# BRILLIANT STUDENTS PRE-MOCK 3 EXAMS
# ALL SUBJECTS TESTED




# BRILLIANT STUDENTS PRE-MOCK 3 EXAMS

## Prefer Calling Sir Obiero Amos @ 0706 851 439 for Marking Schemes

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# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

**443/1**

**AGRICULTURE**

**FORM IV**

**PAPER 1**

**TIME 2HRS**

**Instructions**

Answer all the questions in section **A** and **B**.

In Section **C** answer any **two** questions in the spaces provided.

| ***Section*** | ***Questions*** | ***Maximum score*** | ***Candidates score*** |
|---|---|---|---|
| A | 1 – 19 | 30 | |
| B | 20 – 23 | 20 | |
| C | 24- 26 | 20<br>20<br>20 | |
| | TOTAL SCORE | 90 | |



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SECTION A ( 30 MARKS)

1. What is plantation farming system (1mk)

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**2.** State two effects of high level of education and technology on agricultural production (1mK)

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3. Name two ways in which soil Ph is raised (1mk)

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4. State two means by which water is conveyed on farms (1mk)

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5. Give four factors that affect the quality of farm yard manure (2mks)

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6. Mention two conditions under which the opportunity cost is zero (1mk)

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7. List any three methods which can be used to detect nutrient deficiency in crops (1 ½ mks)

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8. State four reasons for processing agricultural produce (2mks)

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9. Give four factors considered when grading tomatoes for fresh market (2mks)

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10. State four reasons why rough lemon is preferred as a root stock in the grafting of citrus (2mks)

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11. Highlight four objectives of land settlement which have been undertaken in Kenya (2mks)

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12. Mention four types of soil erosion by water (2mks)

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13. Name two insect pests that attack sorghum in the field (1mk)

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14. Give two benefits of possessing a land title deed to a farmer ( 1mk)

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15. List four variable costs in coffee production (2mks)

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16. Outline four financial documents (2mks)

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17. State four reasons why timely weed control is recommended in crop production (2mks)

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18. Distinguish between over sowing and under sowing as used in crop production (1mk)

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19. Give three ways in which forage crops are classified ( 1 ½ mks)

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b) What is intensive hedgerow as used in agro forestry? (1mk)

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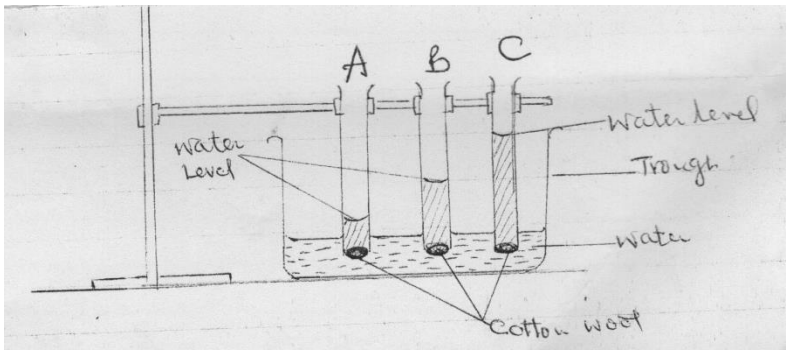
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SECTION B (20MKS)

20. The diagram below shows an experiment set up using garden soil samples types A,B and C. The observations were made after 24 hours




i)What is the experiment above designed to study (1mk)

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ii) Name the three soil types (1 ½ mks)

**A** ……

**B** ……

**C** ……

iii) State the characteristic texture of soil types (1 mk)

A

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C

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iv) Give three ways a farmer would improve the structure of soil type C ( 1 ½ mks)

