengi huchukulia vibonzo katika televisheni kuwa vinalenga kuburudisha tu na havina ubaya wowote. Lakini ukweli ni kuwa vipindi vingi vya vibonzo hushirikisha matumizi ya hila na nguvu za mabavu. Haya huibusha hamu ya vijana na watoto huyaiga.

Kwa hivyo, ni muhimu wazazi na jamii kutambua madhara ya televisheni. Utambuzi huu utawafanya wawaelekeze vijana na watoto jinsi ya kutumia televisheni na video ili kuepukana na madhara yake.

a) Fupisha aya tatu za kwanza za (maneno 70 – 75) (alama 7, 2 za utiririko)

Matayarisho

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Jibu

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b) Eleza udhaifu wa runinga na video. (maneno 50 – 51) (alama 5,1 ya utiririko)

Nakala ya Matayarisho

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Nakala safi

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MATUMIZI YA LUGHA (Alama 40)

(a) Andika tofauti moja kati ya sauti zifutazo. **(alama 3)**

(i) /ny/ na /ng’/

.....

.....

(ii) /g/ na /gh/

.....

.....

(iii) /e/ na /i/

.....

.....

(b) Andika kivumishi chenye muundo ifuatayo. **(alama 1)**

Vokali ya kati,mbele; vokali ya nyuma,juu; kipasuo cha midomo: vokali ya kati, mbele,

.....

.....

(c) (i) Silabi ni nini? **(alama 1)**

.....

.....

(ii) Huku ukitoa mifano, eleza maana ya silabi funge. **(alama 2)**

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.....
.....
(d) Eleza dhima tatu za viambishi tamati mbali na kauli ya kutenda/kiishio. **(alama 3)**

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.....
(e) Tunga sentensi mbili kuonyesha matumizi mawili ya kiambishi: li **(alama 2)**

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.....
(f) Andika sentensi hii katika ukubwa. **(alama 2)**

Nyumba yenyewe ilijengwa karibu na mto.

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.....
(g) Nyambua vitenzi vifuatavyo katika kauli zilizo mabanoni **(alama 2)**

(i) la (tendeanana)

(ii) cha(tendea)

(h) Yakinisha sentensi ifuatayo katika nafsi ya pili umoja. **(alama 2)**

Sitaenda nyumbani kesho.

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(i) Tunga sentensi ukitumia nomino dhahania kutokana na neno: **(alama 2)**

Zusha

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.....
(j) Geuza sentensi ifuatayo katika usemi wa taarifa hali ya wingi. **(alama 2)**

Seremala alimwambia ,“Sitafika kwako kesho,”

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.....
(k) Tunga sentensi yenye muundo ufuatao. **(alama 2)**

$S - KN (N+S) + KT (Ts+T+E)$

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.....
(l) Changanua kwa njia ya jedwali: **(alama 4)**

Alifika mapema na akasomewa na mwalimu wake.

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.....
(m)Tunga sentensi kudhihirisha masharti yasiyoweze kana katika hali timilifu. **(alama 2)**

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(n) Tunga sentensi iliyo na kirai husishi chenye muundo wa a-unganifu. **(alama 2)**

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.....
(o) Bainisha kiima,kiarifa ,shamirisho na chagizo katika sentensi ifuatayo. **(alama 2)**

Yule msomi alisomewa kitabu kizuri sana.

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(p) Ainisha vitenzi katika sentensi ifuatayo: **(alama 2)**

Tutakuwa tukila vyakula karamuni huku wengine wakiwa barazani wakitutazama.

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(q) Unda nomino moja katika hali ya wingi kutokana na kitenzi ‘sawidi’ kisha utunge sentensi

(alama 2)

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(r) Biwi ni kwa taka ni kwa maji na kikuba ni kwa (alama 2)

4.ISIMU-JAMII(Alama 10)

“Wasilisho hili litaangazia athari ya vyakula vya kisasa mwilini. Leo hii utashi wetu wa kujitosheleza umetusukumiza ukingoni mwa maisha. Vyakula vyetu sasa vina kemikali hatari kutokana na mizizi ya mimea kufyonza virutubisho vyenye naitrojeni. Virutubisho hivi hustawisha mimea. Hata hivyo, mimea hii tunayoila ina kemikali hatari kwa miili yetu. Kemikali hizi husababisha saratani na hili ndilo tatizo la kijiji hiki. Vyakula hivi pia vina acids instead of bases. Tindikali ndicho chanzo cha asilimia 20 ya visa vya saratani duniani. Ndugu zangu nawaomba tuanze kutumia vyakula asilia.

(a) Bainisha sajili ya makala haya kwa kutoa mfano mmoja kutoka kwenye makala. (alama 2)

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(b) Fafanua sifa nane za sajili hii. (alama 8)

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JINA.....NAMBARI YA USAJILI.....

SHULE.....KIDATO.....

TAREHE.....

FORM 4 KCSE PREDICTION 3 EXAMS

KISWAHILI KARATASI YA 3(FASIHI)

MUDA: SAA 2 ½

Maaqizo

- a) Andika jina lako na nambari yako ya mtihani katika nafasi ulizoachiwa hapo juu
- b) Tia sahihi yako kisha uandike tarehe ya mtihani katika nafasi ulizoachiwa hapo juu
- c) Jibu maswali **manne** pekee
- d) Swali la **kwanza** ni la **lazima**
- e) Maswali hayo mengine **matatu** yachaguliwe kutoka sehemu **nne** zilizobaki; yaani Riwaya, Tamthilia, Ushairi na Fasihi Simulizi.
- f) Usijibu maswali **Mawili** kutoka **sehemu moja**
- g) Majibu yote **lazima** yaandikwe kwa lugha ya Kiswahili.
- h) Karatasi hii ina kurasa 5 zilizopigwa chapa

Kwa Matumizi ya Mtahini Pekee

Swali	Upeo	Alama
1	20	
	20	
	20	
	20	
	Jumla	

SEHEMU A: Fasihi simulizi

1. lazima

Soma utungo ufuatao kisha ujibu maswali.

Hiki ni kipindi maalum sana katika maisha yako. Lazima ufanye uamuzi wa busara, la sivyo utajuta sana maishani. Mpwa wangu, nyumba nzuri si mlango ingia ndani ujionee. Kumbuka kuwa maisha yako yatachukua mkondo mpya utakaotegemea uamuzi utakaofanya. Mke ni tabia sio sura kumbuka hawa kumbuka hawa ma dot com wamejiumbua; si dawa za kumeza, si za kujidunga, si za kujipaka mradi tu waonekane wazuri kwa sura, wamekuwa kama maembe ya kuchemshwa badala ya kuachwa yakomae yaive taratibu. Fanya uamuzi wa busara nawe utaishi kwa furaha na amani till death do you apart.

Maswali

- a) Bainisha kipera cha utungo huu. (alama 1)
- b) Toa sababu kuthibitisha jibu la (a). (alama 2)
- c) Bainisha mbinu **nne** za kimtindo zinazojitokeza kwenye utungo. (alama 4)
- d) Tambua toni ya utungo huu. (alama 1)
- e) Taja ngomezi **tatu** za kisasa. (alama 3)
- f) Fafanua sifa **nne** za maigizo. (alama 4)
- g) Eleza changamoto ambazo zinaweza kumkumba mtafiti wa fasihi simulizi. (alama 5)

SEHEMU B: Riwaya

A. Matei. Chozi La Heri

Jibu swali la 2 au la 3

2. “kuukata mkono niliostahili kuubusu yalinifika ya kunifika.”

- a) Eleza muktadha wa dondoo hili. (alama 4)
- b) Eleza tamathali ya usemi inayojitokeza katika dondoo hili. (alama 2)
- c) Msiba huandamwa na msiba mwingine. Thibitisha kauli hii kwa kurejelea riwaya nzima. (alama 14)

Au

3. Wanawake wamesawiriwa kwa mtazamo chanya katika jamii ya Chozi La Heri. Thibitisha.

(alama 20)

SEHEMU C: Hadithi fupi

D.W. Lutomia na P. Muthama (Wah): Mapambazuko ya Machweo na Hadithi Nyingine.

Rachael Wangari: Fadhila za Punda.

4. “Nia yangu nyeupe kama pamba. Mimi si miongoni mwa wale wanaume wenye nia ya kuharibu watoto wa watu.”

- a) Fafanua muktadha wa dondoo hili. (alama 4)
b) Eleza kinaya kinachojitokeza katika maneno yaliyopigiwa mstari ukirejelea hadithi hii. (alama 16)

SEHEMU D: Tamthilia

Timothy .M. Arege : Bembea ya Maisha

Jibu swali la 5 au 6

5. a) Changanua mtindo katika dondoo lifuatalo. (alama 6)

(Anajisemea) “ Bunju ni mmoja wenu. Nyote ni wanangu.” Hayo ni maneno ya mama. Wakati huo sikuona. Sasa ninaona. Wanasema mwenye macho haambiwi tazama. Kweli ilioje! Japo hutokea wakati tukalalamika, ninafikiri Bunju ni zawadi nzuri kwetu. Leo tungekuwa wapi bila Bunju? Maji yangezidi unga. Hebu fikiri ! umepata ajali mbaya. Inakuacha mahututi. Anapita mtu katika gari lake. Anakufanyia mpango wa flying doctors, ndege inafika kukupeleka hospitali.

- b) Kwa kurejelea tamthilia ya Bembea ya Maisha jadili changamoto **saba** zinazoikumba asasi ya ndoa. (alama 14)

Au

6. “Maji yangekuwa yamewafika shingo basi wangeshindwa kuishi pamoja. Ndoa ni bembea.”

- a. Fafanua muktadha wa dondoo hili. (alama 4)
b. Bainisha tamathali **moja** ya usemi inayojitokeza. (alama 2)
c. Eleza sifa **nne** za msemaji wa maneno haya. (alama 4)
d. Mwandishi wa Bembea ya Maisha ameshughulikia suala la uwajibikaji kwa kina. Thibitisha. (alama 10)

SEHEMU YA E: Ushairi

Jibu swali la 7 au 8

7. Soma shairi lifuatalo kisha ujibu maswali.

SIPENDI KUCHEKA.

Pana jambo natukiya, kwangu hilo muhali,
Kitenda naona haya, kujishusha yangu hali,
Sipendi unipe hidaya,sipendi kutenda hili,
Sipendi mimi kucheka.

Sipendi mimi kucheka, kuchekea mawi,
Sipendi na ya dhihaka, kwangu nyemi hiwi,
Sipendi kwa hakika, mwovu kistawika,
Halafuye nikacheka!

Maskini akiteswa

Yatima akinyanyaswa
Mnyonge naye akinyonywa
Sipendi hata ikiwa
Uwezo nguvu najuwa
Ni hili sitatekezwa

Mbona lakini nicheke, kwayo furaha?
Na wewe ukajiweke, uli na siha ?
Na yatima ali pweke, ye anahaha?
Amenyimwa haki yake, hanayo raha!
Na moyo wangu ucheke, kwa ha! Ha! Ha!
Kumbuka kwa kucheka, mimi katu sitacheka.

- a) Shairi hili ni la aina gani ? Thibitisha. (alama 2)
- b) Andika aina tatu za urudiaji zilizotumiwa katika shairi hili. (alama 3)
- c) Fafanua mambo manne yanayomfanya mshairi asipende kucheka. (alama 4)
- d) Eleza muundo wa ubeti wa pili. (alama 2)
- e) Kwa kutoa mifano tambua mbinu mbili za kimtindo zilizotumiwa na mshairi. (alama 2)
- f) Eleza mbinu tatu za kishairi kubainisha idhini ya mshairi. (alama 3)
- g) Tambua mstari mshata katika shairi. (alama 2)
- h) Bainisha nafsi neni katika shairi. (alama 1)
- i) Tambua toni ya shairi hili. (alama 1)

8. Soma shairi lifuatalo kisha ujibu maswali.

1. Hayawi hayawi huwa! Wahenga kweli kanena,
Moyoningu nimejawa, na kihoro kingi sana,
Machozingu nayatowa, natunga kisasina
Mvulana hajaliwi, sasa ni ndege wa Mola!
2. Mtoto awe kiume, anateswa hadharani,
Kimalezi ndo niseme, haki zake kumuhini,
Twajioneya kinyume, zinavyodai kampeni,
Mvulana hajaliwi, sasa ni ndege wa Mola!
3. Elimu nzuri ni kike, kiume achiwa Mungu,
Ni wazi yabainike, haki zetu ndo ukungu,
Ni nani sihuzunike, kujuwa yalo uchungu?
Mvulana hajaliwi, sasa ni ndege wa Mola!
4. Alama ya chuo kuu, ya msichana i chini,
Walimu wetu wakuu, wamekubali kwa nini?
Si mambo yalo nafuu, kutubaguwa yakini,

Mvulana hajaliwi, sasa ni ndege wa Mola!

