BRILLIANT STUDENTS PRE-MOCK 1 EXAMS
ALL SUBJECTS TESTED

BRILLIANT STUDENTS PRE-MOCK 1 EXAMS

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INDEX NO: …… SIGN: …… DATE: ……

BRILLIANT STUDENT PRE-MOCK 1 EXAMS

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

443/1
AGRICULTURE
PAPER 1
2 HOURS

INSTRUCTIONS TO CANDIDATES

1. Write your name and date in the spaces provided above.
2. This paper consists of **three** sections **A, B,** and **C**.
3. Answer all the questions in section **A** and **B** any **two** questions from section C.
4. Answers should be written in the spaces provided.

FOR EXAMINERS USE ONLY

	Question	**Maximum score**	**Candidates score**
A	1 - 14	30	
B	15 - 18	20	
C	19 - 21	20	
		20	
Total score		**90**	

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SECTION A (30MARKS)

ANSWER ALL QUESTIONS IN THIS SECTION IN THE SPACES PROVIDED

1. State **four** disadvantages of extensive farming. (2 marks)

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2. State **four** human factors that lead to low crop production. (2 marks)

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3. State **four** characteristics of soil that influence crops planted. (2 marks)

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4. State **four** factors that influence the number of secondary cultivation. (2 marks)

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5. Mention **four** reasons for ridging in crop production. (2 marks)

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6. State **four** practices that encourage minimum tillage. (2 marks)

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7. (a) Name **three** non chemical methods of water treatment. (1½ marks)

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(b) State **four** advantages of trickle irrigation. (2 marks)

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8. State **four** importance of organic matter in sandy soil. (2 marks)

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9. Name **four** types of records kept by a poultry farmer. (2 marks)

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10. (a) Name **two** forms of nitrogen element is absorbed by plants. (1 mark)

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(b) Name any **two** methods of harvesting agro forestry trees. (1 mark)

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11. (a) State **four** importance of nursery practice in vegetable crop production. (2 marks)

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(b) Name **three** vegetative propagation material used to propagate pineapples. (1½ marks)

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12. State **four** effects of excessive application of nitrogen fertilizer on growing crops. (2 marks)

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13. State **four** cultural ways of controlling nematodes in a field of bananas. (2 marks)

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14. Distinguish between Pricking out and Rogueing. (1 mark)

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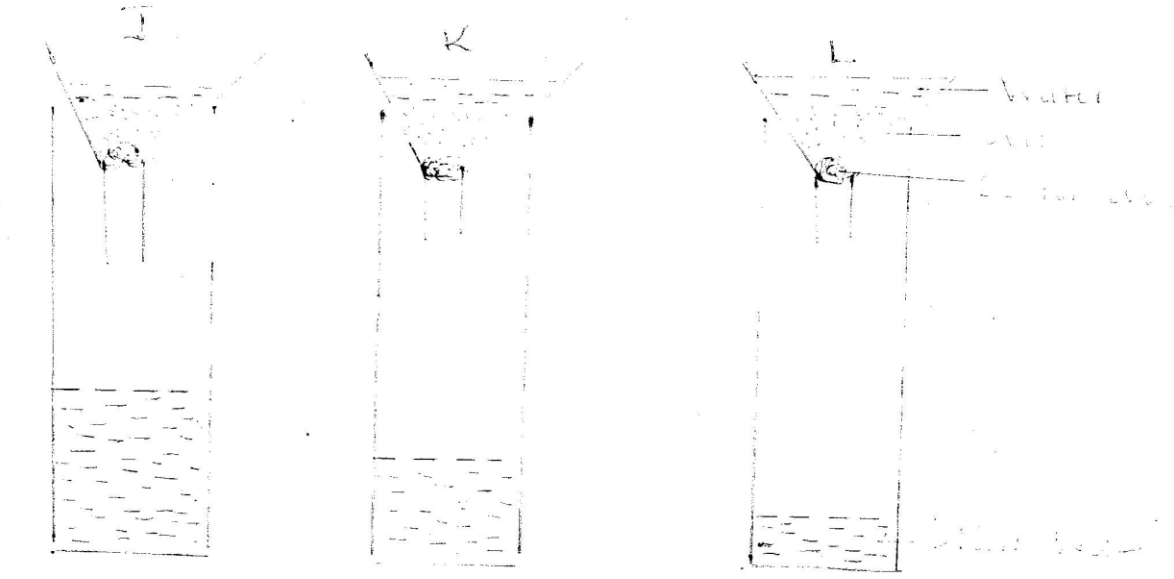
SECTION B: (20 MARKS)

ANSWER ALL THE QUESTIONS IN THIS SECTION IN THE SPACES PROVIDED

15. The diagram below illustrates an investigation on property of soil using soil samples labeled J, K, and L



(a) If the levels of water drained in the diagram were observed after two hours, name the property of soil being investigated. (1 mark)

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(b) What is the relationship between the soil property named in (a) above and the size of soil particles. (1 mark)

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(c) Which soil sample would be suitable for growing paddy rice? (1 mark)

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(d) Name the type of soil. (2 marks)

J ……

L ……

16. Use the diagrams below that show pruned plants after budding to answer the questions that follow



(a) Which diagram shows the correct pruning cut? (½ mark)

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(b) Explain why the other **three** cuttings are wrong? (1½ marks)

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(c) State **three** importance of pruning coffee. (3 marks)

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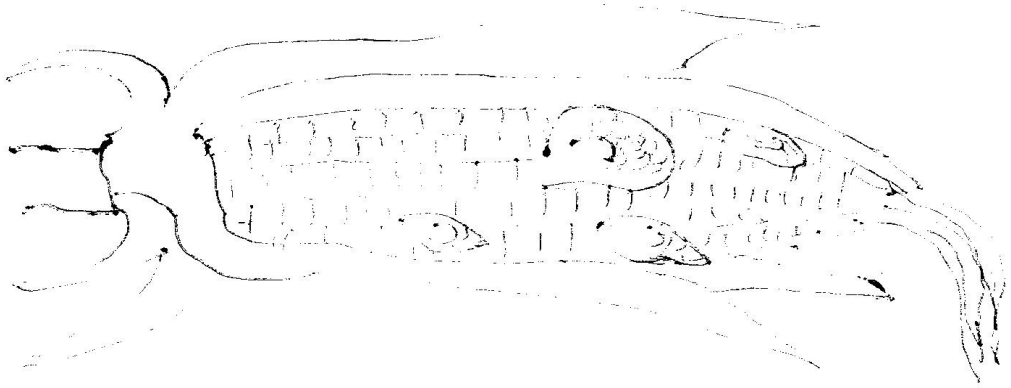
17. Use the diagram below that show maize cob attacked by a disease. Study it and answer the questions that follow.



(a) Identify the crop disease illustrated above. (1 mark)

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(b) A part from maize name other **two** crops attacked by the same disease. (2 marks)

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(c) State **two** control measure of the disease in (a) above. (2 marks)

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18. Below is a graph representing the law of diminishing returns. Study it carefully and answer the questions that follow.

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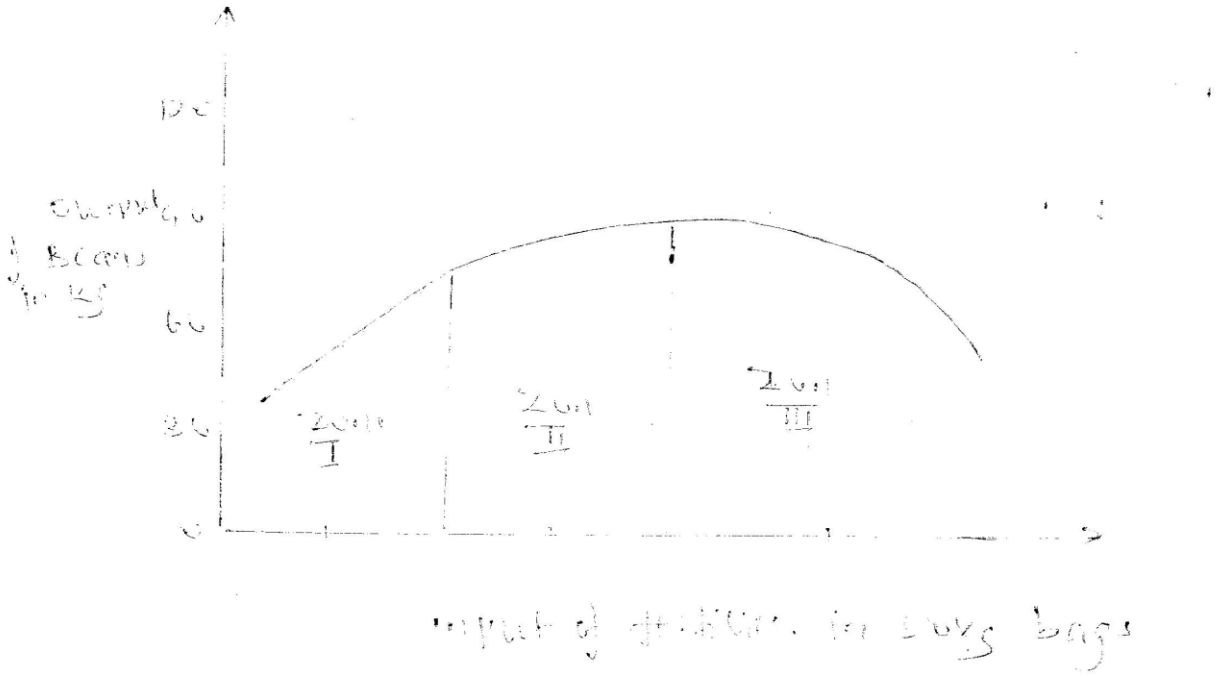

(a) Explain what would happen to each of the three zones marked I, II, and III in relation to fertilizer input to beans output. (3 marks)

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(b) Which is the rational zone among **three** zones and why? (2 marks)

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SECTION C: (40MARKS)

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Answer any two questions from this section in the spaces provided after question 21

19. (a) Describe **five** agencies involved in marketing of Agricultural products. (10 marks)

(b)Explain **six** practices carried out in the field that control maize diseases. (6 marks)

(c) State **four** importance of irrigation. (4 marks)

20. (a) Outline **five** farming activities which may encourage soil erosion. (5 marks)

(b) (i) Describe harvesting of cotton. (5 marks)

(ii) Explain the precaution during harvesting of sugarcane. (3 marks)

(c) Describe the production of carrots under the following sub-headings.

(i) Seedbed preparation (3 marks)

(ii) Field management (4 marks)

21. (a) Explain **seven** factors that influence seed rate during planting. (7 marks)

(b) Outline **five** factors necessary for proper functioning of farmers' co-operative societies in Kenya. (5 marks)

(c) Explain **8** ways farmers can overcome risks and uncertainties in a farming business. (8 marks)

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BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

443/2
AGRICULTURE
PAPER 2
2 HOURS

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the spaces provided above.
2. Sign and write the date of examination in the spaces provided above.
3. This paper consists of three sections, **A**, **B** and **C**.
4. Answer all the questions in sections **A** and **B**.
5. Answer any two questions from section **C**.
6. Answers should be written in the spaces provided.

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	Question	**Maximum score**	**Candidates score**
A	1 - 17		
B	18 - 22		
C	23 - 25		
	Total score	**90**	

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1. State four mechanical methods of controlling ticks. (4mks)

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2. Give two examples of feed addictives in cattle. (1mk)

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3. Name the mineral deficiently that causes each of the following condition in livestock.
   Grass stagger (Tetany) (1/2mk)

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   Milk fever/parturient parensis (1/2mk)

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4. Name two hormones produced in a lactating cow. (2mks)

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5. What is referred to as a ‘ Notifiable disease’ (1mk)

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b) Name four examples of notifable diseases in livestock. (2mks)

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6. Outline three pre-disposing factors of footrot disease in sheep.(1 ½ mks)

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7. List any four metal work tools and equipment used in the farm. (2mks)

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

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9. State four prophylactic measures used by a farmer to control livestock diseases. (2mks)

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10. Give three methods of feeding colostrums to newly born calves. (1 ½ mks)

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11. A) Define the term “zoonote disease.” (1mk)

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b) Give two examples of zoonote diseases. (1mk)

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12. List three advantages of hedges. (1 ½ mks)

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13. Why is it necessary to provide grit to birds? (1mk)

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14. State four good qualities of honey. (2mks)

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15. State two causes of soft shell in eggs. (1mk)

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16. Name three methods of livestock selection. (1 ½ mks)

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17. Name a tool used for tightening barbed wires during fencing. (1mk)

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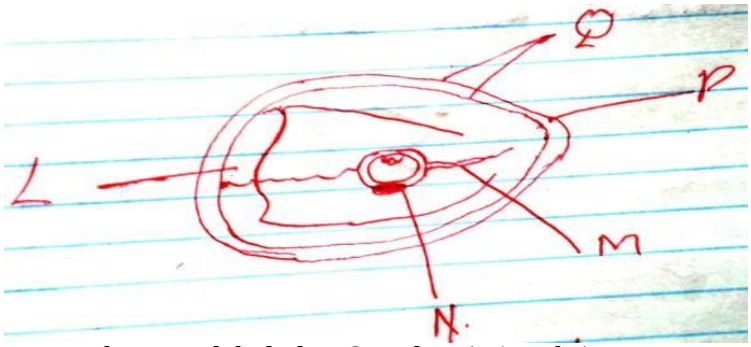
SECTION B. (Answer all the questions.)

18. Study the diagram of an egg below and answer the question that follow.



i) Name the parts labeled N,Q and P. (1 ½ mks)

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N ……..

Q …….

P ……..

ii) State the function of the parts labeled M and L. (1 ½mks)

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iii) Why should the egg be turned during incubation. (1mk)

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19. State four reasons of treating timber. (4mks)

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20. Below are the diagrams of workshop tools H, J and Q. Study them and answer the question that follow.

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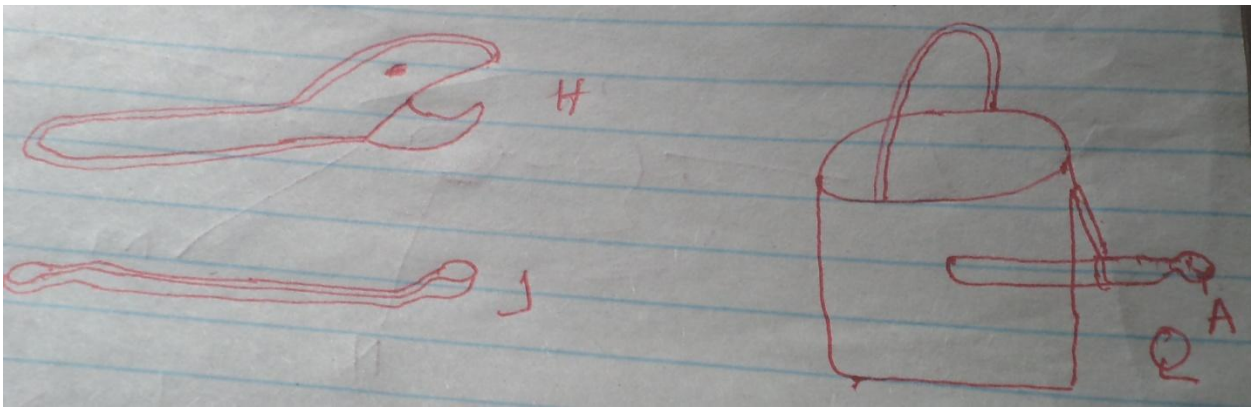

i) Identify each tool. (1 ½ mks)

H:……

J:……

Q:……

ii) What functional advantages does H have over J. (1mk)

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iii) Why is the part labeled H an important component of watering can. (1mk)

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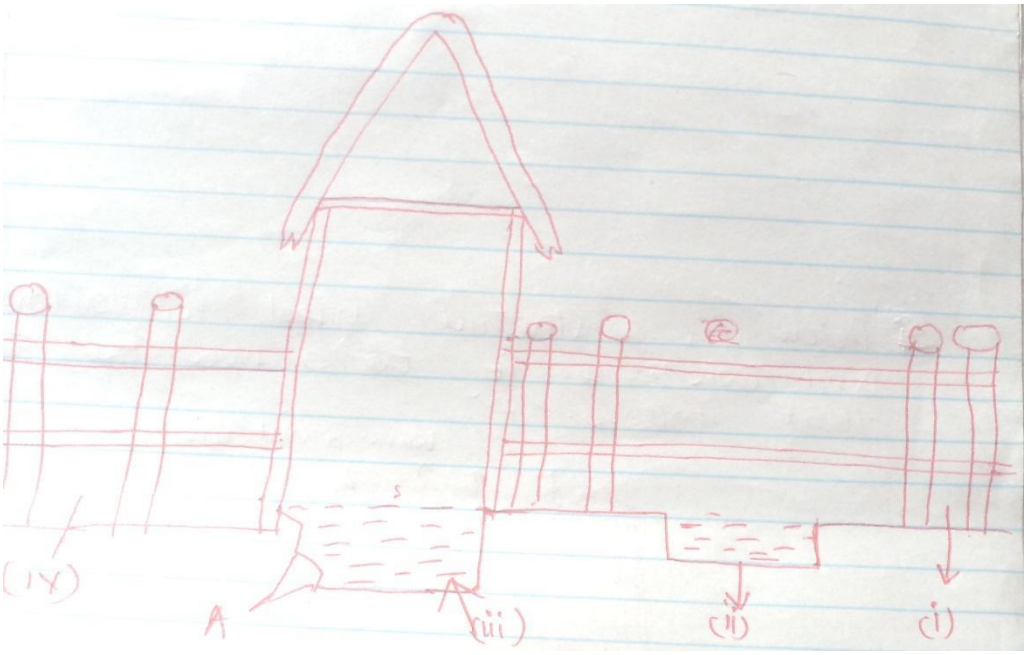
21. Below is a diagram of a certain farm structure. Use it to answer the questions that follow.



a. Name the parts labelled.

i. …….

ii. …….

iii. ……

iv. ……

b. Identify the part labeled A.(1/2 mk)

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c. Give the function of the part labeled A.(1/2 mk)

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d. State two maintenance practice carried out in part (ii) above. (2mks)

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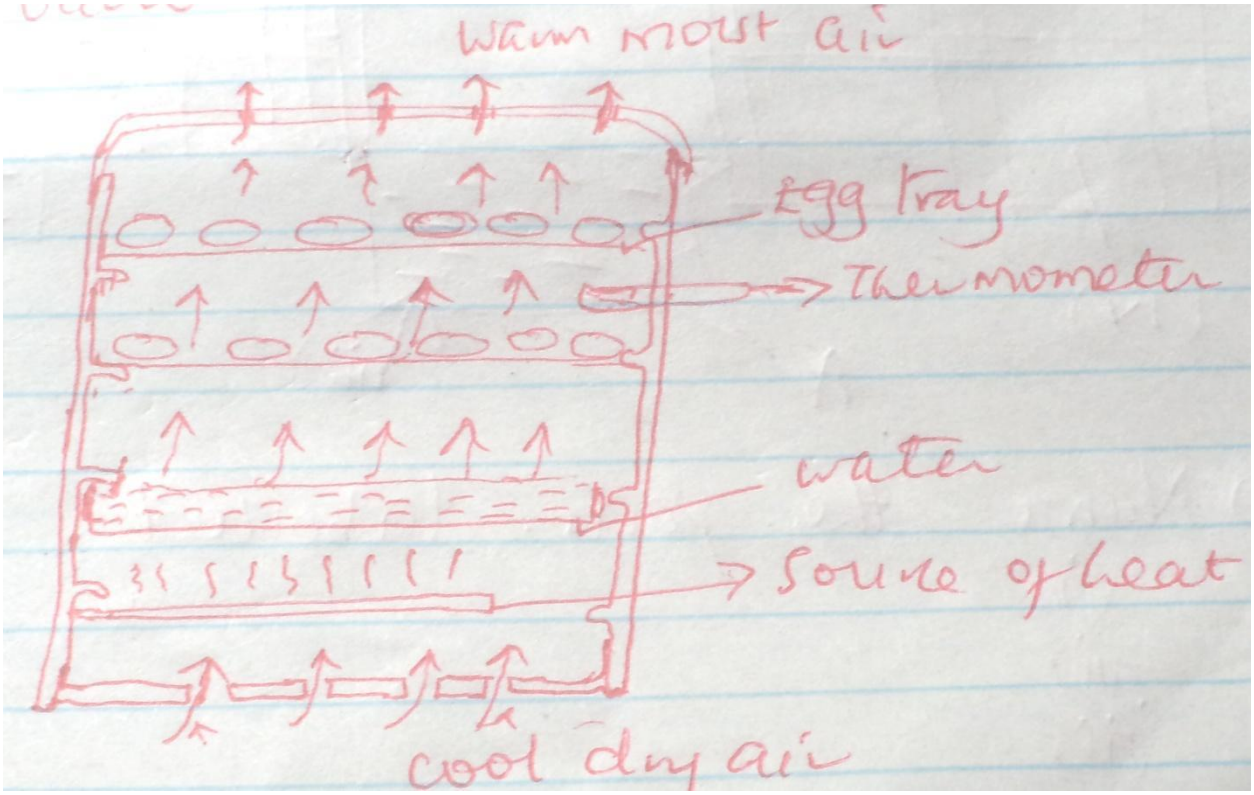
22. Below is a structure used in poultry production. Use it to answer the questions that follow.



a. Identify the structure. (1mk)

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b. State the main function of the structure. (1mk)

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c. Give the function of the following in the structure.

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Water (1/2 mk)

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Thermometer (1 /2 mk)

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SECTION C

Answer any two questions in this section.

23. A) Outline the use of fence in the farm. (10mks)

b) Discuss the tractor transmission system. (10mks)

24. A) Discuss foot and mouth disease under the following sub-headings.
Animal affected. (2mks)
Methods of transmission. (2mks)
Symptoms of attack. (4mks)
Control measures. (2mks)

b. Outline general control measures of livestock parasites. (10mks)

25. Outline the various methods of maintaining farm tools and equipment. (8mks)

b. Describe artificial rearing of layer chicks from day one to end of brooding. (12mks)

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SCHOOL: ……

INDEX NO: …… SIGN: …… DATE: ……

BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

BIOLOGY

PAPER 1

(THEORY)

TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

Write your **Name, Class** and **Adm no** in the spaces provided above.

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

FOR EXAMINER'S USE ONLY:

Question	Maximum Score	Candidate's Score
1 - 25	80	

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1. (a) Define the term 'parthenocarpy'. (1mk)

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(b) Name **two** plant growth hormones that promote parthenocarpy. (2mks)

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2. Name the organelle that performs each of the following functions in a cell

(i) Protein synthesis. (1mk)

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(ii) Transport of cell secretions. (1mk)

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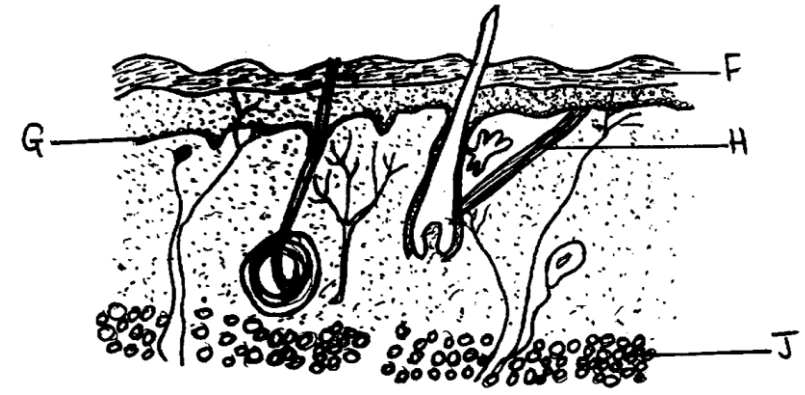
3. The diagram below shows a longitudinal section of mammalian skin.



a) Name the parts labelled **F** and **G.** (2mrks)

F _____

G _____

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b) State **one** function of each of the parts labelled **H** and **J** (2mrks)

H _____

J _____

4. Other than carbon (IV) oxide, name other products of anaerobic respiration in plants (2mks)

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5. (a) Name the fluid that is produced by sebaceous glands. (1mk)

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(b) State **two** functions of sweat on the human body. (2mks)

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6. (a) State **two** characteristics that are used to divide the phylum arthropoda into classes. (2mks)

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(b)Name the class with the largest number of individuals in the phylum Arthropoda. (1mk)

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7. Why are people with blood group O referred to as universal donors? (1mk)

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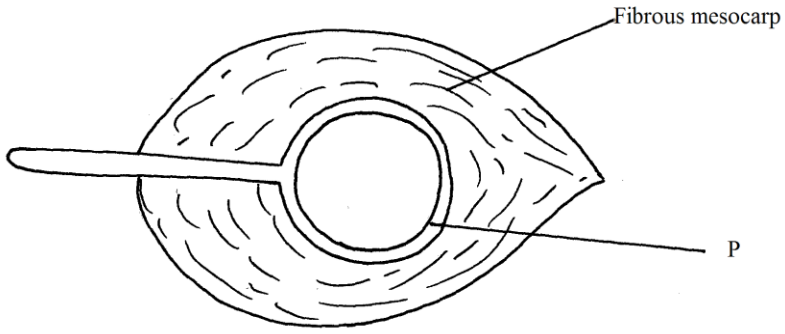
8. The diagram below represents a longitudinal section of a fruit



(a) Name structures labeled P (1mk)

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(b) Describe two adaptations of the fruit for its mode of dispersal (3mks)

(i) Mode of dispersal

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(ii) Adaptation

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9. (a) What causes the following diseases?

(i) Diabetes mellitus. (1mk)

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(ii) Diabetes insipidus. (1mk)

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b) An individual shows the symptoms for diabetes mellitus, how would you determine in the school laboratory whether they are positive for the condition? (3mks)

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10. In an attempt to estimate the number of weaver birds in a small woodland 435 were captured , marked and released. Three days later, 620 were captured 75 of which were marked.

a) What is the name of the sampling method described above? (1mk)

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b) Calculate the approximate size of the weaver bird population in the woodland. (2mks)

c) Give one disadvantage of this method. (1mk)

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11. Identify the nucleic acid whose base sequence is shown below.

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

i) Identify the type of nucleic shown above (1mk)

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

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iii) Write the base sequence of a DNA strand for the nucleic acid shown above (1mk)

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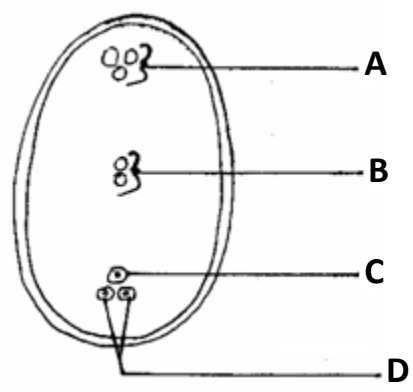
12. The diagram **below** shows a mature embryo sac of a flowering plant.



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(a) Name the parts labeled **A** and **B** (2mks)

A_____

B_____

(b) What is the function of the structure labeled B? (1mk)

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13. (a) Name the tissues that transport water in plants. (1mk)

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(b) State why the tissue above is said to be dead. (1mk)

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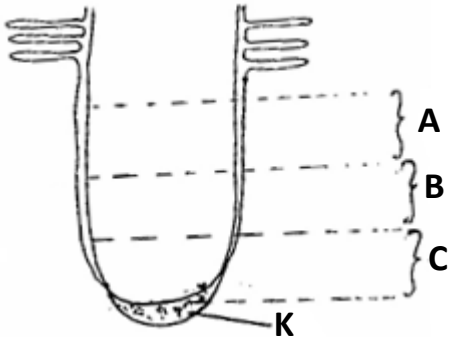
14. The diagram **below** shows regions of growth in a root. Study it and answer the questions that follow.



(a) Name the zone labeled **B** (1mk)

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(b) State the function of part **K** (1mk)

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(c) State three characteristics of the cells found in zone **C** (3 mks)

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15. The enzymes pepsin and trypsin are secreted in their inactive forms. Explain why they are secreted in these inactive forms. (1mk)

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16. (a) Give two examples of natural selection in action. (2mk)

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b) List three features that make man the most dominant species on earth. (3mks)

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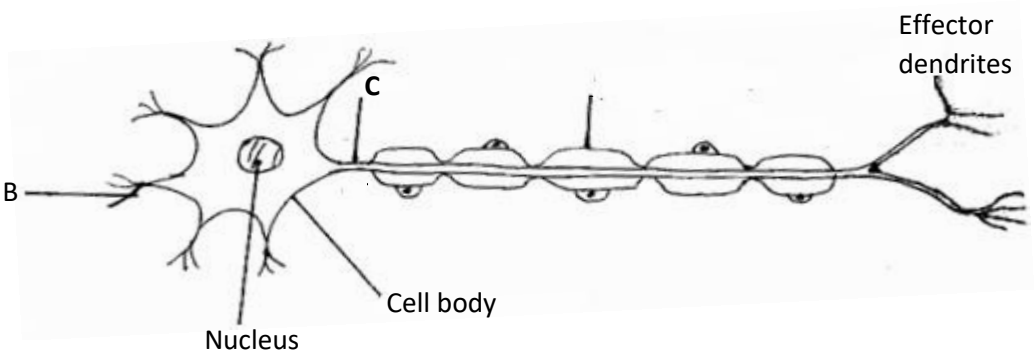
17. Study the diagram **below** of a neurone in human being.



(a) Identify the neurone. (1mk)

……

……

(b) Name the parts labeled.

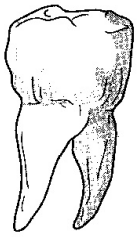
A _____ (1mk)

B _____ (1mk)

(c) Using an arrow indicate the direction of movement of a nerve impulse along the neuron (1mk)

(d)

18. Study the diagram of the mammalian tooth **below** and answer the questions that follow.



(a) Identify the tooth. (1mk)

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(b) Give a reason for your answer in (a) above. (1mk)

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(c) State **one** adaptation of the tooth to its function. (1mk)

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19.a) Name the part of the brain that regulates breathing (1mk)

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b) Give two ways through which the body responds to increased concentration of carbon (IV) oxide in the blood (2mks)

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c) Name the structures in pneumatophores through which gaseous exchange occurs. (1mk)

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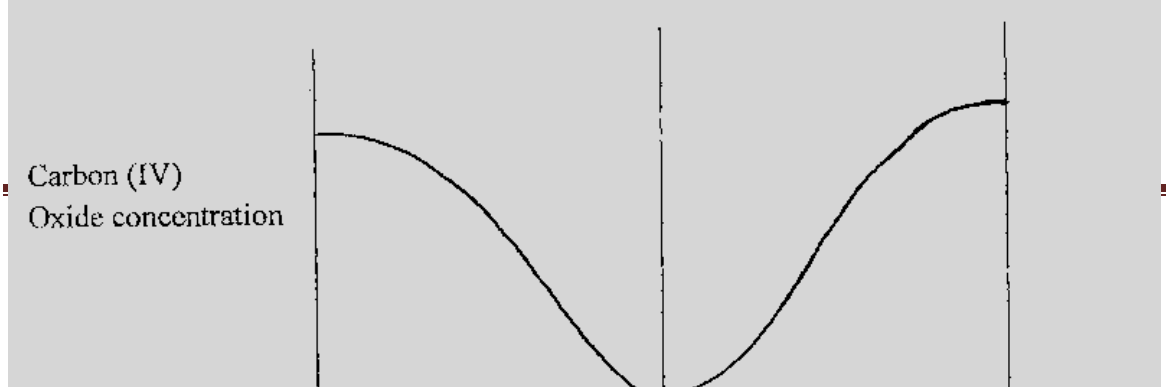
20. The concentration of carbon (IV) oxide in a tropical forest was measured during the course of 24 hours period from mid-night to mid-night.



Account for the results obtained at mid day. (2mks)

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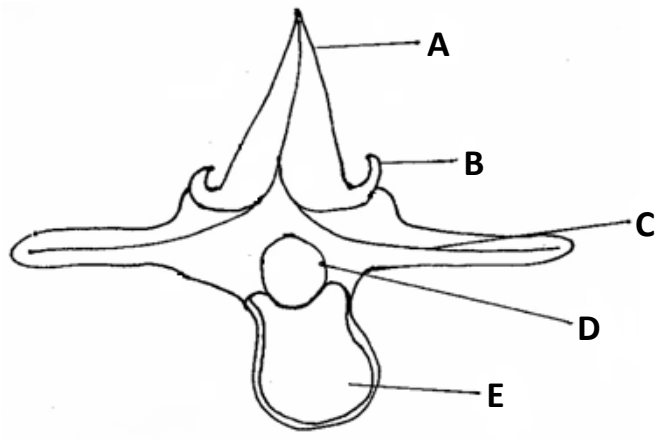
21. The diagram **below** represents the anterior view of a certain vertebra.



(a) With a reason, identify the type of vertebra shown **above**. (2mks)

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……

……

(b) Name the parts labeled.

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(i) **A**_____ (1mk)

(ii) **D** _____ (1mk)

(c) State the function of part **E**. (1mk)

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22. (a) State one similarity between diffusion and osmosis (1mk)

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(b) State two factors that can reduce the rate of active transport (2mks)

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23. Study the diagram below and use it to answer the questions.

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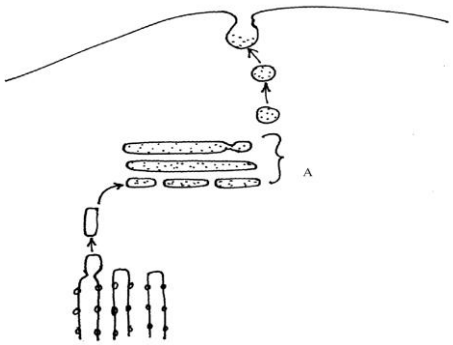

a) Identify the organelle marked A. (1mk)

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b) Give three functions of the organelle named in (a) above (3mks)

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24. It was found that during germination of pea seeds 9.3cm^3 of carbon (iv) oxide was produced while 9.1cm^3 of oxygen was used up.

a) Calculate the respiratory quotient (RQ) of the reaction taking place. (2mks)

b) Identify the type of food substance being metabolized. (1mk)

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25. What is the biological importance of the larval stage during metamorphosis (2mks)

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NAME: ……..……..……

SCHOOL: ……

INDEX NO: …… SIGN: …… DATE: ……

BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

231/2
BIOLOGY
PAPER 2
TIME: 2 HOURS

- *Write **your name** and **index number** in the spaces provided.*
- *Answer **all** the questions in Section **A** in the spaces provided.*
- *In section **B** answer questions **6** (compulsory) and either question **7** or **8** in the spaces provided*

For Examiner's Use Only:

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**	

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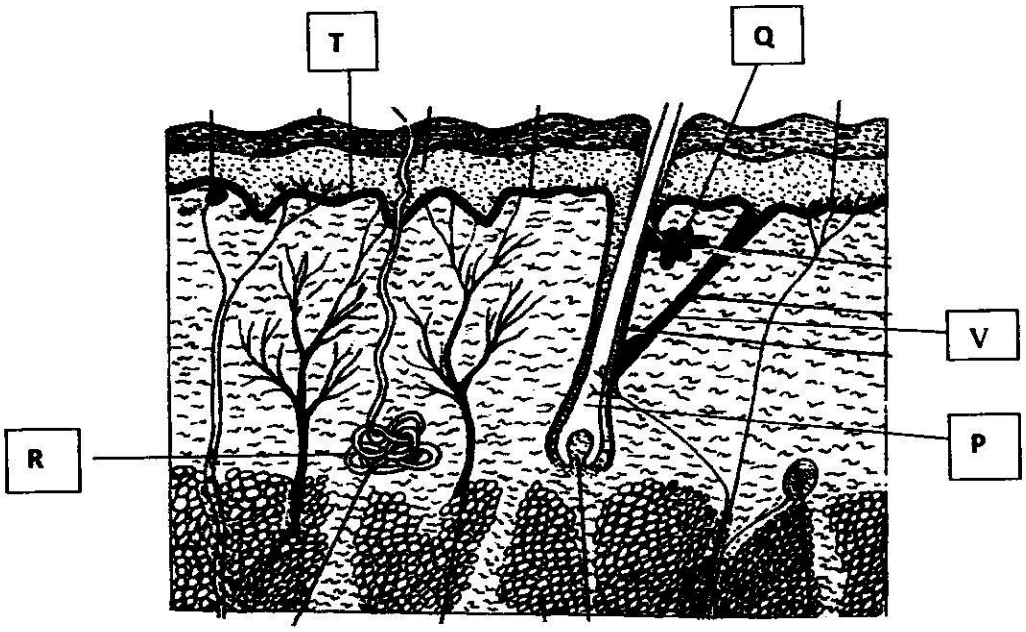
SECTION A (40 Marks)

1. Below is a diagram of a mammalian skin, use it to answer the questions that follow.



a) Name the parts labelled P, Q, R (3mks)

P:……..