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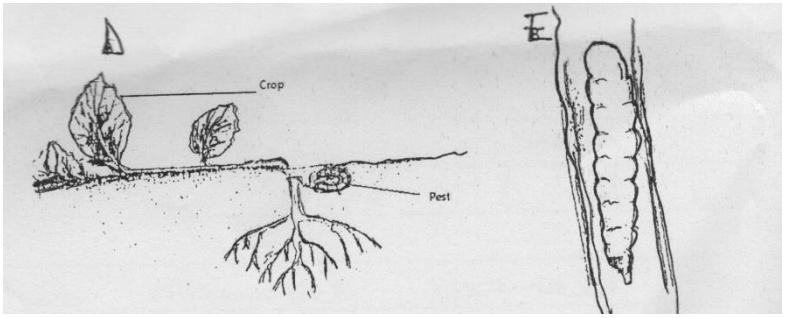
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21. The diagram below D and E illustrates some field pests. Study them carefully and answer the questions that follow




i) Identify the pests D and E (1mk)

**D ……**

**E ……**

ii) State two damages caused by pest E to a crop of maize (2mks)

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iii) Give two cultural practices carried out to control the pest in E (2mks)

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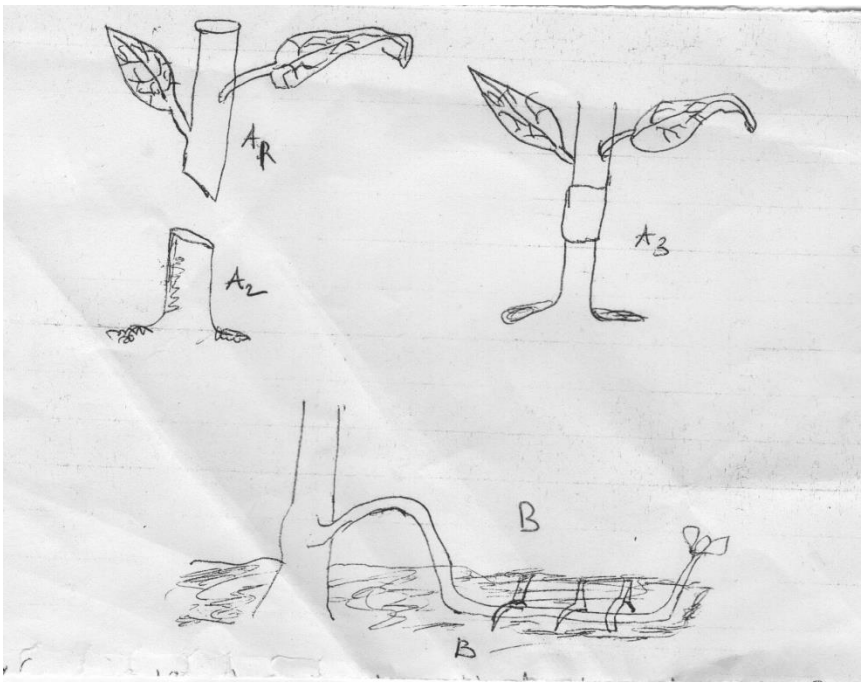
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22. The diagrams labeled A1, A2, A3 and B below illustrate materials and methods of vegetative propagation. Study them and answer the questions that follow




a. Identify the parts labeled A1 and A2 (1mk)

**A1** ……

**A2** ……..

b. State the methods of propagation illustrated in diagrams A3 and B (2mks)

**A3** …….

**B** ……

c. Name two other methods of A3 (2mks)

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23. A farmer can combine dairy meal and homemade feeds in feeding dairy cattle. Study the table below and answer the questions that follow

| Dairy MEAL (KG) | Homemade feed (kg) | Marginal rate of substitution |
|---|---|---|
| 1 | 48 | O |
| 2 | 39 | V |
| 3 | 32 | 7 |
| 4 | 27 | W |
| 5 | 23 | 4 |
| 6 | 21 | X |
| 7 | 20 | 1 |
| 8 | 19 | Y |

i) Given the information above. Calculate the marginal rate of substitution and give values for

V (2mks)

W

X

Y

ii) Suppose, when the price of a bag of maize is 2000ksh per bag. 20 bags are demanded but when the price changed to Kshs 1800 per bag, 22 bags are demanded. Calculate the Elasticity of demand. (Show your working) (2mks)

iii) State the type of elasticity of demand in (ii) above (1mk)

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## SECTION C (40MARKS)