5. Vyombo habari sikiza, waume eti jambazi!
Ni waovu vyaeneza, wezi wa mbuzi na ndizi,
Lakini kike wakaza, ya murwa pasi na ajizi,
Mvulana hajaliwi, sasa ni ndege wa Mola!
6. Vitani ndo twapelekwa, usalama kuulinda,
Hayasikizwi matakwa, ila kuteswa ja punda,
Wengi wetu wanatekwa, na anasa kuziponda,
Mvulana hajaliwi, sasa ni ndege wa Mola!
7. Vibarua ni faradhi, na gange zote sulubu,
Kweli hatari maradhi, tusopewa matibabu
Nchini hatuna hadhi, mezungwa na masaibu,
Mvulana hajaliwi, sasa ni ndege wa Mola!
8. Mzomzo wafadhili, watambua wasichana,
Kuwindi ajira kweli, apata wa kike jina,
Lo! Humo ndo ukatili, ulokithiri nanena,
Mvulana hajaliwi, sasa ni ndege wa Mola!

(Na J.M. Wanjagi kutoka Taifa Leo 10/03/2012)

- | | |
|--|------------------|
| a) Fafanua ujumbe wa shairi hili. | (alama 6) |
| b) Bainisha bahari ya shairi hili ukizingatia vipande. | (alama 2) |
| c) Tambua tamathali <u>moja</u> ya usemi iliyotumiwa katika shairi hili | (alama 2) |
| d) Andika ubeti wa kwanza kwa lugha tutumbi. | (alama 4) |
| e) Eleza <u>mbinu</u> mbili zilizotumiwa na mshairi ili kutosheleza mahitaji ya kiarudhi. | (alama 2) |
| f) Bainisha toni ya shairi hili . | (alama 1) |
| g) Tambua nafsineni katika shairi . | (alama 1) |
| h) Eleza muundo wa ubeti wa tano. | (alama 2) |

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

MATHEMATICS PAPER 1

Kenya Certificate of Secondary Exams

TIME: 2½ HOURS

INSTRUCTION

- a) Write your name and index number in the spaces provided above.
- b) Sign and write the date of the examination in the spaces provided above.
- c) This paper consist of **TWO** sections: **section I** and **Section II**.
- d) Answer **ALL** the questions in **Section I** and only **five** questions from **section II**.
- e) **Show all the steps in your calculations, giving your answers at each stage in the stage in the spaces below each question.**
- f) Marks may be given for correct working even if the answer is wrong.
- g) **Non-programmable** silent electronic calculators **and** KNEC mathematical tables may be used, except where stated otherwise.

Section I

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

Section II

17	18	19	20	21	22	23	24	Total

Grand
Total

--

SECTION 1: 50 MARKS.

Answer all the questions

1. Evaluate:

(3marks)

$$\frac{3}{5} - 1\frac{2}{5} \div 1\frac{3}{4} \text{ of } 2\frac{1}{3}$$
$$\frac{12}{17} \text{ of } (1\frac{3}{7} - \frac{5}{8} \times \frac{2}{3})$$

2. A Kenyan businessman bought goods from Japan worthy 2,950,000 Japanese yen. On arrival in Kenya, custom duty of 20% was charged on the value of the goods. If the exchange rate were as follows:-

1 US dollar = 118 Japanese Yen

1US dollar = 76 Kenyan shillings Calculate the duty paid in Kenyan shillings.

(3Mks)

3. A rally car travelled for 2 hours 40 minutes at an average speed of 120km/h. the car consumes an average of 1 litre of fuel for every 4 kilometers. A litre of fuel costs Ksh.59. Calculate the amount of money spent on fuel.

(3mks)

4. The curved surface area of a cylindrical container is 1980cm^2 . If the radius of the container is 21cm , calculate to one decimal place the capacity of the container in litres (Take $\pi = \frac{22}{7}$).
(4 mks)

5. Given that $\sin\theta = \frac{5}{13}$, find $\tan(90^\circ - \theta)$ in its simplest form. (2mks)

- 6 The equation of line L_1 is $2x - 5y - 10 = 0$. Find the equation of line L_2 perpendicular to L_1 and passing through $(5, -2)$ express your equation in the form $y = mx + c$ (3mks)

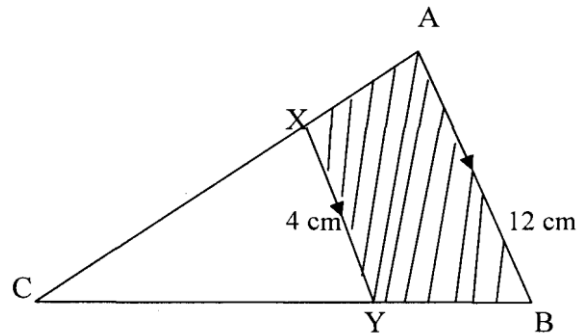
7. One interior angle of a polygon is equal to 80° and each of the other interior angles are 128° . Find the number of sides of the polygon. **(3 mks)**

8. The length of a rectangle is $(3x + 1)$ cm, its width is 3 cm shorter than its length. Given that the area of the rectangle is 28cm^2 , find its length, **(3 marks)**

9. Simplify the expression. **(3mks)**

$$\frac{4x^2 - y^2}{3y^2 - 7xy + 2x^2}$$

10. In the figure below, lines AB and XY are parallel.



If the area of the shaded region is 36 cm^2 , find the area of triangle CXY.

(3 marks)

11. (a) Using a pair of compasses and a ruler only construct a triangle ABC and such that $AB = 4 \text{ cm}$, $BC = 6 \text{ cm}$ and $\angle ABC = 135^\circ$.

(2 mks)

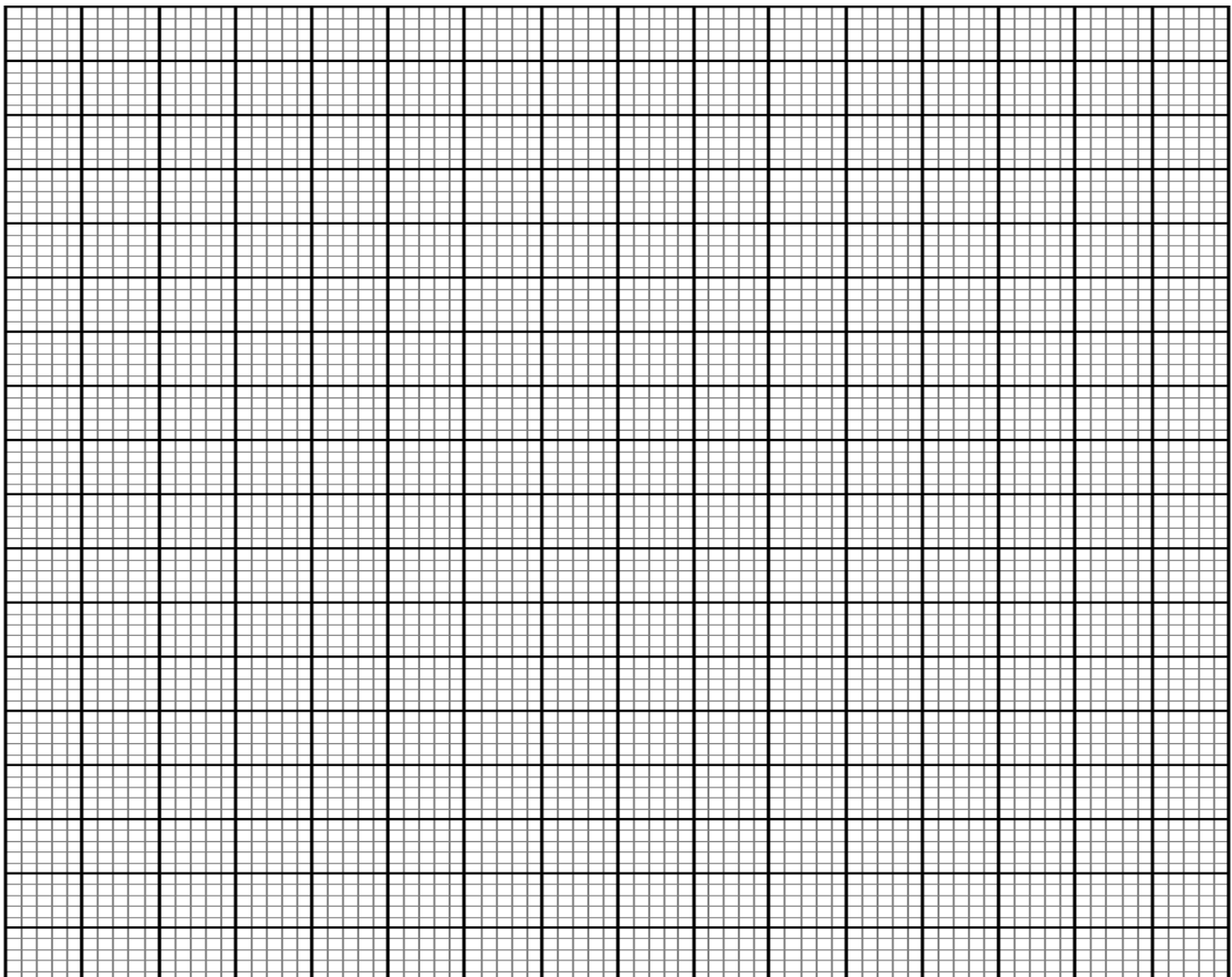
(b) Construct the height of triangle ABC in (a) above taking AB as the base, hence Calculate the area of triangle ABC.

(2 mks)

12. The external length width and height of an open rectangular container are 41cm, 21cm and 15.5cm respectively. The thickness of the materials making the container is 5mm. If the container has 8 litres of water. Calculate the internal height above the water level. **(3mks)**

13. A triangle P with vertices $x(2,4)$, $Y(6,2)$ and $z(4,8)$ is mapped onto triangle P^1 with vertices $X^1(10,0)$, $Y^1(8, -4)$ and $Z^1(14, -2)$ by a rotation.

a) On the grid provided, draw triangle P and its image **(2mks)**



b) Determine the centre and angle of rotation that maps P onto P¹

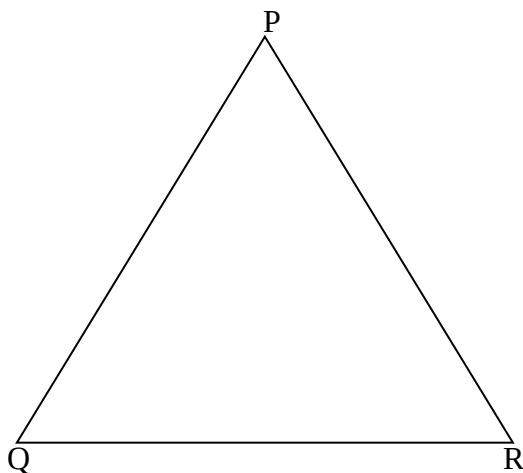
(2mks)

14. Solve the following inequalities and state the integral values

(3mks)

$$2x - 2 \leq 3x + 1 < x + 11$$

15. In the triangle PQR below, PQ = 12cm, $\angle PQR = 80^\circ$ and $\angle PRQ = 30^\circ$



Calculate, to 4 s.f, the area of the triangle PQR

(3mks)

16. A two digit number is such that the sum of digits is 13. When the digits are interchanged, the original number is increased by 9. Find the original number. (3mks)

SECTION II (50 MARKS)

Answer only five questions in this section

17. A straight line L_1 has a gradient $-\frac{1}{2}$ and passes through point P (-1, 3). Another line L_2 passes through the points Q (1, -3) and R (3, 5). Find.

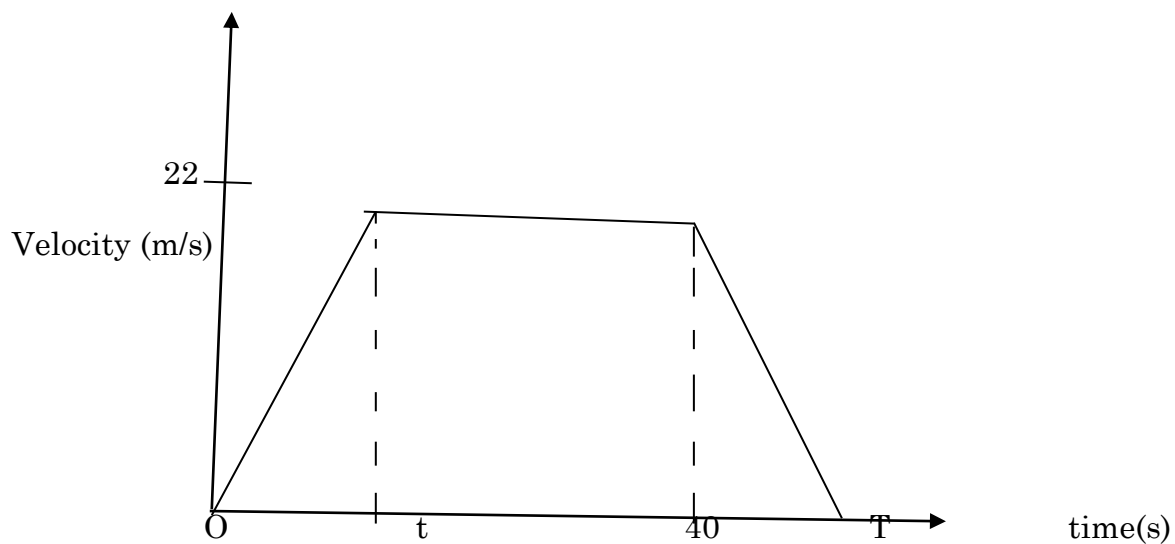
(a) The equation of L_1 . (2mks)

(b) The equation of L_2 in the form $ax+by+c=0$ (2mks)

(c) The equation of a line passing through a point S (0, 1.5) and is perpendicular to L_2 .(3mks)

(d) The point of intersection of a line passing through S and L_2 (3mks)

18. The figure below shows a velocity – time graph of a car journey.



The car starts from rest and accelerates at 2.75m/s^2 for t seconds until its speed is 22m/s . It then travels at this velocity until 40 seconds after starting. Its breaks bring it uniformly to rest. The total journey is 847m long and takes T seconds.