Q:……

R:……

b) Give the function of the parts labelled Q and T (2mks)

Q:……

T:……

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c) Briefly explain how the part labelled R contribute to lowering of body temperature on a hot day. (2mks)

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d) Give **one** function of the mammalian skin other than thermoregulation. (1mk)

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2. Form two students subjected an orange plant growing outside the laboratory to the Following;

i) Selected two sized leaves and gently brushed them clean on both sides.

ii) Placed two strips of dry cobalt chloride paper on both sides of each leaf and opposite each other and covered the cobalt chloride papers with cello tape. They observed the time taken for any colour change to occur and recorded the following.

Side of leaf	Upper epidermis	Lower epidermis
Time taken	5 minutes	2 minutes

Use the above information to answer the following questions.

a.i) What was the aim of the above experiment. (1mk)

……
……

ii) What was the purpose of brush cleaning the leaf (1mk)

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iii) What was the role of cello-tape in this experiment? (1mk)

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b.i) What was the original colour of dry cobalt chloride paper. (1mk)

……

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ii) What colour change did the students observe? (1mk)

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c. Explain the difference in time taken for the colour change observed. (3mks)

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3. Red-green colour blindness is controlled by a sex-linked gene. The allele for normal sight is represented by letter C and of colour blindness is represented by letter c. A carrier female is married to a colour blind male.

a) What is sex linked gene? (1mk)

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……

b) Write down the genotype of the parents. (2mks)

……

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……

……

c) Work out the F1 genotypes. (4mks)

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d) What is the percentage of colour blind sons in all the male offspring's (1mk)

……

……

4. The photographs below are of organisms resting on different environmental backgrounds. Observe them and answer the questions that follow;



A B

a) Name the aspect of evolution depicted in the photograph (1mk)

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b) Explain the phenomenon. (4mks)

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c) How do we refer to this concept mentioned in (b) above. (1mk)

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d) State any four other evidences of the phenomenon in (a) above in the modern World. (2mks)

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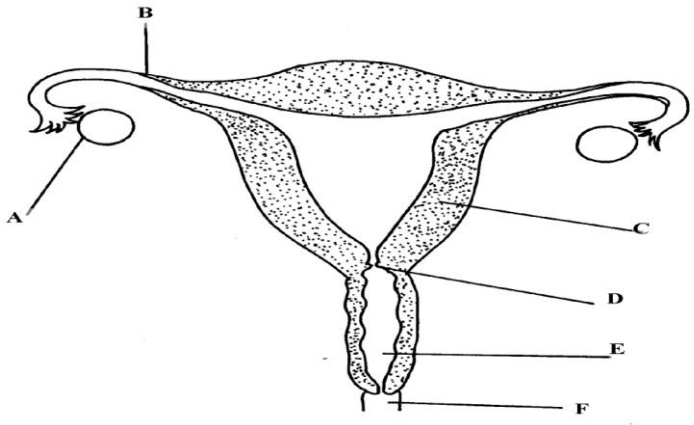
5. The diagram below represents female reproductive system;



a) Name the part labelled A, B, C and D (4mks)

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b) State two functions of structure A (2mks)

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c) How is part C adapted to its function? (1mk)

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d) Of what significance is part E to reproduction? (1mk)

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SECTION B (40 Marks)

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

6. A research was carried out to determine the trend of growth for some boys and girls. Their average mass in kilograms was taken separately for a period of 20 years and tabulated as shown in the table below.

Age	Average Mass of boys	Average mass of girls (kg)
0	2.5	2.5
2	11.1	11.5
4	15.0	16.0
6	18.5	19.3
8	22.1	27.1
10	25.1	27.1
12	27.5	30.5
14	37.0	35.5
16	44.0	44.0
18	46.9	52.5
20	48.5	55.0

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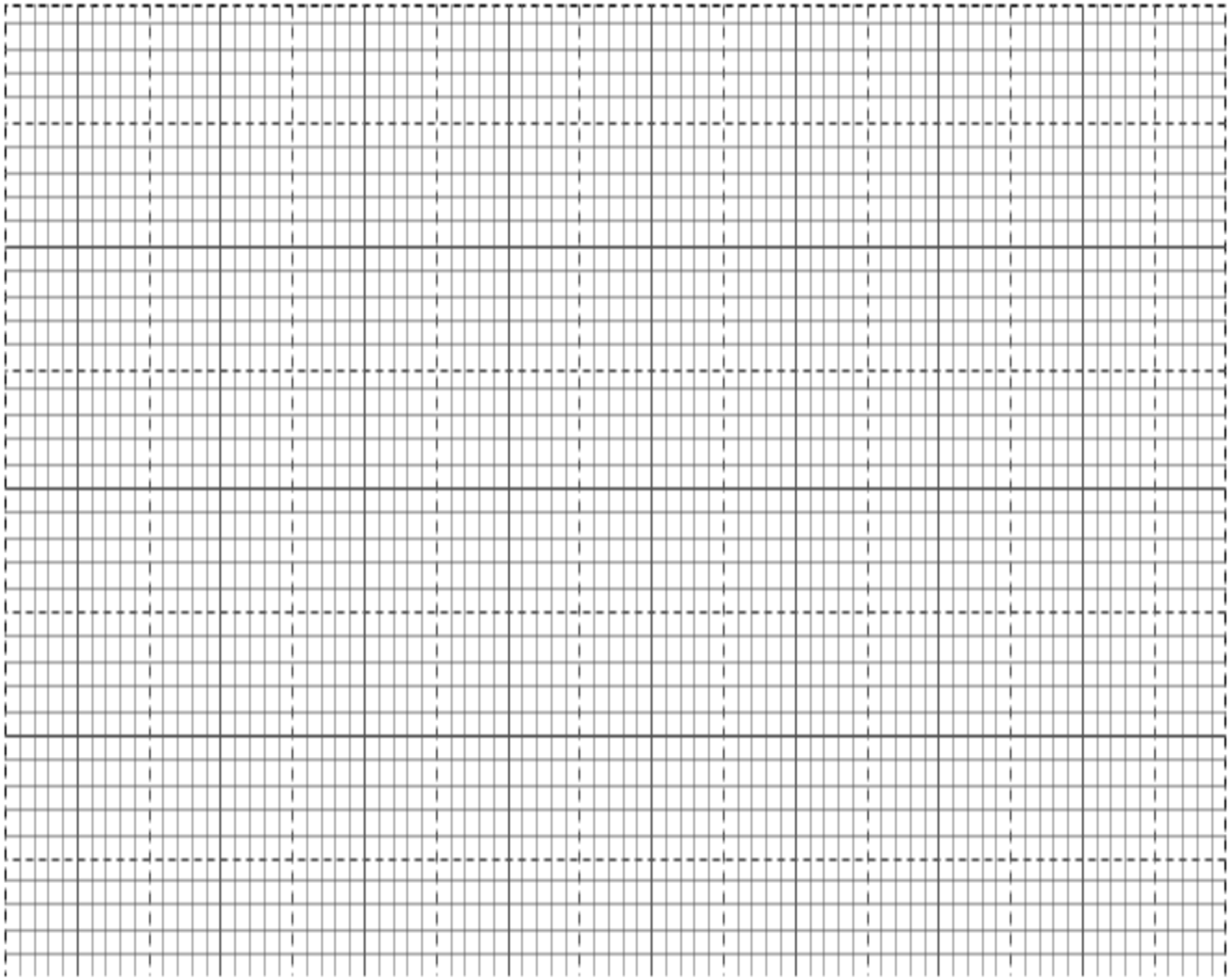
a) On the same axis draw a graph of average mass of girls and of boys against the age.
(7mks)



b) From the graph , determine the;

i) Mass for boys at age of 11 years. (1mk)

……

……

ii) Growth rate in girls between ages 13 and 15 (3mks)

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c) Account for the change in the mass of girls during the age stated in (ii) above. (2mks)

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d) Explain the trend observed in the curves for both boys and girls. (2mks)

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e) Why do girls above 10 years require intake of food that is richer in iron than boys of the same age. (1mk)

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f) Mention two other factors apart from the diet that affect the rate of growth in boys and girls. (2mks)

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g) Apart from using average mass to estimate growth in human beings, name two other parameters that can be used. (2mks)

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7. Explain how the following plants are adapted to their habitats.

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a) Xerophytes (14mks)
b) Halophytes. (6mks)
8.a) Describe the mechanism of inhalation in man. (8mks)
b) State **three** factors affecting breathing rate in human beings. (6mks)
c) Describe how the brain regulates breathing. (6mks)

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NAME: ……..……

SCHOOL: ……

INDEX NO: …… SIGN: …… DATE: ……

BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

Kenya Certificate of Secondary Education

231/3

BIOLOGY

Paper 3

(Practical)

1 3/4 Hours

- Write your name, Index Number , class in the spaces provided above
- Write the date of examination in the space provided above
- Answer ALL the questions

- **FOR EXAMINER'S USE ONLY**

QUESTION	SCORE	CANDIDATES SCORE
1	12	
2	15	
3	13	
TOTAL	**40**	

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1. a)You are provided with specimen labelled Q. Remove the endosperm and crush using a motor and pestle. Add distilled water and obtain a solution. Decant the mixture to obtain solution Q1. Using the reagents provided, test the food present in solution Q1. (8marks)

Food	**Procedure**	**Observation**	**Conclusion**

b) Account for your observation in (a) above (3marks)

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c) Name the type of germination represented in the specimen above (1 mark)

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2. a). You are provided with a photograph with part of human skeleton. Use it to answer questions that follow.

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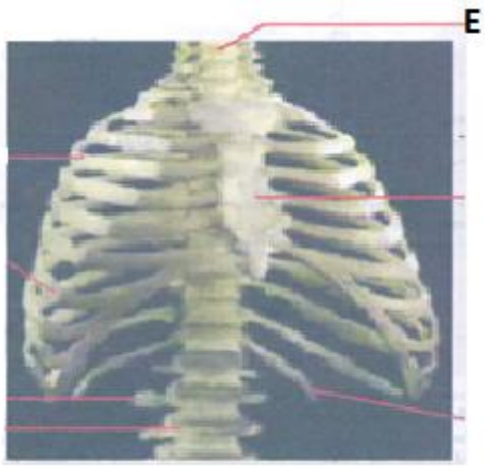

i) Name the first vertebra labelled E and state how it is adapted to its function. (4marks)

Name: ……

Adaptations

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ii) Name the structure in the skull that articulates with the vertebra E (1mark)

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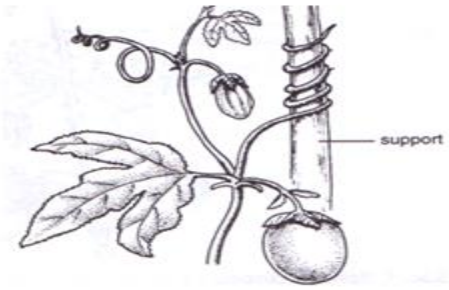
(iii) Below are two photographs of plants.



M



R

(a) Identify support structures used by the plants in photographs M and R shown above.
(2marks)

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(b) Other than the structures illustrated above, name any one support structure in herbaceous plants.
(1 mark)

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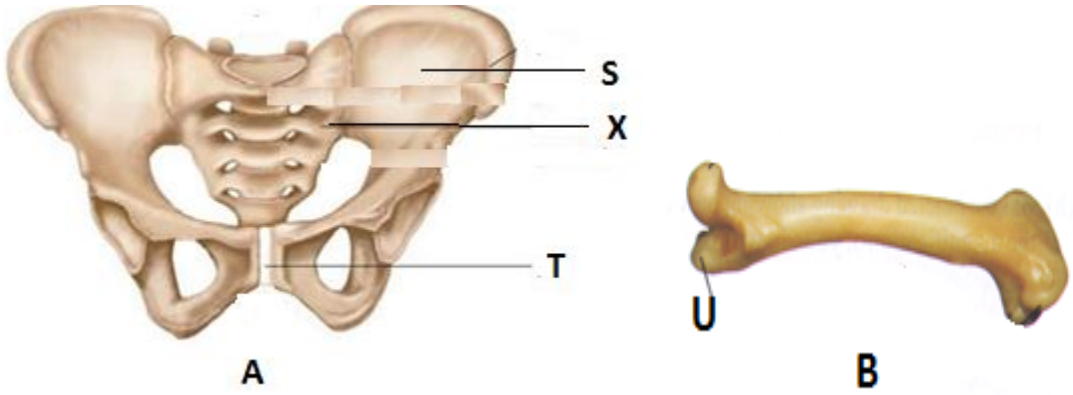
b) The photographs below represent some skeletal materials obtained from a certain mammal.

Study them then answer the questions that follow.



i) Identify fused bone labelled X (1mark)

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……

ii) Name parts S and T on photograph A and part U on photograph B (3mrks)

iii) Name the type of joint formed at the proximal and distal end of bone B (2marks)

Proximal end…..……

Distal end……...

iv) Name the type of joint found in structure labelled X (1mark)

……

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3. a).You are provided with specimen labelled P. Using a sharp scalpel, cut the specimen longitudinally to obtain two halves. Draw a large well labelled diagram of one of the sections obtained. (5marks)

b) i) Identify the agent of pollination of the above specimen (1mark)

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ii) Give three reasons for your answer above (3 marks)

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iii) Describe the floral parts of specimen P (4mark)

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NAME: ……..……

SCHOOL: ……

INDEX NO: …… SIGN: …… DATE: ……

BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

Kenya Certificate of Secondary Education
565/1
Paper 1
BUSINESS STUDIES
2 HOURS

Instructions

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

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

16	17	18	19	20	21	22	23	24	25	
									TOTAL	

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1. Highlight **four** reasons why public relations is a popular way of product promotion among banks. (4mks)

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2. Mention **four** non-tax internal sources of revenue to the government. (4mks)

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3. Outline **four** measures that an employer can put in place to improve the performance of her human resource. (4mks)

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4. State whether each of the following transactions will increase, decrease or have no effect on the Balance Sheet totals (4mks)

Transaction	Effect on Balance sheet totals
a) Sold a private car and deposited the money in business bank account	
b) Withdrew money from bank for office use	
c) Paid Mr. Kimeli, a creditor in cash	
d) Purchased a Motor car by cheque	

5. Highlight **four** conditions that must be met in order for an insurance contract to be valid. (4mks)

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6. Enter the following transactions in the relevant book of original entry (4mks)

2014 June 1. Made cash purchases worth sh. 25,000

,, 5. Paid sh.38,000 by cheques in full settlement of a debt owed to Kibogong after deducting a 5% cash discount.

,, 12. Bought stationery and paid by cash sh.19,000.

,, 19. Settled a debt of sh.90,000 owed to Yatich stores by cheque after deducting a 3% cash discount.

,, 28. Paid the month's salaries of sh 80,000, by cash, sh. 30,000 and the balance by cheques.

7. Outline **four** ways which the government can use to influence the supply of maize in Kenya. (4mks)

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8. Outline **four** negative effects of inflation to an economy. (4mks)

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9. Highlight **four** benefits enjoyed by a holder of a credit card (4mks)

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10. The following balances relate to the business of Roba Traders during the period ended 31st March 2014.

	Shs.
Cash at bank	680,000
Premises	500,000
Machinery	175,000
Creditors	190,000
Furniture	85,000
Motor van	200,000
Cash in hand	50,000

Extract the trial balance of Roba Traders as at 31st March 2014. (4mks)

11. Highlight **four** circumstances under which air transport can be preferred to transport goods from one place to another. (4mks)

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12. Study the following document used in home trade.

SIRO TRANSPORTERS CO. LTD SIRO BUILDING, OLOO STREET, NANDI ROAD P.O BOX 100, ELDORET
SUPPLIER'S NAME & ADDRESS BUYER'S NAME & ADDRESS
HANDLING INFORMATION

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QUANTITY	DESCRIPTION	WEIGHT(KGS)	COMMODITY /ITEM NUMBER	TOTAL

TRANSPORT CHARGES PAID ……

SIGNATURE OF TRANSPORT CO. SIGNATURE OF SELLER

…… ……

DATE …… DATE ……..

I.Name the document shown above **……**(1mk)

II.Name two uses of the document (2mks)

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13. List **four** costs incurred by intermediaries in the chain of distribution (4mks)

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14. Prepare ledger accounts from the following transactions relating to Tito Traders for the month of January 2015 (4mks)

January 5th sold goods for Shs 20,000 cash

10th bought furniture for Shs 50,000 on credit from Jamwal Traders

21st Paid Shs 10,000 cash to Jamwal traders

21st Returned furniture worth Shs 6,000 found damaged to Jamwal Traders

15. Highlight any **four** features of time deposit account (4mks)

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16. Name **four** commercial services that facilitate trade. (4mks)

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17. The following balances were extracted from the books of Njoro Traders for the period ended 31st December 2013

	Ksh.
Gross profit	10,000
Salaries	2,000
Commission income	4,000
Rent received	3,000
Electricity	2,000
Carriage outwards	4,000

Prepare a profit and loss account (4mks)

18. Highlight **four** factors that determine the National income of a country. (4mks)

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19. Highlight **four** causes of demand pull inflation (4mks)

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20. Outline **four** ways in which the problem of scarce resources can be addressed by a consumer. (4mks)

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21. Highlight **four** ways in which local resources can be managed to alleviate unemployment problems in Kenya. (4mks)

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22. Outline **four** factors that comprise a negative internal environment in a business. (4mks)

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23. The following information relates to Waruhio Traders as at 31st December 2011.

Waruhio Traders
Balance Sheet
As at 31st December 2011

Fixed Assets:	Shs.		Sh.
Furniture	203,000	Capital	359,000
		Plus Net profit	114,000
Current Assets:			473,000
Stock	174,000	Less Drawings	73,000
Debtors	113,000		400,000
Cash at Bank	53,000	Short term liabilities:	
		1 year Loan	79,000
		Creditors	64,000
	543,000		543,000

a) Calculate the total current assets. (1mk)

b) Determine the capital owned. (2mks)

c) Calculate the working capital (1mk)

24. Given below are functions of office equipment. Identify the name of the equipment against the rightful use. (4mks)

Functions of the Machine	Office Equipment
Used in posting information to ledgers and prepar payrolls	
To transmit printed messages such as photograph letters, and maps	
Usually fire proof where important documents in a organization are stored	
Used to carry out many functions such as storing information, typing and performing complex calcu	

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25. Outline **four** factors that may give rise to monopoly power in an economy. (4mks)

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NAME: ……..……..……

SCHOOL: ……

INDEX NO: …… SIGN: …… DATE: ……

BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

Kenya Certificate of Secondary Education

BUSINESS STUDIES

Paper 2

2½ hours

Instructions to candidates

- *This paper consists of **six** questions*
- *Answer any **five** questions*
- *All questions carry equal marks*
- *Write your answers in spaces provided.*

For Examiner's Use Only

Question	Maximum score	Candidate's Score
1	20	
2	20	
3	20	
4	20	
5	20	
6	20	
TOTAL SCORE		

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1. (a) Explain **five** positive effects of inflation to the economy. **(10 marks)**

(b) Give **five** distinguishing features between co-operative societies and partnership. **(10 marks)**

2. (a) Using a well labeled diagram explain the effects of increase in supply of a Commodity on its market equilibrium **(10 marks)**

(b) Kenya, just like all other developed countries, prepares short, medium and long term development plans. Explain **five** factors that may hinder the formulation of a good development plan in Kenya. **(10marks)**

3. (a) Discuss **five** monetary policies that are used by the Central Bank of Kenya to Influence the amount of money in circulation in the economy **(10 marks)**

(b) On 1st January 2017, Majengo traders had ksh. 240,000 cash in and Bank credit balance of kshs 270,000. During the month, the following transactions took place. **(10 marks)**

Jan 2 : Cash sale of kshs 200,000
5 : Debtor settled his account of ksh 1,000,000 by cheque less 5% cash discount.
15 : Paid salaries kshs 50,000 in cash
20 : Settled creditors accounts of Kshs 100,000 by cheque less 2% cash discount.
21 : Received a cheque for kshs 84,000 from charity traders after deducting 6% cash discount.
24: Deposited Kshs 100,000 from office cash
25 : Cash sale Kshs 200,000 banked directly.
26 : A cheque received on January 5th from a debtor was dishonoured.
27 : Purchased goods worth kshs 20,000 on credit.
31 : Banked all the cash except Kshs 80,000

Required: Prepare a three column cash book duly balanced.

4. (a) Explain **five** sources of public finances. **(10 marks)**

(b) Explain **five** measures of correcting balance of payment disequilibrium. **(10 marks)**

5. (a) Describe the procedure of balancing the ledger accounts. **(10 marks)**

(b) One important feature of human wants is that they require resources to satisfy. Explain **five** other features of human want. **(10 marks)**

Prefer Calling Amobi Group of Examiner @ 0743 333 000 or 0706 851 439 for Marking Schemes

6. (a) Masomo publishing company is launching a new novel to be used as a set book in English literature by all secondary schools in Kenya. If you are their marketing manager what five factors would you consider when choosing an appropriate media for promoting the novel. **(10 marks)**

(b) The following balances were extracted from the books of Juma Traders as at 31st December, 2016. **(10 marks)**

	SHS
Land and buildings	200,000
Capital	370,000
Prepaid rent	50,000
Motor Vehicle	150,000
10 year bank loan	100,000
3 years ICDE loan	50,000
Stock (31/12/16	50,000
Debtors	30,000
Creditors	30,000
Accrued expenses	10,000
Cash at bank	50,000
Cash in hand	10,000
Drawings	20,000

Prepare:

(i) A balance sheet as at 31st December 2016.

(ii) Determine:

- Working capital
- Capital employed
- Borrowed capital

Prefer Calling Amobi Group of Examiner @ 0743 333 000 or 0706 851 439 for Marking Schemes

NAME: ……..……..……

SCHOOL: ……

INDEX NO: …… SIGN: …… DATE: ……

BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

233/1

CHEMISTRY

Theory

Paper 1

Time: 2 Hours

Instructions to Candidates

(a) *Write your name and index number in the spaces provided above.*

(b) Sign and write the date of examination in the spaces provided above.

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

- ***(d)*** *KNEC Mathematical tables and electronic calculators may be used for calculations.*
- ***(e)*** *All working **MUST** be clearly shown where necessary.*
- ***(f)*** ***This paper consists of 13 printed pages.***
- ***(g)*** ***Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.***
- ***(h)*** ***Candidates should answer the questions in English***

For examiners' use only.

Questions	Max-score	Candidates score
1-31	80	

Turn over

1. Study the set-up shown below and use it to answer the questions that follow.

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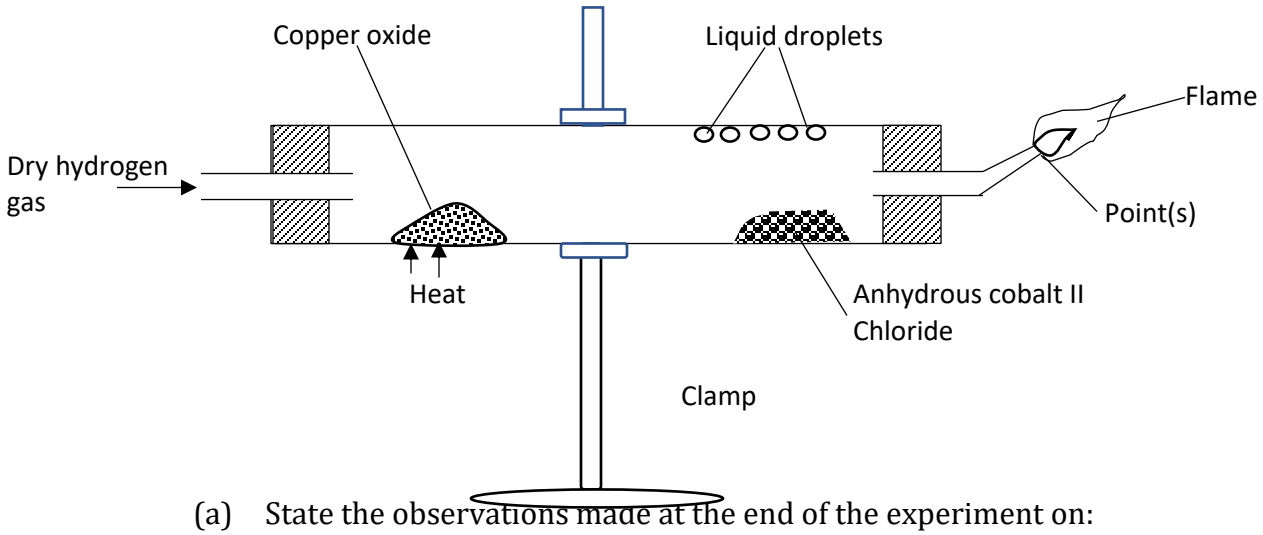

(a) State the observations made at the end of the experiment on:

(i) The cobalt II chloride papers. **(1 mark)**

.....

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.....

(ii) Copper II oxide powder. **(1 mark)**

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(b) (i) Why was excess hydrogen ignited? **(1 mark)**

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.....

(ii) Write a fully balanced equation for the reaction occurring at the flame at point(s). **(1 mark)**

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2. A student used the reaction between steam and heated magnesium metal to collect a dry sample of hydrogen gas. Complete the diagram to collect the gas. **(3 marks)**

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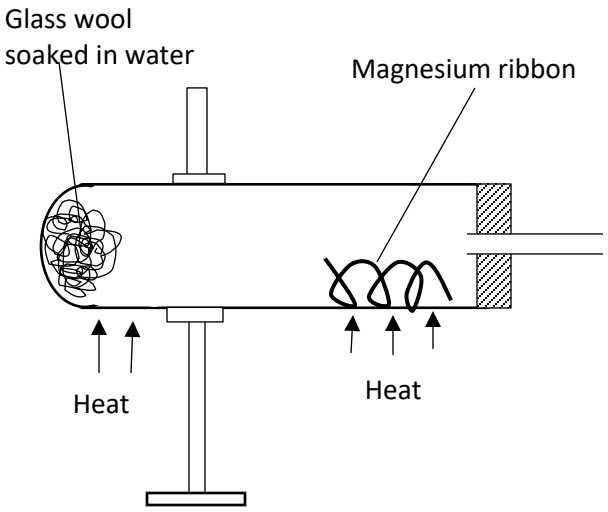

Write the equation for the reaction producing the hydrogen gas in the above reaction.
(1 mark)

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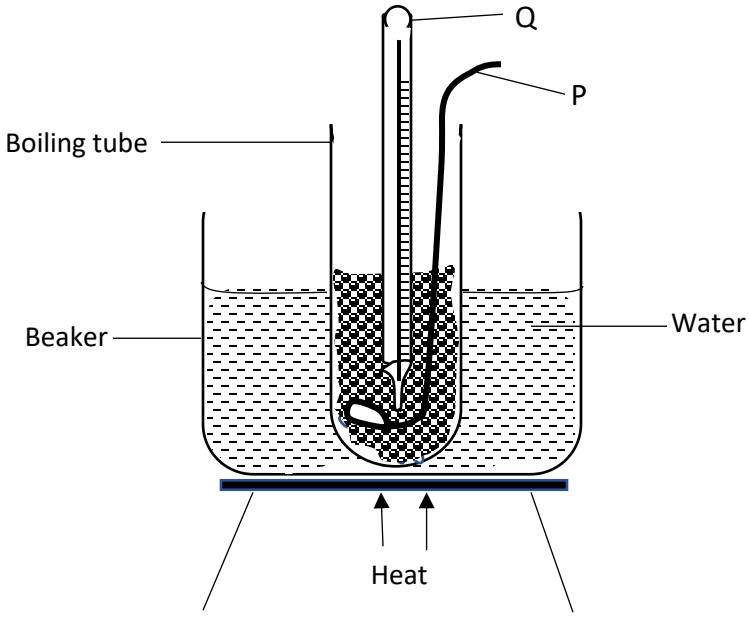
3. The following diagram represents a set-up showing how changes of state from solid to liquid could be investigated.



(a) Identify the apparatus P and Q and state their uses. **(2 marks)**

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P - …….

Q -……..

4. (a) Define the term "Gay Lussac's law". **(1 mark)**

……

……

……

(b) When 100cm^3 of gaseous hydrocarbon (C_x H_y) burn in 400cm^3 of oxygen, 100cm^3 of oxygen is unused, 200cm^3 of steam are formed. Deduce the equation for the reaction and the formula of the hydrocarbon. **(2 marks)**

5. If it takes 30 seconds for 100cm^3 of carbon (IV) oxide to diffuse across a porous plate. How long will it take 150cm^3 of nitrogen (IV) oxide to diffuse across the same plate under similar conditions? (C = 12.0, N = 14.0, O = 16.0) **(2 marks)**

6. Define Charles' law. **(1 mark)**

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7. The table below shows the solubility of a salt at various temperatures.

Temperature ^oC	Solubility (g/100g water)
0	36
40	30
80	25
100	22
120	20

(a) Define the term fractional crystallization. **(1 mark)**

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(b) A saturated solution of the salt at 40^0C was heated to 100^0C. State and explain the observation made. **(2 marks)**

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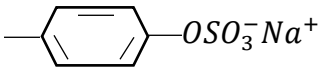
(c) Calculate the mass of salt formed when a saturated solution of the salt at 0^0C is placed in a water bath maintained at 100^0C. **(1 mark)**

8. The structures below are a representation of cleansing agents M and N.

R  $OSO_3^-Na^+$

M

$R - COO^-Na^+$

N

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(i) Identify the agents. **(1 mark)**

M - ……

N -……

(ii) Write an equation for the compound formed when agent N is used with water containing calcium nitrate salt. **(1 mark)**

……

……

(iii) A water engineer analyzed water from a borehole and found out that it contained magnesium chloride impurities. State any two methods used to make the water suitable for washing using agent N. **(1 mark)**

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9. Calculate the percentage abundance of two other isotopes of element A with three isotopes, (30, 32, 35). Given that the R.A.M is 30.5 and percentage abundance of 35 is 5%. **(2 marks)**

10. An element Z has ionic configuration of $Z^{+} - 2.8$. The element is burned in excess oxygen and the product is then added to water. Write two possible equation for the reactions which took place. **(2 marks)**

11. Phosphorus (III) oxide has a lower melting point than calcium chloride. Explain. **(2 marks)**

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12. Describe how you would prepare silver carbonate starting with silver. **(3 marks)**

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13. Use the table below to determine the enthalpy change for the reaction between hydrogen and chlorine. **(3 marks)**

Bond	Bond Energy kJ/mole
H – H	435
H – Cl	431
Cl – Cl	244

14. Explain why hydrogen sulphide cannot be used as a fuel, though it can burn to give out useful heat energy. **(1 mark)**

……

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15. (a) Explain why cryolite is added to aluminium oxide before electrolysis. **(1 mark)**

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(b) During electrolysis 40,000 amperes was passed through a Hall cell for 10 hrs. Calculate the mass of aluminium deposited at the cathode in kg.
(IF = 96500C, Al = 27) **(3 marks)**

16. (a) Define the term half-life. **(1 mark)**

……

……

……

(b) A certain nuclide has a half-life of 2.5 hours. What percentage of a given mass of the nuclide will be left after 7.5 hrs? **(2 marks)**

17. Explain how increase in temperature affects the rate of a given reaction. **(2 marks)**

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18. Write down the preliminary steps undertaken to concentrate an ore during extraction of metals. **(2 marks)**

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19. Write down the formula of the chief ore of Aluminium. **(1 mark)**

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20. Dilute sulphuric (VI) acid was added to a compound P of magnesium. The solid reacted with the acid to form a colourless solution Q and a colourless gas R which formed a white precipitate when bubbled through lime water. Identify:

(1 ½ marks)

(a) compound P -……

(b) solution Q - ……

(c) colourless gas R -……

21. During an experiment on the reduction of an oxide of copper, the following data was obtained.

Mass of empty boat	=	25.0g
Mass of empty boat + oxide of copper	=	29.0g
Mass of boat + copper (after reaction)	=	28.2g

Determine the empirical formula. **(3 marks)**
(Cu = 64, O = 16)

22. Calculate the number of atoms in 26.4g of calcium carbonate.

(Ca = 40, C = 12, O = 16, L = 6.02×10^{23}) **(2 marks)**

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23. Lead (II) nitrate was heated completely.

(a) Write an equation for heating lead (II) nitrate. **(1 mark)**

.....

.....

(b) Calculate the mass of the oxide formed given that 0.2 moles of the nitrate was heated. (Pb = 207, O = 16) **(2 marks)**

24. Draw and name two branched isomers of the compound whose chemical formula is C_5H_{12}. **(2 marks)**

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25. (a) Complete the following table based on organic compounds. **(1 mark)**

	Compound	Reagents needed for preparation
(i)	Ethyne	
(ii)	Ethane	

(b) Write chemical equations to represent the reaction in (a) above. **(2 marks)**

(i)

(ii)

(c) An organic substance (Q) reacted with ethanoic acid to form pleasant smelling compound $CH_3CHOOCH_2CH_2CH_3$.

(i) What conditions will be required to form the product? **(1 mark)**

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……

……

(ii) If another compound with a chemical formulas C_3H_6 has to be formed from compound Q, what would be the conditions required in this process. **(1 mark)**

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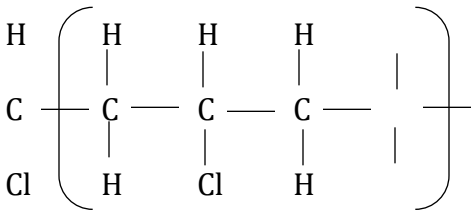
26. (a) Give the formula of the Monomer used during the formation of the following polymer. **(1 mark)**



(b) State any use of the polymer in (a) above. **(1 mark)**

……

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(c) Other than using universal indicator explain how one can differentiate between the following chemicals.

Propanol and propanoic acid. **(1 mark)**

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27. The melting points of oxygen and sulphur are -216^{0}C and 113^{0}C respectively yet the two elements belong to group VI in the periodic table. Explain. **(2 marks)**

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28. Which type of Sulphur is formed under the following conditions?

Conditions Type of Sulphur

(i) Above 96^0 **(½ mark)**

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(ii) Pouring boiling Sulphur into cold water **(½ mark)**

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(iii) Rapidly cooling Sulphur vapour **(½ mark)**

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(iv) Mixing sodium thiosulphate with dilute hydrochloric acid **(½ mark)**

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29. When dry chlorine is passed over heated iron in a combustion tube, a brown solid forms on the cooler parts of the combustion tube.

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(i) Name the brown solid. **(1 mark)**

……

……

(ii) Why does the brown solid form on the cooler parts of the combustion? **(1 mark)**

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(iii) What will be the pH of the solution formed when the brown solid is dissolved in water? **(1 mark)**

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(iv) Chlorine gas is poisonous yet it is used to treat water. Explain. **(1 mark)**

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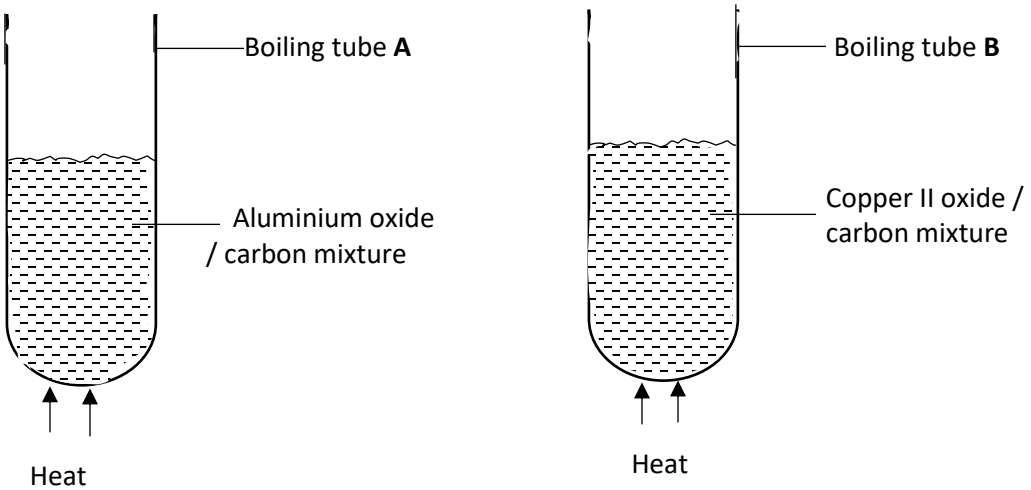
30. The diagrams below show the apparatus used to investigate one of the properties of carbon.