24a. Describe the field production of Napier grass under the following sub headings

i) Planting (4mks)
ii) Fertilizer and manure application (3mks)
iii) Utilization (3mks)

b) Describe qualities of a mother plant which should be considered when selecting vegetative materials for planting (5mks)

c) Describe advantages of tillage as a method of weed control (5mks)

25a. Describe various agencies involved in marketing agricultural products (5mks)

b) Explain five factors that influence soil productivity (5mks)

c) Describe the procedure followed when transplanting tree seedlings from a bare root nursery bed

(10mks)

26a. Explain factors that should be considered when selecting seeds for planting (10mks)

b. Describe the procedure of harvesting pyrethrum (4mks)

c. Describe six advantages of minimum tillage (6mks)


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# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

**443/2**

**AGRICULTURE**

**FORM IV**

Instructions

Answer all the questions in section A and B

In Section C answer any two questions

| Section | Questions | Maximum score | Candidates score |
|---|---|---|---|
| A | 1 – 19 | 30 | |
| B | 20 – 23 | 20 | |
| C | 24- 26 | 20<br>20<br>20 | |
| | TOTAL SCORE | 90 | |



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SECTION A (30MKS)

1. Name two tools used for cutting galvanized iron pipes (1mk)

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2. List two pork breeds of pigs (1mk)

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3. Outline four routes through which disease causing organisms get into the body of an animal (2mks)

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4. Name two developmental stages of a liver fluke in water snail (1mk)

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5. Name four sources of carbohydrates in livestock nutrition (2mks)

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6. Give four importance of docking in sheep management (2mks)

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7. What does the term Epistalsis mean in livestock improvement (1mk)

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8. Give two disadvantages of a barbed wire fence when used in paddocking (1mK)

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9. Outline four symptoms of attack by coccidiosis disease in kids (2mks)

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10. Name four causes of stress in a flock of layers (2mks)

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11. State four advantages of natural feeding in calf rearing (2mks)

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12. Give four implements that obtain power from power take off shaft of the tractor (2mks)

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13. State four factors that stimulate milk letdown in a lactating cow (2mks)

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14. List four desirable qualities of a livestock ration (2mks)

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15. Give three methods of applying acaricides on animals ( 1 ½ mks)

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16. List four components of power transmission system ( 2mks)

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17. Give three signs of parturition in a doe (1 ½ mks)

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18. State two factors that lower the quality of concrete (1mk)

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19. State two uses for which wind power is harnessed (1mk)

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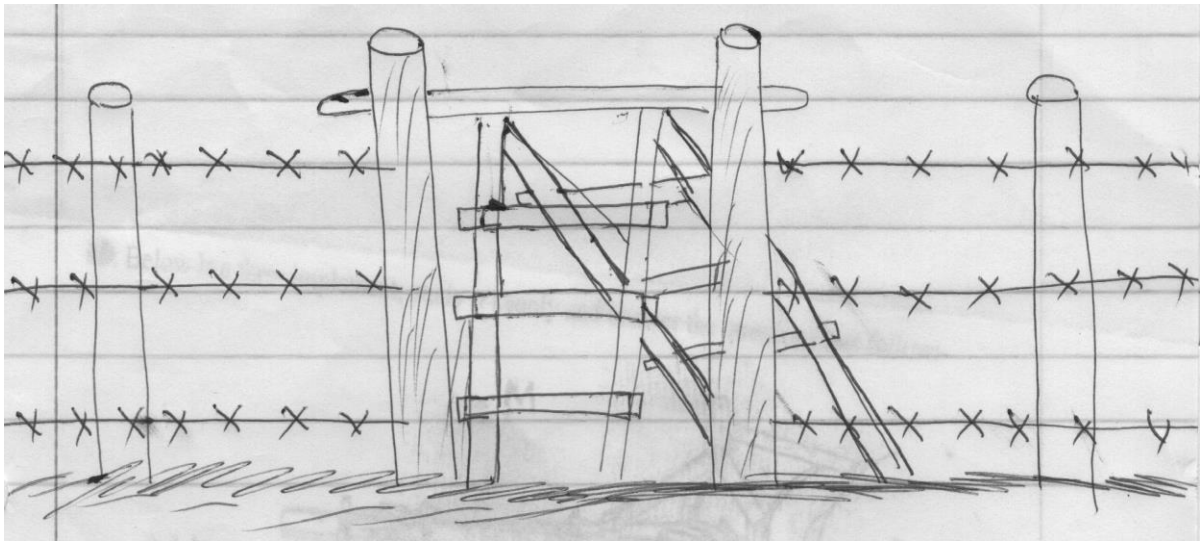
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SECTION B