Calculate the

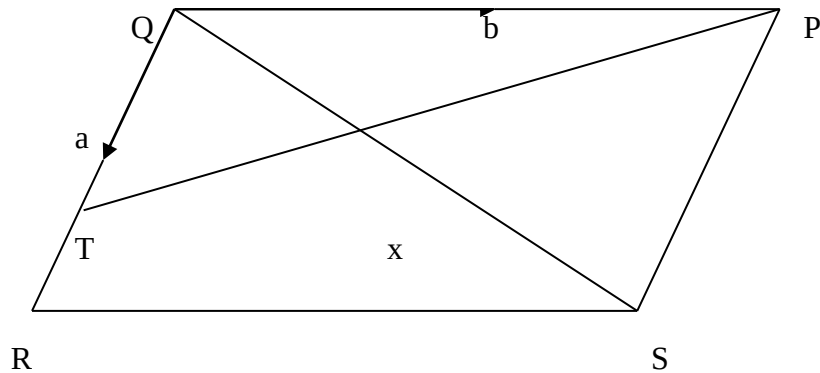
(i) Value of t **(3mks)**

(ii) Distance travelled during the first t seconds **(2mks)**

(iii) Value of T **(3mks)**

(iv) Final deceleration **(2mks)**

19. In the figure below, $QT = a$ and $QP = b$.



(a) Express the vector PT in terms of a and b . (1mk)

(b) If $PX = kPT$, express QX in terms of a , b and k , where k is a scalar. (3mks)

(c) If $QR = 3a$ and $RS = 2b$, write down an expression for QS in terms of a and b . (1mk)

(d) If $QX = tQS$, use your result in (b) and (c) to find the value of k and t . (4mks)

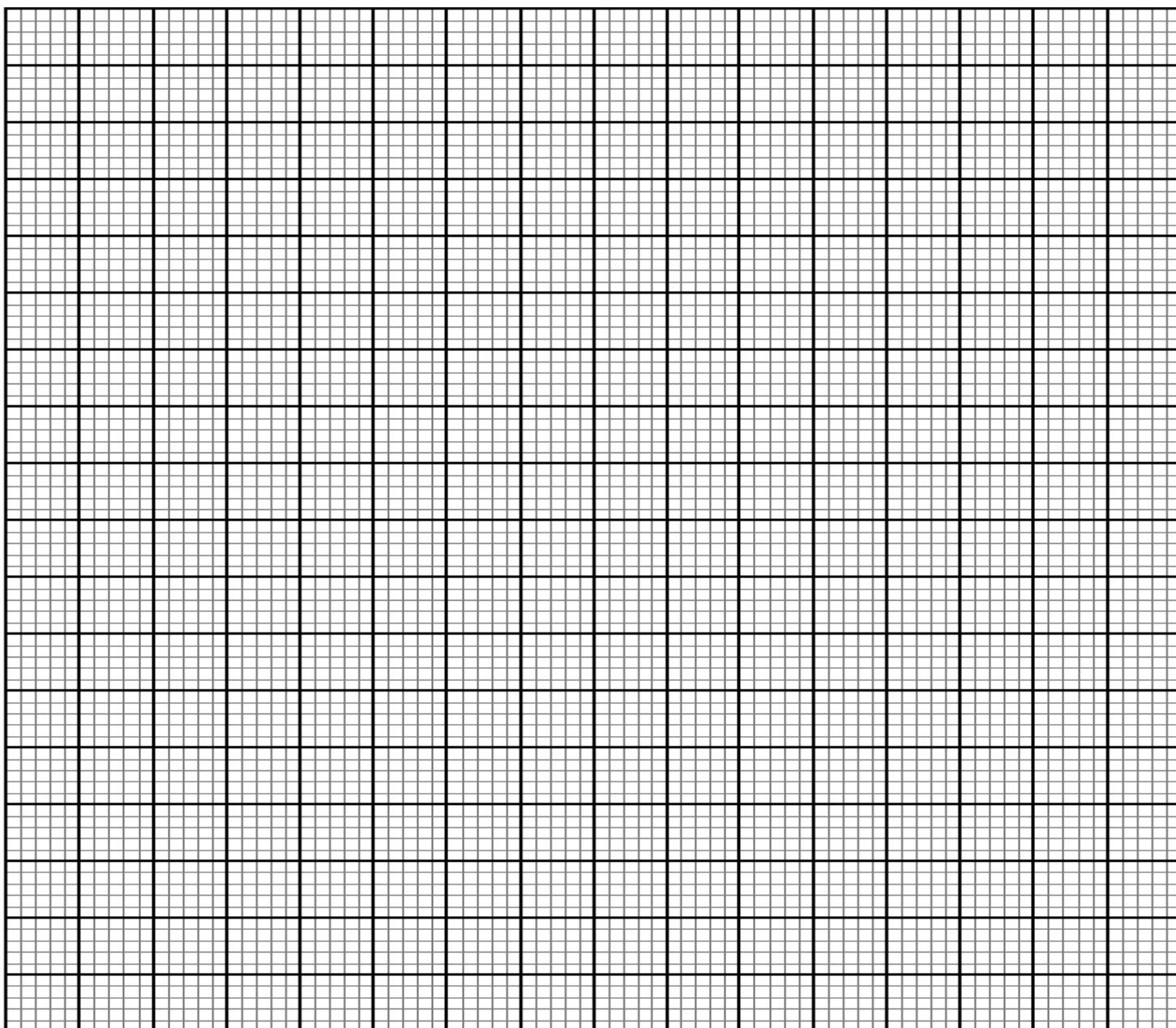
(e) Find the ratio $PX : XT$.

(1mk)

20. A triangle with $A(-4, 2)$, $B(-6, 6)$ and $C(-6, 2)$ is enlarged by a scale factor -1 and centre $(-2, 6)$ to produce triangle $A^1B^1C^1$.

a) Draw triangle ABC and $A^1B^1C^1$ and state its coordinates

(4mks)



b) Triangle $A^1B^1C^1$ is then reflected in the line $y = \chi$ to give triangle $A^{11}B^{11}C^{11}$. draw $A^{11}B^{11}C^{11}$. and state its coordinates **(3mks)**

iv) If triangle $A^{11}B^{11}C^{11}$ is mapped onto $A^{111}B^{111}C^{111}$ whose co-ordinates are $A^{111}(0, -2)$, $B^{111}(4, -4)$ and $C^{111}(0, -4)$ by a rotation. Find the centre and angle of rotation. **(3mks)**

21. Four towns P, R, T and S are such that R is 80km directly to the north of P and T is on a bearing of 290° from P at a distance of 65km. S is on a bearing of 330° from T and a distance of 30 km. Using a scale of 1cm to represent 10km, make an accurate scale drawing to show the relative position of the towns. **(4mks)**

Find:

(a) The distance and the bearing of R from T **(3mks)**

(b) The distance and the bearing of S from R **(2mks)**

(c) The bearing of P from S **(1mk)**

22. Four towns A, B, C and D are such that B is 80km directly North of A and C is on a bearing of 300° from A at a distance of 50km. D is on a bearing of 345° from C at a distance of 30km.

a) Using a scale of 1cm rep 10km, draw the relative positions of the towns **(4mks)**

b) Find:

(i) The distance and bearing of B from C **(2mks)**

(ii) The distance and bearing of B from D **(2mks)**

(iii) Calculate the distance of ABCD **(2mks)**

23. A school in Meru Central decided to buy x calculators for its students for a total cost of ksh. 16,200. The supplier agreed to offer a discount of ksh. 60 per calculator. The school was then able to get three extra calculators for the same amount of money.

(a) Write an expression in terms of x , for the

(i) Original price of each calculator **(1mk)**

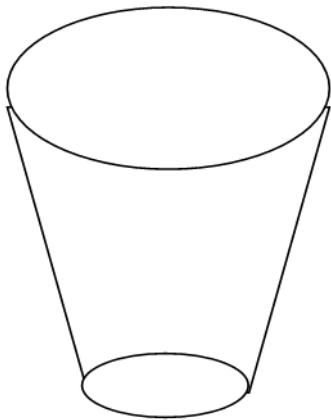
(ii) Price of each calculator after the discount **(1mk)**

b) Form an equation in x and hence determine the number of calculators the school bought **(5mks)**

c) Calculate the discount offered to the school as a percentage

(3mks)

25. A solid is made up of a conical frustum and a hemispherical top. The slant height of the frustum is 8cm and its base radius is 3.5cm. If the radius of the hemispherical top is 4.2cm.



- Find the area of:

(i) The circular base.

(2 Marks)

(ii) The curved surface of the frustum

(3 Marks)

(iii) The hemispherical surface

(3 Marks)

- A similar solid has a total surface area of 81.51cm^2 . Determine the radius of its base. (2 Marks)

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

MATHEMATICS PAPER 2

Kenya Certificate of Secondary Exams

TIME: 2½ HOURS

INSTRUCTIONS TO CANDIDATES

- Write your name and Admission number in the spaces provided at the top of this page.
- This paper consists of two sections: Section I and Section II.
- Answer ALL questions in section 1 and ONLY FIVE questions from section II
- All answers and workings must be written on the question paper in the spaces provided below each question.
- Show all the steps in your calculation, giving your answer at each stage in the spaces below each question.
- Non – Programmable silent electronic calculators and KNEC mathematical tables may be used, except where stated otherwise.

FOR EXAMINERS USE ONLY

SECTION I

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

SECTION II

17	18	19	20	21	22	23	24	TOTAL

GRAND TOTAL

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SECTION A: (50MARKS)

Answer all questions in this section in the spaces provided.

1. Use logarithms tables to evaluate.

(4mks)

$$\sqrt[3]{\frac{36.72 \times (0.46)^2}{185.4}}$$

2. If $A = 2.3$, $B = 8.7$ and $C = 2.0$. Find the percentage error in calculating $\frac{A+B}{C}$

(3mks)

3. Given that $M = i - 3j + 4k$, $W = 6i + 3j - 5k$ and $Q = 2M + 5N$, find the magnitude of Q to 3 significant figures.

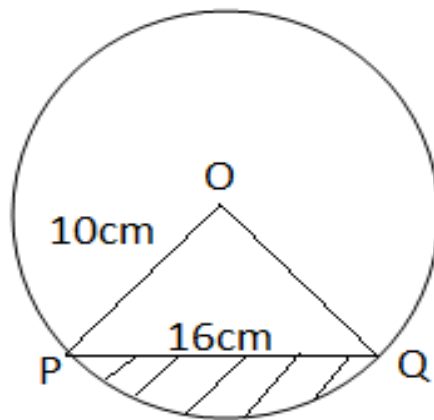
(3mks)

4. Solve the following equation $2^{2x+3} - 2^{x+4} = 17(2^x) - 4$ (4mks)

5. If $\frac{1}{3-\sqrt{5}} - \frac{2+2\sqrt{5}}{3+\sqrt{5}} = a + b\sqrt{c}$, find the value of a, b and c (3mks)

6. Pipe A can fill an empty water tank in 3hrs while Pipe B can fill the same tank in 6hrs. When the tank is full it can be emptied by Pipe C in 8hrs. Pipe A and B are opened at the same time when the tank is empty. If one hour later Pipe C is also opened, find the total time taken to fill the tank. (3mks)

7. The figure below shows a circle center O , radius 10 cm . The chord $PQ = 16\text{ cm}$. Calculate the area of the unshaded region. **(4mks)**



8. The mean weight of 36 students is 45 kg ; two of the students leave and the mean weight increases by 0.5 kg . If one of the students who left weighed 43 kg , find the weight of the other one. **(3mks)**

9. Use the trapezium rule to estimate the area bounded by the curve $y + x^2 = 4$ and the lines $y = 0$, $x = -2$ and $x = 2$ using four strips. (3mks)

10. $4x^2 - 10x + 4y^2 + 12y - 1 = 0$ represents a circle centre C (a, b) and of radius K. Find the values of a, b and K. (3mks)

11. Make x the subject of the equation (3mks)

$$\frac{t}{s} = \frac{b}{\sqrt{x-4}}$$

12. Use reciprocal, square and cube root tables to evaluate to 4 significant figures, the expression.

(3mks)

$$\sqrt[3]{\frac{9}{0.03746}} + 0.6042^2$$

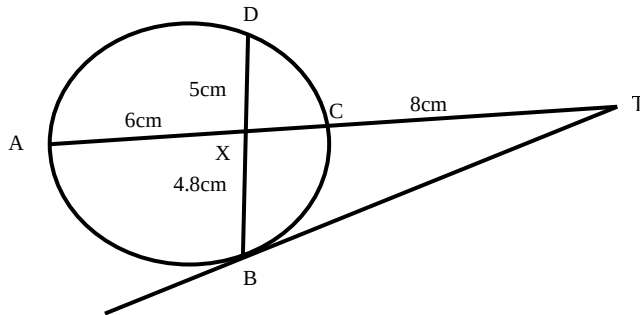
13. (a) Expand the expression $(1 + \frac{1}{2}x)^5$ in ascending powers of x, leaving the coefficients as fractions in their simplest form.