State and explain the observations made in each boiling tube. **(2 marks)**

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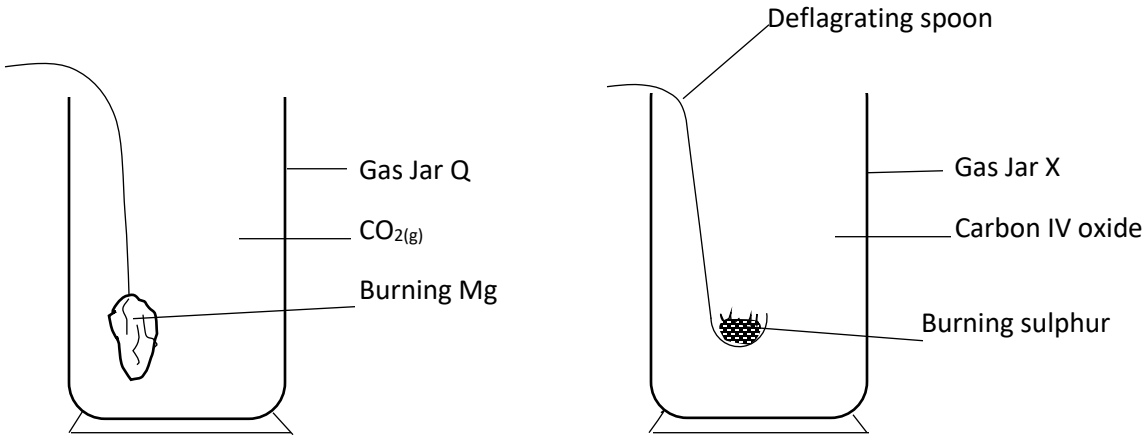
31. The diagrams below show the apparatus used to investigate the properties of carbon IV oxide gas.



(i) State and explain the observations made in each gas jar. **(2 marks)**

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(ii) State **one** industrial use of carbon (IV) oxide. **(1 mark)**

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SCHOOL: ……

INDEX NO: …… SIGN: …… DATE: ……

BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

233/2

CHEMISTRY PAPER 2

(THEORY)

2 hours

CHEMISTRY

(Kenya Certificate of Secondary Education)

Instructions

- ✓ *Write your name and index number in the spaces provided above.*
- ✓ *Sign and write the date of examination in the spaces provided above.*
- ✓ *Answer **all** the questions in the spaces provided in the question paper.*
- ✓ *Electronic calculators may be used.*
- ✓ *All working **must** be clearly shown where necessary.*
- ✓ *This paper consists of **13** printed pages. Confirm this and that no questions are missing.*

For Examiner's Use Only

Question	Maximum Score	Candidate's score
1	11	
2	14	
3	11	
4	12	
5	09	
6	12	
7	11	
Total	80	

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1. Study the information below given about elements A, B, C, D, E, F, G and H which form part of the Periodic Table. Letters are not actual symbols of the elements.
   i. Element A is in period 2 group VI. D is atomic number 15.
   ii. Element F forms a cation having an oxidation state of +1. The ion of F has three occupied energy levels.
   iii. B and G belong to the same chemical family but G has one more energy level than B. B loses two electrons to form an ion with electronic configuration 2.8
   iv. Element C belongs to the same period as B and has one more proton than B.
   v. E and H belong to the same group and react by gaining one electron. H has a larger atomic radius than E.

.

Use the information above to answer the questions that follow.

a) Which element forms ions with a charge of 2-? Explain. (2 marks)

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b) What is the nature of the oxide formed by element C.? (1 mark)

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c) How does the reactivity of H compare with that of E? Explain. (2 marks)

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d) Write down a balanced chemical equation for the reaction between B and chlorine. (1 mark)

……

……

e) Compare the atomic radii of elements F and G. Compare. (2 marks)

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f) If the oxides of F and D are separately dissolved in water, state and explain the effects of their aqueous solutions on litmus. (3 marks)

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2. (a) Study the reduction potentials below.

Half cell	**E^{θ}(Volts)**
$A^{2+}(aq) + 2e^- \rightleftharpoons A_{(s)}$	+0.34
$B^{+}(aq) + e^- \rightleftharpoons B_{(s)}$	-2.92
$\frac{1}{2}C_2(g) + e^- \rightleftharpoons C^-_{(aq)}$	+2.87

(i) Identify the weakest oxidizing agent. (1 marks)

……

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(ii) Calculate the e.m.f of the cell that would produce the highest output of voltage. (2 marks)

(iii) Write the cell diagram for the cell formed in (ii) above. (1 mark)

……

……

(b) Study the electrolytic cell below.

Gas A

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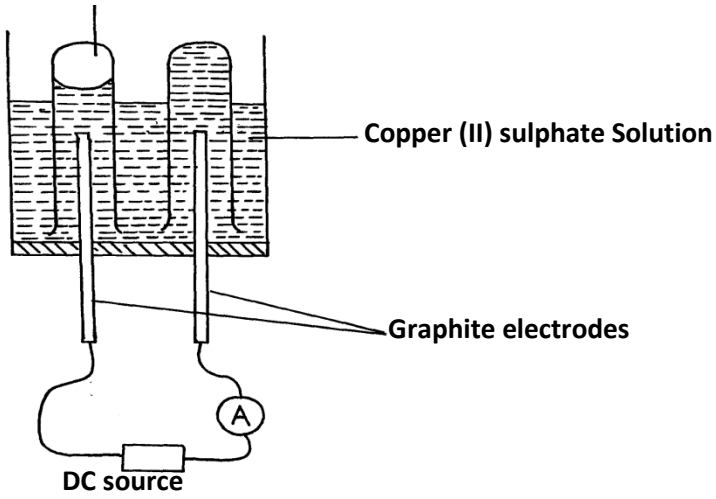

(i) Identify the anode and cathode on the diagram. (1 mark)

……

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(ii) Write an equation to show how gas A is formed. (1 mark)

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(iii) State **two** changes that occur in the electrolyte after the experiment. (2 marks)

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(iv) Draw a well labelled diagram showing how impure zinc can be purified by electrolysis. (2 marks)

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(v) Write the equation at the anode if copper electrodes were used. (1 mark)

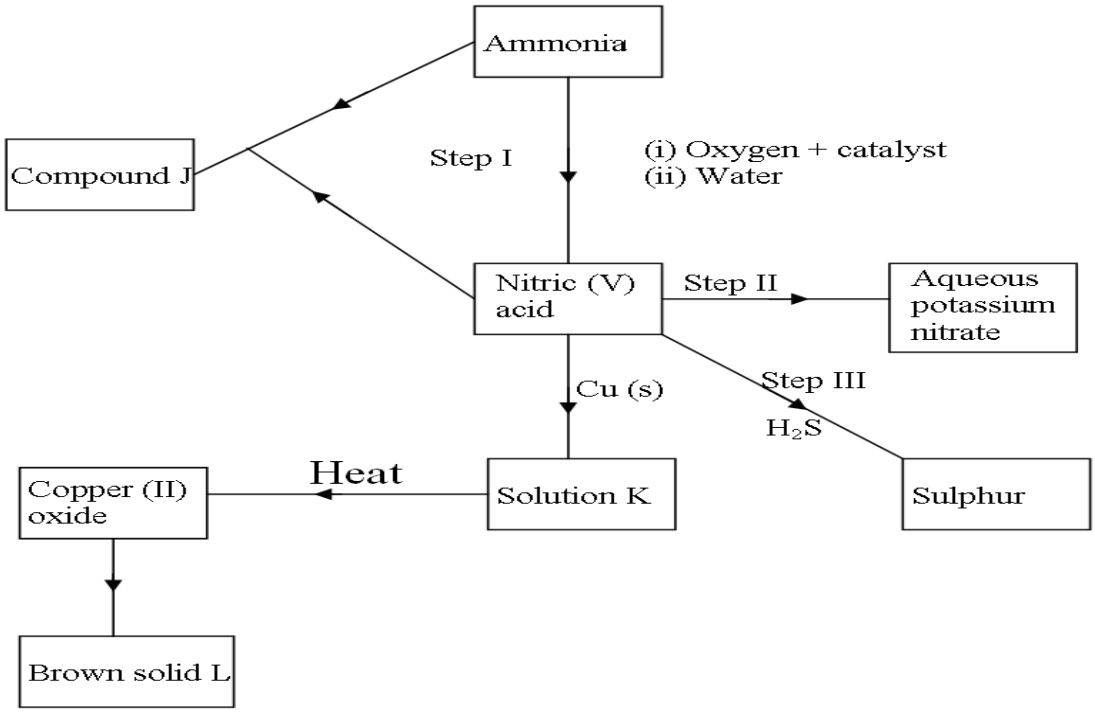
……

……

(vi) In electrolysis of dilute magnesium sulphate, using inert electrodes, a current of 2A was passed for 1¼ hours. Calculate the volume of the gas produced at the anode at s.t.p.

(1F=96500 C, M.G.V=22.4 Litres) (3 marks)

3. The scheme below shows various reactions starting with ammonia. Study it and answer the questions that follow



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(a)Name the catalyst used in step I (1 mark)

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(b) Write any two equations for the reactions that take place in step I. (2 marks)

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(c) Name the process that takes place in step II. (1 mark)

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(d) Explain what happens in step III. (2 marks)

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(e) Write the formula of compound J. …… (1 mark)

(f) Calculate the percentage of nitrogen by mass that is present in compound J. (N=14, H=1,O=16)
(2 marks)

(g) Give one advantage that ammonium phosphate has over ammonium sulphate as a fertilizer. (1 mark)

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(h) Give one disadvantage of using artificial fertilizer. (1 mark)

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4. (a) (i) What is a fuel? (1 mark)

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(ii) Calculate the heating value of propane, C_3H_8, given that its molar enthalpy of combustion is -2200 kJ mol^{-1}. (C=12, H=1) . (2 marks)

(b) (i) Define molar enthalpy of combustion. (1 mark)

……

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(ii) Use the information provided by the thermochemical equations below to calculate the molar enthalpy of combustion of ethyne. (3 marks)

$C_{(s)} + O_{2\,(g)} \longrightarrow CO_{2\,(g)}$ $\Delta H = -394$ kJ mol^{-1}

$H_{2\,(g)} + \frac{1}{2}O_{2\,(g)} \longrightarrow H_2O_{\,(g)}$ $\Delta H = -286$ kJ mol^{-1}

$2C_{(s)} + H_{2\,(g)} \longrightarrow C_2H_{2\,(g)}$ $\Delta H = +226$ kJ mol^{-1}

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(c) Study the data given below and answer the questions that follow.

Substance/ion	Enthalpy change
$CaCl_2(s)$	Lattice energy = -2237 kJ mol^{-1}
$Ca^{2+}(g)$	Hydration energy = -1650 kJ mol^{-1}
$Cl^-(g)$	Hydration energy = -364 kJ mol^{-1}

(i) Determine the molar enthalpy of solution of calcium chloride in water. (2 marks)

(ii) Draw an energy level diagram for the dissolution of calcium chloride in water. (3marks)

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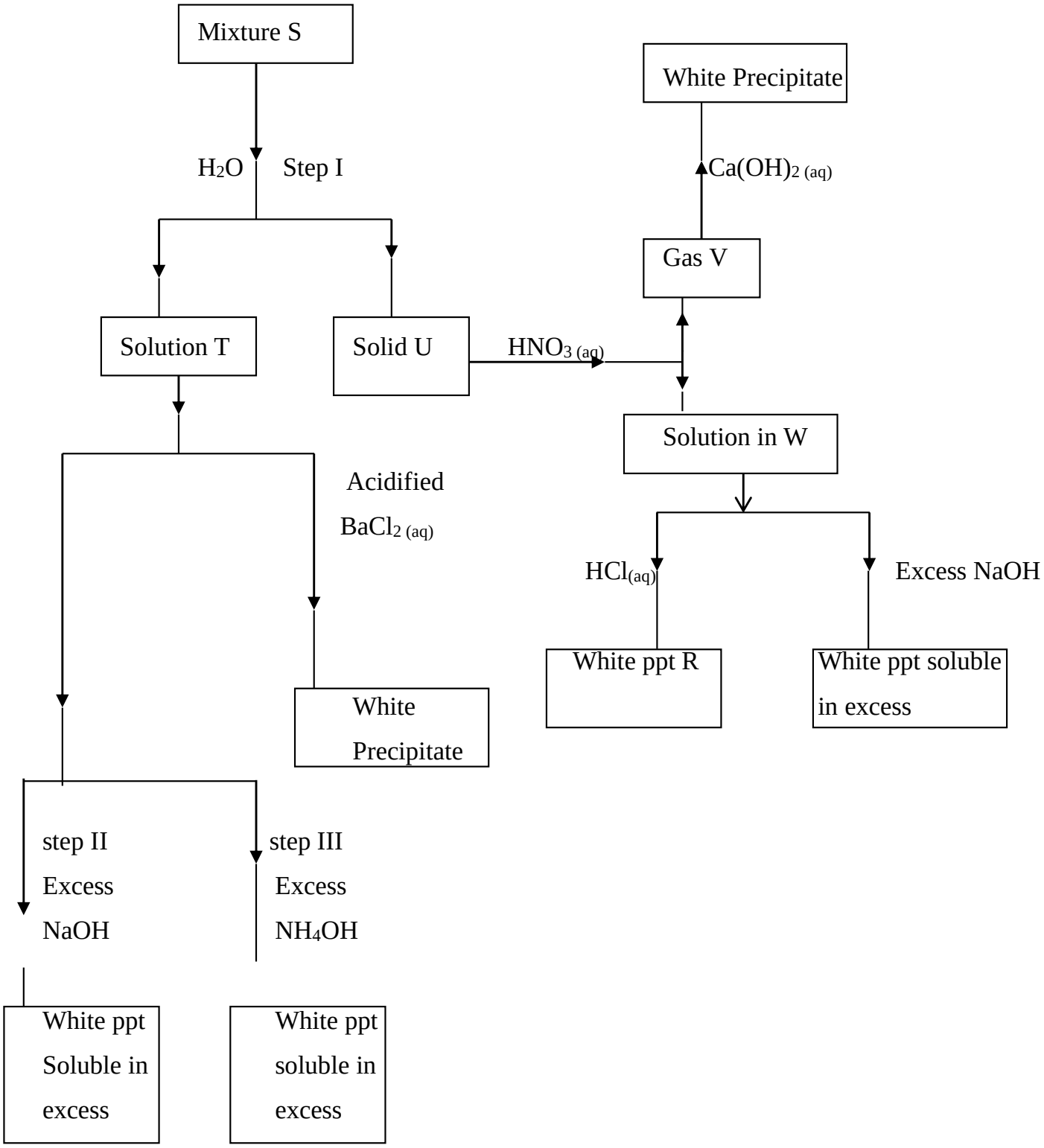
5. Study the scheme below and answer the questions that follow.



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(a) What property of mixture S is shown in step 1. (1 mark)

……

……

(b) Name the following. (3 marks)

Solid U ……

Gas V …….....

Write the formula of precipitate R …….

(c) Identify the ions present in solution T. (1mark)

……

……

(d) Write an ionic equation for the reaction between.

(i) Solution T and Barium chloride solution. (1 mark)

……

……

(e) Identify mixture S. (1 mark)

……

……

(f) Write balanced chemical equations for reactions in which the white precipitates dissolves in excess reagents in steps II and II (2 marks)

Step II:……

Step III:……

6. The flow chart below shows some chemical reactions. Study it and answer the questions that follow.

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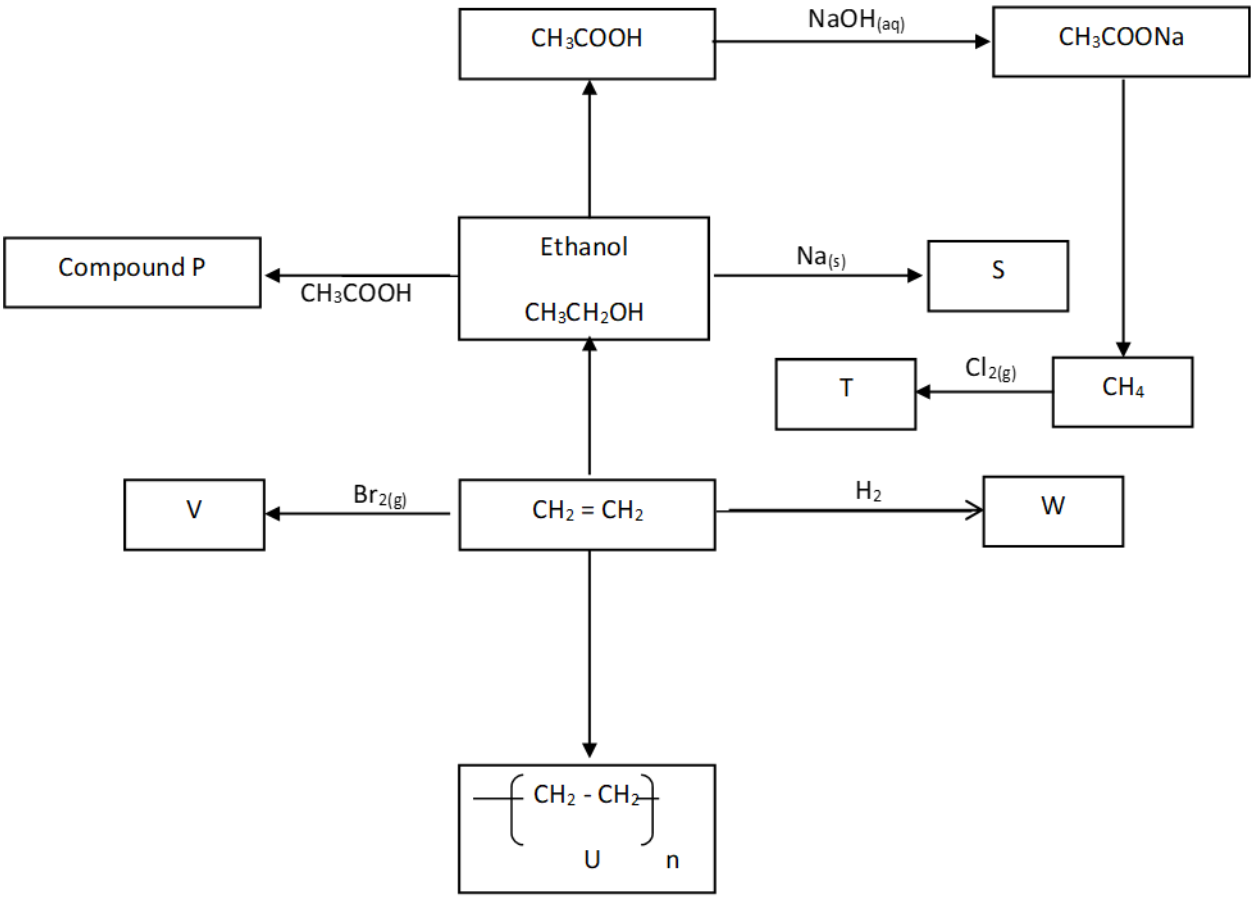

a) Write the name and formula of the organic compounds P,V and W. (3 marks)

Compound	Name	Formula
P		
V		
W		

b) Name the process that leads to the formation of substance:
V (1 mark)

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……

……

T (1 mark)

……

……

P (1 mark)

……

……

c) Give one necessary condition for the formation of compound P. (1 mark)

……

……

……

d) If the relative molecular mass of compound U is 84,000 , determine the value of n.
(C = 12, H= 1.0) (2 marks)

e) Write an equation for the reaction leading to the formation of substance S. (1 mark)

……

……

f) State and explain the observations made when the following substances are burnt in excess air. (2 marks)

W

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C_2H_4

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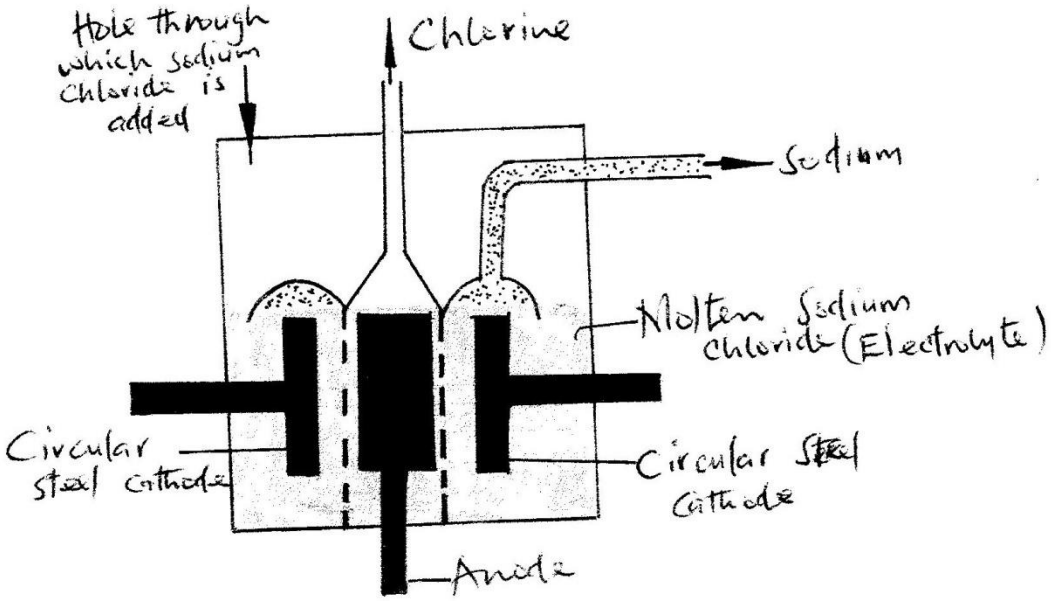
7. **I** (a) Below is a diagram of a process used for the production of sodium.

Study it and answer the questions that follow.



(i) Name the process. (1 mark)

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……

(ii) What is the role of the steel gauze diaphragm? (1 mark)

……

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(iii) Write an equation for the reaction at the anode. (1 mark)

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(b) The electrolyte is a molten mixture containing Na^+ and Ca^{2+} cations.

(i) What is the source of Ca^{2+} ions? (1 mark)

……

……

(ii) Give a reason why Ca^{2+} ions are not discharged. (1 mark)

……

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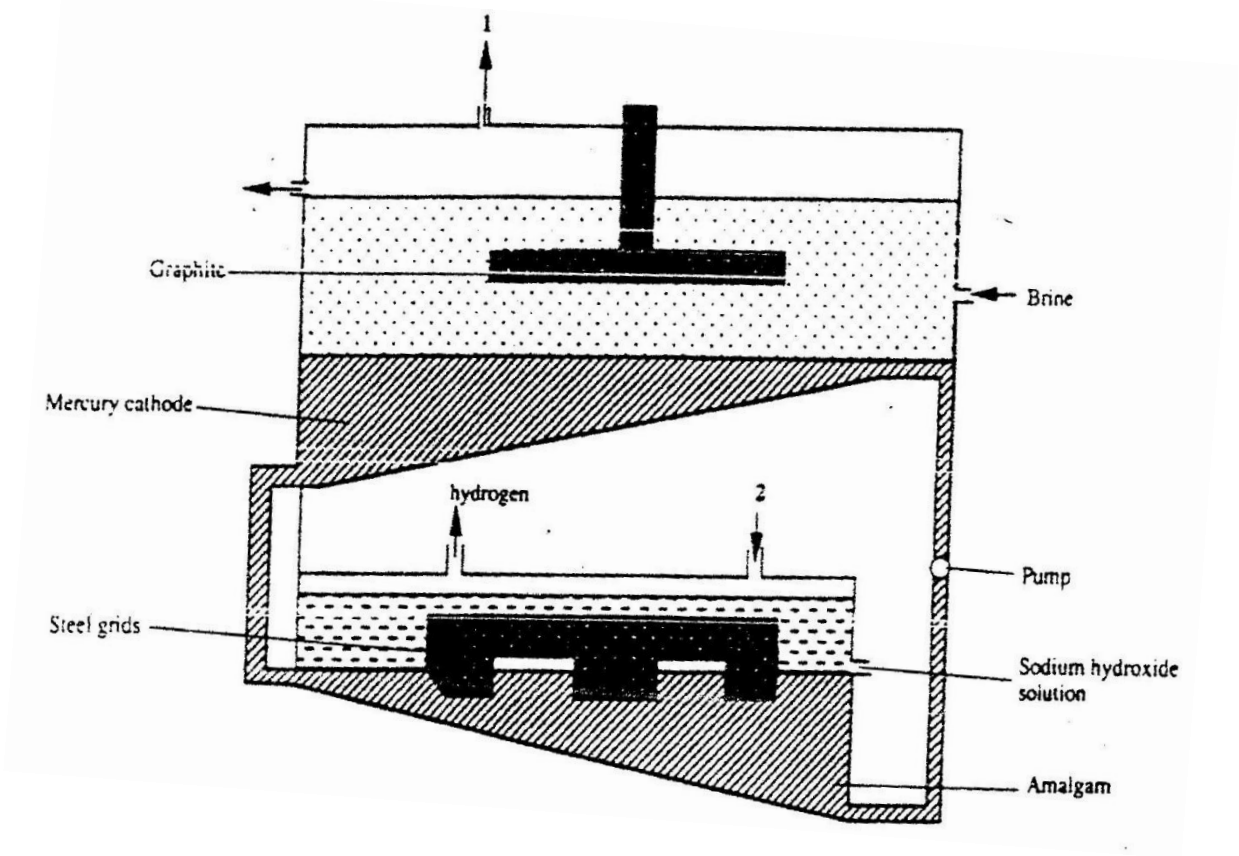
II. (a) The diagram below represents a mercury cathode cell that can be used to manufacture sodium hydroxide. Study it and answer the questions that follow.



(i) Name the substance:

I. labelled 2. …… (1 mark)

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II. labelled 1. …… (1 mark)

(ii) Give two reasons why mercury is recycled. (2 marks)

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(iii) Write an equation for the reaction that occurs at the mercury cathode. (1 mark)

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(b) State one use of sodium hydroxide. (1 mark)

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SCHOOL: ……

INDEX NO: …… SIGN: …… DATE: ……

BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

233/3

CHEMISTRY

PAPER 3

PRACTICAL

2 ¼ Hours

INSTRUCTIONS TO CANDIDATES

- Write your name and Index Number in the spaces provided above.
- Sign and write date of examination in the spaces provided above.
- Answer all questions in the spaces provided in the question paper.
- All workings must be clearly shown where necessary. Mathematical tables and silent electronic calculators may be used.

For Examiners use only.

Question	Maximum Score	Candidates Score
1	10	
2	13	
3	17	

This paper consists of 6 Printed pages.

Candidates should check the question paper to ensure that all the

Papers are printed as indicated and no questions are missing.

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1. You are provided with :2 g of substance **A** labelled solid **A**

- You are required to determine the **solubility** of substance **A** in water.

Procedure 1

i) Place 200cm^3 of tap water in a 250ml beaker and keep it for use in step (VI)

ii) Place all the substance **A** in a dry boiling tube boiling.

iii) Using a burette measure 10.0cm^3 of distilled water and add to substance **A** in the boiling tube.

iv) While stirring the mixture in the boiling tube with a thermometer, warm the mixture using a Bunsen burner until the temperature rises to **65**℃. Stop warming the mixture.

v) Allow the mixture to **cool** while stirring with the thermometer.

vi) When the temperature drops to **60**℃ , start the stop watch / clock, place the boiling tube in a beaker with tap water prepared in step (i) above.

vii) Continue stirring and record the temperature of the mixture after two minutes then thereafter record the temperature of the mixture after every one minute interval and complete the table 1. **Table 1.**

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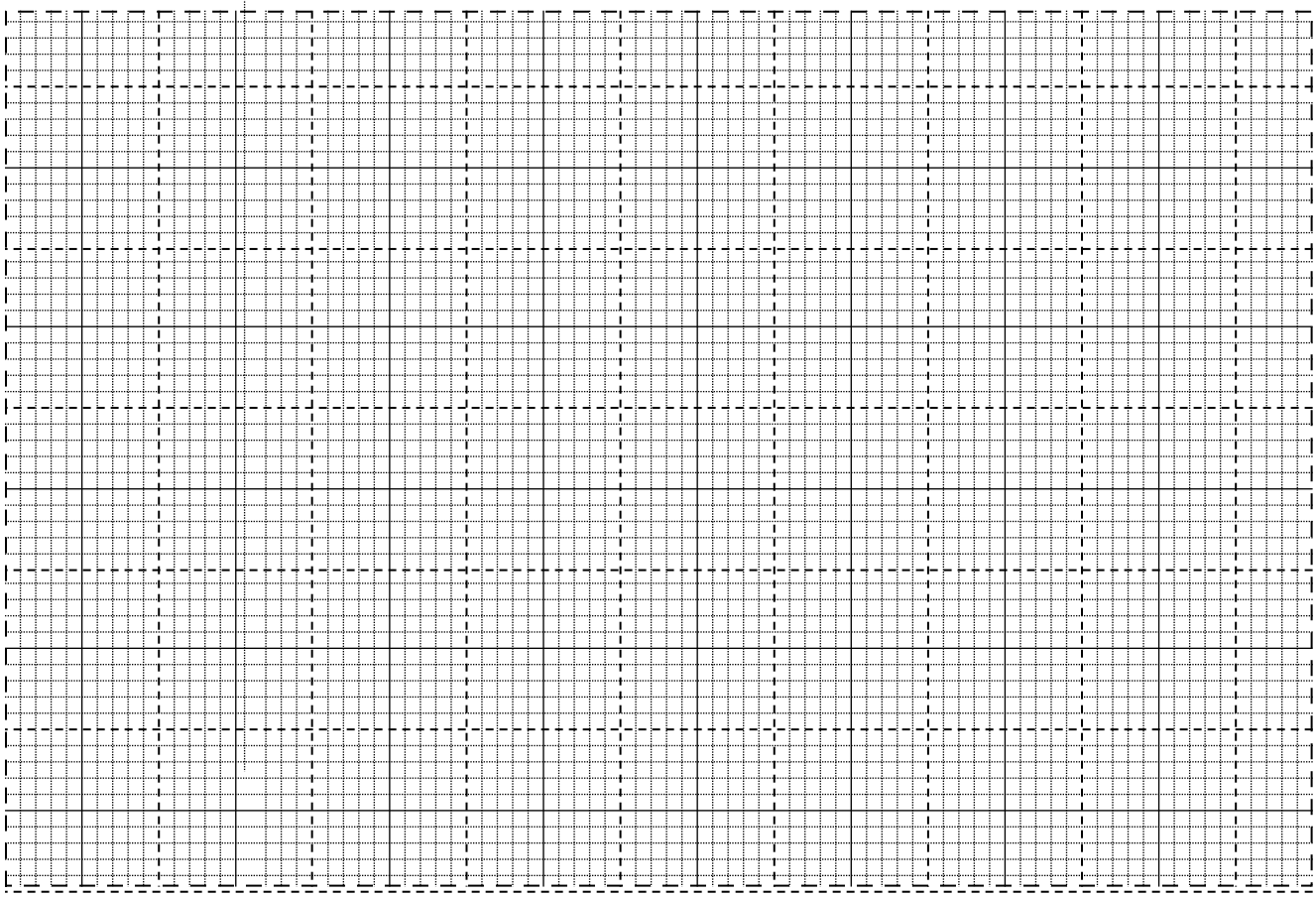
Time in minutes	0	2	3	4	5	6	7	8	9	10
Temperature (℃)	60									

(4mks)

a) On the graph provided, plot a graph of temperature (vertical axis) against time. (3mks)



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b) Using the graph, determine the temperature (T) when 2.0g of substance A dissolves completely in $10cm^3$ of distilled water. (1mark)

c) Calculate the solubility of substance A in grammes per 100g of water at temperatures (T) (2mks)

2. You are provided with:

- **1M Potassium iodide solution**
- **0.5m Lead (II) nitrate solution**
- **Ethanol**

You are required to determine the formulae of lead (II) iodide and the equation for the reaction between lead (II) nitrate and potassium iodide.

Procedure

Take 5 test tube and label them 1, 2,3,4,5 and 6,7. Using a burette add to separate test tube volumes of aqueous potassium iodide and aqueous lead (II) nitrate as shown in the table below; followed by 3-4 drops of ethanol. Stir and allow to settle. Measure the height of the precipitate in each test tube in mm and record the measurements in the table below.

Test tube no	1	2	3	4	5	6	7	8
Volume of KI(cm^3)	2	3	4	5	6	7	8	9
Volume of $Pb(NO_3)_2$ cm^3	10	9	8	7	6	5	4	3
Height of the precipitate								

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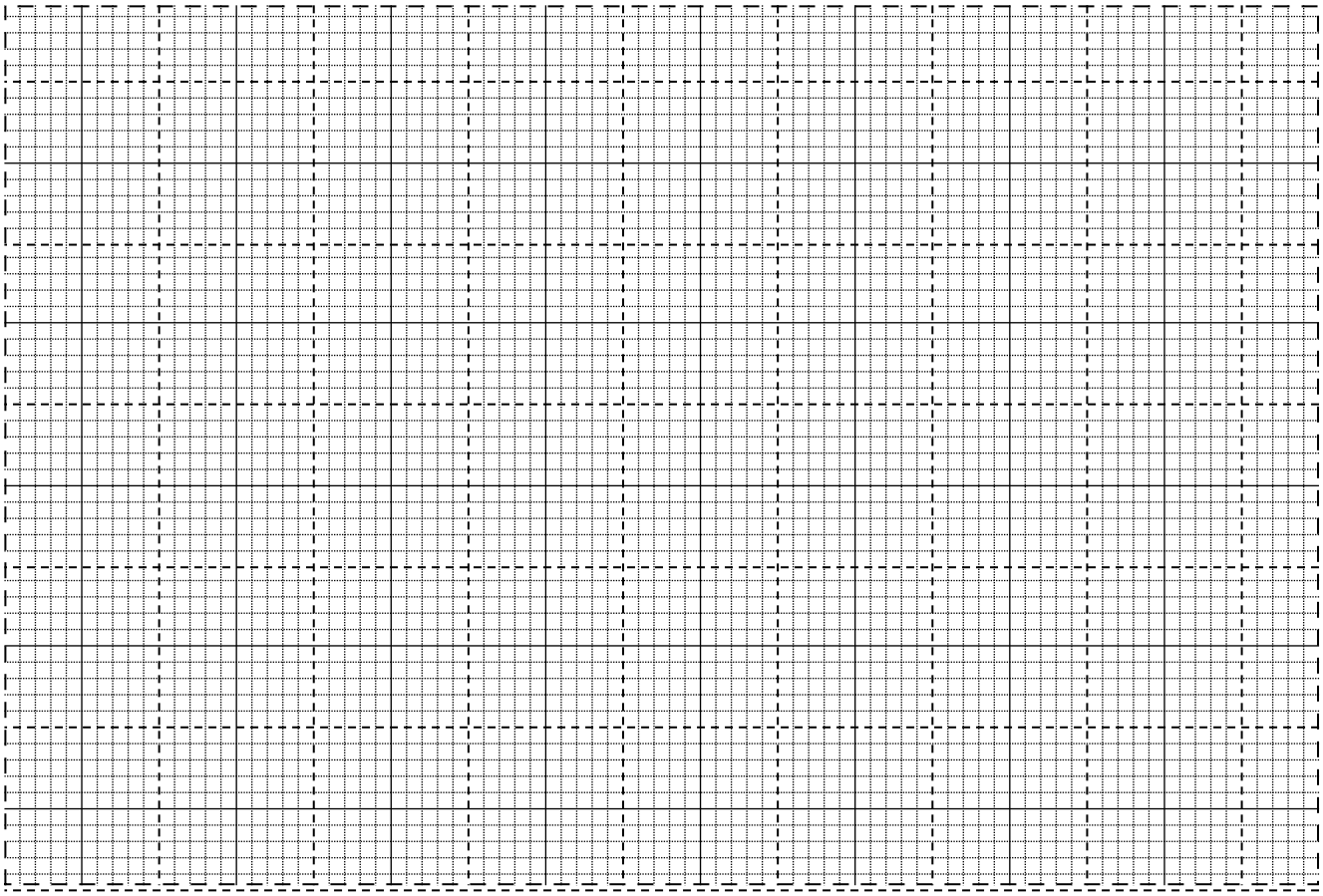
a) Plot a graph of height of the precipitate against the volume of lead (II) nitrate. (4mks)



b) Use your graph to

i) Find the maximum height of the precipitate formed. (1mk)

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ii) Determine the volume of the 0.5M Pb $(NO_3)_2$ used in b (i) above (1mk)

iii) Determine the volume of 1M Potassium Iodide that completely reacts with 0.5M Pb $(NO_3)_{2\,(aq)}$ Potassium iodide solution. (2mks)

iv) Use your answer in b(ii) above to determine the number of moles iodide ions which reacts with one mole of lead (II) ions hence determine the formulae of lead (II) iodide. (2mks)

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3. You are provided with

- **Substance W 0.5g**
- **Sodium hydroxide**
- **Aqueous ammonia**
- **Solution F – aqueous lead (II) Nitrate**
- **Distilled water in wash bottle**
- **Source of heat**

a) Describe the appearance of substance **W**

b) Add 10cm^3 water to substance **W**

Observation	Inference
$(^1/_2\, mk)$	$(^1/_2\, mk)$

c) Substance **W** is suspected to be calcium chloride.