20. Study the farm structure below illustrating a pass



a) Identify the type of pass illustrated below (1mk)

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b. Distinguish between a pass and a gate (1mK)

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c. List four types of tools and equipments used in the establishment of the structure above (2mks)

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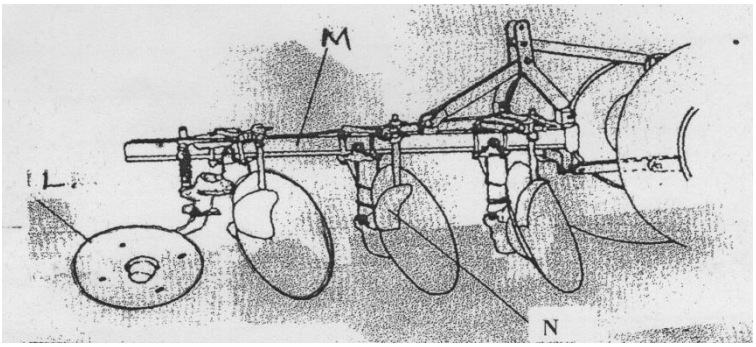
d. State one maintenance carried out on the structure (1mk)

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21. Below is a farm implement, study it keenly and answer the questions that follow




a. Name the farm implement drawn above (1mk)

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b. Identify the parts labeled L and M above

**L** …… ( ½ mk)

**M** …… ( ½ mk)

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

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d. State two field conditions under which the implement can work better than others (1mk)

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22i) Using Pearson's square method, calculate how much maize meal (8% DCP) and soya bean meal (43%DCP) would be required to prepare a 100kg ration of the mixture containing 15%DCP

(3mks)

ii) State four factors considered in selecting feedstuffs for computation (2mks)

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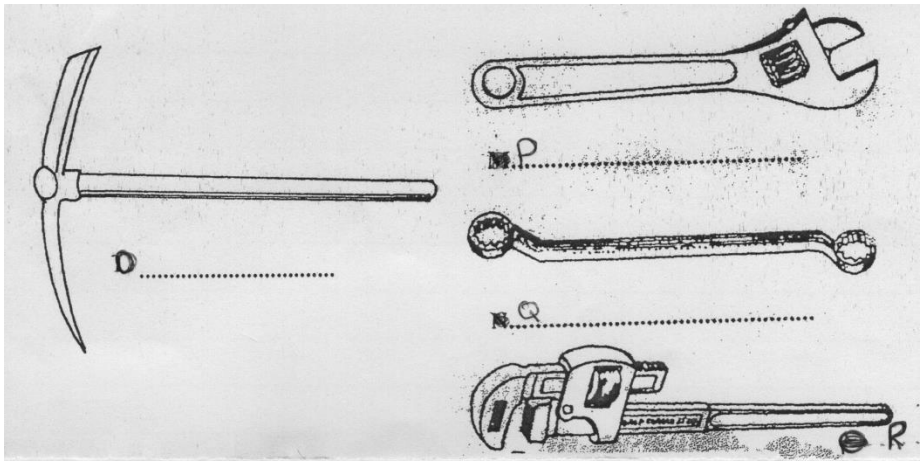
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23. Below are farm tools, study them and answer the questions that follow




a) Identify the tools

O .....

P.....

Q .....