(2mks)

(b) Use the first three terms of the expansion in (a) above to estimate the value of $(1^{1/20})^5$.

(2mks)

14. In the diagram below, BT is a tangent to the circle at B. AXCT and BXD are straight lines. AX = 6cm, CT = 8cm, BX = 4.8cm and XD = 5cm.



Find the length of BT.

(2mks)

15. Find x if $\cos x = \frac{\sqrt{3}}{2}$ for $-180^\circ \leq x \leq 180^\circ$.

(2mks)

16. The following were recorded on a field note book by a surveyor. Taking the base line as 550m. Find the area in m^2 .

(3mks)

			B			
			550	120	TO	A
	C	150	450			
			250	90	TO	D
	E	60	40			
			F			

SECTION II (50mrks)

Attempt any FIVE questions from this section

17. Mr. Kobe is a civil servant who earns a monthly salary of Ksh. 21200. He has a house allowance of Ksh. 12000 per month, other taxable allowances are commuter Ksh. 1100, medical allowance Ksh. 2000. He is entitled to a personal relief of Ksh. 1240 per month.

Using the income rates below, solve the questions that follow.

Income in Ksh. per month	Rates in Ksh per sh 20
1 – 8,400	2
8401 – 18,000	3
18001 – 30,000	4
30001 – 36,000	5
36001 – 48,000	6
Above 48,000	7

Determine;

- a) i) His monthly taxable income.

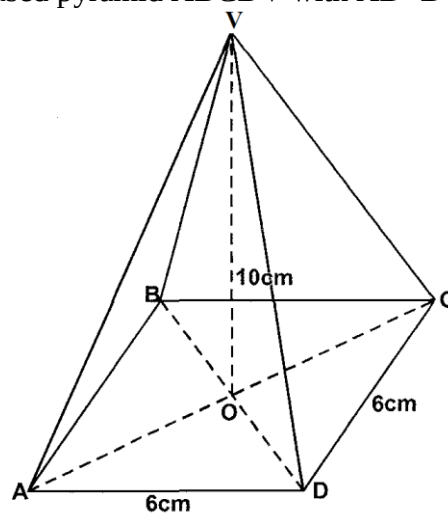
(2mks)

- ii) Net tax (PAYE)

(5mks)

- b) In addition to the PAYE, the following deductions were made. Ksh. 250 for NHIF, Ksh. 120 service charges, he repays a loan at sh. 4500 and contributes towards savings at sh. 1800 every month. Calculate his net salary per month. **(3mks)**

18. The figure below is a square based pyramid ABCDV with $AD=DC = 6\text{cm}$ and height $V = 10\text{cm}$



- a) State the projection of VA on the base ABCD. **(1mk)**

b) Find:

- i) The length of VA **(3mks)**

- ii) The angle between VA and ABCD **(2mks)**

iii) The angle between the planes VDC and ABCD

(2mks)

iv) Volume of the pyramid

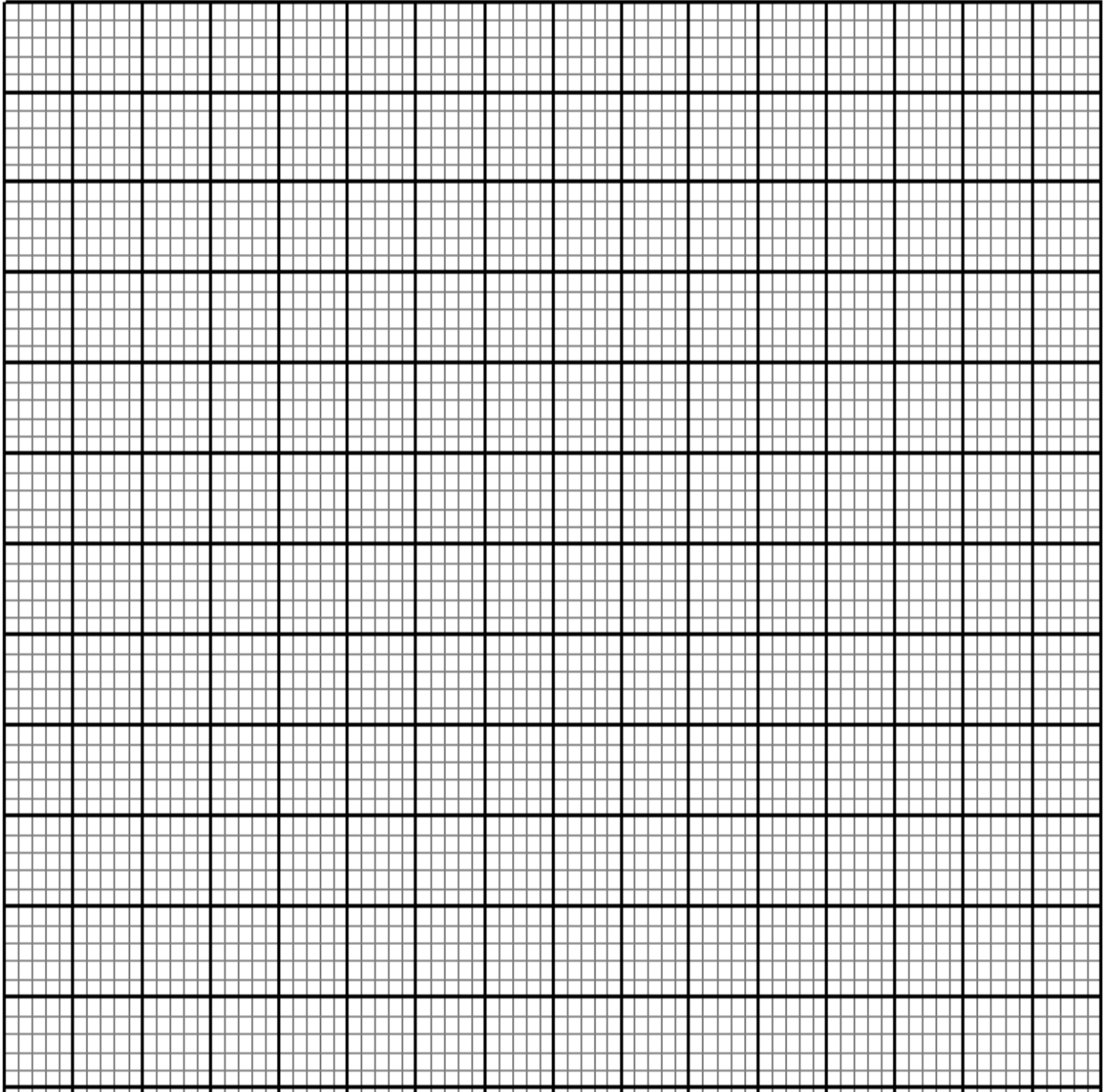
(2mks)

19. a) Complete the table below for $y = \sin 2x$ and $y = \sin (2x + 30)$ giving values to 2d.p. (2mks)

X	0	15	30	45	60	75	90	105	120	135	150	165	180
Sin 2x	0				0.87				-0.87				0
Sin (2x + 30)	0.5				0.5				-1				0.5

b) Draw the graphs of $y = \sin 2x$ and $y = \sin (2x + 30)$ on the axis.

(4mks)



c) Use the graph to solve $\sin(2x + 30) - \sin 2x = 0$

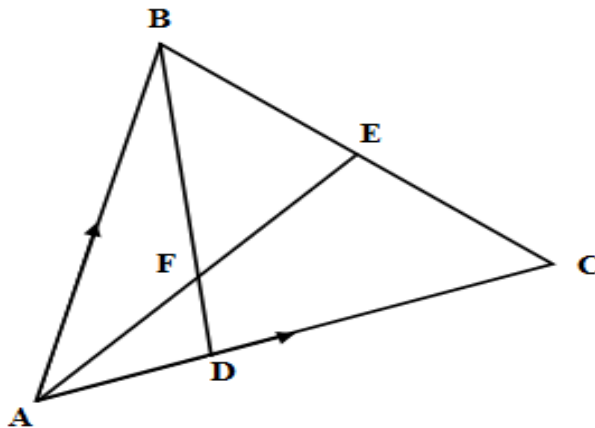
(1mk)

d) Determine the transformation which maps $\sin 2x$ onto $\sin(2x + 30)$

(1mk)

- e) State the period and amplitude of $y = \sin (2x + 30)$ (2mks)

20. In the figure below E is the midpoint of BC. AD: DC 3:2 and F is the meeting point of BD and AE.



- a) If $AB = \mathbf{b}$ and $AC = \mathbf{c}$, find:
i) BD (2mks)

- ii) AE (2mks)

- b) If $BF = t BD$ and $AF = n AE$. Find the value of t and n . (5mks)

c) State the ratio of BD to BF. (1mk)

21. The position of two towns **X** and **Y** are given to the nearest degree as **X** (45° N, 110° W) and **Y** (45° N, 70° E). Take $\pi = 3.142$, $R = 6370\text{km}$. Find:

(a) The distance between the two towns along the parallel of latitude in km. (3mks)

(b) The distance between the towns along a parallel of latitude in nautical miles. (3mks)

(c) A plane flew from **X** to **Y** taking the shortest distance possible. It took the plane 15hrs to move from **X** and **Y**. Calculate its speed in Knots. **(4mks)**

d) If the plane left town **X** on Monday 12:45PM. Find the local time it arrived at town **Y**. **(3mks)**

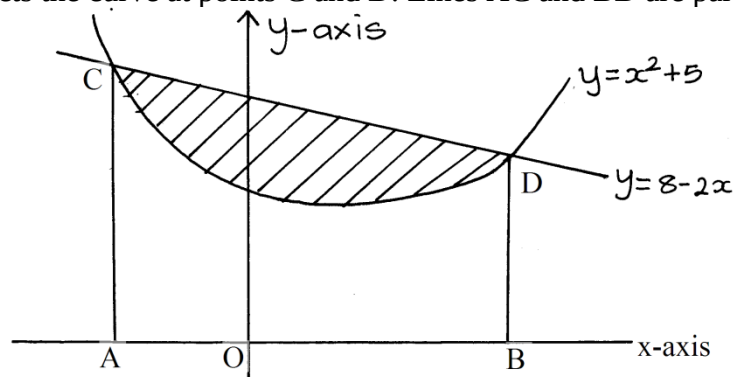
22. The 2nd and 5th terms of an arithmetic progression are 8 and 17 respectively. The 2nd, 10th and 42nd terms of the A.P. form the first three terms of a geometric progression. Find
(a) The 1st term and the common difference. **(3mks)**

(b) The first three terms of the G.P and the 10th term of the G.P. **(4mks)**

(c) The sum of the first 10 terms of the G.P.

(3mks)

23. The diagram below, not drawn to scale shows part of the curve $y = x^2 + 5$ and the line $y = 8 - 2x$. The line intersects the curve at points C and D. Lines AC and BD are parallel to the y-axis.



(a) Determine the coordinates of C and D.

(4mks)

(b) Use integration to calculate the area bounded by the curve and the x-axis between the points C and D. **(3mks)**

(c) Calculate the area enclosed by the lines CD, CA, BD and the x-axis. **(3mks)**

(d) Hence determine the area of the shaded region. **(1mk)**

24. Using a ruler and pair of compasses only.

- a)** Construct triangle ABC in which $AB = 9\text{cm}$, $AC = 8\text{cm}$ and angle $BAC = 60^\circ$.
Measure BC **(2mks)**
- b)** On the same side of AB as C, draw the locus of a point such that angle $APB = 60^\circ$ **(3mks)**
- c)** A region T is within the triangle ABC such that $AT > 4\text{cm}$ and angle $ACT \geq$ angle BCT.
Show the region T by shading it. **(5mks)**

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

PHYSICS PAPER 1

Kenya Certificate of Secondary Exams

TIME:2HRS

Instructions to candidates

- Write your name, admission number, class and date in the spaces provided at the top of the page.
- This paper consists of two sections A and B.
- Answer all the questions in the two sections in the spaces provided after each question
- All working must be clearly shown.
- Electronic calculators, mathematical tables may be used.
- All numerical answers should be expressed in the decimal notations.
- This paper consists of 14 printed pages. Candidates should check to ascertain that all pages are printed as indicated and that no questions are missing.

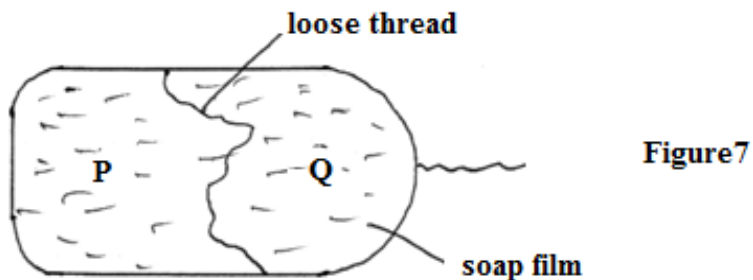
FOR EXAMINERS USE ONLY

SECTION	QUESTION	MAX MARKS	CANDIDATE'S SCORE
A	1 – 11	25	
B	12	10	
	13	11	
	14	13	
	15	10	
	16	11	
TOTAL		80	

SECTION A: (25 MARKS)

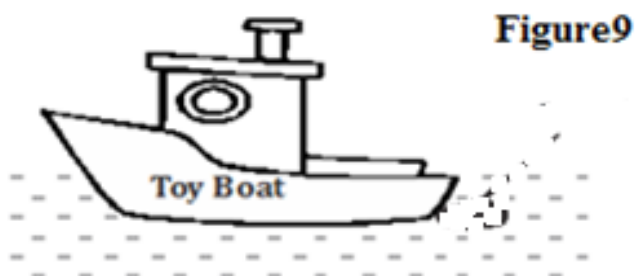
Answer all questions

1. The figure7 below shows a soap film in a loop of wire.



Sketch a diagram to show the behaviour of the film when punctured at P. (1 mark)

2. A toy boat containing a leaking container of oil was placed on the surface of still water as shown in figure 9 below.



The boat was seen moving forward due to the leakage.