From the reagent provided and results in procedure (b) above select and describe four tests that could be carried out consequently to confirm substance W is calcium chloride. Write the results and expected observation in the spaces provided.

(6mks)

Test 1	**Expected observation**
(1mk)	(1mk)

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Test 2	Expected observation
(1mk)	(1mk

Test 3	Expected observation
(1mk)	(1mk

d) Carry out the tests described in (c) above using substance **W** and record the observations and inferences in the spaces provided.

i) Test 1

ervation	rence
	(1mk)

ii) Test 2

Test 2	Expected observation
(1mk)	(1mk

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iii) Test 3

Test 3	**Expected observation**
(1mk)	(1mk

4. You are provided with substance P.

Carry out the following test and record your observation and inferences in the spaces provided. Use above 2cm^3 of portion of substance P in a test tube for each tests **a**, **b**, **c** and **d**

a) Add about 2 or 3 drops of bromine water.

Observation	Inference
$(^1/_2\, mk)$	$(^1/_2\, mk)$

b) Add about 1cm^3 of acidified potassium dichromate (VI) warm the mixture.

Observation	Inference
(1mk)	(1mk)

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c) Add about 1cm^3 of solution to E (aqueous sodium carbonate provided)

Observation	Inference
$(\ ^1/_2\ mk)$	$(\ 1mk)$

d) Add the piece of magnesium ribbon provided

Observation	Inference
$(\ ^1/_2\ mk)$	$(1mk)$

NAME: ……..……

SCHOOL: ……

INDEX NO: …… SIGN: …… DATE: ……

BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

451/1

COMPUTER STUDIES

Paper 1 (THEORY)

TIME 2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

- Write your name and Index Number in the spaces provided above.
- Sign and write date of examination in the spaces provided above.
- Answer **ALL** questions in the spaces provided.
- This paper consists of TWO sections ;A and B.
- Answer question 16 and any other THREE question from section B.
- All workings **MUST** be clearly shown where necessary.

Section	Question	Candidate's Score
A	1-15	
B	16	
	17	
	18	
	19	
TOTAL SCORE	20	

This paper consist of 11 printed pages

Student should check the questions paper to ensure that all the pages are printed as indicated and no question are missing

1. Computers can be classified according to size, functionality and purpose.

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(a) Outline **two** examples of smaller microcomputers also known mobile devices(1 mark)

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(b) What is the function of the following computers?

i) Workstations (1 mark)

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ii) Embedded computers (1 mark)

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iii) Servers (1 mark)

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2. Why is it necessary to have a UPS in a computer laboratory? (2 marks)

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3. a) What do you understand by the term 'computer crime' (1 Mark)

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b) Explain the difference between the following terms in reference to computer crime (3Marks)

i) Cracking

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ii) Tapping

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iii) Hacking

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4. Data security is very important to any institution. Describe any **two** ways in which data can be lost and mention ways on how each can be prevented (2 Marks)

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5. Explain the following sensible safety precautions to take when building your own PC so as to avoid harming your health or computer component. How can one avoid:

(a) Electric Shock (1 mark)

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(b) Sharp Edges (1 mark)

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(c) Static charges (1 mark)

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6. a) What is a web search engine? (1Mark)

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b) Below is an email address of LainVas company, identify the parts labeled, i - iv (2Marks)

lainvas @gmail . co.ke



i ii iii iv

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7. a) Explain the function of the following devices in networking: (3 Marks)

i) Bridge

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ii) Gateway

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iv) Repeater

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b) (i) What is the meaning of protocol in networking? (1 Mark)

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(ii) Give two examples of protocols (2 Marks)

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8. Explain how each of the following would affect the suitability of a room for use as a computer laboratory.

(a) Burglar proofed door (1 mark)

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(b) Availability of taps and sinks in the room (1 mark)

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9. Differentiate between single-user and multi-user operating systems giving an example of each. (2 marks)

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10. a) State **two** data representation codes used in computers (1 marks)

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b) Arrange the following data units in ascending order of size (1 mks)

BYTE, FILE, BIT, NIBBLE

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11. a) List **two** methods of gathering data during system developments process. (2 marks)

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b) State and explain **two** types of documentation in program development and give the purpose of each (2mark)

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12. (a) Explain the term nibbles as used in data representation in computers (½ mark)

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(b)Define the term structured programming (½ mark)

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13. (a) Define local area network. (1 mark)

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(b) State any **four** components of a local area network (2 marks)

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14. As regards to communication within a computer network, what do you understand by the following terms:

i) Ethernet topology (1 mark)

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ii) Token ring topology (1 mark)

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15. Briefly explain **two** reasons why organizations need to network their computers.(2 marks)

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SECTION B [60 MARKS]

Answer questions number 16 and any other three from this section. Each question carries 15 marks

16. (a) Study the following pseudo code then answer the questions that follow.