R ..... (2mks)



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b) State the use of tool R (1mk)

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c) State four reasons for maintaining farm tools and equipments (2mks)

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SECTION C

Attempt two questions from this section

24A) Describe East Coast fever under the following sub-headings

i) Causal organisms (1mk)
ii) Symptoms of attack (5mks)
iii) Control measures (4mks)

b. Explain management of a cow during parturition (10mks)

25a. Describe the daily maintenance practices of a tractor (10mks)

b. Describe the characteristics of indigenous cattle that make them more suited to survive in marginal areas (10mks)

26a) Explain the role of livestock industry in Kenya's Economy (10mks)

b) Explain the principles considered when controlling Endo-parasites (5mks)
c) Describe the procedure of harvesting honey in a Kenya Top Bar Hive (5mks)


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# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

231/1
BIOLOGY
(Theory)
**2 hours**

***Instructions***

1. Write your Name and Index Number in the spaces provided above.
2. Write the date of the examination in the space provided above.
3. Answer all the questions in the spaces provided.

***For Examiner's use only***

| Question | Maximum Score | Candidate's Score |
|---|---|---|
| 1-25 | 80 | |

***This paper consists of 10 printed pages.***
***Candidates should check the question paper to ascertain that all the pages are printed as indicated and no questions are missing.***


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1. What name is given to the study of (2mks)

(i) Cells

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(ii) Inheritance and variation

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2. Name the **THREE** end products of anaerobic respiration in plants (3mks)

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3. a) A student collected an organism and observed the following features: simple eyes, four pairs of legs and two body parts.

(i) State the class to which the organism belongs (1mk)

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(ii) Give an example of an organism in this class (1mk)

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(b) Name the kingdom to which plasmodium belongs (1mk)

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4.(a) Explain continental drift in evolution (3mks)

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(b) What is meant by the term Organic Evolution (1mk)

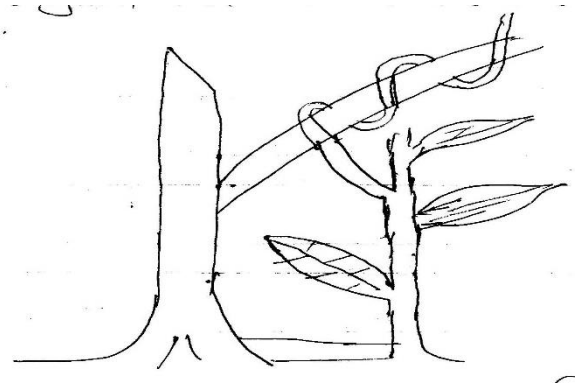
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5. The diagram below illustrates a response by a certain plant



(a) Name the type of response (1mk)

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(b) Explain how the response illustrated above occurs (3mks)

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6. a) State two roles of mucus in the stomach (2mks)

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b) Explain how age determines a person's energy requirements. (2mks)

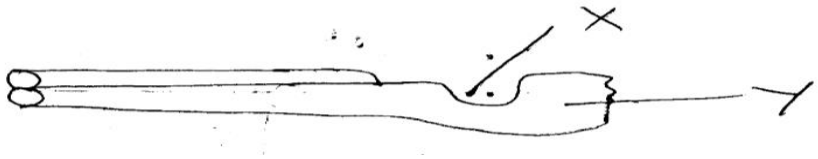
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7. The diagram below represents a bone found in humans




a)(i) identify the bone (1mk)

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(ii) Name the parts labeled X and Y (2mks)

**X**_____

**Y** _____

(b) Which bone does it articulate with at the anterior end? (1mk)

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8. A blood transfusion was to be carried out to a patient who was badly injured in a road accident. His plasma contained antibody a.