- (i) On the diagram, indicate the point of the leakage (1mark)
(ii) Explain your indication in (i) above. (1mark)

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3. The figure below shows a vernier caliper scale.

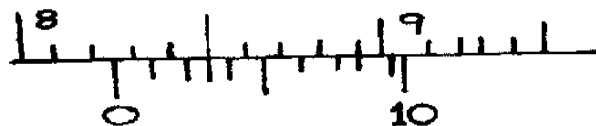


Fig. 1

If the vernier calipers used had a zero error of -0.02 what is the actual reading of the scale.

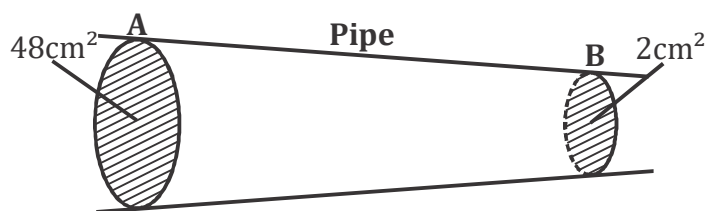
(2mks)

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4. The diagram in fig 5.0 shows a section of a pipe with different cross-sectional area.



If water flows with a velocity of 10m/s in section A, what would be the velocity of water in section B?

(3 marks)

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5. State a reason why transfer by radiation is faster than by conduction.

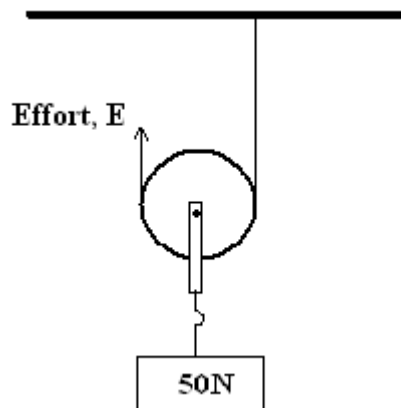
(1 mark)

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6. The pulley system in the figure below supports a load of 50N .



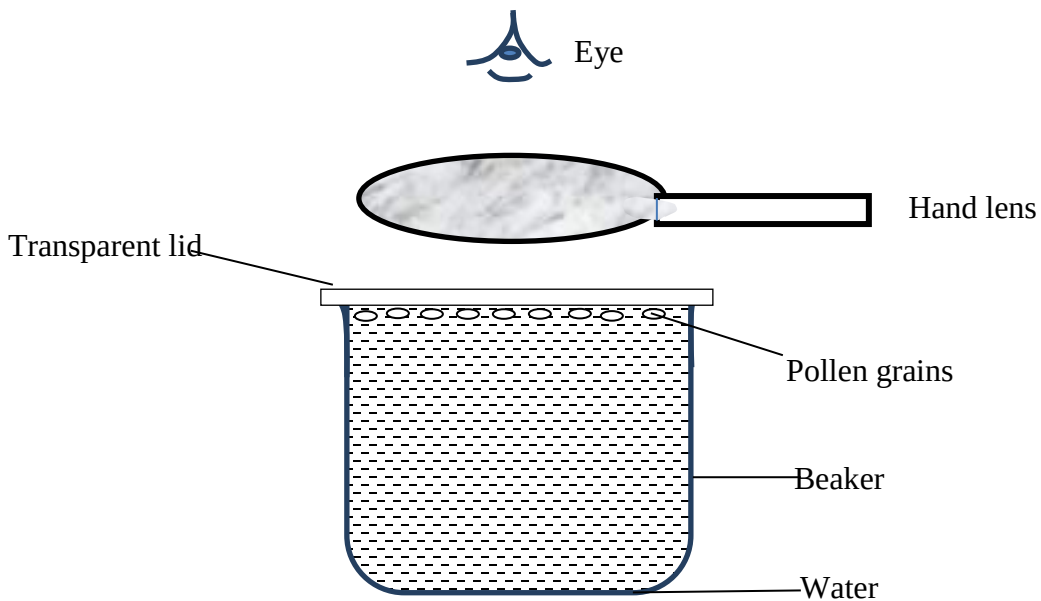
Given that the efficiency of the system is 80% calculate the effort, E. **(3 marks)**

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7. A student observed some pollen grains on the surface of water in a beaker with the help of hand lens as shown figure below.



(a) State the observation made. **(1 mark)**

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(b) Explain the observation in (a) above.

(1 mark)

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(c) What conclusion can be drawn from the above experiment?

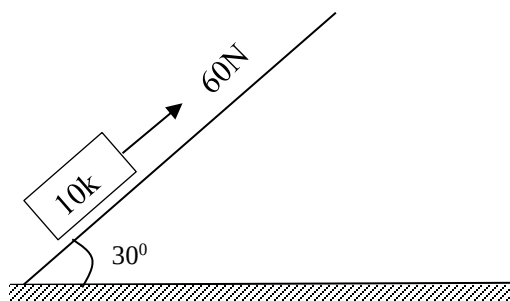
(1 mark)

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8. A smooth wooden plane is inclined at an angle of 30° to the horizontal as shown in Figure 5 below. An object of mass 10kg is pulled steadily up the plane by a force of 60N. Determine;



(a) the velocity ratio of the inclined plane.

(2 marks)

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(b) efficiency of the system.

(2 marks)

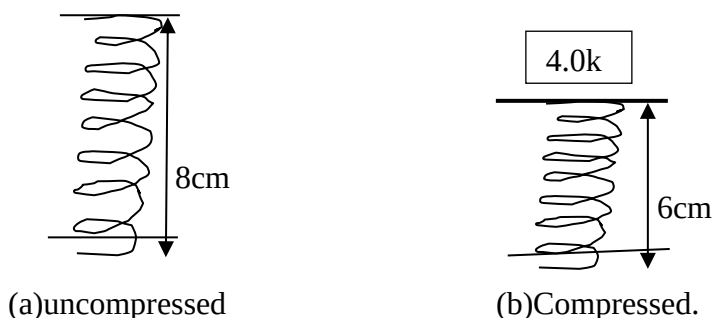
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9. The Figure 6 below shows a spiral spring when not compressed and when compressed by a mass of 4.0kg.

Fig. 6



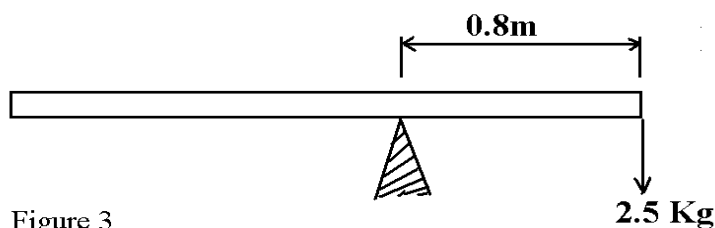
Determine the elastic potential energy stored by the compressed spring in . **(2 marks)**

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10. Figure 3 shows a uniform wooden plank which weighs 10N. The plank is balanced at 0.8m from one end by a mass of 2.5Kg.



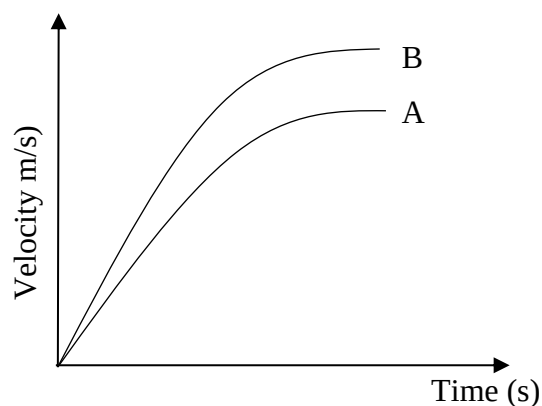
What is the length of the wooden plank in metres. **(2mks)**

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11. The figure shows the velocity time graph of two identical spheres released from the surfaces of two liquids A and B.



Give a reason why the terminal velocity of the sphere in B is higher than in A. (1mark)

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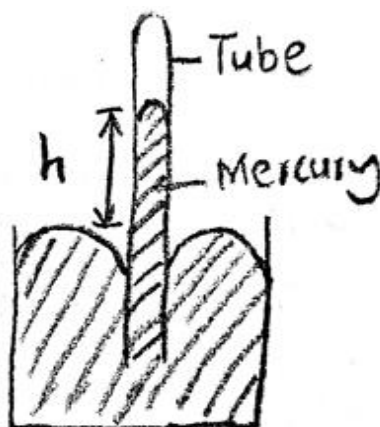
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SECTION B: 55 MARKS

Answer all questions

12. a) The figure below shows a simple mercury barometer



(i) when the tube was tilted mercury did not fill the tube completely. Give a reason for the observation. (1mark)

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(ii) give a reason why mercury is preferred as a liquid in a glass barometer **(1mark)**

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(iii) A town at an altitude of 548m has a barometric height of 70cmHg. Given that the standard atmospheric pressure is 76cmHg and that the density of mercury is 13600kg/m^3 , determine the density of air **(4marks)**

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b) A student half-filled a container with water, boiled the water for several minutes with the cork removed. Then later replaced the cork and poured some cold water on the container. State and explain the observation made **(2marks)**

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c) Determine the pressure on a piston of cross-sectional 20cm^2 when a force of 50MN is applied to its surface **(2marks)**

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13. In an experiment to determine the approximate diameter of an oil molecule, the following measurements were obtained:

-diameter of oil drop=0.05cm

-diameter of oil patch=0.2m

Determine:

i. volume of oil drop (3marks)

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ii. area of oil patch (3marks)

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iii. thickness of oil molecule (3marks)

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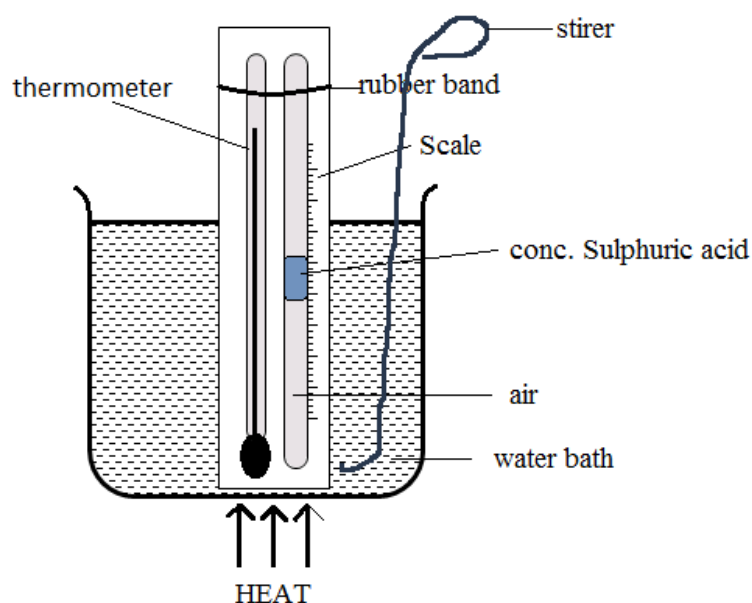
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iv. state two assumptions made in the above experiment (2marks)

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14. (a) Define absolute zero temperature for an ideal gas

(1 mark)

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(b) The diagram in figure 12 below shows an experiment to investigate the relationship between volume and temperature of a fixed mass of gas at constant pressure



Explain the functions of:

(i) Concentrated sulphuric acid

(2 marks)

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(ii) Stirrer

(1 mark)

(c) Which measurements are taken in the above experiment (2 marks)

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(d) How are the measurements used to verify Charles Law (3 marks)

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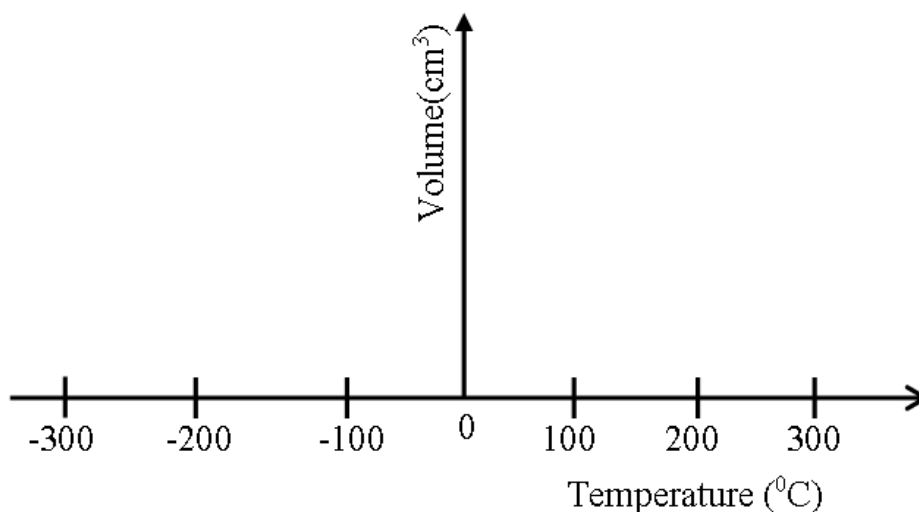
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(e) On the grid shown in the figure below sketch a graph of volume (cm^3) against temperature ($^{\circ}\text{C}$) for the experiment above. Clearly mark with the letter T the absolute zero temperature.