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START
W= 1
X=10
Y=5
Z=1
WHILE W<X
        W=W+2
        REPEAT
                X=X-1
                Y=Y+1
                IF X=Y
                        Z=Y+X
                END IF
        UNTIL Z>Y
END WHILE
PRINT W
PRINT X
PRINT Y
PRINT Z
STOP
```

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

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(b)List any two characteristics of Structured programming. (1Mark)

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(c)Describe three benefits of structured programming. (3 Marks)

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(d) List four selection control structures used in writing a program (3Marks)

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17 (a) Using six bits, find the two's complement of -23_{10}. (2 marks)

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(b) Perform the following binary arithmetic giving the answers in decimal notation

(i) 1110.0111 + 1101001.011 (1 ½ mark)

(ii) 1001011.011 – 111.111 (1 ½ mark)

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(c) Explain **two** ways in which a computer can represent a positive and negative number (2 marks)

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(d) A particular computer stores numbers in a single 8 - bit word. How would it represent

0.3125_{10}? (2 marks)

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(e) Perform the decimal subtraction 14_{10}-6_{10} using:

(i) Regular binary (2 marks)

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(ii) One's complement of 6_{10} = 1001 (2 marks)

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(f) Convert the Hexadecimal number ABCD to octal (2mks)

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18. (a) Briefly describe the following as used in networking. (4Marks)

(i)Repeaters.

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(ii) Network hub

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(iii) Fibre optic cables

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(iv) Network Interface Card (NIC)

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(b) Communication media can be classified into guided media or Unguided media. List any **two** examples in each case (2 Marks)

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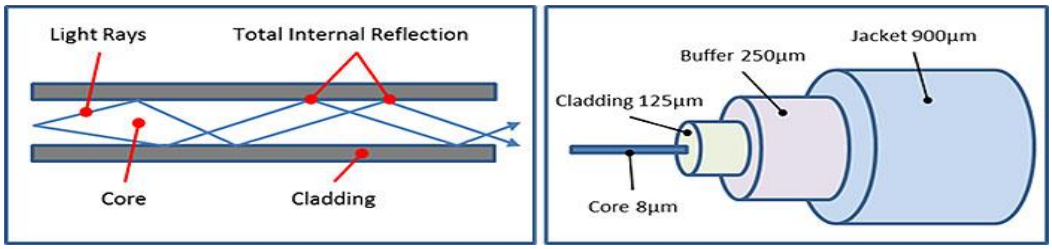
(c) Using an illustration, explain how fibre optic cable transmits data. (4 Marks)



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(d) (i) List any **two** hardware devices that make up a bus network. (2 Marks)

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(ii) State **two** disadvantages of bus networks. (2 Marks)

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(e) Define the term network topology. (1Mark)

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19 a) Distinguish between the following types of database models. (6 Marks)

i) Network database:

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ii) Relational database:

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(b) Explain the following terms as used in system implementation (4 Marks)

(i) parallel running

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ii) Direct change over

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(c) i) Define the term normalization as used in database design. (2Marks)

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ii) State three purpose of normalization. (3Marks)

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20 (a) State **three** advantages of using computer in education (3 marks)

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(b) Explain **two** ways in which ICT can enhance business (2 marks)

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(c) Briefly explain **two** ways on how information & communication technology (ICT) can be use to reduce the spread of HIV/ AIDS (2 marks)

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(c) Explain the following electronic data processing modes giving relevant examples Where they are used.

(i) Real time processing. (2mark)

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(ii) Distributed data processing. (2mark)

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(d) Explain how computers are used in

(i) Banking (2 marks)

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(ii) Law enforcement (2 marks)

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INDEX NO: …… SIGN: …… DATE: ……

BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

451/2

COMPUTER STUDIES

PAPER 2

2 ½ HOURS

Instructions to candidates:

- This paper has **TWO** questions.
- Answer all the questions.
- Type your name and index number at the right-hand corner of each printout.
- Write your name and index number on the CD – ROM provided.
- Write the Name and version of software used in each question attempted in the answer sheet.
- Passwords **should not be used** while saving your work.
- Make a printout of the answers on the answer sheets provided.
- Arrange your print outs and stable them together.
- Hand in all the **printouts** and the CD – ROM provided.
- This paper consists of **4** printed pages.
- Candidates should check the question paper to ascertain that all pages are printed and no questions are missing

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1.(a) Create and enter the data as in the following spreadsheet for form3N students in Bright Star School in Baringo County and save it as BSSBC.(14marks)

	A	B	C	D	E	F	G	H	I
1	**Name**	**English**	**kiswahili**	**maths**	**Biology**	**pyhsics**	**C/Studies**	**Total**	**Average**
2	Sally	60	76	42	76	66	77		
3	Jane	56	45	53	65	45	72		
4	Philip	65	58	47	64	65	46		
5	George	56	66	30	85	48	60		
6	Mary	74	68	59	83	36	57		
7	James	80	72	45	74	54	70		
8	Tina	78	55	37	71	63	56		
9	Subject average								

Using the above information,

(b)Enter appropriate formulas to compute the Average mark in each subject (3 marks)

(c)Enter the total marks for each student (3 marks)

(d)Enter the Average marks for each student (3 marks)

(e) Format the table as follows:

. Set the direction of the labels to 45 degrees (2marks)

.Centre vertically all the records (2 marks)

(f)Create an embedded bar chart for average mark per subject (8 marks)

(g) Add a column of marks for Chemistry and enter the following data for each student :78,56,67,81,72,68,53 starting from Sally down to Tina (4 marks)

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(h)Filter the data using the Biology column and display only those rows with marks less than 80 (6 marks)

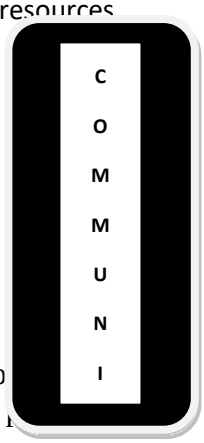
(i) Rank the students starting from those with the highest total mark (3 marks)

(j) Print the worksheet, and the graph (2 marks)

2. **(A)** Type the following passage using a word processing package and save as Network software. Answer the questions that follow. (26 marks)

NETWORK SOFTWARE

A Computer netwok is a group of computers and other devices connected together by a suitable media. The computer networks have evolved from simple linking of computers on a common transmission media to highly managed and optimized data and information transfer systems. This means that apart from data comunications, the focus is now squarely on how best to utilize network resources.



Network software can be classified into two main groups namely:

1. Network operating systems
2. Network protocol

Advantages of computer Networks

- Multiple users can communicate, exchange and share informatio
- Resource sharing including program, data base, hardware etc. is

By definition comunications refers to the transfer of information from one place to another between two individuals using agreed symbols, signs or even human behavior such as nodding. Exchange of information relies on a communication system to convert, amplify and send signal through a common medium. Message, Sender, Medium and Receiver are the essential components of communication systems.

If a system is extended by cascading more communication systems, it is called networked systems.

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In case communication involves the sending of information over a significant distance, it must use telecommunications as an aid. By definition, telecommunications refers to the transmission of information between distant locations by some electromagnetic means.

Data communications is defined as the interchange and processing of encorded (digital that is, 1s and 0s) information between distant locations using telecommunications.

Data communications is regarded as the collection and distribution of the electronic representation of information which can be text, voice, graphics or image, from and to remote computing facilities. As information can only be carried to the remote site provided that the information carrier supports that particular type of data transmission, information may undergo data conversion processes if the nature of data signal is incompatible with the characteristics of the signal carrier.

PROTOCOLS

This are set of rules and procedures that govern communication between two different device or people . In computer networking, protocols refer to the rules and technical procedures that govern communication between different computers.

How protocol work

The data transmission process over network has to be broken down into discrete systematic steps. At each step certain action takes place and each steps has its own procedures as defined by network protocol. The co-ordination of protocols must be co-ordinated so that there are no conflicts.

COMPARISON AMONG DIFFERENT TOPOLOGIES

Below are the advantages and disadvantages of various LAN topologies.

	ntage	**lvantage**
opology	le and easy to identify fault	re of central node causes disaster
Topology	nity to bottleneck and failure problems	nsive to provide an alternative routing
opology	le to control traffic flow	a single communications channel is requ service all the nodes
Topology	le to implement	channel is required to service all

(B) :

i. Centre and double underline the title Computer Software (2 marks)

ii. Convert the paragraphs beginning with “By definition communications…..” to the end Into hanging indent. (4 marks)

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iii. Move the paragraph under protocols and paste after the table (2 marks)

iv. Insert and center your name, index number and the name of your school as a footer so as to appear ***© name ,index number, and the name of your school***. (4 marks)

v. Find and telecommunications and replace with Telephones. (3marks)

vi. Insert a picture of a computer and wrap the picture behind the table (4 marks)

vii. Spell check your data for grammatical errors (1 mark)

viii. Save the data as computer communication (2 mks)

ix. Print the document network software and computer communication (2marks)

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NAME: ……..……..……

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INDEX NO: …… SIGN: …… DATE: ……

BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

313/1
CHRISTIAN RELIGIOUS EDUCATION
PAPER 1
TIME: 2½HOURS

INSTRUCTIONS TO CANDIDATES

- *Answer any **five** questions in this paper in the answer booklet provided*

Questions	**1**	**2**	**3**	**4**	**5**	**6**	**Total**
Score							

1a) Identify any seven literary forms used to write the Bible. (7mks)

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b) Outline the process of Bible translation from the original to the local languages. (7mks)

c) Give six reasons why Christians read the Bible. (6mks)

2a) Describe the call of Abraham in Gen 12: 1-9 (7mks)

b) Outline the process of renewing the covenant between God and Israelites. (7mks)

c) Give six way sin which Christians show respect to God. (6mks)

3a) Identify six Christian teaching on human sexuality. (6mks)

b) Outline seven reasons why some Christians choose celibacy as an alternative to marriage. (7mks)

c) Give seven factors which lead to polygamous marriages in the society today. (7mks)

4a) Give seven obstacles to effective maintenance of law and order. (7mks)

b) Outline seen ways of acquiring wealth in traditional African communities. (7mks)

c) Identify six ways in which Christians use the print media to preach the gospel. (6mks)

5a) Identify Christian teaching on human sexuality (6mks)

b) Reasons why some Christians choose celibacy as an alternative to marriage. (7mks)

c) Reasons that lead to polygamous marriages in the society today. (7mks)

6a) Give seven obstacles to effective maintenance of law and order. (7mks)

b) Outline seven ways of acquiring wealth in traditional African communities. (7mks)

c) Identify six ways in which Christians use the print media to preach the gospel. (6mks)

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NAME: ……..……

SCHOOL: ……

INDEX NO: …… SIGN: …… DATE: ……

BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

313/2
CHRISTIAN RELIGIOUS EDUCATION
PAPER 2
TIME: 2½HOURS

INSTRUCTIONS TO CANDIDATES

- *Answer any **five** questions in this paper in the answer booklet provided*

Questions	**1**	**2**	**3**	**4**	**5**	**6**	**Total**
Score							

1. a) Outline Isaiah's prophecy on the suffering servant (Isaiah 53) (7 marks)

b) Describe the annunciation of the birth of John the Baptist (Luke 1:5-25) (8 marks)

c) State five ways in which a Christian couple should respond to childlessness (5 marks)

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2. a) Describe the commissioning of the Twelve Disciples of Jesus according to Luke 9:1-9. (8 marks)

b) Give six reasons why Jesus faced opposition from the Pharisees and the scribes during his Galilean ministry (6 marks)

c) State six ways in which Christians are taking care of the needy (6 marks)

3. a) Outline the preparations made towards the celebration of the last supper (7 marks)

b) Relate the parable of the prodigal son. Luke 15:11-32 (7 marks)

c) State the lessons learnt about God from the parable of the prodigal son. (6 marks)

4. a) Outline Paul's instructions on the use of spiritual gifts for the purpose of order in the church (7 marks)

b) In what ways was unity demonstrated by Christians in the early church? (7 marks)

c) State six factors that threaten unity in the church today (6 marks)

5. a) Identify Christian teaching on human sexuality (6 marks)

b) Reasons why some Christians choose celibacy as an alternative to marriage. (7 marks)

c) Reasons that lead to polygamous marriages in the society today. (7 marks)

6. a) Give seven obstacles to effective maintenance of law and order. (7 marks)

b) Outline seven ways of acquiring wealth in traditional African communities. (7 marks)

c) Identify six ways in which Christians use the print media to preach the gospel. (6 marks)

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NAME: ……..……

SCHOOL: ……

INDEX NO: …… SIGN: …… DATE: ……

BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

ENGLISH

PAPER 1 101/1

Kenya Certificate of Secondary Education

TIME: 2 HRS

INSTRUCTIONS

- This paper contains 7 printed pages.
- Answer ALL the questions.
- Write your name and index number in the spaces provided.
- All answers MUST be written in the spaced provided in this question paper.
- Candidates should answer the questions in English.

QUESTION	MAXIMUM	SCORE
FUNCTIONAL WRITING	20	
CLOSE TEST	10	
ORAL SKILLS	30	
TOTAL	60	

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1.FUNCTIONAL WRITING (20MKS)

You have read the text "The Caucasian Chalk Circle" and really enjoyed it in preparation for K.C.S.E. You overheard some of your friends in form three discussing the suitability of the text for K.C.S.E. Write a book review on it that will enlighten them about it.

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2. CLOZE TEST

Addiction is an escape **.....** reality, and different people will find **.....** ways to escape from the real world. They can be addicted to food, money, power, work, gambling, sex, love **.....** even to destructive relationships. Do these belong in the same category as alcohol or drugs? And if so, does recovery from those "people addictions'' work the same way as with alcohol and drugs?

Addicts look for substitutes, and the reason **.....** this is always the same: to escape, to close one eye and not to **.....** the facts. By becoming fat, the overeater insulates **.....** rom the world around. It is better to be rejected for the way they look, than for who they are as a **.....** Thus, being fat becomes a way to avoid the risk of intimacy. There are people who are addicted to work. They will go home**.....,** just to avoid interaction with the family.

Workaholism is a dysfunctional attempt to earn self-esteem by being productive. The **.....** may fear intimacy, and take refuge in work as a way of avoiding meaningful interaction with others. Addiction, in every form is a means of survival. Alcoholism is not a slow form of suicide –at least, not as **.....** as the alcoholic is concerned. Alcoholics think of drinks as their best-perhaps their only-means of survival.

3. ORAL SKILLS

A) Read the story below and answer the questions that follow:-

There lived two men who were good friends. One of them was very wise and the other very foolish. One day, they argued between themselves and one said, " I am the wise man in this country." The other said, "No! I am the wisest." As there was no way of measuring wisdom, the two men did not know who was wiser than the other. One day they were discussing the ill-behavior of their wives and one of them said, "If we want them to behave well we must beat them up. Women are like children, beat them up and they will behave well." The other said, "No! If you beat your wife, she will become worse." After arguing for a long time, they kept quiet and went home. On reaching his house, the man who was in favour of beating wives began to beat an ox-skin vigorously. When the other heard this, he thought the sound came from his friend beating his wife and he took a stick and beat his wife severely until she fell sick and later died. When the two men met later, it was now clear who between them was wiser than the other.

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i. Suppose you were narrating this story, what would you do first before narration to capture the attention of the audience? (3mks)

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ii. How would you deliver the speech by the 2nd speaker? "No, I am the wisest."(2mks)

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iii. If you are listening to this story, what would you expect the story teller to do so as to make the story interesting? (3mks)

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iv. During the performance of this narrative, you notice that the audience is very attentive. What are the indicators that will show you that they are attentive? (2 marks)

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B i) Pick the odd word out from each of the sets of words owing to the pronunciation of the underlined tellers.

a) <u>Th</u>is <u>th</u>in <u>th</u>ink <u>th</u>eme

b) Br<u>a</u>ke br<u>ea</u>k br<u>ea</u>d gr<u>ea</u>t

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c) Sword sore code soar

d) Photograph phloem phlegm shepherd

ii) Underline the stressed syllable in the following words.

a) Tailor
b) Comment
c) Context (Adjective)
d) Alarm

C) Imagine you are a member of a discussion group state 4 things that you would do to benefit from the discussion. (4mks)

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D) Read the following conversation between two form four candidates and then answer the following questions.

Judy: Mandi, I am worried my performance in English is not encouraging.

Mandi: Ah! I am happy with my performance in English. I got a clean A last term.

Judy: I really don't know what to do about Mathematics, maybe….

Mandi : I don't like our Geography teacher. He thinks he is the only one who owns a prado. My dad told me he will buy one soon.

Judy: (Trying to bring him back to the conversation)

Tell me, Mandi, how do you revise Mathematics?

Mandi: Oh! Is that David? He has promised to bring me a Nigerian movie (calling)

David ! David! (Then runs after him)

i) Identify the shortcomings in Mandi's listening and speaking skills. (4mks)

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ii) Suggest four ways how he can improve his listening and speaking skills. (4mks)

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NAME: ……..……..……

SCHOOL: ……

INDEX NO: …… SIGN: …… DATE: ……

BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

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.

For examiner's use only

Question	***Maximum***	***Score***
1	***20***	
2	***25***	
3	***20***	
4	***15***	
Total	***80***	

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1. *Read the passage below and answer the questions that follow.* ***(20 marks)***

The core element of Artificial Intelligence (AI) and a functioning production IT system is an interactive, lifelong process of learning from the human partner and responding to human needs. For example, the AI system must be able to draw up highly complex plans as needed by the customer and to produce them **autonomously**. A production robot, in particular, is supposed to be designed in such a way that it has nearly human capabilities such as fine motor skills, perception, adaptability and cognition. In order to achieve its full functionality, however, it must be programmed dynamically and rigidly.

Modern information technologies and the advent of machines powered by artificial intelligence have already strongly influenced the world of work in the 21st century. Computers, algorithms and software simplify everyday tasks.

When we transfer the experience of the past to the future, disturbing questions arise: what will the future world of work look like and how long will it take to get there? Will the future world of work be a world where humans spend less time earning their livelihood? Alternatively, are mass unemployment, mass poverty and social distortions also a possible scenario for the new world, a world where robots, intelligent systems and algorithms play an increasingly central role? What is already clear and certain is that new technical developments will have a fundamental impact on the global labour market within the next few years, not just on industrial jobs but on the core of human tasks in the service sector that are considered **untouchable**.

In addition to companies, employees and societies, education systems and legislators are also facing the task of meeting the new challenges resulting from constantly advancing technology. Legislators are already lagging behind and the gap between reality and laws relating to AI is growing.

Both blue-collar and white-collar sectors will be affected. The faster the process of the division of labour and the more process steps can be described in detail, the sooner employees can be replaced by intelligent algorithms. One third of current jobs requiring a bachelor's degree can be performed by machines or intelligent software in the future. Individual jobs will disappear completely, and new types of jobs will come into being.

Robots and intelligent machines can have not only supporting, but even lifesaving functions. Examples are robots used in medical diagnostics, which have high accuracy, or for the assessment of dangerous objects using remote control and integrated camera systems. These make it possible, for example, to defuse a bomb without a human having to come close to it. The 'Robo Gas Inspector', an inspection robot equipped with remote gas sensing technology, can inspect technical facilities even in hard-to-reach areas without putting humans at risk, for example, to detect leaks in above-ground and underground gas pipelines.

Owing to the great number of emerging multidisciplinary support alternatives due to AI and machines, the requirements for future employees will change. There will be hardly any need for employees who do simple and/or repetitive work. Already today, the number of factory workers is constantly decreasing, and humans are ever more becoming the control mechanism of the machine. The automotive industry, where many production steps are already fully automated, is the **pioneer** in this respect.

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The lower the demand for workers, the higher will be the companies' demand for highly qualified employees. According to common belief, better education helps. Better education helps, however, only in certain circumstances. The additional qualification of an individual employee must be connected to the work in question. Additional qualifications as an accountant will be of little benefit for the individual employee, because – over time – there is a 98 per cent probability that the work of an accountant can be done by intelligent software. Creative people who are talented in mathematics and sciences are best qualified for the new labour market.

Although not every future employee will be required to be an IT programmer, they should have a fundamental grasp of analytical and technical matters. Employees should be able to form a unit with supporting machines and algorithms and to navigate the internet comfortably and move safely in social networks. To do this, it is necessary to know how the basic structurework. The employee should also be able to examine machines and artificial intelligence software critically. It is not necessary only to oversee machines, but also to coordinate them. The interfaces between humans and machines and the overlaps in the area of responsibility among the more flexible humans must also be coordinated.

a) What is the importance of humans to AI systems? (2 marks)

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b) Using illustrations from the passage, explain why the term artificial intelligence is appropriate. (2 marks)

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c) The author seems to have contradictory views about the introduction of Artificial Intelligence in the workplace. Explain. (2 marks)

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d) In your own words and according to the passage, explain why the gap between reality and laws relating to AI is growing. (2 marks)

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e) What **two** characteristics, according to the passage, must an employee have to survive in the new work environment dominated by AI? (2 marks)

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f) Giving a reason, explain whether machines are superior to humans when it comes to work. (1 mark)

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g) Modern information technologies have already strongly influenced the world of work in the 21st century. (Rewrite adding a question tag) (1 mark)

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h) Make notes on the implications of AI in the workplace. (5 marks)

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i) Explain the meanings of the following words as used in the passage. (3 marks)

i. Autonomously

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ii. Untouchable

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iii. Pioneer

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2. *Read the excerpt below and then answer the questions that follow.* **(25 marks)**

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

Professor Kimani joined the University of Nairobi directly as a senior lecturer. Even before taking off, he was already flying. There was a reason. Kenya, Tanzania, and Uganda had justdismantled théir University of East Africa. Kenya's part of the university, now renamed the University of Nairobi, found itself with a vacancy it had to fill immediately in its Institute ofDevelopment Studies.

Professor Kimani, who had just completed his studies at the University of Oxford, wrote fromthere to say he wanted to fill it. To ensure he came and filled it for sure, the University of Nairobi raised his entry point from that of a lecturer to that of a senior lecturer.