(a) Name two blood groups who would be donors (2mks)

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(b) Explain your answer in (a) above (1mk)

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9. What is the necessity of classifying living organisms (3mks)

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10. Name the organelle that carries out the following functions (3mks)

(i) Transport of proteins

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(ii) Manufacture of lipids

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(iii) Destroys worn out tissues and cells

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11. State ways in which respiratory surfaces are adapted to perform their functions (4mks)

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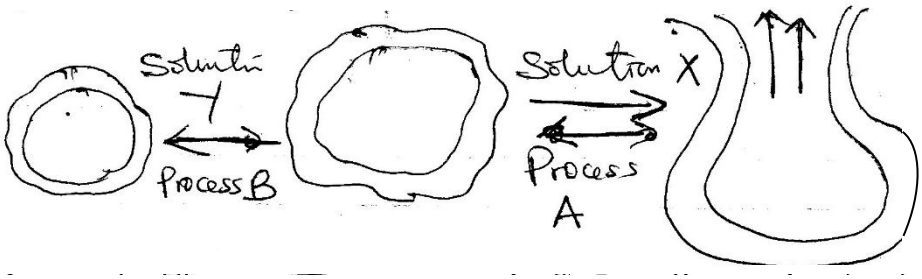
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12. The diagram below illustrates the behaviouir of blood cells placed in two different solutions




(a) Suggest the nature of solution X and Y (2mks)

**X** _____

**Y** _____

b ) Name the process represented by A and B (2mks)

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13 (a) What is meant by the term sex-linked genes? (2mks)

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(b) Name any ONE sex-linked trait found on the Y chromosomes in man (1mk)

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14. In a laboratory test, a person's urine was detected to contain a type of sugar.

(i) Name the type of sugar that was detected (1mk)

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(ii) Name the hormone that was deficient (1mk)

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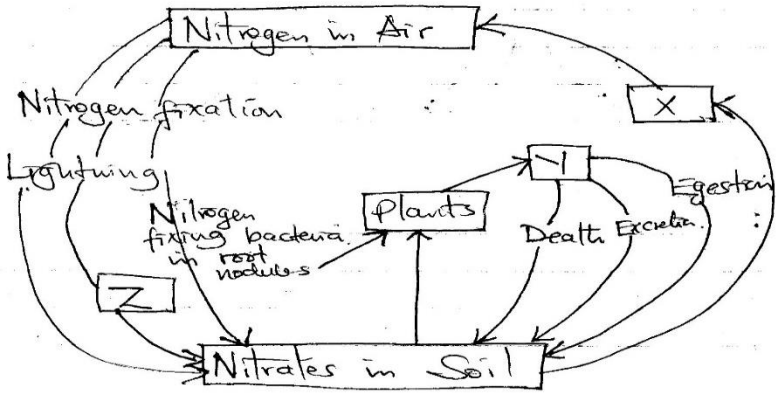
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(iii) Name the condition, that person was suffering from (1mk)

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15. The chart below represents a simplified nitrogen cycle




What is represented by X,Y and Z? (3mks)

**X** _____

**Y** _____

**Z** _____

16 (a) Distinguish between epigeal and hypogeal germination (1mk)

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(b) Why is oxygen necessary in the germination of seeds? (1mk)

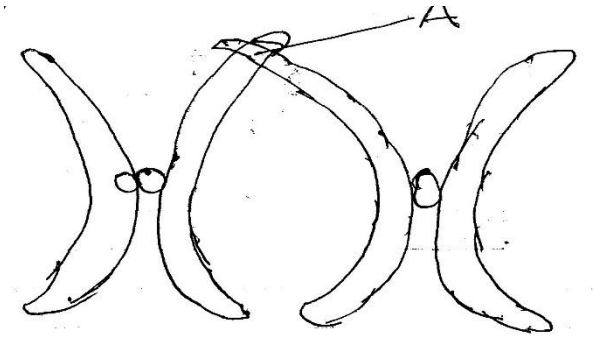
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17. Below is a diagram showing a pair of chromosomes




1. Name the process occurring at point A (1mk)

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2. Give the biological significance of the process named in (a) above (1mk)

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18. Give reasons for carrying out the following procedures when preparing temporary wet mounts of plant tissues

a) Making thin plant sections (1mk)

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b) Adding water on the plant section (1mk)

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c) Placing a cover slip over the plant section (1mk)

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19. The scientific name for French bean is Phaseolus vulgaris

(a) What taxon does the term Phaseolus represent? (1mk)

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(b) State two rules that are followed when giving a scientific name to an organism (2mks)