(2 marks)



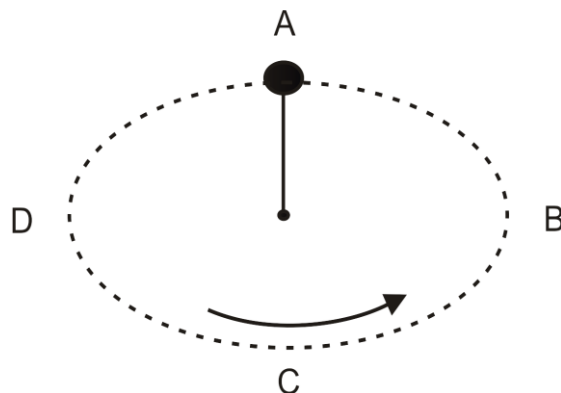
(f) What two assumptions are made in the experiment (2 marks)

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15. A stone is whirled in a vertical circle as shown below. A, B, C, and D are various positions of the stone in its motion.



The stone makes 2 revolutions per second in a circle of radius 0.4m, and has a mass of 100g.

- i) Calculate the centripetal force acting on the stone (3marks)

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- ii) The string cuts after acquiring constant angular speed. Identify the likely position where this occurred and on the same diagram sketch the new path followed by the stone. (1 mark)

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- iii) The stone takes 0.5 seconds to land on the ground. How high is this point in (ii) above the ground? (3marks)

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- iv) How far does it travel horizontally before hitting the ground? (3marks)

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16. a)State Newton’s second law of motion. **(1 mark)**

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b)The legal speed limit on motorways is approximately 30m/s. In an incident on a motorway, a car of mass 900kg leaves a skid mark 75m long when stopping. The maximum deceleration of the car when skidding is approximately 10m/s².

i)Show that before the incidence, the car must have been travelling above the legal speed limit.

(3 marks)

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ii) Calculate for this skid, the maximum average braking force between each of the four tyres and the road. **(3 marks)**

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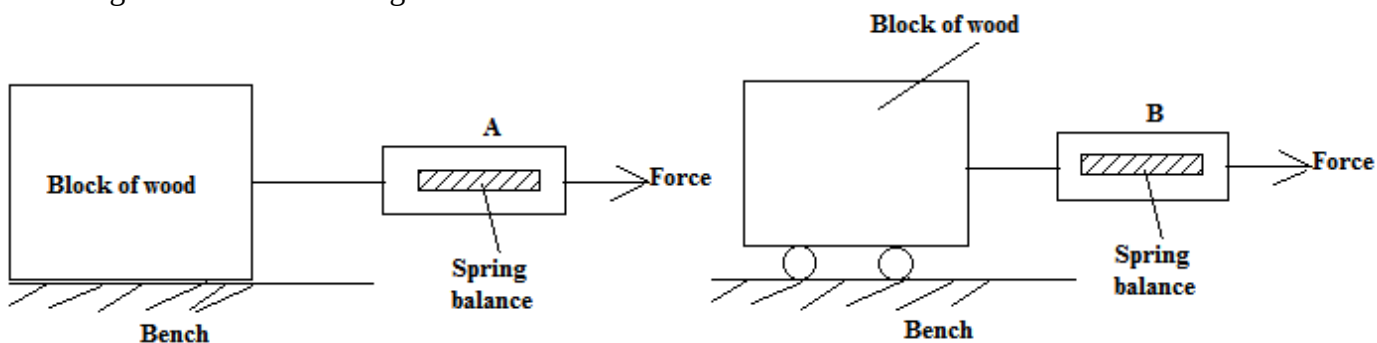
iii) When the motorway is wet, the braking force provided by each wheel is reduced to 50% of the calculated in (ii) above. What is the effect of this reduced breaking force on stopping distance, explain your answer. Assume that the speed of the car before breaking is the same in both cases. **(2 marks)**

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c) A student carried out an experiment to measure static friction using identical wooden blocks arranged as shown in the figure.



State and explain which spring balance will indicate a smaller reading when the block just starts to move. (2 marks)

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

PHYSICS PAPER 2

Kenya Certificate of Secondary Exams

TIME:2HRS

INSTRUCTIONS TO CANDIDATES

- ❖ This paper consists of **20** questions.
- ❖ Answer **ALL** the questions in the spaces provided.
- ❖ **ALL** working **MUST** be clearly shown.
- ❖ **ALL** numerical answers **MUST** be expressed in decimal forms.

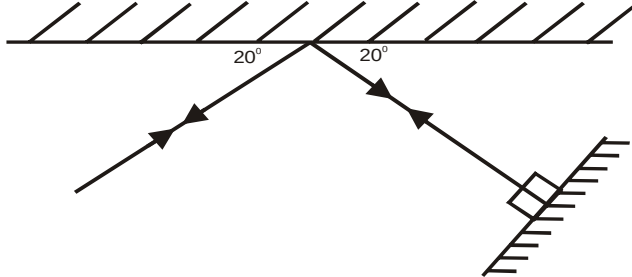
FOR EXAMINER'S USE ONLY

Section	Question	Maximum Score	Candidate's Score
A	1 – 13	25	
B	14	12	
	15	13	
	16	10	
	17	12	
	18	08	
	Total Score	80	

SECTION A (25 Marks)

Answer all the questions in this section in the spaces provided

1. The following diagram shows the path of light after striking two mirrors at an angle.



Determine the angle between the two mirrors.

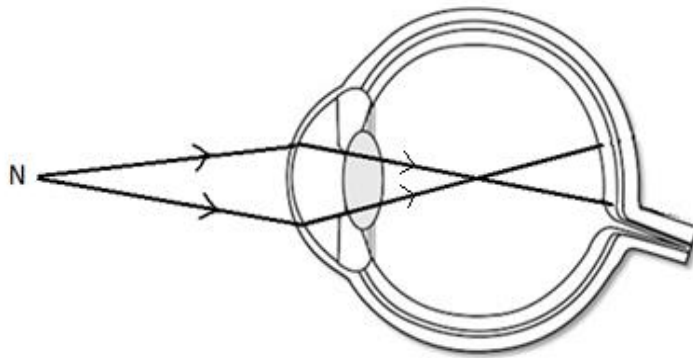
(2mark)

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2. The figure shows the eye defect



(a) Name the defect

(1mark)

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(b) State how the defect can be corrected.

(1mark)

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3. Explain why a plain sheet of paper and a plane mirror both reflect light yet only the plane mirror forms images while paper cannot form images. (2 marks)

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4. What property of light is suggested by the formation of shadows? (1 mark)

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5. An object placed **15 cm** from a convex lens forms an upright image which is magnified two times. Determine the focal length of the lens. (3 marks)

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6. State **one** advantage of a lead-acid accumulator over a nickel-iron accumulator. (1 mark)

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7. An electric bulb rated, **40W** is operating on **240 V** mains. Determine the resistance of its filament. (3 marks)

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8. Explain why earthing is necessary in the domestic wiring circuit. (1 mark)

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9. A positively charged rod is brought near the cap of a leaf electroscope. The cap is earthed momentarily by touching with the finger. Finally, the rod is withdrawn. The electroscope is found to be negatively charged. Explain how this charge is acquired. **(2 marks)**

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10. The force on a conductor carrying a current in a magnetic field can be varied by changing, among others, the magnitude of the current and the magnetic field strength. Name any other factor that can be changed to vary the force. **(1 mark)**

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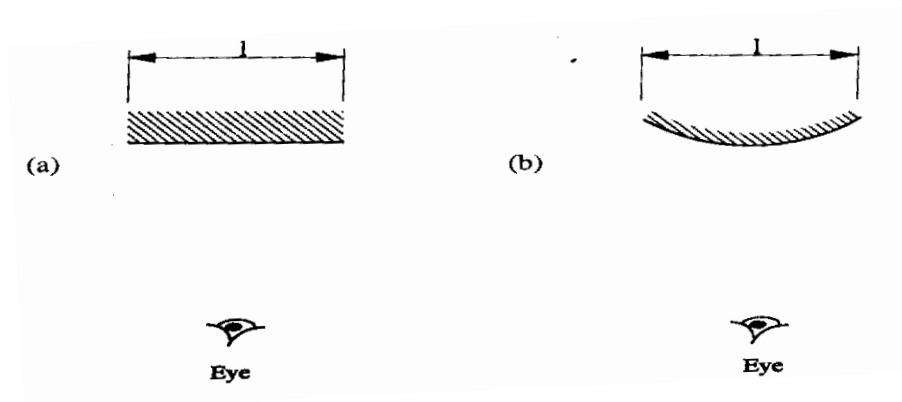
11. The table below carries information on the type of radiation, detector and use for some of the electromagnetic radiations.

Type of radiation	Detector	Use
Microwave	Crystal detector, solid state diodes	
.....	Thermopile, blackened bulb thermometer	Warmth sensation

Fill in the blank spaces.

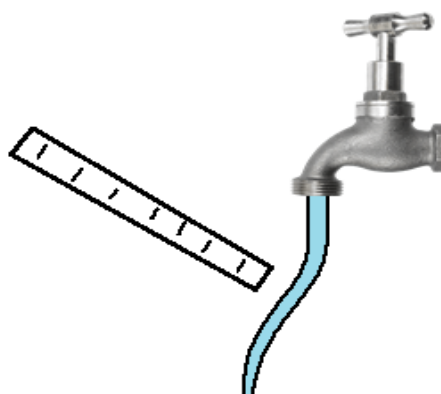
(2 mark)

12. The figures below show a convex mirror and a plane mirror of equal aperture



By sketching a pair of incident and reflected rays for each (a) and (b) show how the convex mirror provides to the eye, a wider field of view than a plane mirror. **(2marks)**

13. Water is flowing in a very narrow stream from a water tap (faucet). A negatively-charged plastic strip is held close to the stream of water, as shown in the figure below.



The stream of water moves towards the plastic strip. Explain why this observation. **(2mark)**

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SECTION B (55 Marks)

Answer all the questions in this section in the spaces provided

14. (a) State Faraday's law of electromagnetic induction. **(1 mark)**

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- (b) The primary coil of a transformer has 1200 turns and the secondary coil has 60 turns. The

transformer is connected to a 240V a.c source. Determine

- (i)** The output voltage. **(3 marks)**

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- ii)** The output current when the primary coil has a current of 0.5A (Assume there is no energy losses)

(3 marks)

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- iii)** One of the primary ways in which power is lost in transformers is through eddy currents. State how eddy currents can be minimized. **(1 mark)**

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- (c)** Determine the cost of using an electric iron rated 1500W, for a total of 30 hours given that the cost of electricity per kwh is Ksh 8. **(3 marks)**

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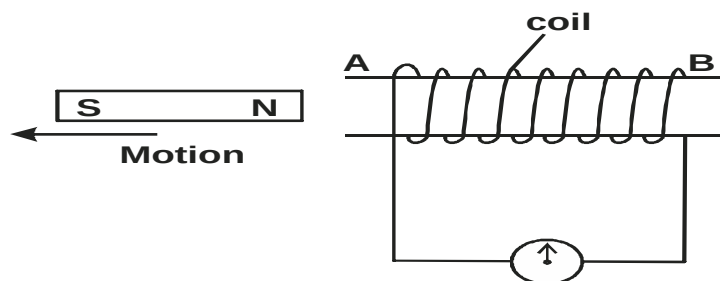
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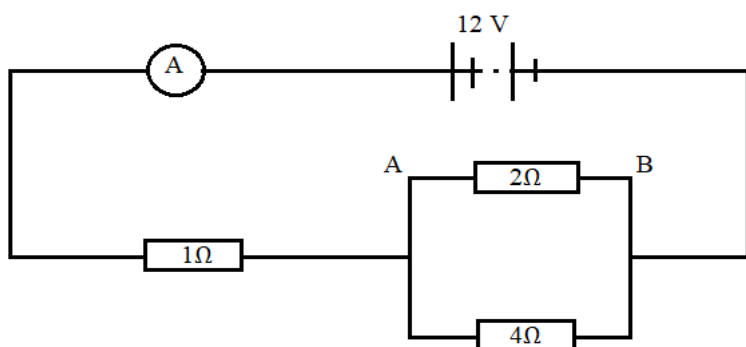
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- (d)** The figure below shows a coil and a magnet being removed from the coil.