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He came. Only a month after his arrival, he launched a noisy debate in which he demanded that the University of Nairobi henceforth strive for relevance to the society rather than simplyexcellence of its work. It was not clear exactly what he meant by relevance to the society rather than simply excellence of its work. It was not clear exactly what he meant by relevanceto the society. However, a short six months later, he prevailed. The university's official mottobecame, 'Relevance to the society'.

After winning this war, he started another war which was even noisier. Now he wanted the university to be an agent of change, not a mere spectator of it. This was when people still thought this view was too radical and ridiculed it as simple- minded. So, not surprising, someof his colleagues, puzzled by his refusal to see that it was simple-minded, did or said little, convinced that he would fall on his face before long and self-destruct on his own without their help.

He did not care. After all, his antics in wars that he had started, and won, had also won him the heart of a campus beauty queen. Her name was Asiya Omondi. He married her on a rainy but approving Saturday, to claps of thunder and flashes of lightning. How marriage then accelerated academic success! A professorship soon followed. After that achievement, he feltfulfilled. His persona now was complete. Had anyone told him this happiness would one dayend as it did, he would have laughed himself upside down.

QUESTIONS

a) After Kimani fills a vacancy in University of Nairobi's Institute of Development Studies,he demands for two changes at the university in quick succession. What are these changes? **(2mks)**

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b) Identify and illustrate three characters traits of Kimani brought out in this excerpt. **(6mks)**

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c) Discuss three themes raised in the excerpt. **(6 mks)**

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d) (i) To ensure he came and filled it for sure, the University of Nairobi raised his entry point from that of a lecturer to that of a senior lecturer. (Write beginning with the mainclause). **(1mk)**

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ii) His persona now was complete**.** **(1mk)**

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e) Identify two stylistic device used in the excerpt. **(4mks)**

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f) Explain the meaning of the following words used in the excerpt. **(4 marks)**

Launched

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Henceforth

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Prevailed

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g) The writer says, 'Had anyone told him this happiness would one day end as it did, hewould have laughed himself upside down." What later happened to Professor Kimaniin the text? **(2 marks)**

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3. Read the poem below and answer the questions that follow. **(20 marks)**

Footpath

Path – let … Leaving home, leading out
Return my mother to me.
The sun is sinking and darkness coming,
Hens and cocks are already inside and babies drowsing,
Return my mother to me.
We do not have firewood and I have not seen the lantern,
There is no more food and the water has run out
Path – let me pray, you return my mother to me.
Path of the small hills, path of the small stones
Path of slipperiness, path of the mud
Return my mother to me.
Path of papyrus, path of the rivers
Path of small forests, path of reeds
Return my mother to me
Path, I implore you, return my mother to me
Path of the crossways, path that branches off,

Path of the stringing shrubs, path of the bridge
Return my mother to me
Path of the open, path of the valley
Path of the steep climb, path of the downward slope
Return my mother to me.
Children are drowsing about to sleep,
Darkness is coming and there is no firewood,
And I have not found the lantern;
Return my mother to me.

Stella Ngatho.

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(a) Who is the persona in this poem? (2 marks)

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(b) Identify and explain the effectiveness of any **two** stylistic devices. (6 marks)

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(c) What is the quality of the voice in the poem? (2 marks)

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(d) Comment on the title of the poem. (2 marks)

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(e) Describe the general atmosphere created in the poem. (2mks)

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(f) With illustrations, briefly state **three** problems that the persona is facing. (3 marks)

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(g) Describe the setting of this poem. (3 marks)

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4. *a)* ***Rewrite the following sentences as instructed, without changing the meaning. (2 marks)***

(i) Pandya said, "I shall find it difficult to find the office without proper directions." (*Rewrite as* ***reported speech****, using* ***'unless'****.)*

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(ii) Should Mrs. Okello see you, she would be surprised. *(Rewrite, Beginning:* ***Were*** *...)*

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b) Complete the following sentences with the most appropriate ***prepositions.*** ***(3marks)***

(i) Subsequent ……..…....the heavy rains many schools were closed in some parts of the country.

(ii) The three students were sent home ……..…… their unbecoming behaviour.

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(iii) The farmers continued working on their farms **…….....** the unfavourable climatic conditions.

c) (i) I went into the room with a pile of files. I tripped on the carpet which had been rolled up. *Rewrite as one sentence, using a **present participle**.* (1 mark)

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(ii) Adela is not accustomed to such behaviour. She was deeply shocked. *(Use a **past participle** to join the two sentences.* (1 mark)

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*d) Complete each of the following sentences using appropriate **phrasal verbs**, made up of the words given in bracket.* (2 marks)

(i) Eggs don't **…….....** me. (agree)

(ii) Can I **…….....** you for help? (count)

*f) In each of the sentences below a group of words is underlined. Write down the **best single word** which may be used to replace it.* (3 marks)

(ii) She is <u>the one who filed the law suit</u>.

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(iii) His argument is <u>quite incapable of being understood</u>.

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*e) Explain the difference in **meaning** between the pair of sentences.*

(a.i) I saw the Secretary and Treasurer.

(a.ii) I saw the Secretary and the Treasurer.

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(b.i) Jane shouldn't have seen me yesterday.

(b.ii) Jane couldn't have seen me yesterday.

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NAME: ……..……

SCHOOL: ……

INDEX NO: …… SIGN: …… DATE: ……

BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

FORM IV

ENGLISH

(Creative Composition and

Essays based on set texts)

PAPER III

TIME: 2 ½ HOURS

INSTRUCTIONS

- *Answer three Questions only*
- *Each essay must not exceed 450 words*
- *Question one and two are compulsory.*
- *In question three choose only one of the optional texts you have prepared on.*

Answer Three Questions Only

1.Imaginative Composition **20 marks**

Either

a) Write a story ending with the following sentence: Truly, to be successful, you must always be humble.

Or

b) Write a story to illustrate the proverb 'Never count your chicks before they hatch'

2.Compulsory Set Text: The Samaritan **20 marks**

Greed is dehumanizing." Using the play, The Samaritan, by John Lara for references, write a composition justifying this statement. **(20mks)**

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3.Optional Set Texts

Answer one question only

Either

a) The Short Story: A Silent Songs

Write an essay showing how war ruins communities making reference to Boyi by Gloria Mwaniga **(20mks)**

b) **Kazuo Ishiguro: Artist of The Floating World.**

The author has been able to effectively employ irony to bring out the message of the text. Illustrate the effectiveness of this style in the text ***An Artist of The floating*** world by Kazuo Ishiguro **(20mks)**

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NAME: ……..……

SCHOOL: ……

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BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

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

312/1

Paper one

GEOGRAPHY.

Instructions to the candidates.

1. This paper has two sections **A** and **B**.
2. Answer **ALL** questions in section A. In section B, answer **question 6** and any **other two** questions.
3. Use separate answer sheets for each question in section B.

FOR EXAMINER'S USE ONLY.

SECTION A	
QUESTION 6	
QUESTION 7	
QUESTION 8	
QUESTION 9	
QUESTION 10	
TOTAL MARKS	

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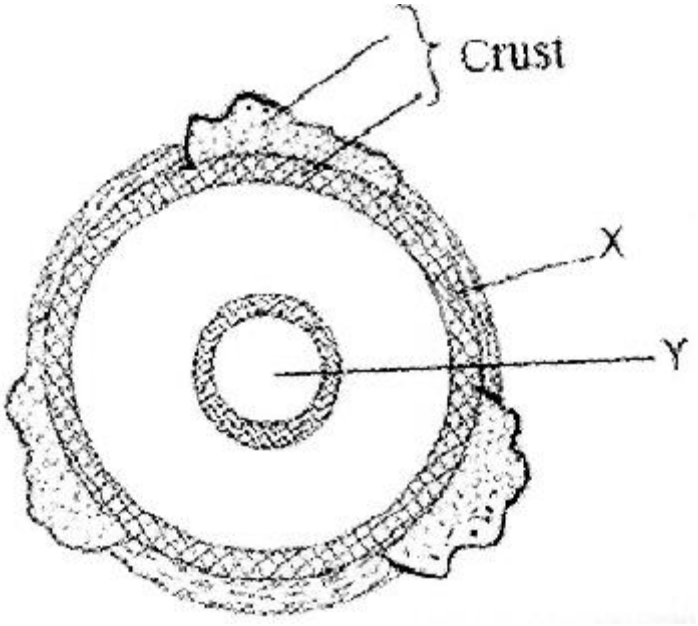
SECTION A: Answer all questions in this section

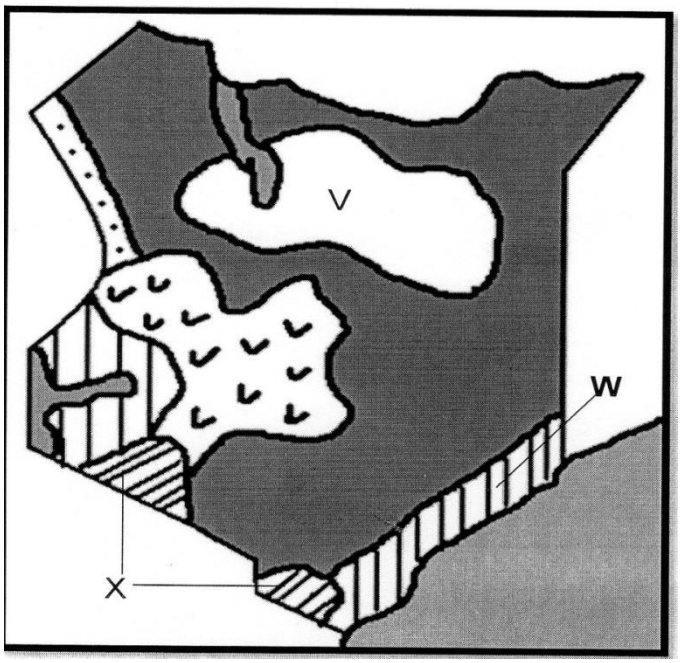
1).(a) The diagram below shows the internal structure of the earth.



(i) Name the parts marked **X** and **Y**. (2marks)

(ii) State **three** characteristics of the upper mantle. (3marks)

2).The map below shows the climatic regions of Kenya



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(i) Name the climatic region marked V and W. (2marks)

(ii) State **three** characteristics of the climatic region marked **X**. (3marks)

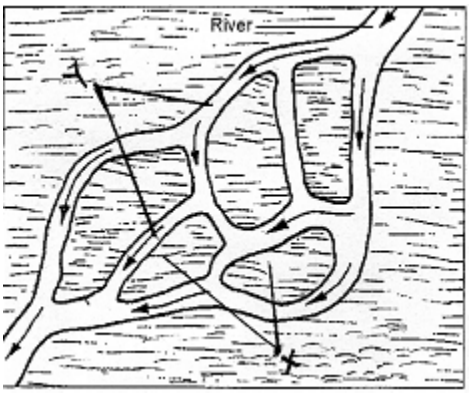
3). (a) Differentiate between intensity and magnitude earthquakes. (3marks)

(b) Name **three** earthquake zones in the world. (3marks)

4). (a) Distinguish between Oceans and Seas. (3marks)

(b) State **three** factors causing the development of ocean currents. (3marks)

5). (a) The diagram below shows a river braid. Identify the parts marked X, Y,. (2marks)



(b) State **three** conditions necessary for the formation of a delta. (3marks)

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SECTION B:

Answer question 6 (six) and any other two questions

6) Study the map of ***Migwani 1:50,000*** (***sheet 151/1***) provided and answer the following questions.

(a) (i) Convert the ratio scale of the map into a statement scale. (2marks)

(ii) What is the name and the sheet number of the map to the south of Migwani. (2marks)

(iii) Give the longitudinal extent of the map. (2marks)

(iv) Calculate the bearing of the trigonometric station at grid square 9264 from Usiani School. (2marks)

(b) (i) Using a vertical scale of 1cm to represent 100metres, draw a cross section along the line J-K. (4marks)

(ii) On it mark and label the following:

- Footpath (1mark)
- Road (1mark)
- Water pipeline (1mark)
- Steep slope (1mark)

(c) Describe the relief of the area covered by the map. (5marks)

(d) Citing evidence from the map, give **two** economic activities carried out in the area covered by the map. (4marks)

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7. (a) (i) Identify **two** features formed by vertical movements. (2marks)

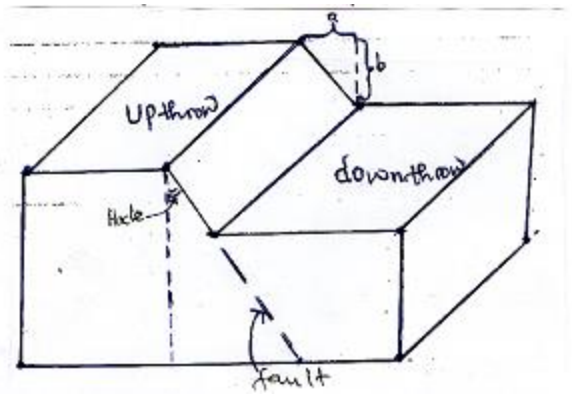
(ii) Explain how the following factors cause earth movements.

- Gravitative pressure. (2marks)
- Isostatic adjustment. (4marks)

(b) Describe the plate tectonics theory. (5marks)

(c) (i) Define the term Faulting. (2marks)

(ii) Study the diagram below and answer the questions that follow.



Name the parts marked A , B (2marks)

(iii) Apart from the above type of fault, name **two** other types of faults. 2marks)

(d) Explain **three** ways in which faulting influences drainage. (6marks)

8. (a) What is secondary vegetation? (2marks)

(b) Explain how the following factors influence vegetation distribution in Kenya

- Soil fertility (2marks)
- Sunlight (2marks)
- Aspect (2marks)

(c) i) State **four** uses of savanna grassland vegetation in Kenya (4marks)

ii) Describe three ways in which desert vegetation has adapted to the climatic conditions.

(6marks)

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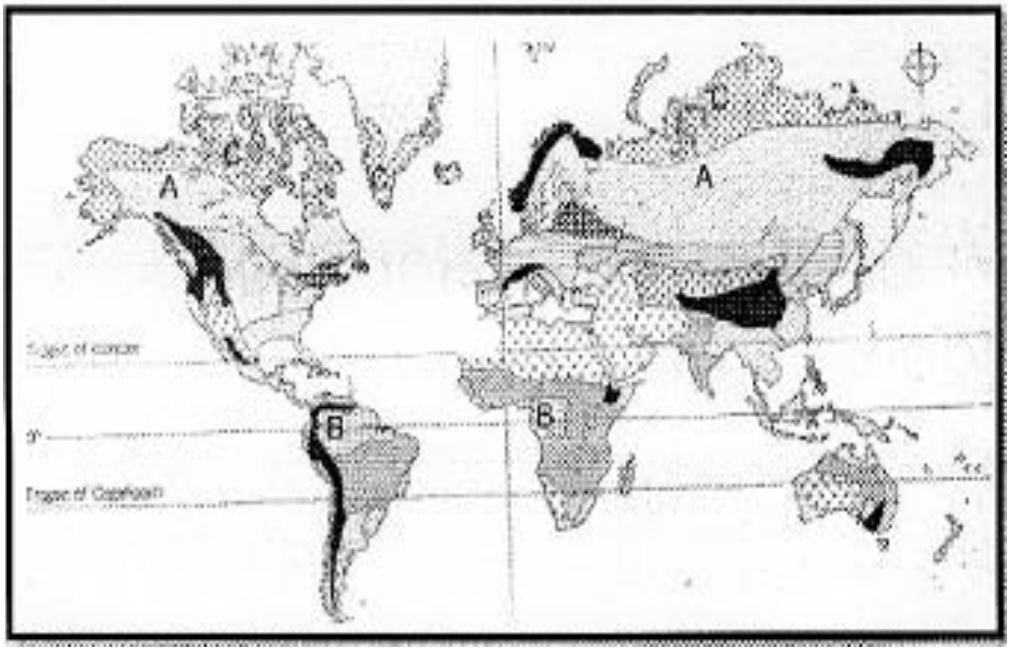
(d) The world map below shows world major vegetation zones. Use it to answer question (i).



(i) Name the vegetation zones marked A, B, and C (3marks)

(ii) State the characteristics of Mediterranean vegetation (4marks)

9. (a) (i) What is the difference between weathering and mass wasting. (2marks)

(ii) Give **three** factors that influence the rate of weathering. (3marks)

(b) (i) Apart from block disintegration and granular disintegration, name **three** other processes of physical weathering. (3marks)

(ii) Describe the following processes of weathering:

- Granular disintegration. (3marks)
- Hydrolysis. (2marks)

(c) You are planning to carry out a field study on types of mass wasting.

(i) Identify **three** methods you would use to collect data. (3marks)

(ii) Give **three** types of rapid mass wasting that you are likely to observe during the field study. (3marks)

(iii) State **two** follow-up activities you are likely to do. (2marks)

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(d) Explain the effects of mass wasting on the following:

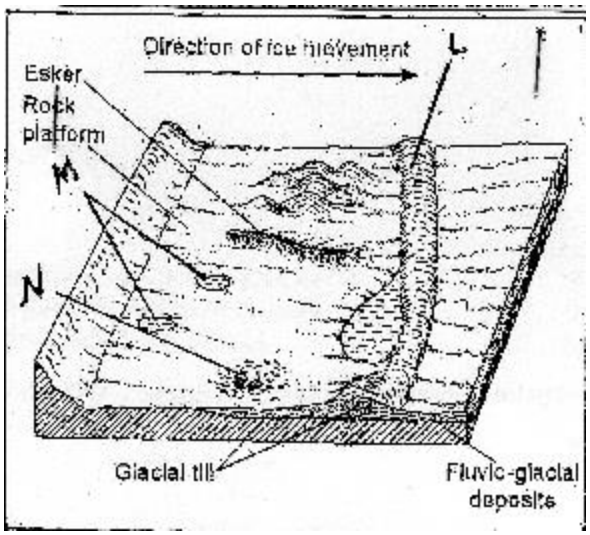
- Tourism. (2marks)
- Soil fertility. (2marks)

10. (a) What is glaciation? (2marks)

(b) Describe the following processes of glacial erosion:

- Plucking. (4marks)
- Abrasion. (3marks)

(c) The diagram below shows features in glaciated lowland areas. Use it to answer question (i).



(i) Identify the features marked L, M, and N. (3marks)
(ii) State **three** characteristics of drumlins. (3marks)
(iii) Describe how eskers are formed. (4marks)

(c) Explain **three** significance of erosional features found in glaciated upland areas.

(6marks)

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NAME: ……..……

SCHOOL: ……

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BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

312/2
Paper 2
GEOGRAPHY

INSTRUCTIONS TO CANDIDATES

- *This paper has **two** sections **A** and **B***
- *Answer **ALL** the questions in section **A**.*
- *In section **B** answer questions **6** and any other **TWO** questions.*
- *Candidates should check to ascertain that all pages are printed and that no questions are missing.*
- *Candidates should answer the questions in section **B** on separate answer sheets.*

SECTION A	
QUESTION 6	
QUESTION 7	
QUESTION 8	
QUESTION 9	
QUESTION 10	
TOTAL	

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SECTION A

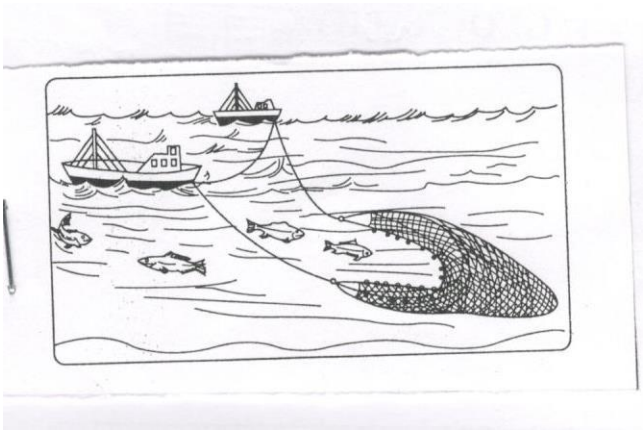
Answer all the Questions in this section

1a) State **two** factors that determine the mode of occurrence of minerals. (2mks)

b) Give **three** ways in which mining causes land derelictions. (3mks)

2a) What is fish farming? (1mk)

b) The photograph provided shows a type of fishing method.



Identify the method and describe how it is used. (4mks)

3a) Define domestic tourism. (2mks)

b) State **three** ways in which eco-tourism is being promoted in East Africa. (3mks)

4a) Name **two** canals found along the Great lakes and Lawrence Seaway (2mks)

b) Give **three** benefits of the St Lawrence Seaway to the economy of Canada and U.S.A (3mks)

5a) Define the term Trade. (2mks)

b) State measures that can be taken to reduce unfavorable balance of trade. (3mks)

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SECTION B

6. The table below shows the production of maize in tonnes between 2015 and 2017 in four divisions in Baringo county. Use it to answer the questions below.

Division	**2015**	**2016**	**2017**
Bartabwa	3005	3500	4000
Barwesa	6087	6198	7786
Kabartonjo	6753	6547	6698
Kipsaraman	4078	5465	5567

a) (i) Calculate the percentage increase of the total maize production in the four divisions between 2016 and 2017 (3mks)

(ii) What is the difference in kilograms between the highest production and the lowest production in the three years. (2mks)

b) (i) Using a radius of 5cm, draw a pie chart to represent production of 2017. (6mks)

(ii) Give **three** advantages of using a pie chart in representing information. (3mks)

c) State **three** climatic conditions favouring the growing of maize. (3mks)

d) Explain **four** problems facing small scale maize farmers in Kenya. (8mks)

7. a) (i) What is reafforestation? (2mks)

(ii) Give **five** reasons why afforestation is being encouraged in Kenya. (5mks)

b) (i) List **three** factors that influence the distribution and types of natural forests in Kenya (3mks)

(ii) State **three** differences between natural forests and planted forests. (3mks)

(iii) Give **two** economic uses of Mangroove forests. (2mks)

c) (i) Explain **two** problems that affect forestry in Canada. (4mks)

(ii) Give measures that the government of Kenya is taking to manage forests in the Country. (6mks)

8a) Define the following terms

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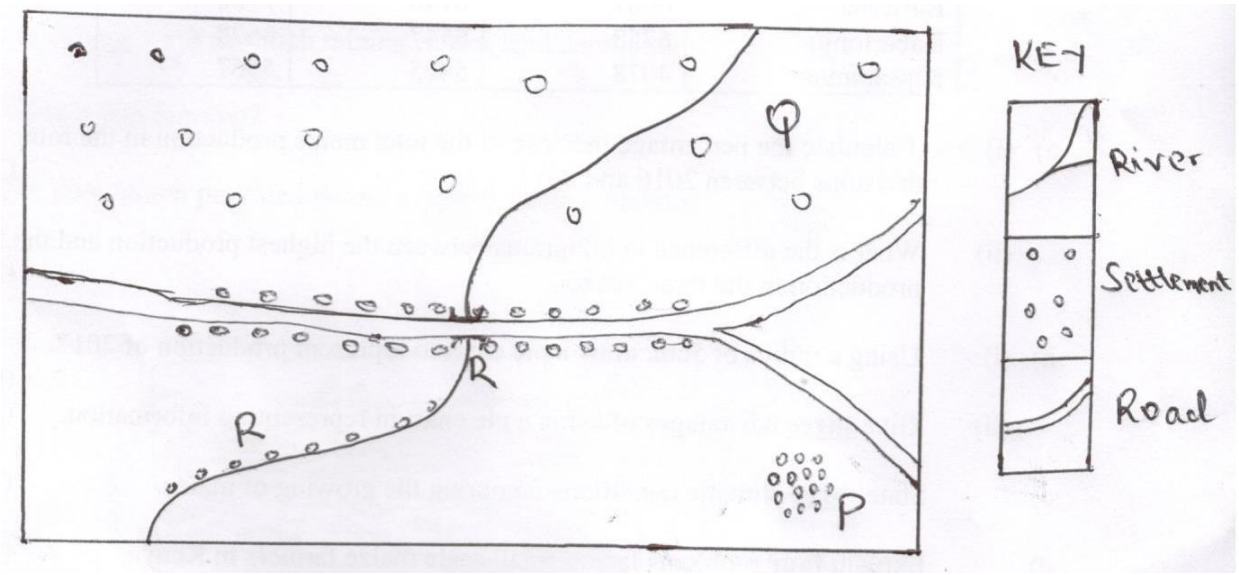
i) Urban sprawl (2mks)

ii) Conurbation (2mks)

Use the sketch map below to answer Questions



b) (i) Name the settlement pattern marked P, Q and R (3mks)

(ii) Explain **four** factors that favour the development of the settlement pattern marked R (8mks)

c) State factors which led to the growth of Eldoret town as an agricultural center. (4mks)

d) State the differences in functions between the cities of New York and Nairobi. (6mks)

9.a)(i) Define cottage industry. (2mks)

(ii) State **five** ways in which Kenya Government assists Jua Kali industries. (5mks)

b) Form Four Geography students carried out a field study at Webuye pan paper mills.

(i) Give **three** importance of preparing working schedule. (3mks)

(ii) State **four** reasons the why the industry was located near River Nzoia. (4mks)

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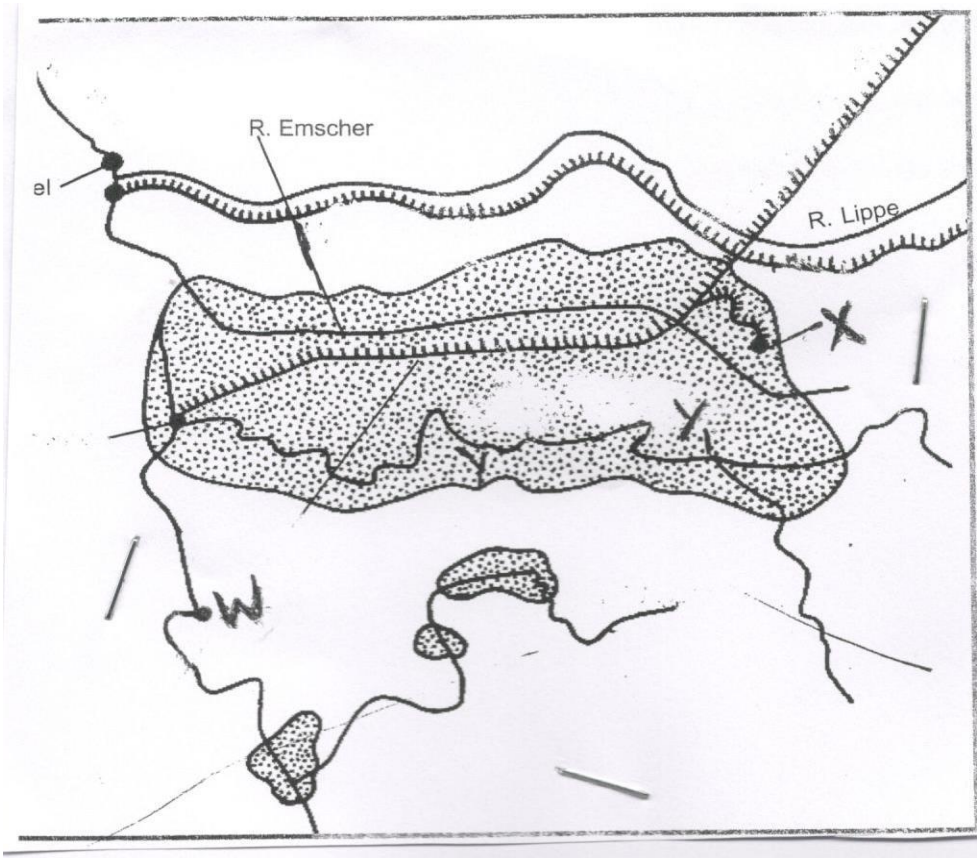
c) The map below shows the Ruhr Industrial region. Use it to answer questions below



(i) Name the canal marked **X** (1mk)

(ii) Name the River marked **Y** (1mk)

(iii) Name the town marked **W** (1mk)

(iv) Name two other industries found in the region apart from Iron and Steel. (2mks)

d) Explain how the following factors led to the growth of Iron and steel industry in the Ruhr Region

- Raw materials (2mks)
- Energy (2mks)
- Capital availability (2mks)

10.a) Define population growth. (2mks)

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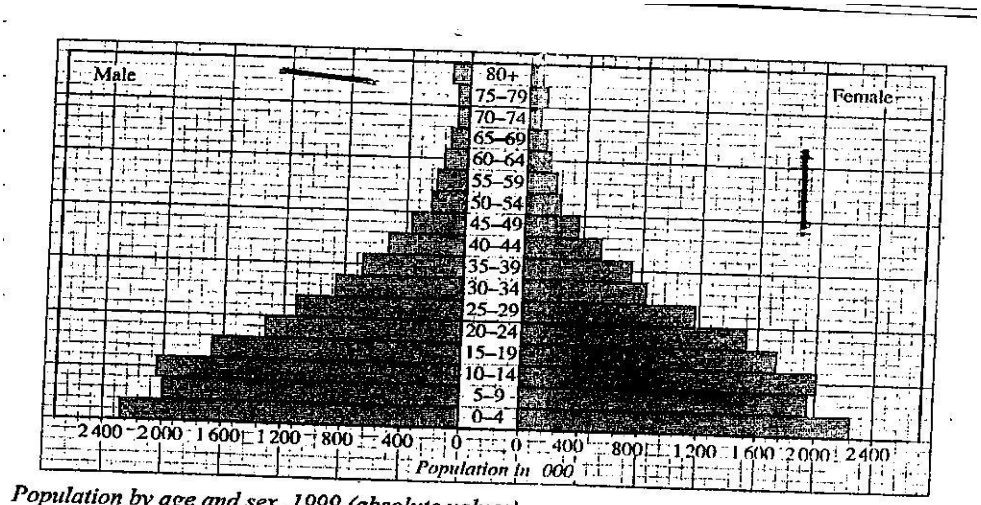
b) State **three** causes of rural-rural migration in Kenya. (3mks)

c) The diagram below represents population structure of Kenya.



Population by age and sex, 1999 (absolute values)

(i) Describe the characteristic of the population as represented by the pyramid. (4mks)

d) (i) Apart from natural calamities, give two other causes of mortality in Kenya. (2mks)

(ii) Give **three** primary sources of population data. (3mks)

(iii) Identify **three** ways in which cultural belief and traditions influence population growth. (3mks)

e) Explain **four** consequences of over population. (8mks)

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NAME: ……..……

SCHOOL: ……

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BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

311/1

HISTORY AND GOVERNMENT

PAPER 1

TIME: 2½ hours

Instructions to candidates

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

(b) Answer **all** the questions in section **A, three** questions from section **B** and **two** questions from section C.

(c) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.

FOR EXAMINERS USE

SECTION	QN	MAX	ORE
A **25MKS**	**1-17**	**25**	
B **45MKS**	**18** **19** **20** **21**	**15** **15** **15** **15**	
C **30MKS**	**22** **23** **24**	**15** **15** **15**	
GRAND TOTAL		**100%**	

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SECTION A: (25MKS)

1. Name **one** example of Economic History. (1mk)
2. Identify **two** sources in which Kenyan communities acquired information during the pre-History period. (2mks)
3. Name **one** community that belongs to Southern Cushites in Kenya. (1mk)
4. How does food shortage in Kenya cause stagnation of Agro-based industries. (1mk)
5. State **two** roles of Ludwig Krapf in spreading Christianity in Kenya. (2mks)
6. Define Dual citizenship. (1mk)
7. Give **two** peaceful methods of conflict resolution. (2mks)
8. Give the significance of 1991 constitutional amendment to the History of Kenya. (1mk)
9. State **two** characteristics of Human rights in Kenya. (2mks)
10. Name **one** community in Kenya that exhibited a mixed reaction to colonial rule. (1mk)
11. State **two** reasons why Africans moved to urban centers during the pre-colonial period. (2mks)
12. Identify **one** political party that represented African interest in 2nd Lancaster House conference in 1962. (1mk)
13. Name **two** political parties formed by Jaramogi Odinga in his career as a politician in Kenya. (2mks)
14. Give the main role of the Attorney General in Kenya. (1mk)
15. Identify the Education commission that proposed 8-4-4 system of Education in Kenya. (1mk)
16. Give the composition of the county Executive committee. (2mks)
17. Identify **two** funds established by Kenya constitution into which public revenue is deposited. (2mks)

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SECTION B : (45 MKS)

Answer ANY three Questions from this Section.

18. (a) Identify **five** ways in which the Kenyan communities interacted during the pre-colonial period. (5mks)
    (b) Describe the social organization of the Nandi during the pre-colonial period. (10mks)

19. (a) Give **five** reasons why Seyyid Said transferred his capital from Muscat to Zanzibar. (5mks)
    (b) Explain **five** reasons that led to the decline of the Portugese rule along the East African coast. (10mks)

20. (a) Why did the British use indirect rule in Kenya? (5mks)
    (b) Explain **five** reasons as to why the Kenyans were defeated by the British during the scramble and partition. (10mks)

21. (a) Identify **five** challenges faced by the Ugandan railway builders. (5mks)
    (b) Explain **five** problems faced by the early political movements in Kenya between 1919-1939. (10mks)

SECTION C : (30MKS)

Answer any TWO Questions from this section

22. (a)Identify **five** factors that limit National Unity. (5mks)
    (b)Explain **five** importance of National Integration in Kenya. (10mk)

23. (a)Identify **five** principles of democracy. (5mks)
    (b)Explain the role of Harambee in nation building (10mks)

24. (a)Identify **five** sources of Public Revenue in National Government. (5mks)
    (b)What is the relationship between the National Government and the county Government. (10mks)

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NAME: ……..……

SCHOOL: ……

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BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

Kenya Certificate of Secondary Education

HISTORY AND GOVERNMENT

Paper 2

Instructions to Candidates

*(a) This paper consists of **three** sections **A, B** and **C.***
*(b) Answer **all** questions in section **A, three** from Section **B** and **two** from Section **C.***
(c) Answers to all the questions must be written legibly in the answer booklet provided.
(d) This paper consists of three printed pages
(e) Candidates should check the question paper to ensure that all pages are printed as indicated and no questions are missing
(f) Candidates should answer the questions in English

SECTION	QN	MAX	SCORE
A (25 Marks)	1-17	25	
	18	15	
	19	15	
	20	15	
	21	15	
	22	15	
	23	15	
	24	15	
GRAND TOTAL		100%	

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Section A (25 marks)

Answer all questions in this section

1. What is paleontology? (1 mark)

2. Identify **two** ways in which the Homo Erectus attempted to improve his way of life. (2 marks)

3. Give **two** reasons why early agriculture developed along the Nile Valley. (2 marks)

4. State the **main** factor that motivated most communities to engage in trade during the pre-colonial period. (1 mark)

5. Identify **one** challenge experienced in space exploration. (1 mark)

6. Identify **one** form of message that could be relayed by the use of drum beats in ancient times. (1 mark)

7. State **two** uses of steel during the industrial revolution. (2 marks)

8. Identify **two** challenges facing industrial development in Brazil. (2 marks)

9. State **one** factor that led to the growth of Kilwa as an early urban centre. (1 mark)

10. State **two** ways through which trade contributed to the rise of Asante Empire during the 19th Century. (2 marks)

11. State **two** negative political effects of the partition of Africa by European powers. (2 marks)

12. Name the chartered company that administered Northern Nigeria during colonization. (1 mark)

13. Identify **one** factor that led to the Accra riots of 1948 in Ghana. (1 mark)

14. State **two** ways in which the treaty of Versailles signed in 1919 affected Germany. (2 marks)

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15. State **two** conditions that a country should fulfill in order to become a member of the Non-Aligned Movement. (2 marks)

16. Name **one** financial institution established by the African Union. (1 mark)

17. Give **one** way in which the policy of nationalization slowed down economic development in Tanzania during the rule of Julius Nyerere. (1 mark)

Section B (45 marks)

Answer any three questions from this section

18. (a) State **five** advantages of oral traditions as a source of information on History and Government. (5 marks)

(b) Describe the culture and way of life of early man during the Late Stone Age. (10 marks)

19. (a) State **five** modern sources of energy used in industries today. (5 marks)

(b) Explain **five** factors that promoted industrialization in Japan. (10 marks)

20. (a) Identify **five** methods used by nationalists in South Africa during the liberation struggle. (5 marks)

(b) Explain **five** roles played by Nelson Mandela in the struggle for independence in South Africa. (10 marks)

21. (a) Identify the administrative structure of the Buganda Kingdom during the pre-colonial period. (5 marks)

(b) Describe the political organization of the Shona during the pre-colonial period. (10 marks)

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Section C (30 marks)

Answer any two questions from this section

22. (a) Identify **five** causes of the First World War. (5 marks)

(b) Explain **five** reasons why the Axis powers were defeated during the Second World War. (10 marks)

23. (a) Identify **five** economic challenges facing African countries today. (5 marks)

(b) Explain **five** social challenges facing Democratic Republic of Congo (DRC) since independence. (10 marks)

24. (a) State **five** roles of the Queen of Britain. (5 marks)

(b) Explain **fiv**e functions of the President of the United States. (10 marks)

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JINA: …….

NAMBARI YA USAJILI: …….. DARASA:…….....

SAHIHI YA MTAHINIWA……..TAREHE……..

102/1

KISWAHILI

Karatasi ya 1

INSHA

Muda : Saa 1 ¾

BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education

Maagizo

- ***a)*** ***Andika jina lako na nambari ya usajili kwenye nafasi ulizoachiwa hapo juu.***
- ***b)*** ***Tia sahihi yako kisha uandike tarehe ya mtihani katika nafasi ulizoacha hapo juu***
- ***c)*** *Andika insha* ***mbili****. Insha ya kwanza ni ya* ***lazima.***
- ***d)*** *Kisha chagua insha moja nyingine kutoka kwa hizo tatu zilizobakia.*
- ***e)*** *Kila insha isipungue maneno 400*
- ***f)*** *Kila insha ina alama 20*
- ***g)*** ***Karatasi hii ina kurasa 2 zilizopigwa chapa.***
- ***h)*** ***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	
2	20	
3	20	
4	20	
Jumla	40	

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SWALI LA LAZIMA

1. Kamati ya uajiri ya kaunti yako imekualika kwa mahojiano ya afisa msimamizi wa kukabiliana na janga la mafuriko. Andika tawasifu utakayoiwasilisha kwa kamati hiyo.

2. Ufisadi umekuwa tatizo sugu nchini. Jadili vyano vyake na upendekeze suluhu kwa uovu huo.
3. Pang'okapo jino pana pengo

Kisha kidhihirishe maana ifuatayo.

4. Andika insha itakayoanza kwa maneno haya;

Nilishusha pumzi, nikashukuru. . Masaibu yangu yalikuwa yamefika kikomo na maisha ya siku zijazo yalijaa matumaini.

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Jina ……

Nambari ya Mtahiniwa ……..…… Sahihi ya Mtahiniwa ……

Tarehe …….

BRILLIANT STUDENT PRE-MOCK 1 EXAMS

KIDATO CHA NNE
102/2 -
KISWAHILI
Karatasi ya 2
LUGHA
Muda: Saa 2 ½

Maagizo
(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 yote.
(d) Majibu yote yaandikwe katika nafasi ulizoachiwa katika kijitabu hiki cha maswali.
(e) Majibu yote lazima yaandikwe kwa lugha ya Kiswahili.
(f) Usitoe ukurasa wowote kutoka kwenye kijitabu hiki.
*(g) Karatasi hii ina kurasa **12** zilizopigwa chapa.*
(h) Watahiniwa ni lazima wahakikishe kwamba kurasa zote za karatasi hii zimepigwa chapa sawasawa na kuwa maswali yote yamo.

Kwa matumizi ya mtahini pekee

Swali	Upeo	Alama
1	**15**	
2	**15**	
3	**40**	
4	**10**	
Jumla	**80**	

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1. UFAHAMU

Soma kifungu kifuatacho kisha ujibu maswali yanayofuata.

Athari za muda mrefu za pombe hutapakaa baina ya uwezekano wa faida za kiafya kwa watumiaji wa viwango vya chini vya pombe hadi madhara makubwa katika hali ya matumizi mabaya ya pombe kwa muda mrefu.

Viwango vya juu vya matumizi ya pombe huhusiana na ongezeko la hatari ya kuendeleza ulevi, ugonjwa wa moyo, kutofyonza vyakula, ugonjwa sugu wa kongosho, ugonjwa wa ini kutokana na pombe, na kansa. Uharibifu kwa mfumo mkuu wa neva na mfumo wa neva za pembeni unaweza kusababishwa na matumizi kila mara ya pombe. Matumizi ya pombe kupita kiasi kwa muda mrefu yanaweza kuharibu takribani kila kiungo na mfumo katika mwili. Ubongo unaokua wa kijana aliyebaleghe huwa hasa katika hatari kubwa ya kudhurika na sumu ya pombe.

Kihistoria, madaktari wametetea pombe kwa faida zake za kiafya na hivi karibuni kwa ajili ya uwezo wake wa kulinda watumiaji dhidi ya ugonjwa wa moyo. Kuna ushahidi wa faida kwa mishipa ya moyo inayotokana na kutumia kinywaji kimoja hadi viwili kwa siku, hata hivyo, faida za kiafya kutokana na unywaji pombe kwa wastani ni swala lenye utata. Shauku zimetolewa kuwa sawa na ilivyo katika sekta ya dawa, wadau wa sekta ya pombe pia wamehusika katika kutilia chumvi faida za kiafya za pombe. Pombe inapaswa kuonekana kama dawa ya burudani yenye uwezo mkubwa wa kusababisha athari mbaya kwa afya na haipendekezwi kwa ulinzi wa moyo badala ya mbinu nyinginezo za salama na zilizothibitika za jadi kama vile lishe bora mazoezi na tiba.

Baadhi ya wataalamu wanadai kuwa faida za matumizi ya pombe ya wastani zinaweza kupitwa na ongezeko la hatari ikiwa ni pamoja na majeraha, vurugu, uharibifu wa mimba, aina fulani za saratani, ugonjwa wa kongosho na presha. Kwa vile faida bainifu za kiafya za matumizi ya pombe ya wastani ni ndogo kwa watu walio katika hatari ndogo ya kupata maradhi ya moyo, wataalamu wengine wanatahadharisha itumike kwa tahadhari kwa sababu ya uwezekano kwamba kupendekeza matumizi wastani ya pombe kunaweza kusababisha ongezeko la hatariya matumizi mabaya ya pombe, hasa miongoni mwa vijana.

Madhara mabaya ya matumizi ya pombe kwa muda mrefu kupita kiasi ni sawa na yale yanaoonekana katika vitulizi-hipnoti vingine (mbali na sumu kwa viungo ambayo hutatiza zaidi katika pombe). Athari za kujiondoa katika pombe na utegemezi hukaribia sana kufanana. Pombe cha kiwango wastani ina athari chanya na hasi kwa afya. Athari hasi ni pamoja na ongezeko la hatari ya magonjwa ya ini, saratani ya orofarinji, kansa ya

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umio na ugonjwa wa kongosho. Kinyume na hayo, unywaji wastani wa pombe unaweza kuwa na athari za faida kwa gastriti na kolelithiasi. Matumizi sugu na mabaya ya pombe huwa na athari kubwa wa afya ya mwili na akili. Unywaji sugu wa pombe kupita kiasi au utegemezi pombe, unaweza kusababisha uharibifu mpana wa viungo mbalimbali vya neva za ubongo, mfumo wa neva ama ugonjwa wa mishipa ya moyo, maradhi ya ini, na neoplasmsi isiyopona. Matatizo ya akili ambayo huhusishwa na ulevi ni pamoja na mfadhaiko mkubwa, disthimia, mania, hipomania, tatizo la hofu, tatizo la wasiwasi wa kijumla, tatizo la tabia za mtu, skizofrenia, kujinyonga, upungufu wa mfumo wa utendakazi mwilini (kwa mfano kazi za kumbukumbu, hisia, kazi za uamuzi, uwezo wa kuona,mwendo na uwiano) na uharibifu wa ubongo. utegemezi wa pombe ni huhusishwa na shinikizo la damu, ugonjwa wa moyo na kiharusi cha iskemi, kansa ya mfumo wa upumuaji, mbali pia na saratani ya mfumo wa mlo, ini, kifua na ovari. Unywaji kupita kiasi huhusishwa na ugonjwa wa ini, kama vile sairosi. Tafiti zimelenga wanaume na wanawake, vikundi vya umri mbalimbali na watu wa makundi mengi ya kijamii. Machapisho kwa sasa yanafikia jumla ya mamia huku tafiti zikiweza kuonyesha uwiano uliopo kati ya matumizi wastani ya pombe na afya
ambayo labda yanaweza kuwa yalitokana na athari za manufaa ya maingiliano ya kijamii ambayo mara nyingi huambatana na matumizi ya pombe. Baadhi ya njia mahususi ambapo pombe huweza kuathiri afya ya mishipa ya moyo zimetafitiwa.

Maswali

a. Yape makala haya mada faafu. (alama 1)

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b. Eleza madhara yanayotokana na uharibifu wa mfumo mkuu wa neva za pembeni.
(alama 2)

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c. Eleza faida za matumizi ya pombe kwa mujibu wa kifungu. (alama 3)

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d. Mwandishi anapendekeza vipi kwa matumizi ya pombe ya kiwango cha wastani?
(alama 3)

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e. Matumizi sugu yana malipo yapi kulingana na madaktari. (alama 3)

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f. Tafiti zilizofanywa zililenga jinsia ya kiume pekee. Thibitisha. (alama 1)

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g. Eleza maana ya misamiati hii kulingana na taarifa (alama 2)

(i) wadau ……..

(ii) aliyebaleghe ……...

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2. UFUPISHO

Ni dhahiri shahiri kwamba ***uharamia*** umechipuka kama desturi na mfumo wa maisha katika siku za hivi karibuni. .Janga hili limeshamiri hususan pembeni mwa bara la Afrika na kanda ya Afrika Mashariki. Taarifa za uharamia zimetawala vyombo vya habari, kiasi kwamba haipiti siku bila kuripotiwa visa vipya vya matendo haya mabovu ambayo yanaweza tu kumithilishwa na uhayawani. Matukio haya yamewalimbikizia mabaharia wa nchi husika, simanzi na masaibu yasiyoweza kuatiwa kwenye mizani.

Yamkini tatizo hili halitokei pasi na kumotishwa na kitita kikubwa cha fidia kinachodaiwa na maharamia hawa. Aghalabu, suala hili lahusishwa pakubwa na azma na ari ya kuendeleza ujambazi wa kimataifa sawia na ulipuaji wa bomu mjini Nairobi na Dare-es salaam mnamo Agosti 7,1998 na tukio la Septemba 11, mwaka wa 2001 kule Marekani. Maafa na uharibifu wa mali si hoja, la mno kwa maharamia ni kutosheleza matakwa yao. Kwa upande mwingine, ukosefu wa tawala- wajibika katika maeneo kunakotokea unyama huu ni thibitisho tosha la mazingira yanayowezesha na kuruhusu kuchipuka kwa janga hili.

Mchipuko wa baa la uharamia umelengwa jamii ya kimataifa ambayo ni mhudumu mkuu wa harakati za kusitisha majanga makubwa kama vile njaa, umasikini na magonjwa yaliyosheheni pakubwa barani. Bila shaka, hili ni suala linalosawisishwa na 'kinyume mbele'. Maharamia wanatishia utangamano wa kimataifa wanapotibua usafiri wa abiria na shehena zinazoelekezwa sehemu tofauti ulimwenguni.

Matumizi ya kidiplomasia na mashauriano hayaelekei kuzalisha matunda katika juhudi za kudhibiti uharamia. Zaidi ya hayo, matumizi ya nguvu yahusishayo mashambulizi pamoja na maharamia kufunguliwa mashtaka nchini Kenya na Ufaransa kunaelekea kuzipiga jeki juhudi za uharamia ulimwenguni. Aidha, utawala wa nchi kunakochipuka uharamia haujajizatiti kuharamisha doa hili linalotisha ustawi wa kimataifa.

Mathalan, ni jambo lisilopingika inapobainika kuwa uharamia umedumaza biashara ya kimataifa, hali inayochangia upungufu na ucheleweshaji wa bidhaa muhimu zinazoendeleza ustawi wa uchumi. Dosari hii inaelekea kukwamiza mojawapo wa malengo ya maendeleo ya milenia yanayosisitiza uimarishaji na ushirikiano wa maendeleo na upanuzi wa masoko ulimwenguni. Harakati za kitalii katika kanda mashariki ya bara la Afrika zimehujumiwa. Ni muhali kwa utali kustawi kwenye maeneo yaliyo na tishio la usalama. Itakumbukwa bayana kwamba watalii hawasafiri tu kwa ndege bali hata kwa meli.

Jitihada za kuweka laini za mawasiliano chini ya bahari ili kurahisisha na kupunguza gharama za ***mtandao*** ulimwenguni ni ndoto ambayo haijatimia hadi hivi sasa, kufuatia juhudi za maharamia katika bahari ya Hindi. Kwa mujibu wa hali hii, mawasiliano mepesi na nafuu yasitarajiwe hivi karibuni . Licha ya hayo, shughuli za uvuvi na biashara nyinginezo kwenye kanda ya mwambao zimetiliwa shaka si haba.

Itabidi mikakati kabambe na suluhisho la kudumu liweze kupatikana ili vitendo vya uharamia viweze kusitishwa.

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(a) Fupisha aya mbili za kwanza kwa maneno 70 (alama 8, 1 ya mtiririko)

Matayarisho

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Nakala safi

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(b) Onyesha jinsi ambavyo Kenya imeathiriwa na uharamia na namna hali hii inatia hofu. Maneno 60, (alama 7, 1 ya mtiririko 1)

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Matayarisho

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Nakala safi

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MATUMIZI YA LUGHA

(a) Andika neno lenye silabi mbili za irabu. (alama 1)

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(b) Ni sauti gani haifai kuwa miongoni mwa hizi? Toa sababu. (alama 2)

/ng'/, /g/, /t/, /k/

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(c) Tunga sentensi mbili tofauti kwa kutumia neno walakini kama: (alama 2)

(i) kiunganishi

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(ii) nomino

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(d) Panga maneno yafuatayo ili kutunga sentensi sahihi ya Kiswahili. (alama 2)

Walikataliwa wanasiasa baadhi ya katika nchi wachache uhasama waliochochea.

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(e) Ainisha mofimu katika neno lifuatalo

Hakumjia (alama 3)

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(f) Tambua shamirisho katika sentensi hii

Chema alimuuzia mtalii wa Kimarekani leso za Kimaasai. (alama 2)

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(g) Unganisha sentensi zifuatazo ukitumia o – rejeshi tamati katika wingi. (alama 2)

Kambare amenaswa demani.

Kambare atauzwa sokoni.

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(h) Tunga sentensi yenye kivumishi cha jina. (alama 2)

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(i) Changanua kwa jedwali

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Kama atasoma kwa bidii, atapita mtihani. (alama 3)

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(j) Tunga sentensi sahihi ukitumia visawe vya neno ‘dalali’. (alama 1)

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(k) Andika udongo wingi wa sentensi ifuatayo

Njia hii inafaa zaidi kuliko ile. (alama 2)

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(l) Mwajiri wao amekuja kuwalipa mshahara. (Andika katika hali ya ukatavu) (alama 2)

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(m) Andika sentensi hii upya ukitumia chagizo cha wakati. (alama 1)

Bata alienda mjini.

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(n) Geuza sentensi ifuatayo iwe katika usemi halisi. (alama 2)

Moraa alituahidi kuwa angetutembelea mwaka ambao ungefuata.

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(o) Andika upya kulingana na maagizo (alama 2)

(i) Mgonjwa amelazwa hospitalini (kutendesheka)

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(ii) Mama ameinjika chungu mekoni. (tendua)

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(p) Andika miundo miwili ya kirai nomino. (alama 2)

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(q) Mbali na kutumika mwanzoni mwa sentensi na nomino za pekee, eleza matumizi mengine mawili ya herufi kubwa. (alama 2)

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(r) Kwa kutoa mifano, onyesha miundo mitatu ya ngeli ya U – ZI. (alama 3)

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(s) Onyesha matumizi mawili ya kiambishi {i} (alama 2)

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(t) Tumia kishazi tegemezi katika sentensi kuvumisha nomino. (alama 2)

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ISIMU JAMII

Soma dondoo lifuatalo kisha ujibu maswali yanayofuata.

Mwatani: Rusha hiyo ball haraka tumechelewa five minutes. Twende daro.

Omoshi: Harakisha mode anacome.

Bwana Kipiti: Nendeni darasani haraka! Kisha kiranja awape vitabu vyenu vya insha ili mwandike barua.

Mwatani: Sawa mwalimu. Samahani kwa kuchelewa uwanjani.

Omoshi: Je, tutaandika barua rasmi au barua ya kawaida?

Bwana Kipiti: Mwandike barua rasmi. Je, mnakumbuka muundo wake?

Omoshi na Mwatani: Ndio mwalimu. Ulitufundisha jana. Asante sana mwalimu.

Bwana Kipiti: Kumbukeni idadi ya maneno. Idadi ya maneno ni muhimu katika uandishi wa insha.

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Maswali

(i) Eleza sajili katika dondoo. (alama 2)

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(ii) Eleza sifa nane za sajili hii zinazopatikana katika dondoo. (alama 8)

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Jina ……

Nambari ya Mtahiniwa …….…… Sahihi ya Mtahiniwa ……

Tarehe …….

BRILLIANT STUDENT PRE-MOCK 1 EXAMS

102/3

KISWAHILI

Karatasi ya III

Kidato cha IV

Muda: Saa 2½

MAAGIZO

- Jibu maswali manne pekee
- Swali la kwanza ni la lazima
- Maswali hayo mengine matatu yachaguliwe kutoka sehemu zilizobaki – Riwaya,Tamthilia, Hadithi fupi au Fasihi Simulizi
- Usijibu maswali mawili kutoka sehemu moja
- Kila swali lina alama 20
- Majibu yote yaandikwe kwa lugha ya Kiswahili
- Watahiniwa wahakikishe kuwa kurasa zote zimepigwa chapa sawasawa na maswali yote yamo

SEHEMU YA A. USHAIRI

1.Soma shairi hili kisha ujibu maswali yanayofuata.

Jukwani naingia, huku hapa pasokota,
Kwa uchungu ninalia, hii tumbo nitaikata,
Msiba mejiletea,nimekila kiso takata,
We tumbo nitakupani, uwe umetosheka?

Wazee hata vijana, wote umewasumbua,
Huruma nao hauna, heshima kawakosea,
Ukambani na Sagana, hata mbwa wararua,
We tumbo nitakupani, uwe umetosheka?
Wahasibu ofisini, kibwebwe mejifunga,
Miaka mingi vitabuni, ili wasikose unga,
Nadhari wanadhamini, hesabu wanazirenga,
We tumbo nitakupani, uwe umetosheka?

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Wapenzi wa kiholela, pia wanakuogopa,
Baada yao kulala, wana wao wanatupa,
Wakihitaji chakula, wanachokora mapipa,
We tumbo nitakupani, uwe umetosheka?

Wafugaji hata nao, kama dawa wakwamini,
Hawajali jiranio, wamesusia amani,
Wanaiba ng'ombe wao, na kuzua kisirani,
We tumbo nitakupani, uwe umetosheka?

Nayo mizozo ya maji, kaonekana kwa mara,
Hiyo nayo ni dibaji, sababu sio harara,
Njaa wahepe wenyenji , huo ndio mkarara,
We tumbo nitakupani, uwe umetosheka?

Ningeweza kukuuza, ingekuwa siku njema,
Tena kwa bei ya meza, sokoni nimesimama,
Wala tena singewaza, kuhusu wali na sima,
We tumbo nitakupani, uwe umetosheka?

Hatima umefikika, naenda zangu nikale,
Mate yanidondoka, kwa mnukio wa wale,
Naomba kwenda kukaa, wala sio nikalale,
We tumbo nitakupani, uwe umetosheka?

Maswali

i. Lipe shairi hili anwani. **(alama 1)**
ii. Shairi hili ni la aina gani? Toa sababu. **(alama 2)**
iii. Fafanua muundo wa shairi hili. **(alama 4)**
iv. Ni sheria gani za utunzi wa mashairi zilizotumiwa katika shairi hili. **(alama 2)**
v. Andika ubeti wa nne kwa lugha ya nathari. **(alama 4)**
vi. Taja nafsi neni. **(alama 1)**
vii. Kulingana na ushairi, tumbo husababisha shida gani? **(alama 4)**
viii. Eleza maana ya maneno yafuatayo. **(alama 2)**

a) Kiholela
b) Kisirani

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SEHEMU YA B.

TAMTHILIA YA BEMBEA.

2. Eleza namna wahusika mbalimbali wanakabiliana na changamoto zinazowakumba katika tamthilia ya Bembea ya Maisha **(alm20)**

3. Maji yangekuwa yamewafika Shingo basi wangeshindwa kuishi pamoja. Ndoa ni bembea. Kuna wakati itakuwa iuu na wakati itakuwa chini. Hizo juu — chini chini —juu ndizo utamu wake. Ni kama maisha kwa jumla. Yanapandashuka ndiyo lakini pandashuka hizo ndizo hutupa kuridhika hatimaye tunapozishinda.Maisha yangekuwaje bila hali kubadilika?

(a) Weka dondoo hili katika muktadha wake. **(alm4)**

(b) Tambua mbinu za kimtindo zilizotumika katika dondoo. **(alm4)**

(c) Tambua maudhui mawili yanayojitokeza katika kifungu hiki. **(alm2)**

(d) Fafanua maudhui moja katika swali la (c) kwa kurejelea tamthilia nzima. **(alm4)**

(e) Jadli dhana iliyopigiwa mstari inavyojitokeza katika maisha ya msemaji **(alm6)**

SEHEMU YA C.

MPAMBAZUKO YA MAISHA NA HADITHI NYINGINE

Jibu swali la 4 au 5.

4. ..iwapo penzi hili litatia doa, basi nirudishie mfuko huu kama ishara ya kulitupa penzi langu kama jongoo na mti wake..."

a) Eleza muktadha wa dondoo hili. **(alm4)**

b) Fafanua mbinu mbili ambazo zimetumika katika dondoo hili. **(alm4)**

c) Eleza sifa sita za msemaji wa maneno haya. **(alm6)**

d) Eleza umuhimu wa msemewa wa hadithi hii katika kujenga ploti. **(alm6)**

5. Wafanyikazi katika nchi nyingi zinazoendelea wanakumbwa na changamoto nyingi sana. Thibitisha hali hii kwa kurejelea hadithi ya " harubu ya Maisha **(alm20)**

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SEHEMU YA D

NGUU ZA JADI

Jibu swali 6 au 7

6. “Binadamu wanaendeshwa na ubinafsi katika jamii ya kisasa".Thibitisha kwa kurejelca riwaya ya Nguu za Jadi. **(al.20)**

7. Binadamu ni viumbe saliti. Thibitisha kwa kurejelea riwaya ya Nguu za Jadi. **(al.20)**

SEHEMU YA E.
FASIHI SIMULIZI

8. a) Eleza sifa tano bainifu za fasihi simulizi. **(alm5)**
b) Taja njia mbili za kisasa za kuhifadhi fasihi simulizi **(alm2)**
c) Ni nini umuhimu wa fasihi simulizi katika jamii. **(alm13)**

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NAME: ……..……

SCHOOL: ……

INDEX NO: …… SIGN: …… DATE: ……

BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

121/1
Mathematics Paper 1
Form 4
2 ½ 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 from section I and ***ANY FIVE*** from section II
- All answers and workings must be written on the question paper in the spaces provided beloweach 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

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 I 50 MARKS

1. Without using tables, evaluate $\frac{\mathbf{0.51x5700}}{\mathbf{6.8x0.0095}}$ giving the answer in standard form. (3mks)

2. Find the value of t in the following equation $\mathbf{81^{-1} \times \left(\frac{1}{27}\right)^{t} = \frac{1}{243^{-1}}}$ (3mks)

3. Simplify the expression (3mks)

$$\frac{\times^{\mathbf{2}} \mathbf{- 9y^2}}{\mathbf{2x^2 - \ 7 \times y + 3y^2}}$$

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4. Evaluate using tables of reciprocals and cubes only expressing your answer to 4 significant figures

$$\frac{4}{0.2356} + (0.9873)^3$$ (3mks)

5. Simplify; $\frac{2}{3}$ of $5\frac{2}{5} - 2\frac{3}{10}$ (3mks)

$$\frac{3}{5} \div 4\frac{1}{2} + 1\frac{3}{5}$$

6. Find the equation of a line which passes through the point (2, 3) and is perpendicular to $y = 3x - 1$. Giving your answer in the double intercepts form (3mks)

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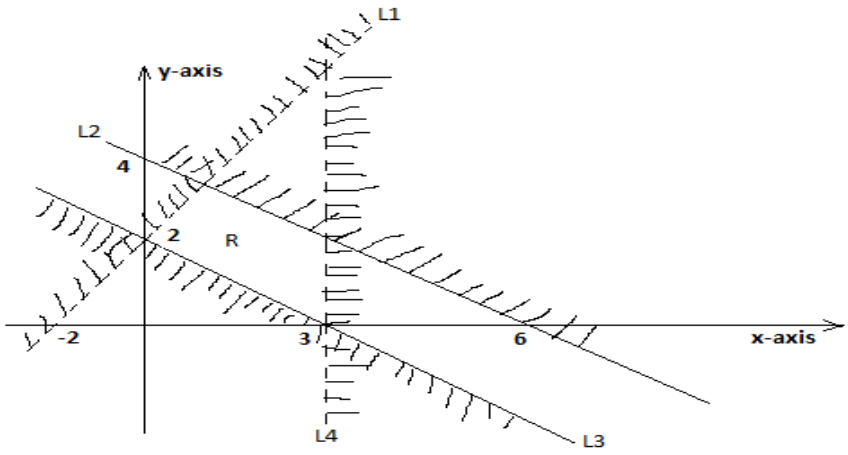
7. George received 1O,OOO Euros from his brother who stays in France .He sent to his sister who stays in Japan 10,000 Yen .In addition George bought a car worth sh.200,000. Exchange rates :

	Buying	**Selling**
1 Euro	73.4226	73.52953
100 Japanese yen	62.8011	62.8822

How much was left. (3marks).

8. Write down four inequalities which fully describe the unshaded region R in the figure S below (4mks)



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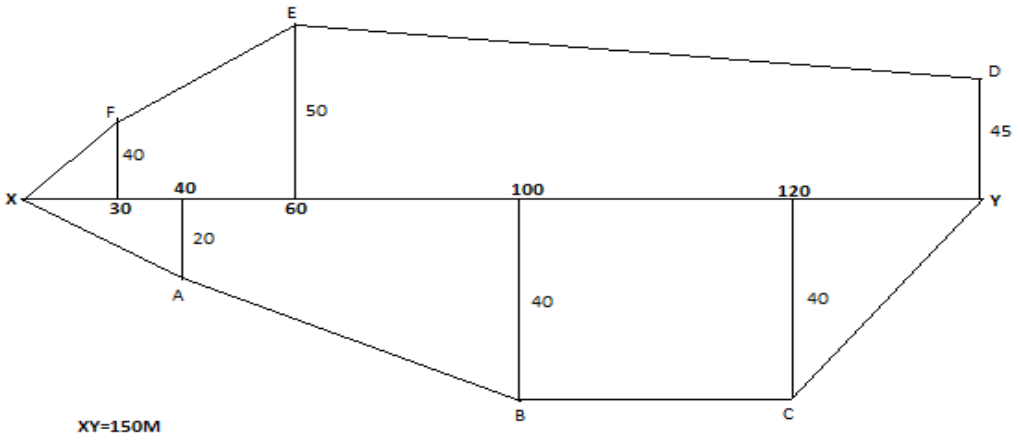
9. A line PQ = 12.5cm. By using another line, divide PQ into nine equal parts. (3mks)

10. The sum of the interior angles of a polygon is 1980^0. Find the number of sides the polygon has. (3mks)

11. The diagram below is a sketch of a rice field (not drawn to scale), use it to generate a surveyor's field book. (All measurements are in metres) (4mks)



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12. A boy walk directly from point Q towards the foot of a vertical flag post 200m away. After conveying a distance of 140m, he observes the angle of elevation of the top of the flag post is 75°. Calculate the angle of depression of point Q from the top of the flag post. (3mks)

13. Two similar blocks have masses of 729g and 216g respectively. If the surface area of the smaller block is $300cm^2$, calculate the surface area of the larger block. (3mks)

14. Using trapezoidal rule with 6 ordinates, find the area bounded by the curve $y=2x^3 - 5$, the x-axis and the lines x=2 and x=8. (3mks)

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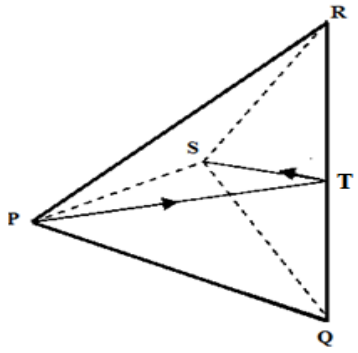
15. Kassim has a money box containing 100 mixed shs 5 and shs 10 coins with a total value of shs 600. How many of each type of coin does the box contain. (3mks)

16. The figure below shows a regular tetrahedron PQRS of edges 4cm.
Draw its net and measure the length of the straight path of PS through the midpoint T over the edge QR. (3mks)



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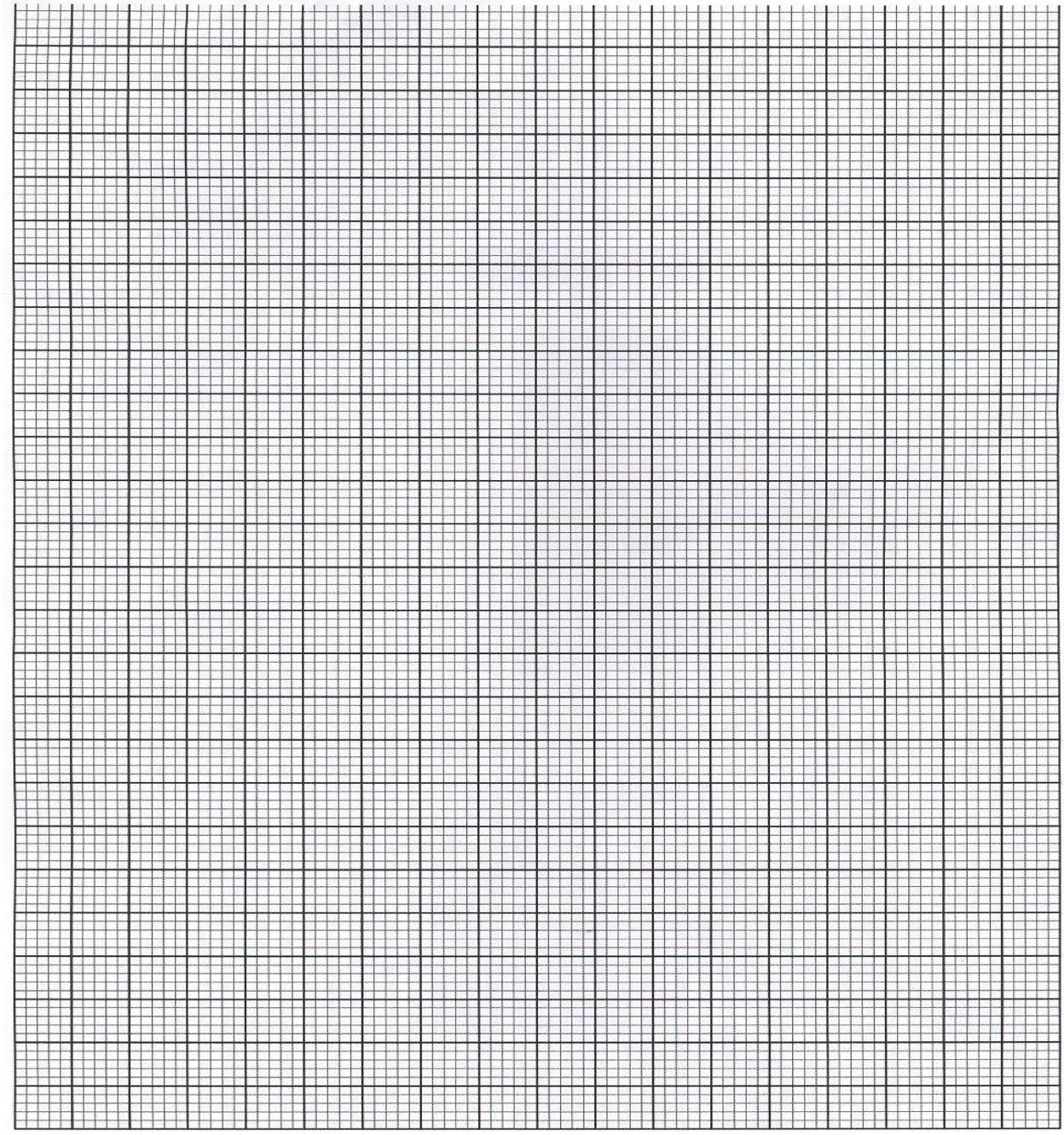
SECTION II (50 MARKS)

(Answer ANY FIVE questions in the spaces provided)

17. Complete the table below for the equation $y=2x^2+2x-8$ by filling the blank space. (2mks)

a). On the graph provided below, plot the graph of $y=2x^2+2x-8$. (4mks)
(use the scale: y-axis=1unit, x-axis=1unit)



b) Use your graph to solve:

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i) $2x^2+2x-8=0$ *(1mk)*

ii) $2x^2+x+2=0$ *(3mks)*

18. a) a bus left Kisumu at 9.30 am towards Nairobi at an average speed of 81km/hr. A matatu left Nairobi for Kisumu at 10.10 a.m at an average speed of 72km/hr. The distance between Kisumu and Nairobi is 360km. Determine:

(i) The time taken before the two vehicles met. (3mks)

(ii) The distance between two vehicles 40 minutes after meeting. (2mks)

(iii) A car left Kisumu towards Nairobi at 9.50am at an average speed of 90km/hr. Determine the time the car caught up with the bus. (3mks)

(b) The figure below shows speed time graph of a journey. If total distance travelled in 80 seconds is 920m. Find the distance travelled in the final 40 seconds. (2mks)

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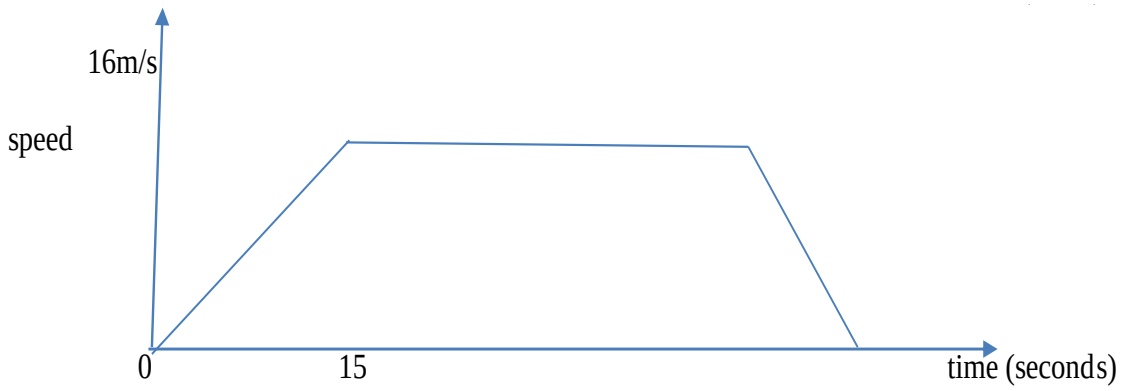
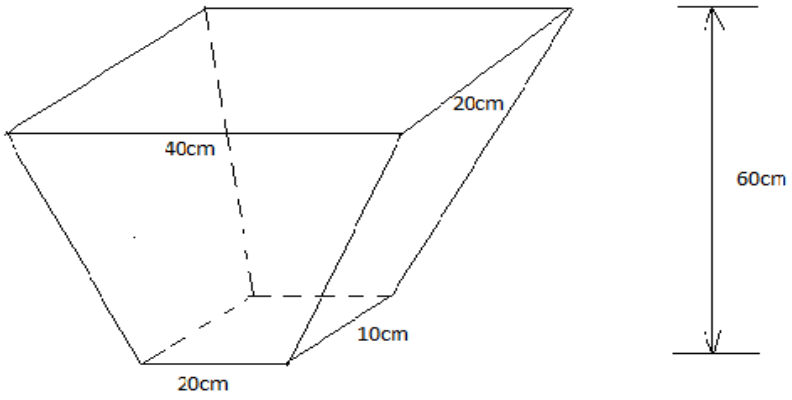


19. The Figure shows a frustum of a right pyramid open container for storing water.



Calculate:

a) The height of the pyramid from which the frustum was cut from. (2mks)

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b) The surface area of the frustum (4mks)

c) The capacity of the frustum in litres (4mks)

20. The table below represent marks in percentage scored by 50 students in a class

Marks	Frequency
40-44	6
45-49	4
50-54	7
55-59	6
60-64	12
65-69	4
70-74	5
79-79	3
80-84	3

a) State the modal class (1mk)

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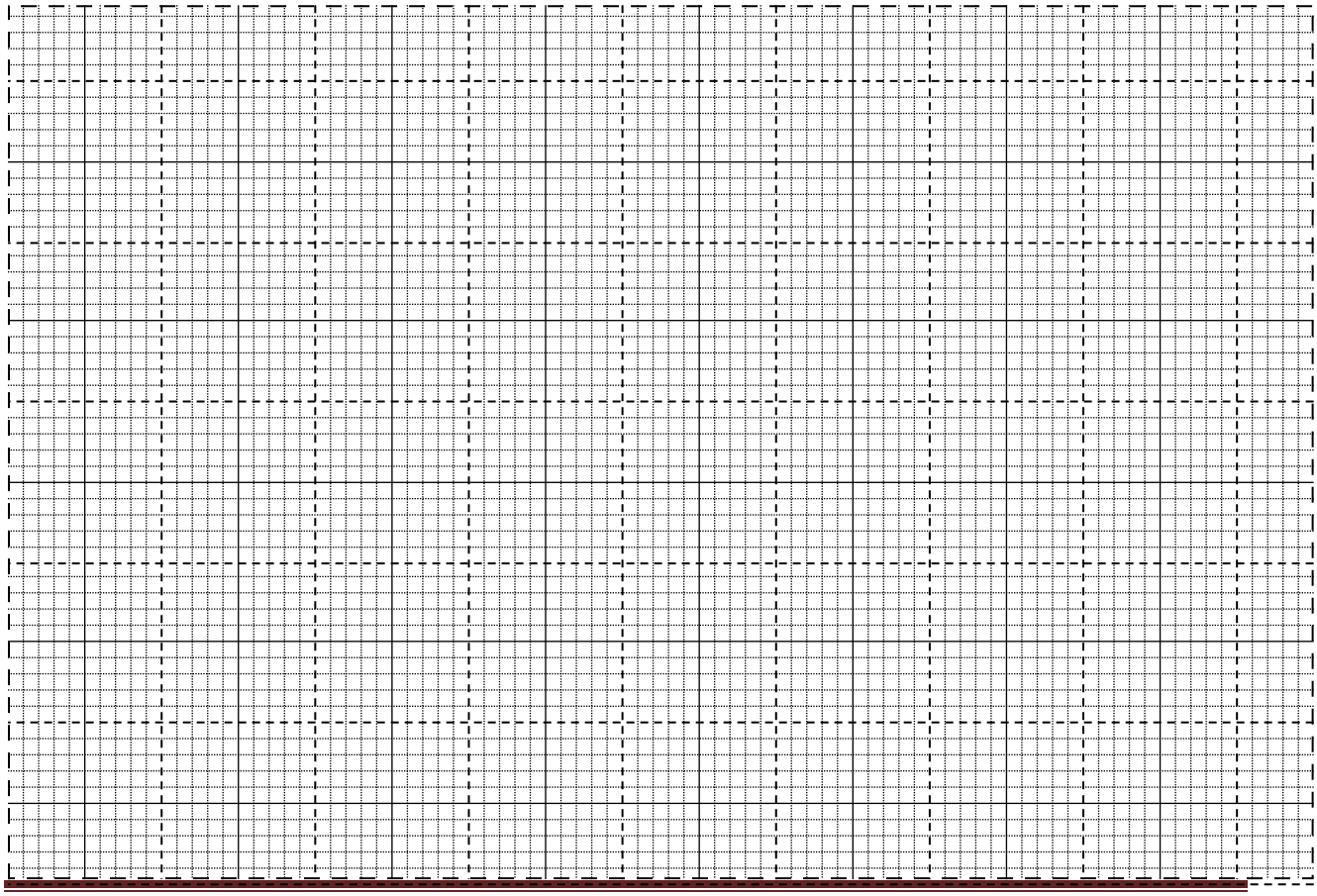
b) Estimate:

(i) The mean mark (2mks)

(ii) The median (3mks)

(iii) On the grid provided draw a frequency polygon to represent the above information. (4mks)



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21. Given that the column vectors

$$\underset{\sim}{p} = \begin{pmatrix} -3 \\ 4 \end{pmatrix}, \underset{\sim}{q} = \begin{pmatrix} 16 \\ -4 \end{pmatrix}, \underset{\sim}{r} = \begin{pmatrix} 9 \\ 6 \end{pmatrix} \text{ and that } \underset{\sim}{a} = 2\underset{\sim}{p} - \frac{3}{4}\underset{\sim}{q} + \frac{2}{3}\underset{\sim}{r}$$

Express a as column vector and hence calculate its magnitude (4mks)

b) Given that the midpoints of PQ is (-3,1) and Q (7,5), obtain the co-ordinates of P (3mks)

c) A translation T$\begin{pmatrix} 2 \\ 1 \end{pmatrix}$. maps triangle ABC onto triangle $A^1B^1C^1$. Given the co-ordinates A(2,3) , B(2,5) and C(4,4). Find the co-ordinates of A^1B^1 and C^1. (3mks)

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22. The coordinates of triangle ABC are A(1, 1), B(3, 1) and C(1, 3).

(a) Plot the triangle ABC. (1mk)

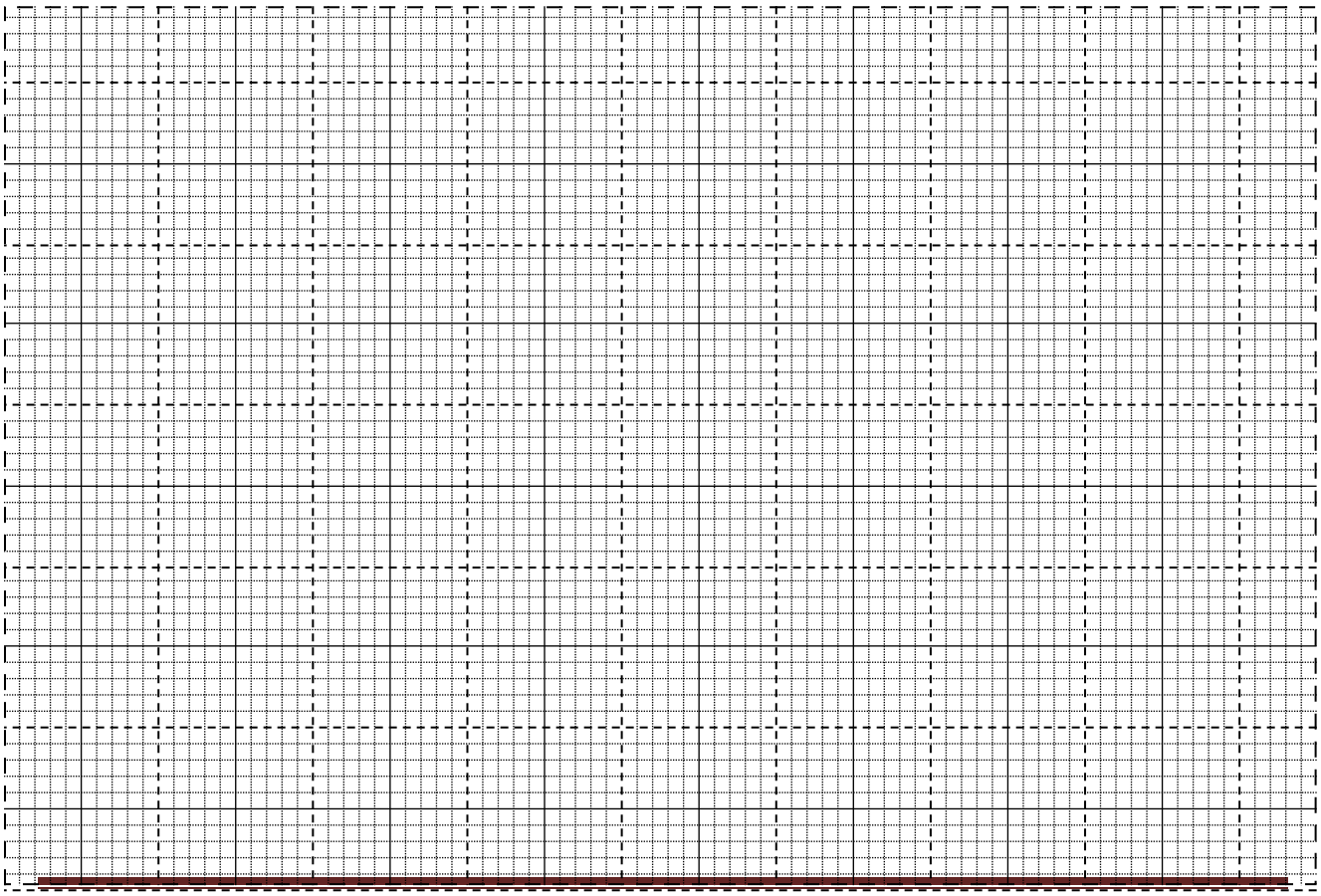
(b) Triangle ABC undergoes a translation vector $\begin{pmatrix}2\\2\end{pmatrix}$. Obtain the image of A'B'C' under the transformation, write the coordinates of A'B'C. (2mks)

(c) A'B'C undergoes a reflection along the line X=0, obtain the coordinates and plot on the graph points A"B"C" under the transformation. (2mks)

(d) The triangle A"B"C" undergoes an enlargement scale factor -1, centre origin. Obtain the coordinates of the image A"'B"'C"'. (2mks)

(e) The triangle A"'B"'C"' undergoes a rotation centre (1, -2) angle 120^0. Obtain the coordinates of the image A"B"C". (2mks)

(f) Which triangles are directly congruent? (1mk)



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23. A particle moves along a straight line such that its displacement s metres from a given point is $s = t^3 - 5t^2 + 3t + 4$ where t is time in seconds.

Find:

(a) The displacement of the particle at t = 8. (2mks)

(b) The velocity of the particle when t = 10. (3mks)

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(c) The values of t when the particle is momentarily at rest. (3mks)

24. A pilot intends to fly from A to D through B and C, B is 750km from A and on a bearing of N50°$E. C$ *is on a bearing of* N 40° W from B and their distance apart is 600km. D is on a bearing of S 85° W from C and at a distance of 1050km.

a) Using the scale of 1cm for 100km, show the flight route. (4mks)

b) If the pilot on its way back decides to fly directly from D to A;
i) By use of compass bearing find the direction of A from D (1mk)

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ii) Find the distance from D to A in kilometers. (1mk)

(iv) The plane flies at 500km/h. If it leaves D at 9.00a.m at what time did it arrive at A.(2mks)

d) i)Using your diagram in (a) above, (i) find the distance between A and C (1mk)

ii) Find the compass bearing of A from point C (1mk)

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INDEX NO: …… SIGN: …… DATE: ……

BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

121/2
Mathematics Paper 2
Form 4
2 ½ 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 from section I and ***ANY FIVE*** 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 I 50 MARKS

1. Solve for x in the equation $-2x^2 + x + 36 = 0$ using completing the square method (3mks)

2. Simplify by rationalizing the denominator in $\frac{4-\sqrt{2}}{3+\sqrt{2}}$ leaving your answer an the form $a+b\sqrt{c}$ where a,b and c are integers. (3mks)

3. Find the value of x in the equation $\cos(3x-180^o) = \frac{\sqrt{3}}{2}$ in the range listed below.

$0^o \leq x \leq 360^o$ (3mks)

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4. Draw a line AB=4cm, P is a variable point in the plane of the paper, above AB, such that angle $ABC = 60^0$ and the area of triangle APB$= 6cm^2$. Using a ruler and a pair of compasses only find the locus of P. (3mks)

5. Expand and simplify the binomial$\left(2 + \frac{3}{x}\right)^5$. Hence use the first four terms of your expansion to find the value of $(2.5)^5$ (3mks)

6. The length and breadth of a rectangular floor garden were measured and found to be 4.1m and 2.2m respectively. Find the percentage error in its area. (3mks)

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7. Solve for x in the equation $3(logx)^2 - logx^5 + 2 = 0$ (3mks)

8. Make ***s*** the subject of the formulae in the following; $sa = \sqrt{\frac{s^2 + q}{t^2}}$ (3mks)