Indicate the direction of flow of current on the coil. (1 mark)

15. Study the circuit diagram below and answer the questions that follow



(a) Calculate

(i). The current flowing through the ammeter. (3 marks)

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(ii). The PD across AB (2 marks)

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(iii). The current through the 4Ω (2 marks)

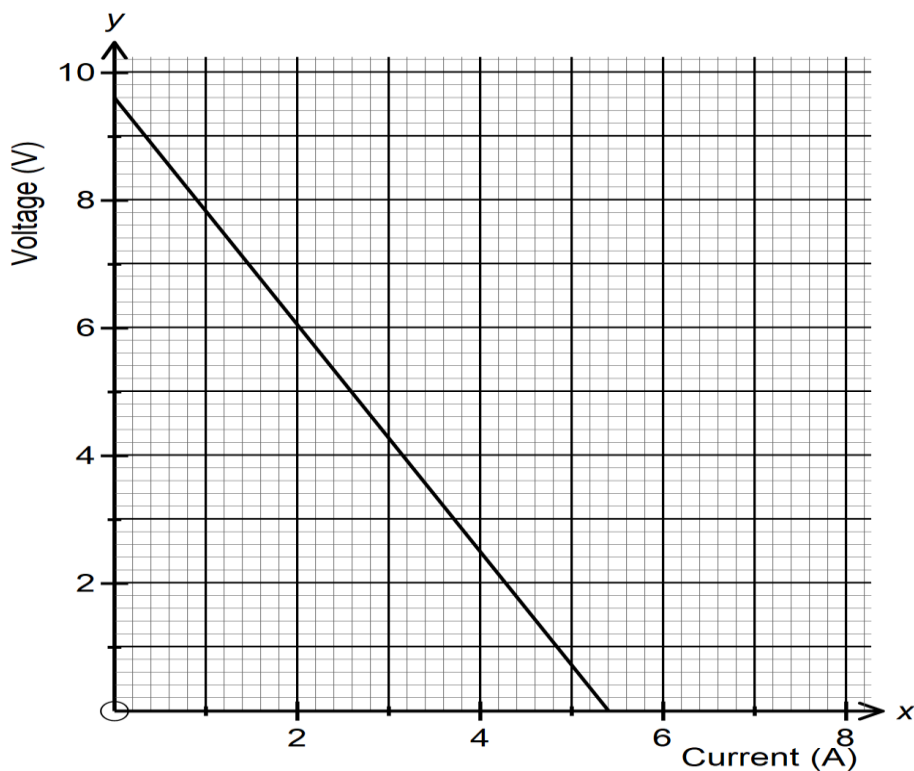
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(b) The graph below shows relationship between voltage and the current obtained from an experiment

performed by form 4 students.



- (i) Draw a circuit that could be used to obtain the results shown on the graph. **(1 mark)**

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- (ii) From the graph determine the emf of the battery used give the relation $E = IR + Ir$ **(3 marks)**

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- (iii) Determine the internal resistance of the battery. **(2 marks)**

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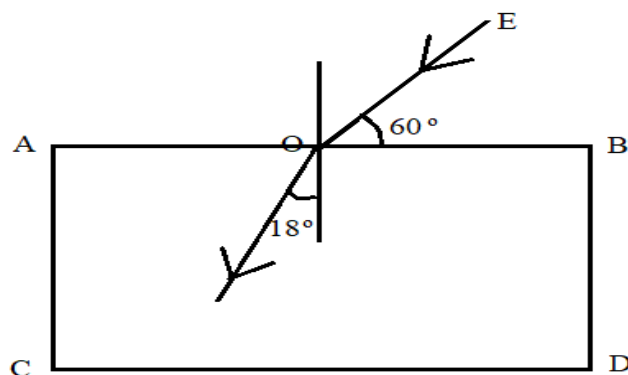
16. (a) State the conditions necessary for total internal reflection to take place **(2 marks)**

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- (b) A ray of light travelling in the direction EO in air enters a rectangular block at an angle of incidence of 30° . The resulting angle of refraction is 18° .



Find,

- (i) The refractive index of the block. (2 marks)

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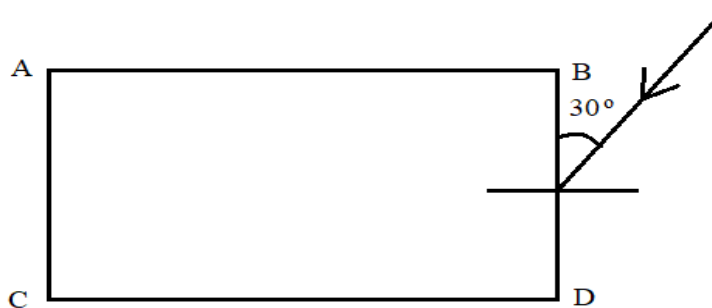
- (ii) The critical angle of the block. (2 marks)

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- (c) If the ray is incident on surface BD, as shown in the figure



- (i) Complete the diagram to show the path of light throughout the diagram. (2 marks)

- (ii) At what angle will the ray leave the block (2 marks)

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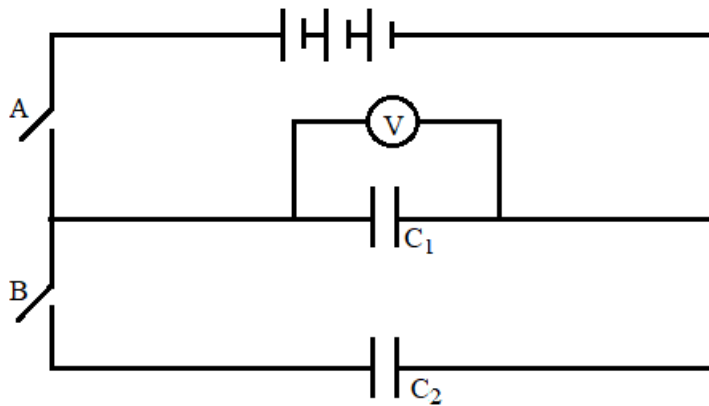
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17. The figure below shows a circuit where a battery of 4.5V, switches A and B, two capacitors $C_1 = 0.3 \mu\text{F}$ and $C_2 = 0.5 \mu\text{F}$ and a voltmeter are connected.



- (a)
- (i) Determine the charge on C_1 when switch A is closed and switch B opened. (2 marks)

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- (ii) What is the effective capacitance of the circuit (2 marks)

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- (b) What is observed in the voltmeter when;

- (i) Switch A is closed and switch B opened. (1 mark)

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(ii) Switch is closed and opened and then switch B is closed. **(1 mark)**

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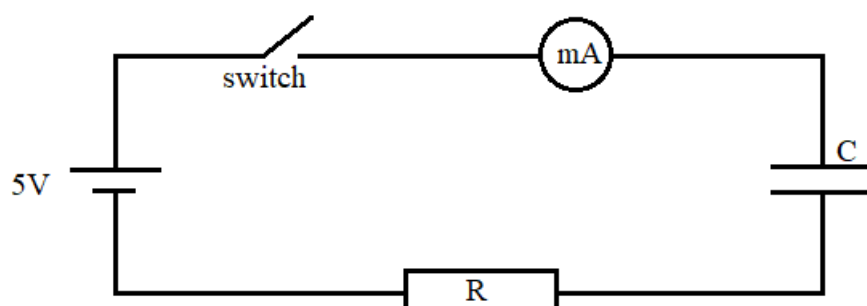
(iii) Explain the observation made in (b) (ii) above. **(2 marks)**

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(c) The following figure show a circuit consisting of a resistor that may be used to charge a capacitor.



(i) State the observation made on the milliammeter when the switch is closed. **(1 mark)**

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(ii) Explain the observation made in (c) (i) above. **(2 marks)**

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(d) The circuit in the figure is left on for some times. State the value of the Pd across

(i) Resistor R **(1 mark)**

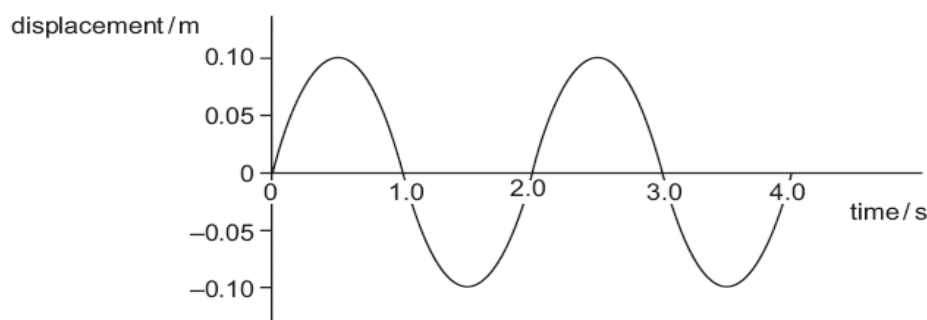
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(ii) The capacitor C

(1 mark)
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18. (a) distinguish between a transverse and a longitudinal wave

(2marks)
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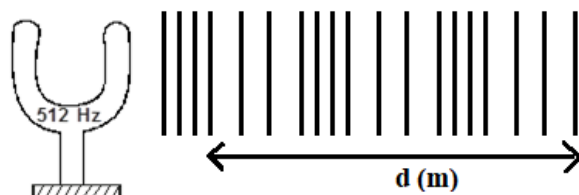
(b)The diagram shows how displacement varies with time as a wave passes a fixed point. Displacement in metres.



What is the frequency of this wave?

(2marks)
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(c)Figure below shows a tuning fork producing waves. The wave fronts are as in the diagram.



If the speed of sound in air is 330ms^{-1} . Determine the value of d.

(3 marks)

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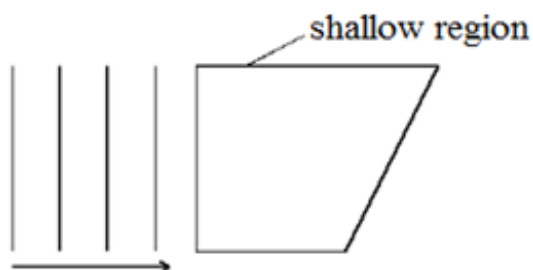
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(d) The figure below shows wave front in a ripple tank approaching a shallow region in the tank.



Complete the diagram to show the wave front as they pass over shallow region and after leaving the region. **(1 marks)**

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

SCHOOL.....CLASS.....

DATE.....

FORM 4 KCSE PREDICTION 3 EXAMS

PHYSICS PAPER 3

Kenya Certificate of Secondary Exams

TIME:2HRS

INSTRUCTIONS TO CANDIDATES:

- Write your **name** and **index number** in the spaces provided above.
- Sign and write the **date** of the examination in the spaces provided above.
- You are supposed to spend the first **15 minutes** of the **2 ½ hours** allowed for this paper reading the whole paper carefully before commencing your work.
- Marks are given for a clear record of the observation actually made, their suitability, accuracy and the use made of them.
- Candidates are advised to record their observations as soon as they are made
- Non-programmable silent electronic calculators **may be** used.
- Candidates should check the question paper to ascertain that all the pages are printed and that no questions are missing.

For Examiner's Use Only.

Question	Maximum score	Candidate's score
1	20	
2	20	
Total	40	

QUESTION 1

You are provided with the following

- A voltmeter
- Two dry cells and a cell holder
- A switch
- A resistor labelled R (3.9Ω)
- A wire mounted on a mm scale and labelled G
- A micrometer screw gauge (to be shared)
- Six connecting wires with six crocodile clips

Proceed as follows.

(a) Record the length L_0 of the wire labelled G

$L_0 =$

Use the micrometer screw gauge provided to measure the diameter of the wire labelled G at two different points and determine the average diameter, d

The diameter $d_1 =$ mm,

$d_2 =$ mm (1 mark)

Average diameter $d =$ mm (1 mark)

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Determine the radius r of the wire in metres. (1 mark)

Radius $r =$ m

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(b) Set up the apparatus as shown in the circuit diagram in figure 1.

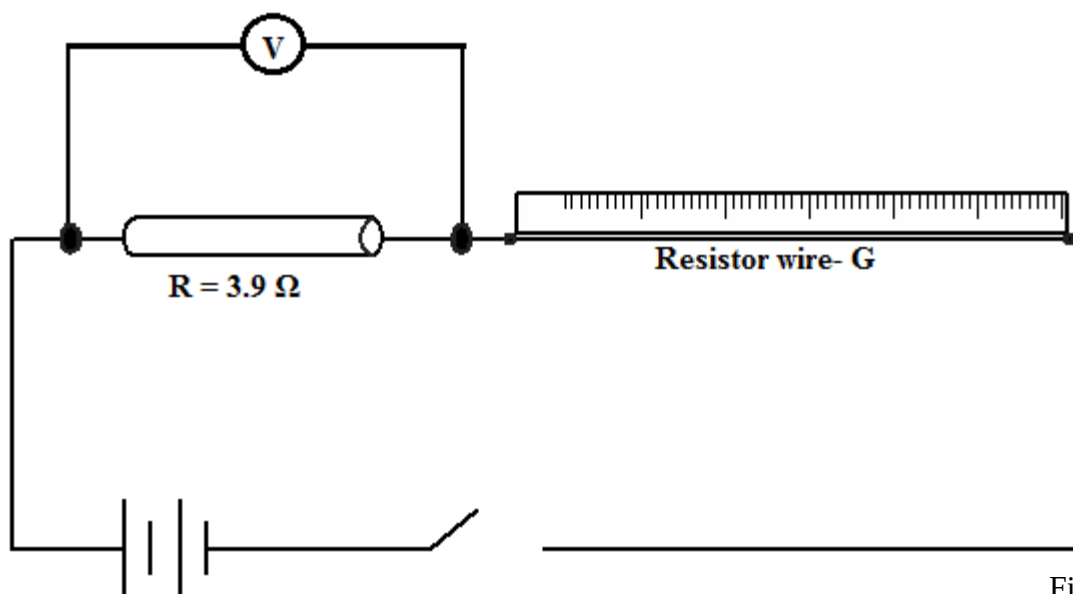


Fig 1

- (i) Use the voltmeter provided to measure the p.d. V_R across R and p.d. V_G across G when the switch is closed.