9. Each member of a class take one and only one of the three foreign languages: French, German and Spanish. 15 pupils take French, 9 take German and 6 take Spanish. Two pupils are chosen at random. Represent the information in a tree diagram hence find the probability that both pupils take different subjects. (3mks)

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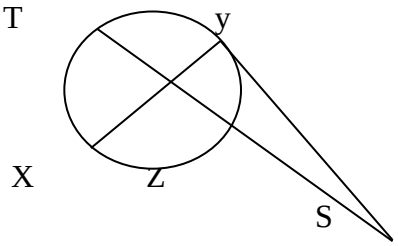
10. The amount of oil used by a ship travelling at a uniform speed varies jointly with the distance and the square of the speed. If the ship uses 200 barrels of oil in travelling 200 miles at 36 mile per hour, determine how many barrels of oil are used when the ship travels 360 miles at 18 miles per.
(3mks)

11. Use logarithms to evaluate: (4mks)

$$\sqrt[3]{\frac{45.3 \times 0.00697}{0.534}}$$

12. The figure below shows a circle of diameter XY. Chord TZ intersects XY at C. A tangent to the circle at Y meets TZ produced at S.



Given that TC = 14 cm, CY = 4 cm and YS = 7.5 cm. calculate the length of :

a) CS (1mk)

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b) XC (2mks)

13. Determine the values of x for which the matrix $\begin{pmatrix} 2x & x^2 \\ 2 & 1 \end{pmatrix}$ has no inverse (3mks)

14. Mr. Kimbo, a local retailer bought imported rice at sh. 56 per kilogram and local rice at sh. 48 per kilogram. He wants to mix the two types of rice so as to make a profit of 20%. If he sold the mixture at sh.120 per 2 kilogram packet, find the ratio the two types of rice was mixed.
(3mks)

15. The sixth term of a geometric progression is 16 and the third term is 2. Determine the common ratio and the first term. (3mks)

16. The equation of a circle is given by $x^2 + 4x + y^2 - 2y - 4 = 0$. Determine the centre and radius of the circle. (3mks)

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SECTION II

(Answer ANY FIVE questions in the spaces provided)

17. The table alongside shows the rates of taxation in a certain year.

Income in $K£p.a$	te (Sh. Per $K£$)
$1-3900$	2
$3901-7800$	3
$7801-11700$	4
$11701-15600$	5
$15600-19500$	7
$Above\ 19500$	9

In that year Mr. Kariuki at teacher at Kangaru High School was earning a basic salary of Ksh. 27 000 per month. In addition he was entitled to other taxable allowances totalling to 11 000 per month and a personal relief of Ksh 1056 per month. He lives in teachers' quarters where he is paying a nominal rent of Ksh. 3 500 per month.

(a) Calculate how much income tax Mr. Kariuki is paid per month. (4 marks)

(b) Mr. Kariuki's other deductions per month were co-operative society contribution of sh 2500 and loan repayment of sh. 3000, calculate his net salary per month. (3 marks)

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(c) Later the same year Mr. Kariuki was transferred to another school where he earned hardship allowance equivalent to 30% of his basic salary. On top of the deduction in (b) above, he also had a deduction of sh 2700 per month to KCT. Calculate the percentage change in his net salary per month (3 marks)

18. Given that $y=2x^{o}+\cos \frac{1}{2} x^{o}$, complete the table below for the missing values of y, correct to 1 decimal place (2mks)

X^{o}	0°	30°	60°	90°	120°	150°	180°	210°	240°	270°	300°	330°	360°
$Y=\sin 2x+\cos \frac{1}{2} x$	1.0	1.8			-0.4	-0.6			0.4	-0.7			-1.0

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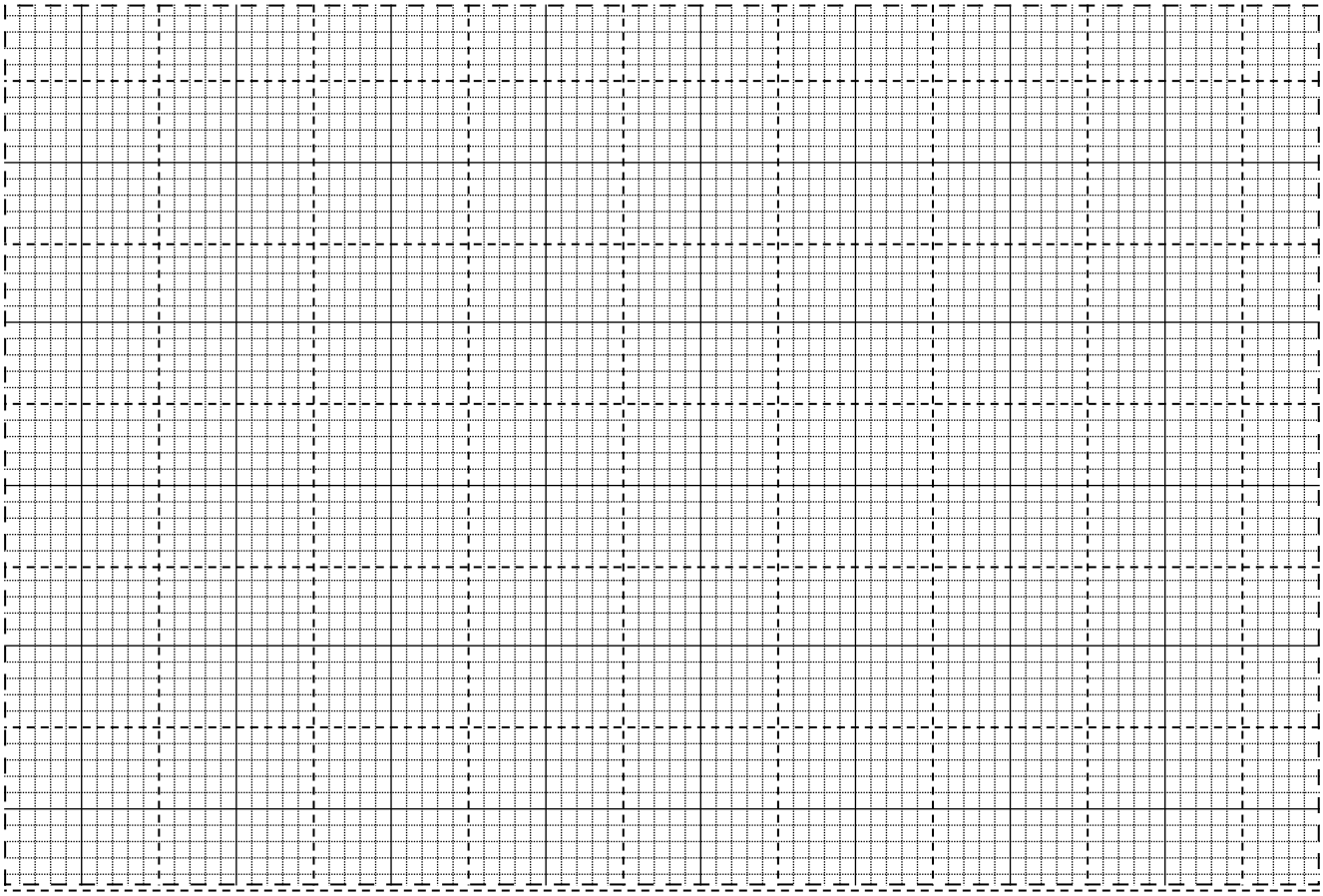
(b) On the grid provide below, draw the graph of $y=\sin 2x^{o}+\cos \frac{1}{2} x^{o}$ for $0 \leq x \leq 360^{o}$ Take the scale 1cm for 30° on the x-axis. 2 cm for 0.5 units on the y –axis. (4mks)



(c) Use the graph to estimate

(i) The minimum value of y (1mk)

(ii) The value of $\boldsymbol{x}$ for which

$\frac{1}{2}\sin 2x + \frac{1}{2}\cos\frac{1}{2}x \geq 0.25$ (3mks)

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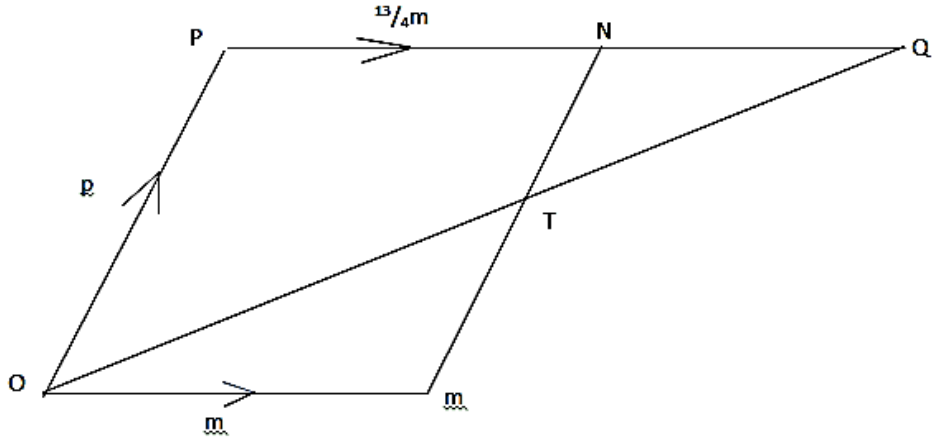
19. Quadrilateral **OMNP** is such that **OM** $= \boldsymbol{m}$, $\boldsymbol{OP} = \boldsymbol{p}$ and **PN** = $\frac{13}{4}\boldsymbol{m}$. **PN** is produced to Q such that **PN**: **PQ** = 13:15. T is a point on **MN** such that **MN** = 3**TN**



(a) Express in terms of ***m*** and ***p***

(i) OT (2mks)

(ii) PQ (2mks)

(iii) OQ (2mks)

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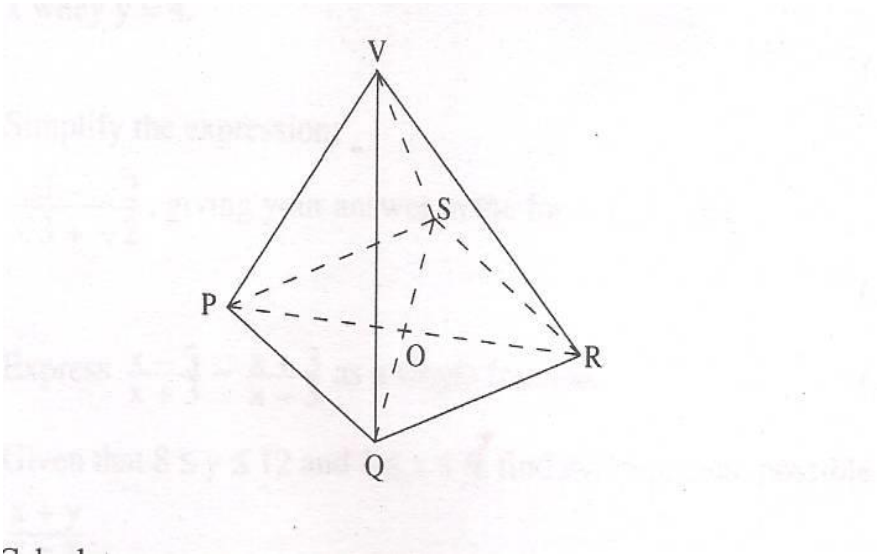
(b) Show that O, T and Q are collinear. (4mks)

20. The figure below represents a right pyramid on a square base PQRS of side 12 cm. O is the centre of the base and VO = 14 cm.



Calculate;

(a) The length of VP to 1 decimal place (3 marks)

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(b) The angle which VP makes with the base PQRS (2 marks)

(c) The surface area of the pyramid to 1 decimal place (3 marks)

(d) The volume of the pyramid (2 marks)

21. The table shows the goods (P) produced by a certain factory in time (t) since 2010 is believed to obey a law of the form $P=kA^t$ where k and A are constants and t is time in years.

	2010	2011	2012	2013	2014	2015	2016
P	5000	6080	7400	9010	10960	13330	16200

a) Express the law $P=kA^t$ where k and A are constants and t is time in years in the linear form $y = mx + c$ and fill the table appropriately. (3mks)

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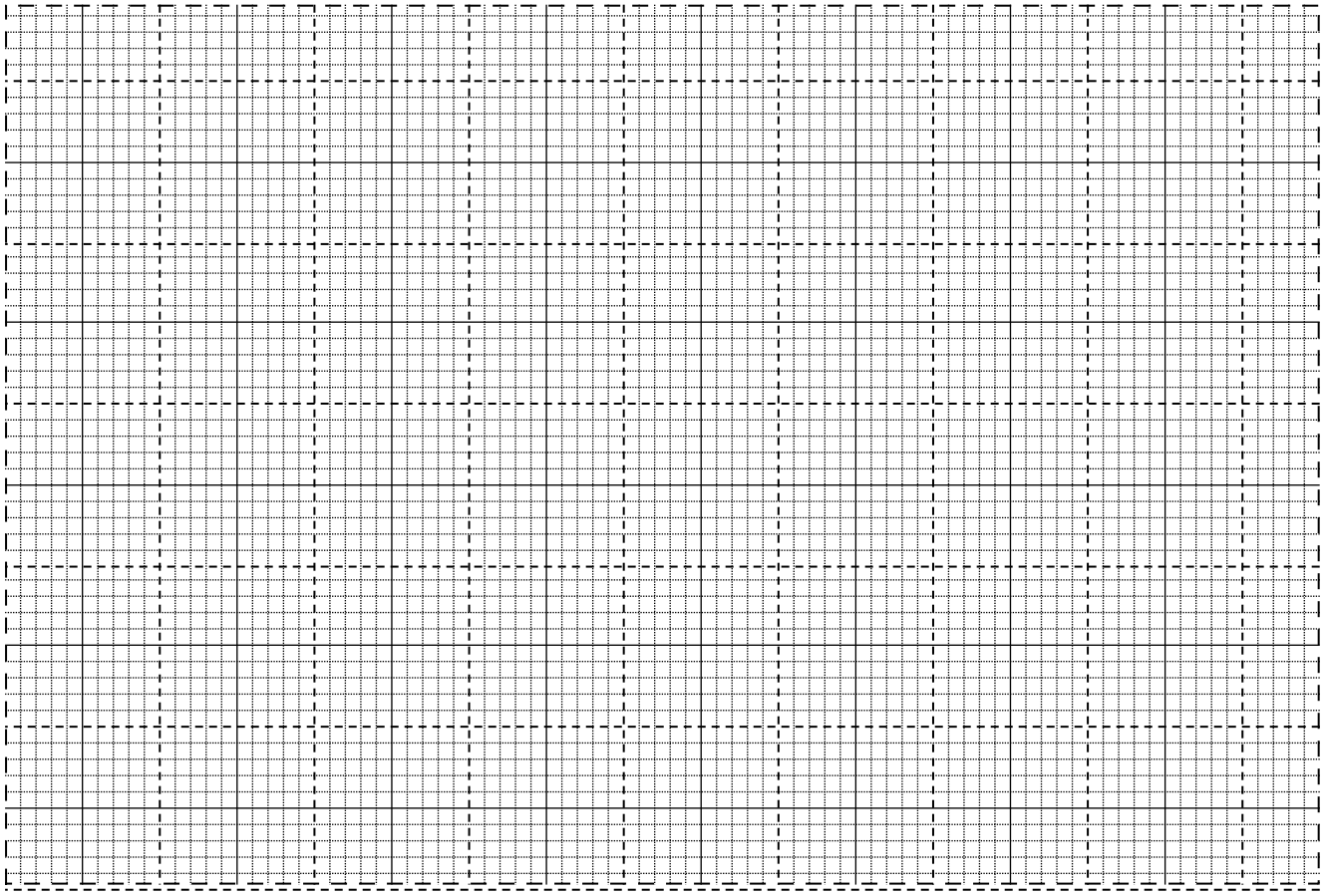
b) Plot a suitable straight line graph (4mks)



c) Use the graph above to find the values of A and k. (3mks)

22. A small scale farmer wishes to buy some sheep and goats for rearing. A sheep costs sh.400 and a goat costs sh.300. The farmer has enough space for only 20 animals and may spend at most sh.6800. The number of goats should not exceed twice the number of sheep.

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a) By letting x and y to represent the number of sheep and goats he can buy respectively, write down all inequalities from the above information. (4mks)

b) Represent the inequalities on the grid provided. (4mks)

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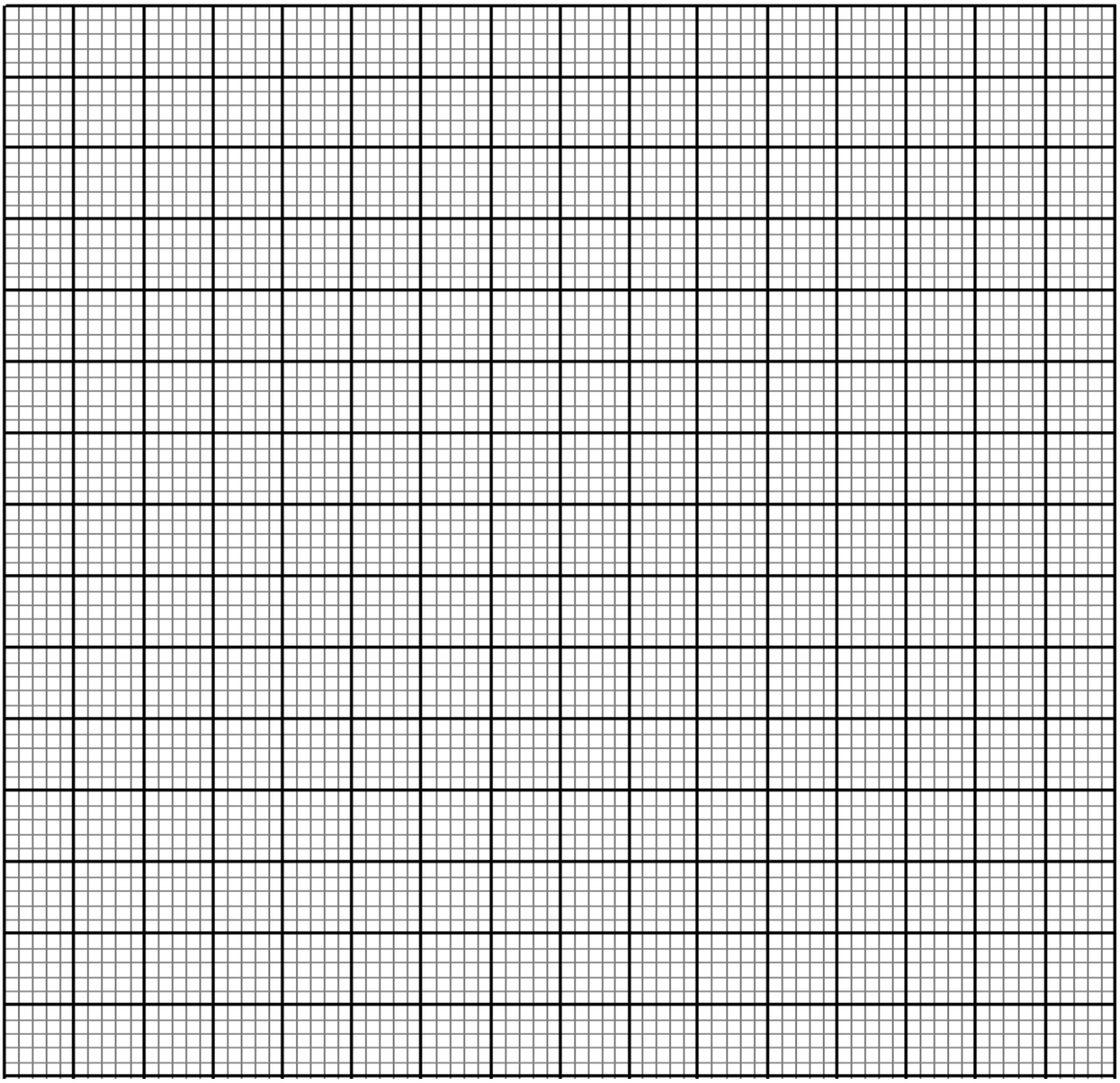

c) From your graph; find the maximum number of animals he can buy at the lowest cost.
(2mks)

23. (a) An aeroplane flies from town $A(20^0N, 60^0N)$ to town$B(20^0N, 20^0E)$. (Taking R= 6400km, $\pi = 3.142$)If it then flies due north from town B to town C, 420km away, calculate correct to the nearest degree, the latitude of town C. (3mks)

(b) Calculate the shortest distance in km between towns $P(60^0N, 40^0W)$ and $Q(60^0N, 30^0E)$ giving your answer to 2 decimal places (2mks)

(c) The local time at town $T(33^0N, 15^0W)$ is 1045hours. What is the local time at $Q(50^0N, 30^0E)$? (2mks)

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24. Use Trapezoidal rule to find the area between the curve. $y = x^2 + 4x + 4$, the x-axis and the ordinates $x = -2$ and $x = 1$ (Use 7 ordinates)

a) Complete the table correct to 2 d.p. (2mks)

b) Find the area enclosed by the curve, the x-axis, lines $x = -2$ and $x = 1$. (3mks)

c) Use integration to find the exact area and hence find the percentage error in your approximation. (5mks)

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INDEX NO: …… SIGN: …… DATE: ……

BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

232/1

PHYSICS

PAPER ONE

2 hours

INSTRUCTIONS TO CANDIDATES

i) Write your name, admission number and index number in the spaces provided above.
ii) Sign and write the date of examination in the spaces provided above
*iii) This paper consists of **TWO** sections **A** and **B.***
*iv) Answer **ALL** the questions in section **A** and **B** in the spaces provided.*
*v) All working **MUST** be clearly shown.*
vi) Electronic calculators and mathematical tables may be used.
vii) ALL numerical answers must be expressed in decimal notation.
*viii) **This paper has 13pages. It is the responsibility of the candidate to ascertain that all the pages are printed as indicated and that no questions are missing.***
*ix) **Candidates should answer the questions in English.***

For Examiners Use Only

Section	Question	Maximum Score	Candidate's Score
A	1 – 13	25	
	14	10	
	15	13	
	16	10	
	17	12	
	18	10	
TOTAL		80	

SECTION A (25 marks)

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

1. A micrometer screw gauge has a zero error of 0.12mm.Sketch the reading of the micrometer screw gauge when used to measure the size of a ball of diameter 3.44mm. (1 mark)

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2. **Figure 1 (a) and 1(b)** shows capillary tubes inserted in water and mercury respectively.

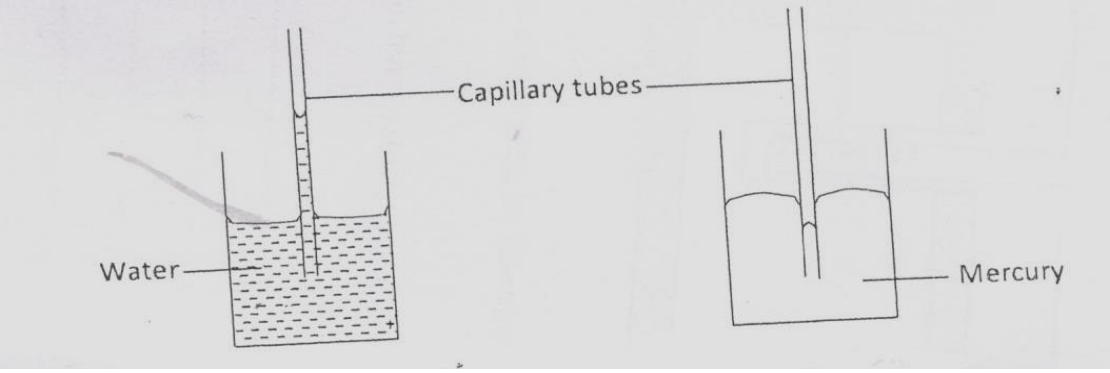

Figure 1(a) **Figure 1(b)**

It is observed that in water the meniscus in the capillary tube is higher than the meniscus in the beaker, while in mercury the meniscus in the capillary tube is lower than the meniscus in the beaker. Explain these observations. (2 marks)

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3. A block of mass 500g and measuring 30cm by 25cm by 15cm rests on a flat floor. Determine maximum pressure exerted on the floor. (3 marks)

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4. In **figure 2** ammonia gas and an acid gas diffuse and react to form a white deposit on the walls of the glass tube.

Explain why the white deposit forms nearer end B than A. (1mark)

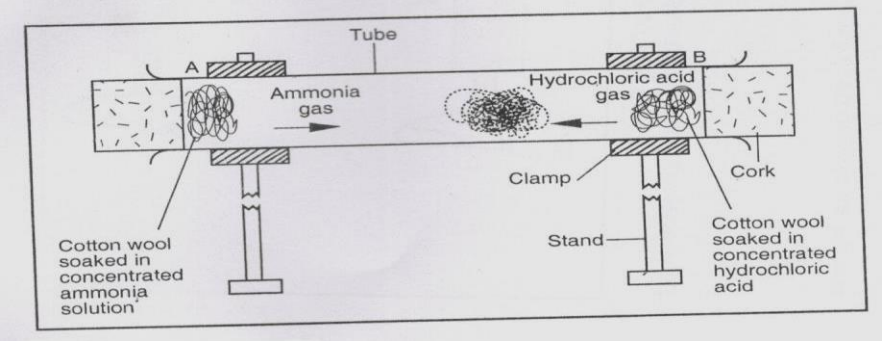

Figure 2

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5. A man wants to fit a brass ring tightly onto a steel rod of equal diameter to the inner diameter of the ring. Explain how this can be achieved. (2 marks)

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6. State how conduction and radiation is minimized in a thermos flask. (2 marks)

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7. A body moving around a circle is accelerating and yet the speed is constant. Explain. (1 mark)

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8. **Figure 3** shows a uniform bar of mass 0.8kg supported by a spring balance at its centre and the bar is at equilibrium.

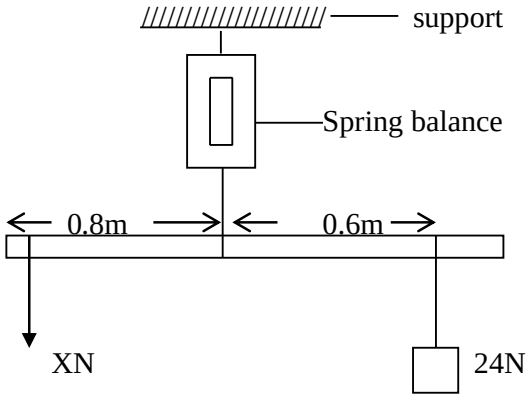

Figure 3

Determine the:

(a) value of X (3 marks)

(b) reading of the spring balance (1mark)

9. **Figure 4** shows a load-extension graph for various loads hung from a single spring.

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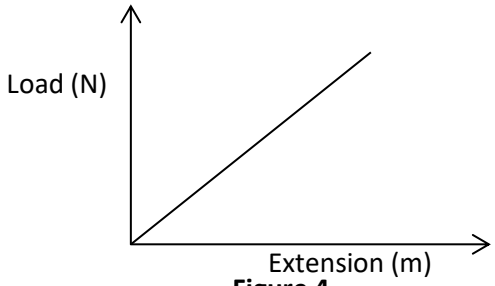

Figure 4

On the same axes, sketch a graph for a spring double the diameter of the first one.

(1mark)

10. An aeroplane is moving horizontally through still air at uniform speed. State with reason what is observed when the speed of the plane is increased. (2marks)

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11. A crane lifts a load of 2000kg through a vertical distance of 4.0 m in 5 seconds. Determine the power developed by the crane. (3 marks)

12. Sketch a displacement time graph for a freely falling body and describe the motion. (2marks)

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13. State Newton's first law of motion. (1mark)

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SECTION B (55 marks)

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

14. **Figure 5** shows a crate of mass 70kg being pushed by a man with a force of 150 N along the plane AB.

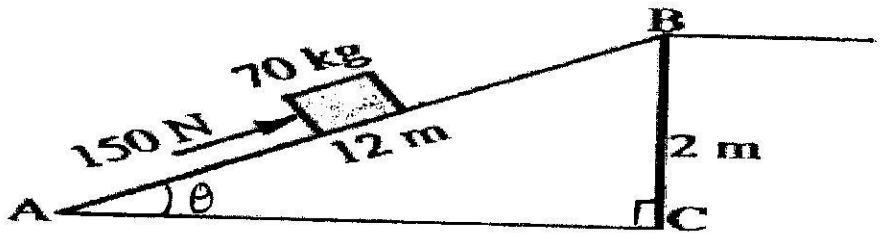

Figure 5

(a) Show that V.R of the inclined plane is given by $\frac{1}{Sin\theta}$ (2 marks)

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(b) Determine the work done:

(i) by the force of the man. (2marks)

(ii) on the mass. (2marks)

(iii) to overcome friction. (1mark)

(c) Determine the efficiency of the inclined plane. (2marks)

(d) Suggest one method of improving the efficiency of an inclined plane. (1mark)

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15.(a)**Figure 6** shows incomplete set up that can be used in an experiment to determine the specific heat capacity of a solid of mass m by electrical method.

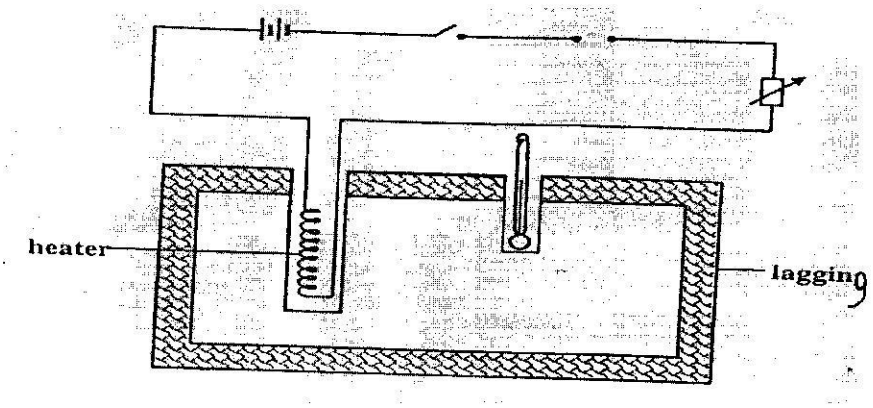

Figure 6

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

(ii) State four measurements that should be taken. (2 marks)

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(iii) The final temperature was recorded as Θ. Write an expression that can be used to determine the specific heat capacity of the solid. (2 marks)

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(b) **Figure 7** shows a graph of temperature against time for a 200g mass of ice at -14^{0}C slowly heated by an electric heater of power 30W.



Figure 7

I) Determine the:-

(i) the time corresponding to the line AB (2marks)

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(ii) The time corresponding to the line BC (2marks)

II) Determine the specific heat capacity of ice (3marks)

(Specific heat capacity of water = 4200J/kgK and specific latent heat of fusion of ice = 336000J/kg)

16. (a) When the temperature of a gas in a closed container is raised, the pressure of the gas increases. Explain how the molecules of the gas cause the increase in pressure. (2 marks)

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(b) **Figure 8** shows a set up that may be used to verify Boyle's law.

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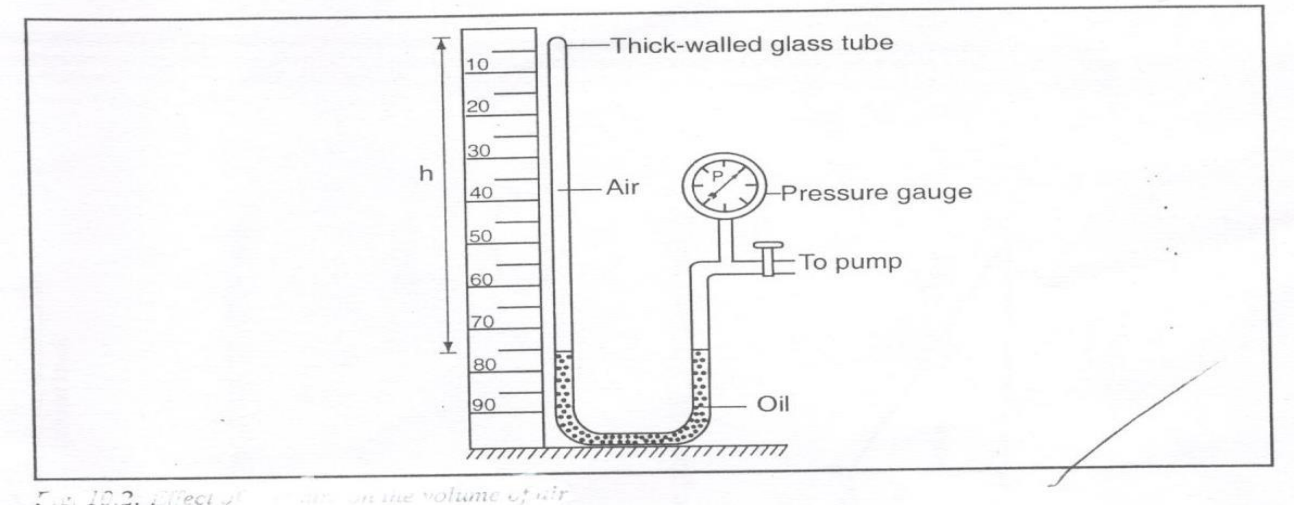

Figure 8

(i)State the measurements that should be taken in the experiment. (2 marks)

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(ii) Explain how the measurements taken in (i) above may be used to verify Boyle's law. (3 marks)

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(c) A certain mass of hydrogen gas occupies a volume of $1.5m^3$ at a pressure of $1.6x10^5Pa$ and temperature 14^0C.Determine its volume when the temperature is 0^oC at a pressure of $1.0x10^5$ Pa.

(3 marks)

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17. (a) State the principle of conservation of linear momentum. (1 mark)

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(b) Distinguish between elastic and inelastic collision. (1 mark)

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(c) A striker kicks a ball of mass 200g initially at rest with a force of 78N.Given that the foot was in contact with the ball for 0.30s; determine the take off velocity of the ball. (3 marks)

(d)A high jumper usually lands on thick soft mattress. Explain how the mattress helps in reducing the force of impact. (2 marks)

(e)A ball is thrown horizontally from the top of a vertical tower of height 75m and strikes the ground at a point 80m from the bottom of the tower. Determine the:

(i) time taken by the ball to hit the ground. (*Acceleration due to gravity=10m/s^2)* (3 marks)

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(ii) initial horizontal velocity of the ball. (2 marks)

18 (a) State the Archimedes' principle. (1 mark)

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(b) A block of wood of mass 300g is held under water by a string attached to the bottom of the container. The tension in the string is 0.6N.Determine the density of the wood.*(Gravitational field strength =10N/kg and Density of water=1000kg/m^3*) (4marks)

.

(c) Define angular velocity. (1mark)

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(d) State one way in which the centripetal force on a body of mass m can be reduced. (1 mark)

(e) A turntable of radius 5cm is rotating at 40 revolutions per second. Determine the linear speed of a point on the circumference of the turn table. (3 marks)

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BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

232/2
PHYSICS PAPER 2
(THEORY)
2 Hours

INSTRUCTIONS TO CANDIDATES

Write your name and index number in the space provided at the top of this page.
*This paper has two section **A** and section **B**.*
Answer all the questions in the two sections.
Working of numerical questions must be clearly shown.
Marks may be given for correct working even if the answer is wrong
Mathematical tables or scientific calculators may be used.

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SECTION	QUESTION	MAX SCORE	STUDENT'S SCORE
A	1 – 13	25	
	14	11	
	15	10	
	16	11	
	17	14	
	18	09	
GRAND TOTAL		**80**	

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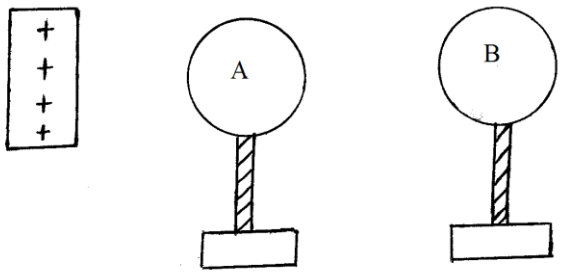
SECTION A (25 MARKS)

1. A positively charged rod is brought close to two spheres A and B, held by insulating handles as shown below.



Sphere B is earthed and the positively charged rod withdrawn. The earth connection is then disconnected. In the space below draw a diagram to show the final charge distribution on Aand B.

(2 marks)

2. Define the term frequency . (1mark)

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3. A boy scout standing a distance ,X,from a tall building blows a whistle and hears its echo, 1.7seconds later. Determine the distance ,X,between the boy and the wall given that the speed of sound in air is 340m/s. (3marks

4. State one defect of a simple cell . (1mark)

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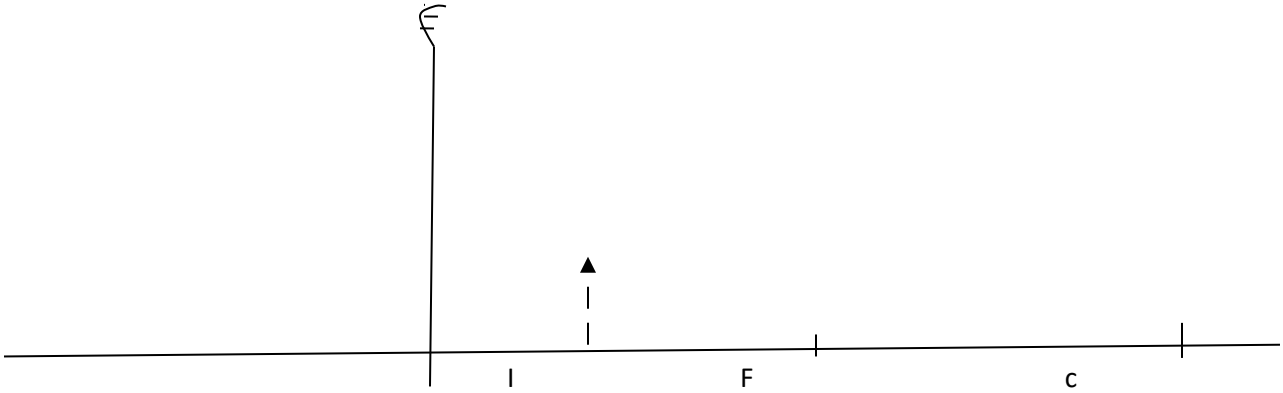
5. The diagram below shows the image formed by a convex mirror. Complete the diagram to show the position of the object (3marks)



6. State one advantage and one disadvantage of using a convex mirror as a driving mirror. (2 marks)

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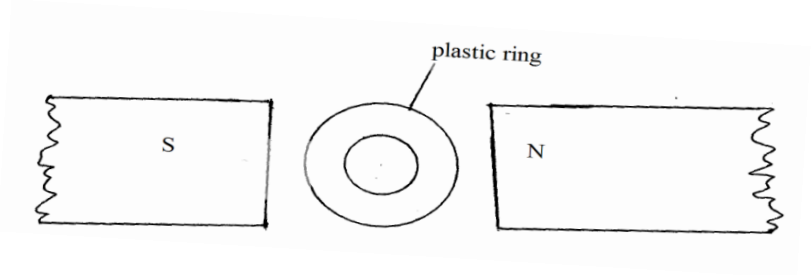
7. The figure below shows two poles of a magnet and ring of plastic placed between them. Show the magnetic lines of force between the two poles . (1 mark)



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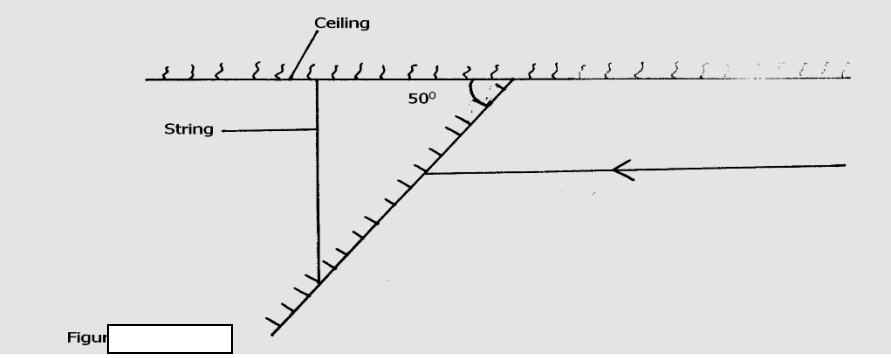
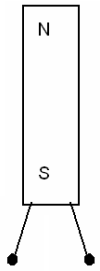
8. The figure below shows a plane mirror suspended using a string and makes an angle of 50^0 to the ceiling.



Figur

A ray of light strikes the mirror horizontally as shown above. Trace the path of reflected ray. Show all the angles. (2 marks)

9. In the diagram below, two pins are attached to the end of a magnet as shown.



Explain the behaviour of the pins. (2 marks)

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10. *State the effect of increasing the separation distance between the plates of a capacitor on the capacitance .* *(1 mark)*

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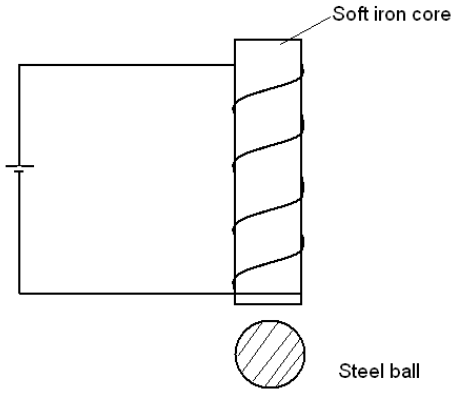
11. The figure below shows an electromagnet that may be used in a laboratory to lift and then release a small steel ball.



In order to lift a slightly heavier ball, it is necessary to make a stronger electromagnet. State two ways in which the electromagnet could be made to lift a heavier steel ball. (2 marks)

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12. An electric iron rated 250V, 3000w is connected to a 250V mains supply through a 5A fuse. Determine whether the fuse is suitable or not. (3 marks)

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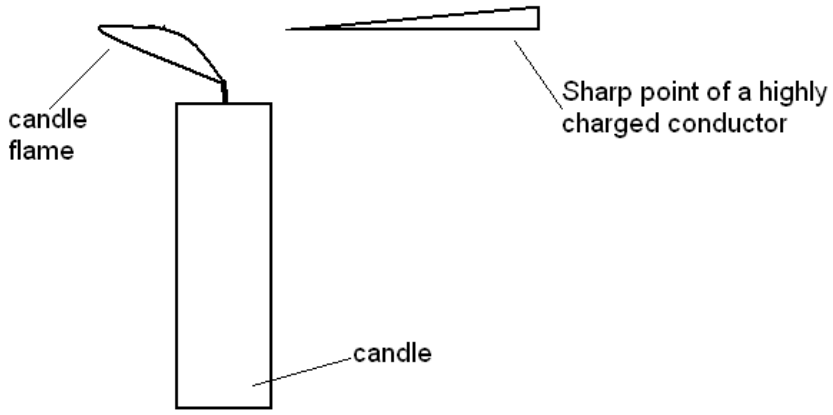
13. The diagram below shows a sharp pointed highly charged conductor. When brought very close to a candle, the flame bends as shown below.



State with reason the charge on the conductor. (2 marks)

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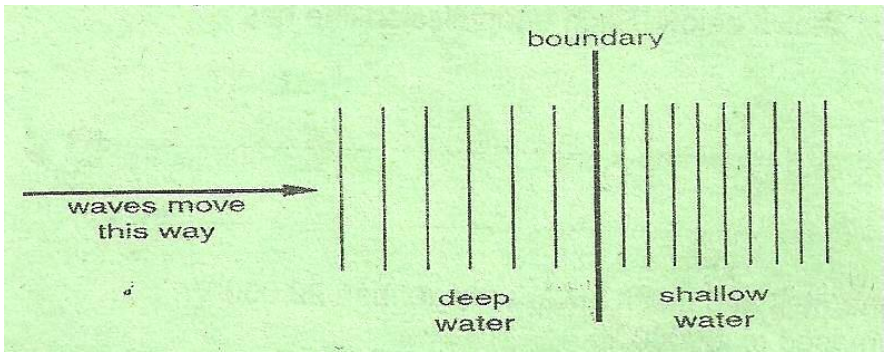
SECTION B (55 MARKS)

14. Plane water waves produced in a ripple tank are passed from a region of deep water into a region of shallow water. The figure shows what the waves look like from the top of the tank..



(a) State what happens at the boundary to:

(i) The frequency of the waves. (1 mark)

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(ii) The speed of the waves (1 mark)

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(iii) The wavelength of the waves (1 mark)

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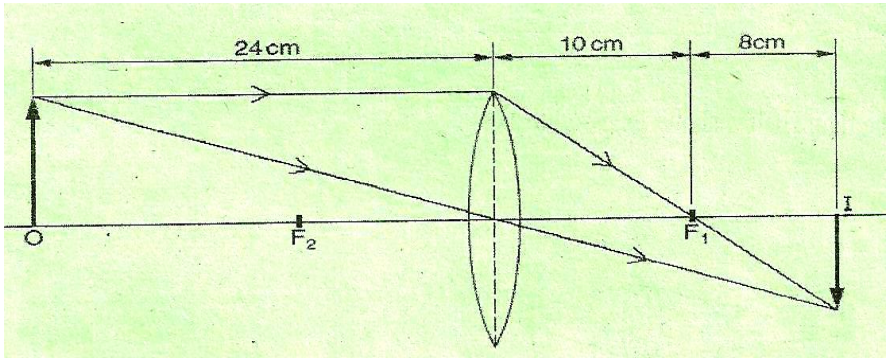
(b) The waves have a speed of 24cm/s in the deep water. Consecutive wave crests are 0.08m apart in the deep water. Calculate the frequency of the source producing the waves. (2 marks)

c) The figure below shows how an image is formed by a converging lens.



(i) State the value of the focal length of the lens. (1 mark)

(ii) Determine the magnification of the image produced. (2 marks)

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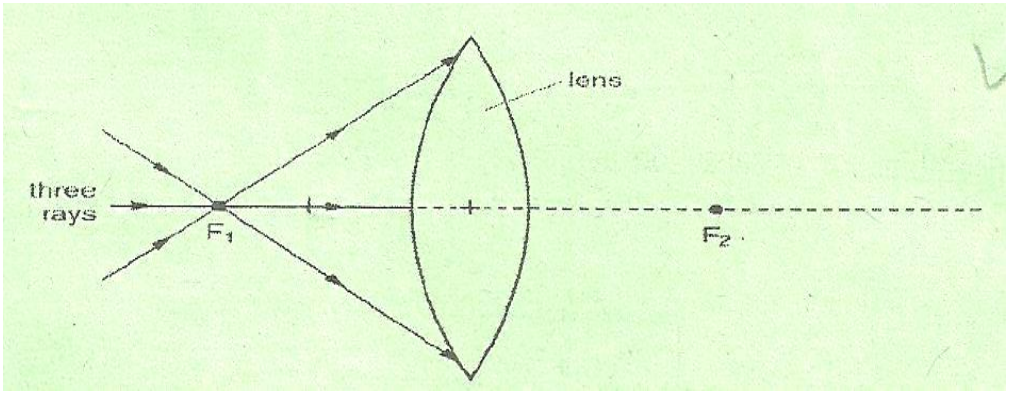
(b) The figure shows a glass lens in air and its two focal points F_1 and F_2.



Three rays of light pass through F_1 to the lens.

(i) On the figure above show the path followed by the three rays through the lens and into the air. (1mark)

(ii) State one possible causes of myopia . (1 mark)

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(iii) State the type of lens that is used to correct myopia. (1 mark)

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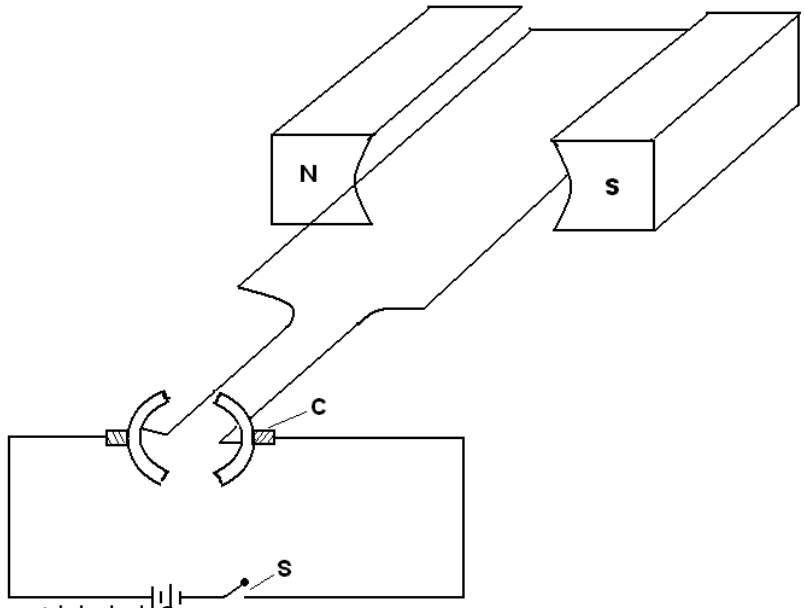
15. The diagram below shows a simple electric motor.



(a) Name the part labeled C. (1 mark)

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(b) (i) State one factor that will affect the speed of rotation of the motor. (1mark)

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(ii) By use of an arrow, show the direction in which the coil will rotate when the switch s, is closed. (1 mark)

(c) With the aid of a diagram, illustrate how a telephone receiver operates. (3 marks)

(d) (i) State the Lenz's law. (1 mark)

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(ii) A transformer is designed to operate a 100w, 20V lamp when connected to a 250Vmains . supply . Calculate the current that would be drawn from the mains if it is 90% efficient. (3 marks)

16. The table below is that of electromagnet spectrum with radiations arranged in order of decreasing wavelength.

RADIO WAVES	A	INFRA RED	B	ULTRA VIOLET	C	GAMMA RAYS

a) Identify radiations A,B and C. (3 marks)

A ……

B ……

C ……

b) State two properties of electromagnetic waves (2 marks)

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c) Distinguish between X-rays and Gamma rays in terms of their production. (2 marks)

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d) State one method of detecting radiowaves. (1 mark)

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e) An electromagnetic wave has a frequency of 4.5×10^{14}Hz. Given that the speed of light is 3×10^{8}m/s, determine its wavelength. (3 marks)

17. a) State Ohm,s law (1 mark)

b) Differetiate between electromotive force and potential difference. (2marks)

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c) Four resistors are connected as shown in figure below .

3Ω

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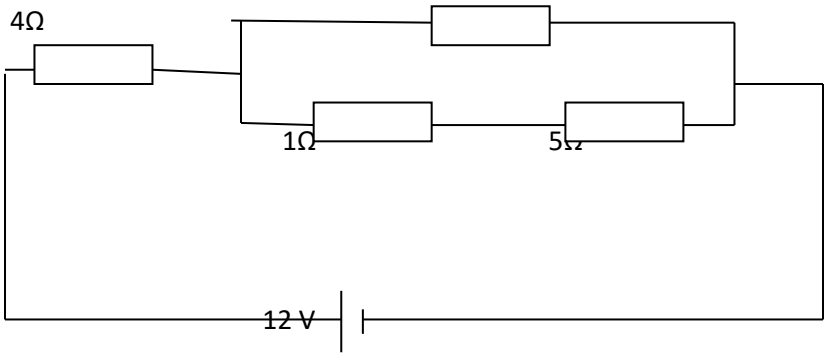

Determine:

(i) The total resistance in the circuit (2 marks)

(ii) The total current flowing through the circuit. (3 marks)

(iii) The potential difference across the 4Ω resistor. (3 marks)

(iv) The current through the 3Ω resistor . (3 marks)

18. a) State one law of reflection . (1 mark)

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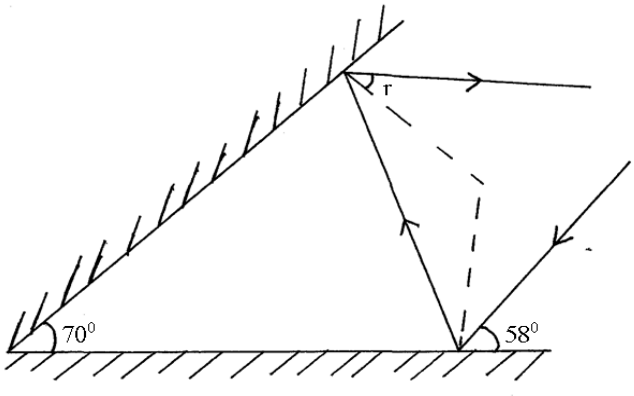
b) A pupil stands 3m in front of a plane mirror. She then moves 1.8m away from the mirror. Determine the distance between the pupil and her image. (2 marks)

c) The figure below shows the path followed by a ray of light on striking two mirrors inclined at an angle of 70^0 to each other.



Determine the angle labeled r. (2 marks)

d) State the effects of the following on the size of image formed by a pinhole camera:

i) Decreasing object distance (1 mark)

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ii) Increasing image distance (1 mark)

.....

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e) Determine the angle at which two plane mirrors should be inclined to form 39 images.
(2marks)

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BRILLIANT STUDENT PRE-MOCK 1 EXAMS

Kenya Certificate of Secondary Education (KCSE)

232/3

PHYSICS PAPER 3

(PRACTICAL)

Instructions

- *Write your name, index number and admission number in the spaces provided above.*
- *Sign and write the date of examination in the spaces provided above.*
- *Answer ALL questions in the spaces provided in the question paper.*
- *You are supposed to spend the first 15 minutes of the 2 ½ hrs allowed for this paper reading the whole paper carefully before commencing your work.*
- *Marks are given for a clear record of the observations 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 and KNEC mathematical tables may be used except where stated otherwise.*
- *This paper consists of **8** printed pages.*
- *Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.*

For Examiner's Use Only

Question 1	c	d	g	h	i	(j)	(k)		**TOTAL**	
Maximum Score	1	1	8	5	2	2	1		**20**	
Candidate's Score										
Question 2		c	e	f	g	h	i	j	k	**TOTAL**
Maximum Score		1	6			5	3	3	2	**20**
Candidate's Score										**40**

GRAND TOTAL

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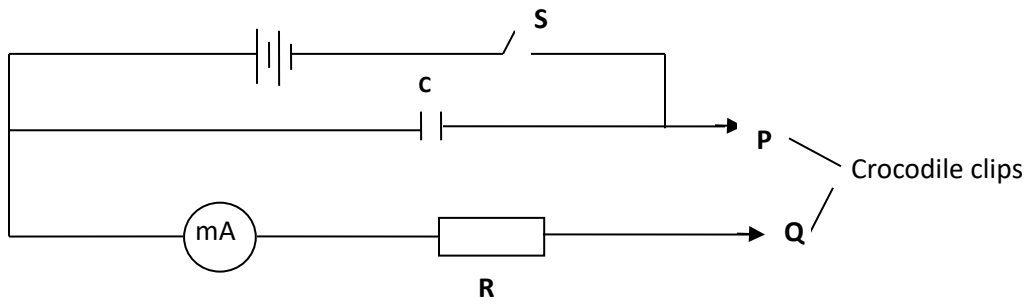
Question one

You are provided with the following:

- 2 new dry cells size D
- A cell holder
- A switch
- A millimeter of range 0 to 1 mA
- A capacitor labeled C
- 8 connecting wires; at least four with crocodile clips on one end
- A stopwatch
- A carbon resistor labeled **R**

Proceed as follows

a. Connect the circuit as shown in the **figure 1**below, where **P** and **Q** are crocodile clips.



b. Close the switch **S**

c. Name the process which takes place when the switch **S** is closed

…… (1 mark)

d. Connect the crocodile clips P and Q. Observe and record the highest reading of the millimeter $\mathbf{I_o}$

…… (1 mark)

e. Open the switch S and at the same time start the stopwatch to measure the time taken for the current to decrease to **four fifth** the value of $\mathbf{I_o}$ i.e. $^{4}/_{5}\ \mathbf{I_o}$. Record your value in the **table 1**.

f. Close the switch S for a second time and observe the deflection in the millimeter. ***(the pointer should rise back to the same initial value*** $\boldsymbol{I_{o)}}$

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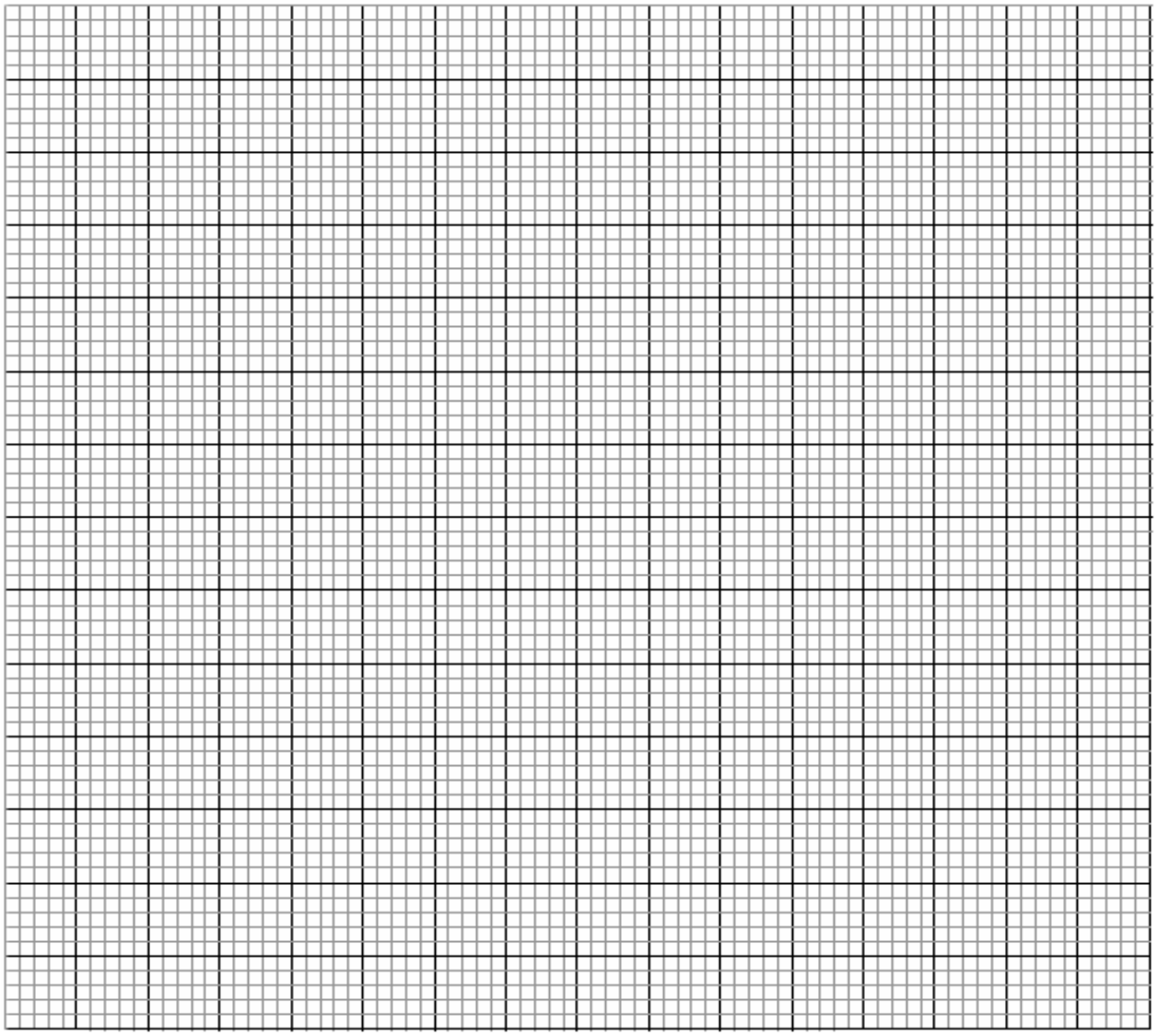
g. Repeat part (b) for other values of current as shown in the **table 1** below. (8 marks)

Current **I** (mA)	$^{4}/_{5}$ **I_o**	$^{3}/_{4}$ **I_o**	$^{2}/_{3}$ **I_o**	$^{1}/_{2}$ **I_o**	$^{2}/_{5}$ **I_o**	$^{1}/_{3}$ **I_o**	$^{1}/_{4}$ **I_o**
Your calculated fraction of **I_o** (mA)							
Time **t** (s)							

h. Plot a graph of Current **I** (y – axis)(mA) against time **t** (s) (5 marks)



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i. From your graph, find **W** the value of **I** when **t = 10s**. (2 marks)

j. Given that **A = 10W**, determine the value of **A.** (2 marks)

k. Determine the voltage across **R** at **t = 10s** given that R = 4.7k**Ω** (1 mark)

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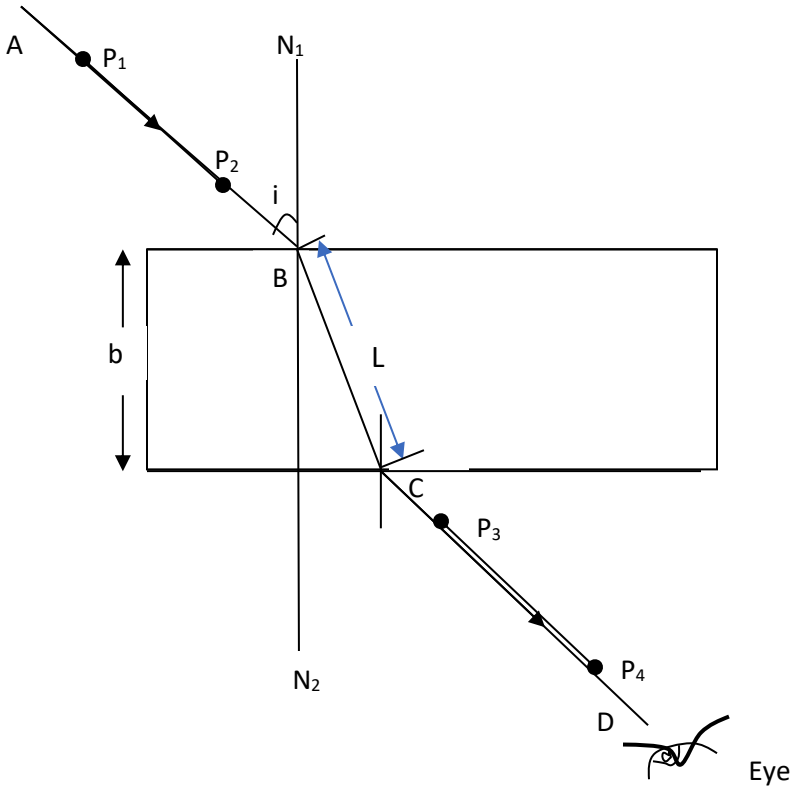
Question Two

You are provided with the following;

- a rectangular glass block
- 4 optical pins
- 2 thumb pins
- a soft board
- a plain paper

Proceed as follows:

(a) Place the glass block on the plain paper with one of the largest face upper most. Trace round the glass block using a pencil as shown below.



(b) Remove the glass block and construct a normal at B. Construct an incident ray AB of angle of incidence, i = 20^0.

(c) Measure the breadth **b** of the glass block (1 mark)

……

(c) Replace the glass block and trace the ray ABCD using the optical pins.

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(d) Remove the glass block and draw the path of the ray ABCD using a pencil.
(e) Measure the length L and record it in the table below

Angle i^0	L (cm)	L^2 (cm) ^{2}	$\frac{1}{L^2}$ (cm^{-2})	$\sin^2 i$
20				
30				
40				
50				
60				
70				

(6 marks)

(f) Repeat the procedure above for the angles of incidence given.

(g) Calculate the values of $\frac{1}{L^2}$ and $\sin^2 I$; and record in the table above.

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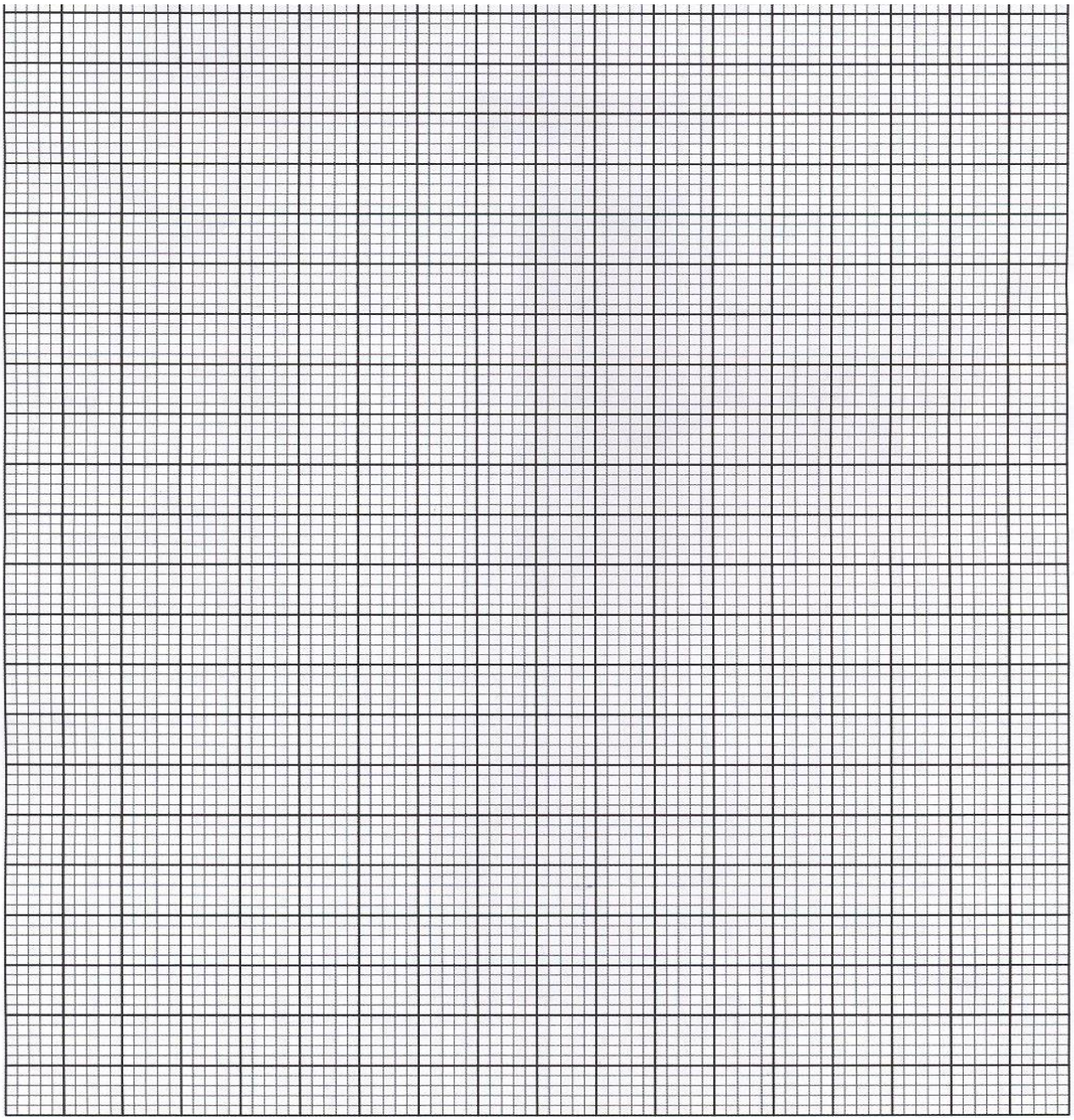
(h) Plot a graph of $\frac{1}{L^2}$ (y-axis) against Sin^2i. **(5 marks)**



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(i) Calculate the gradient **S** of the graph **(3 marks)**

Given that the equation of that graph is; $\frac{1}{L^2} = -\left(\frac{1}{0.1n^2b^2}\right) \text{Sin}^2 i + \frac{1}{b^2}$

(j) Determine the value of ***n*** (3 marks)

(k) Present your work sheet; attached to the exam paper (2 mark)

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- Poetry & Ushairi Qsns.... e.t.c