$V_R = \dots\dots\dots$ volts (1 mark)

$V_G = \dots\dots\dots$ volts (1 mark)

Open the switch

- (ii) Use the value of R provided and the value of V_R in b(i) above to calculate the current I flowing through R when the switch was closed. (1 mark)

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$I = \dots\dots\dots$ Amperes.

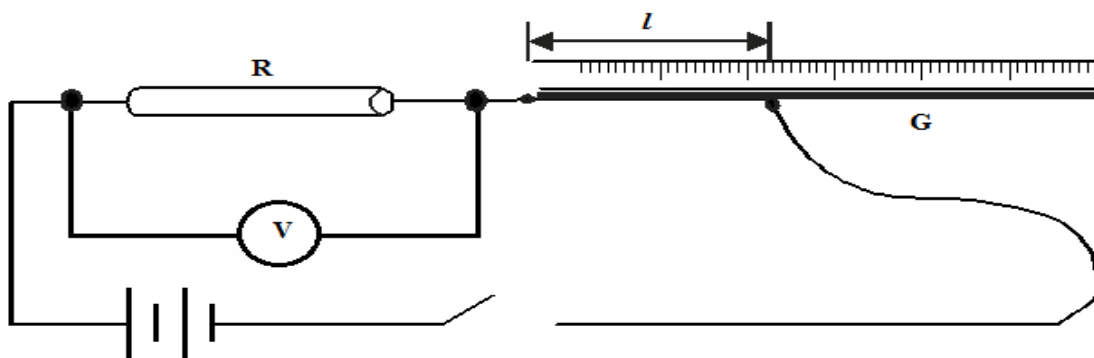
- (iii) Determine the constant H given that

$$H = \frac{100V_G}{1 \times L_O} \quad (1 \text{ mark})$$

.....

$H = \dots\dots\dots \Omega m^{-1}$

- (c) Connect the voltmeter across R as shown in figure 2 below.



Adjust the position of one crocodile clip on the wire G to a point such that the length in the circuit is 5cm (see figure 2 above) close the switch.

Read and record in table 1 the value of p.d. across R. Open the switch.

- (d) Repeat the procedure in (c) above for the other values of L shown in the table 1. **(3 marks)**

Table 1.

Distance L (cm)	0	2	10	20	30	40	50	70
p.d. V across RV								

- (e) i) On the grid provided next page, plot the graph of V(y-axis) against l. **(5 marks)**

ii) From the graph, determine l_1 , the value of l when $V = \frac{V_0}{2}$ where V_0 is the p.d. where $l = 0$

(1 mark)

- (f) Determine the constant D for the wire given that $D = \frac{R}{l_1} \times \frac{300}{V_0}$ **(2 marks)**

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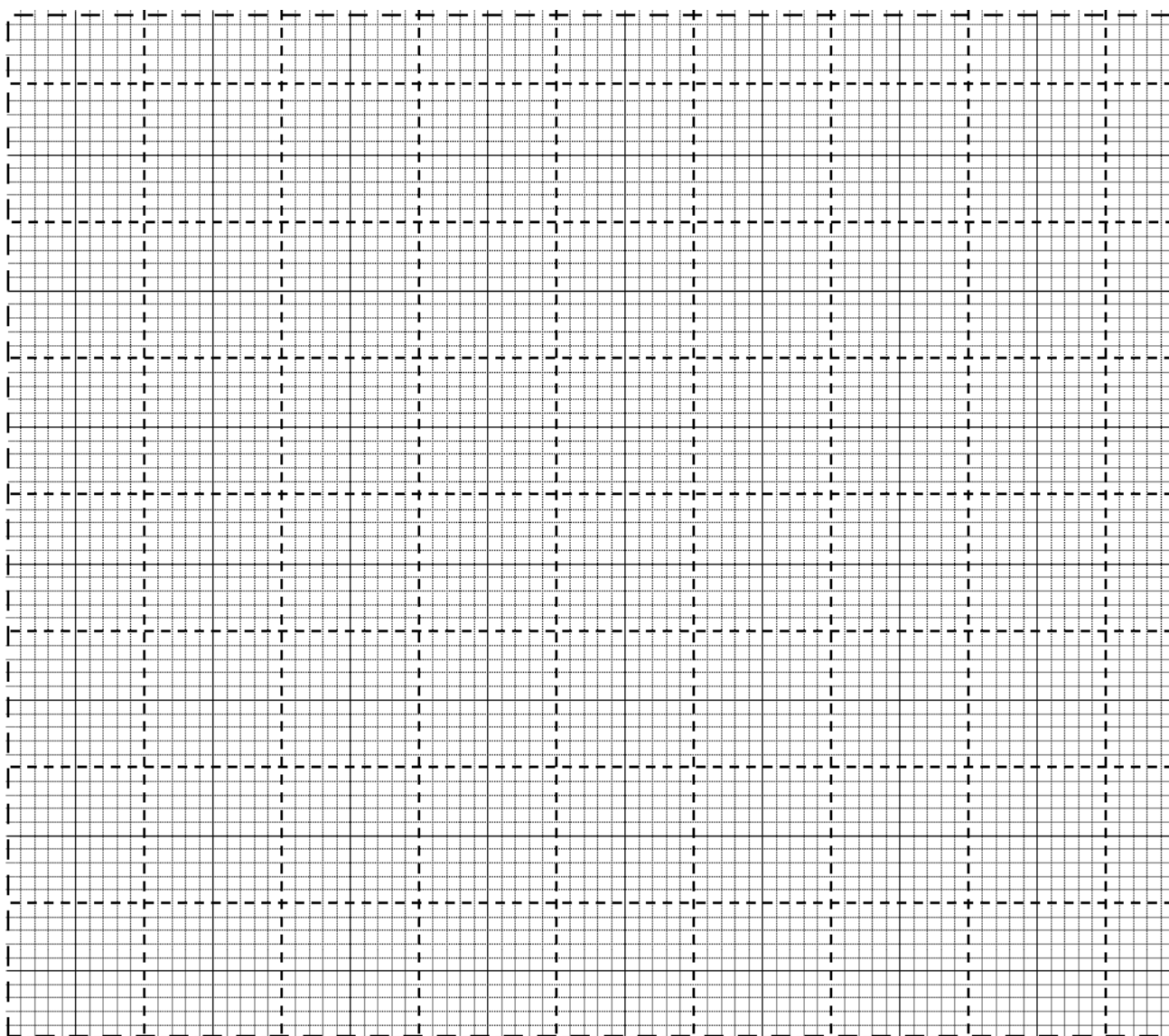
- (f) Determine the constant p given that $p = \frac{\pi r^2}{2} (D + H)$, where r is the radius of the wire in metres.

(2 marks)

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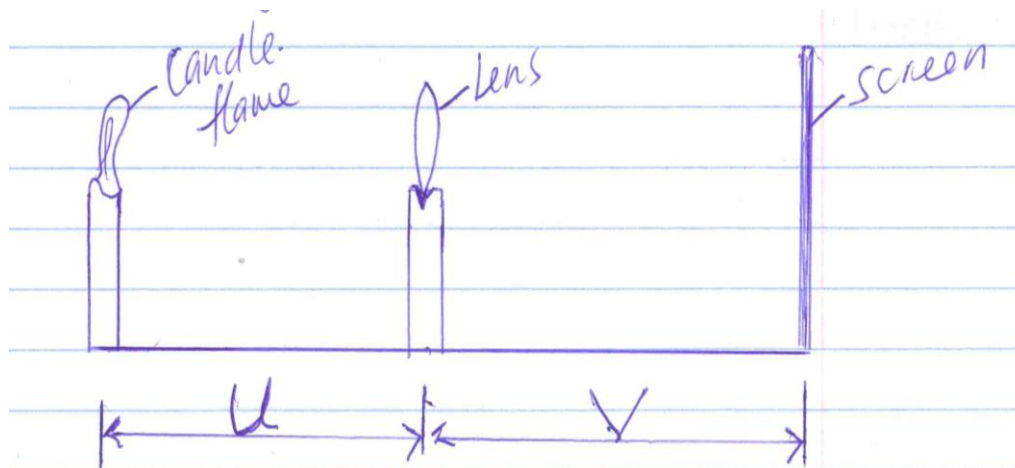
QUESTION 2

Section A

You are provided with the following

- A candle
- A lens and a lens holder
- A screen
- A metre rule

- a) Set up the apparatus as shown in figure below (ensure that the candle flame and the lens are approximately the same height above the bench)



- b) Set the position of the lens so that the 40cm from the candle ($U=40$). Adjust the position of the screen until a sharp image of the candle flame is obtained. Measure the distance, V between the lens and the screen. Record the value of V_1 (1mk)

$V = \dots\dots\dots$ (cm)

- c) Repeat the procedures in b) above for other values of U in the table b below.

Table b)

U(cm)	45	50	55
V(cm)			
Magnification (m) $\frac{v}{u}$			

- d) Given that $f = \frac{v}{m+1}$ where f is the focal length of the lens, use the results in table above to determine the average values of f . (4mks)

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PART B.

You are provided with the following:

- rubber bung.
- vernier calipers.
- beam balance.

Proceed as follows

a) Using a vernier caliper, measure the lengths D , d , and h as shown in **figure 2**.

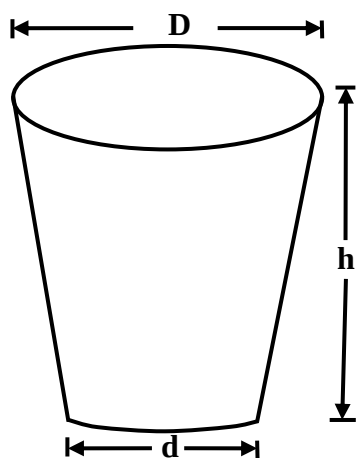


Figure 2

$D = \dots\dots\dots\text{m} \text{ (1 mark)}$

$d = \dots\dots\dots\text{m} \text{ (1 mark)}$

$h = \dots\dots\dots\text{m} \text{ (1 mark)}$

b) (i) Measure the mass, M of the rubber bung using the beam balance.

$M = \dots\dots\dots\text{kg} \text{ (1 mark)}$

(ii) Given that $Q = \left(\frac{d + D}{4} \right)$, determine the value of Q . **(1 mark)**

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.....
.....

M

h

(iii) Determine the value of r given that $\pi r Q^2 =$ (3mark)

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(iv) what are the units of r (1 mark)

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(v) what is the significance of r (1 mark)

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SECTION C

You are provided with the following

- a metre rule
- a retort stand, one boss, one clamp
- One 500ml beaker $\frac{3}{4}$ full of water
- One 100g mass
- One 50g mass
- 3 pieces of thread approximately 30cm long

Procedure

a) Balance the metre rule horizontally by suspending it from the stand and clamp with one of the threads.

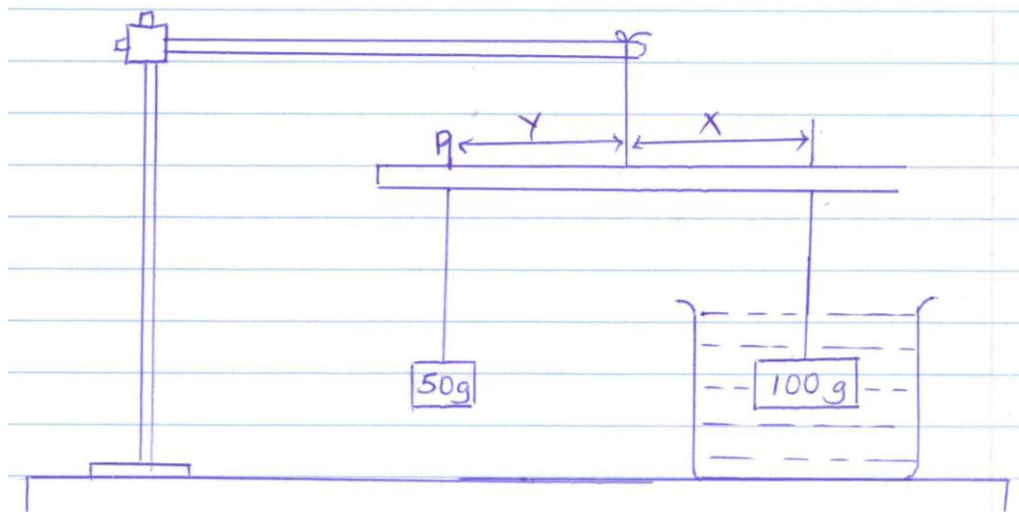
Record the balance point G

$G =$ cm(1mark)

b) suspend the 100g mass from the metre rule at a point such that $x = 5\text{cm}$ from point G , with the 100g mass completely immersed in water in the beaker hang the 50g mass from the metre rule.

Note the point of suspension (p) of the mass

$P =$(1mark)



c) Calculate the apparent weight of the 100 g mass in water.

(3mark)

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d) Find the upthrust of 100g mass in water.

(2marks)

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