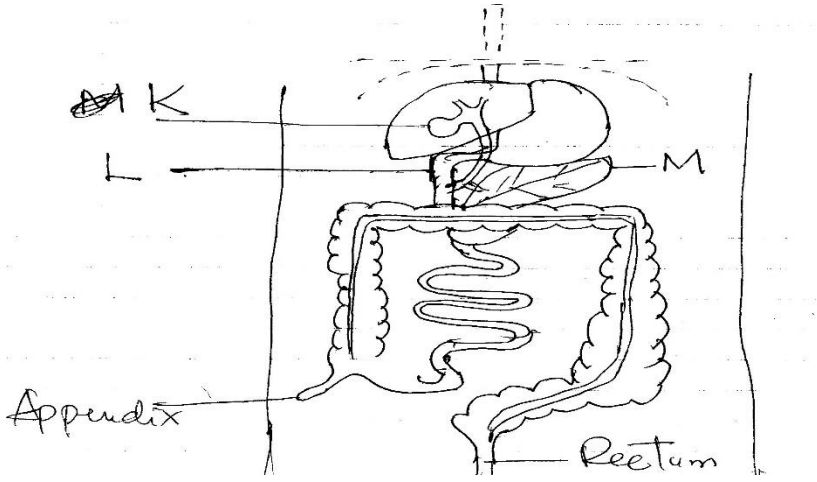
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20. The diagram below represents part of the human digestive system




(a) Name the organs labeled L and M (2mks)

**L** _____

**M** _____

(b) (i) Name the substance produced by the organ labeled K (1mk)

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(ii) State the function of substance named in b(i) above (1mk)

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21.(a) Name ONE defect of the circulatory system in humans. (1mk)

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(b) State THREE functions of blood other than transport (3mks)

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22. State the function of the following apparatus used in the collection of specimens.

a) A pooter (1mk)

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b) A pit fall trap (1mk)

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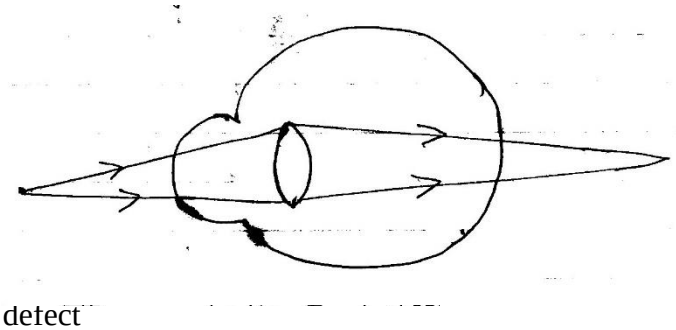
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23. The diagram below shows the position of an image formed in a defective eye



(a) Name the defect (1mk)

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……

(b) Explain how the defect named in (a) above can be corrected (1mk)

……

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24. State ONE economic importance of each of the following plant excretory products. (3mks)

(a) Tannin

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(b) Quinine

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(c) Caffeine

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25. Name THREE types of chromosomal mutation (3mks)

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26. State one example of vestigial structure in humans (1mk)

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# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

**BIOLOGY**
**231/2**
**PAPER 2**

INSTRUCTIONS:

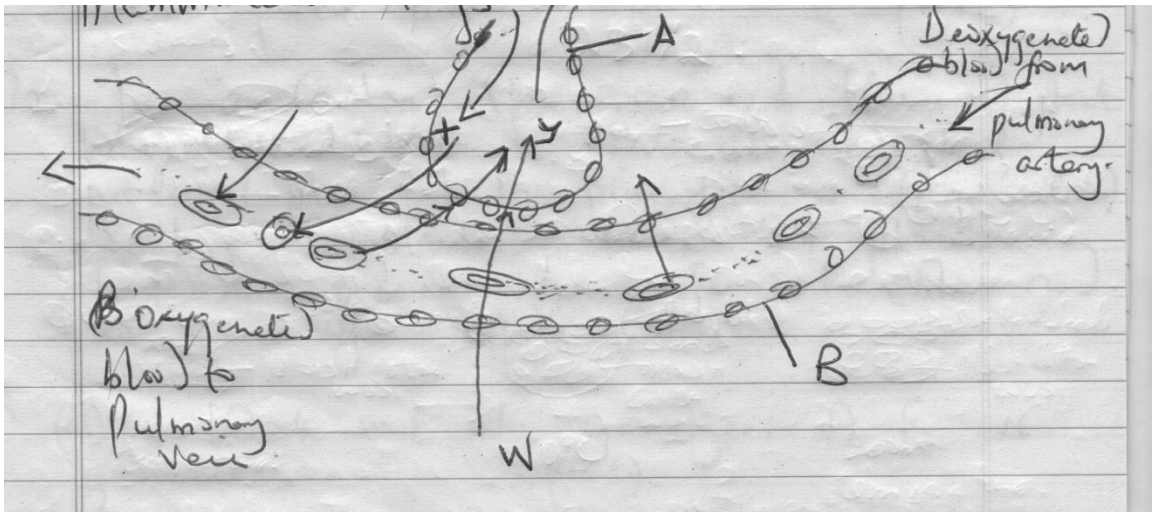
1. Answer all the questions in section A and Question 6(compulsory) and either question 7 OR 8

**TOTAL SCORE**


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**SECTION 40 MARKS**

1. The diagram below illustrates the mechanism of gaseous exchange in mammalian lungs.




a) i Name the membranes labeled ***A*** and ***B***. (2mks)

**A-** ……..

**B-** ……..

ii Name the gases labeled **X** and **W**. (2mks)

**X---** ……..

**W---**……

iii What factors of the alveoli adapt them to their functions. (2mks)

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b) The following table shows the volume of gases carried by $100cm^3$ of blood

| ***Gas*** | ***Blood Entering lungs*** | ***Blood leaving lungs*** |
|---|---|---|
| Nitrogen | $0.9cm^3$ | $0.9cm^3$ |
| Oxygen | $10.6cm^3$ | $19cm^3$ |
| Carbon (iv) Oxide | $58cm^3$ | $50cm^3$ |

c) Explain the difference in the content of Oxygen and carbon (IV) oxide entering the lungs. (2mks)

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2. In a certain species a red flowered plant when closed with a white flowered plant, produced plants with pink flowers (**F1** generation). Selfing **F1** plants produced 84 plants. Let R represent gene for red colour on W gene for white colour.

(a) i) Work out the genotypes of **F**2 generation. (4mks)

ii) What is the phenotypic ratio of **F2** plants? (1mk)

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(b) How many **F2** plants had pink flowers? (2mks)

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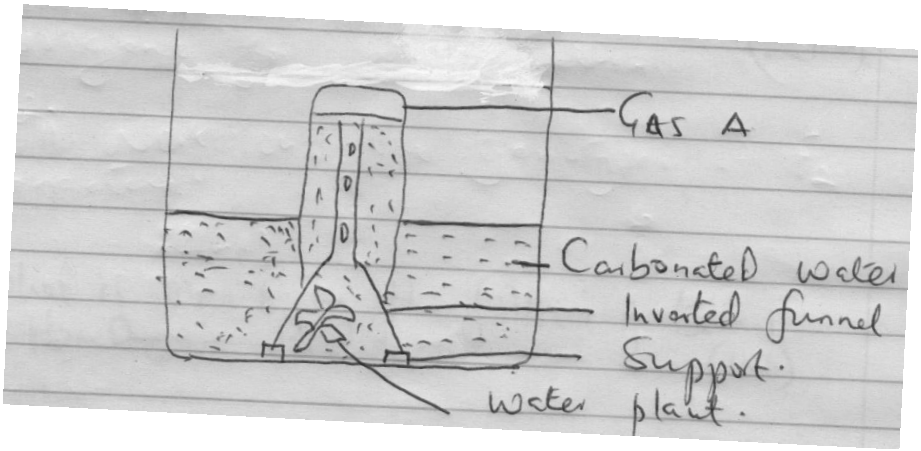
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(c) Name the type of inheritance exhibited by the plants above. (1mk)

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3. The set up below was assembled to demonstrate a certain physiological phenomenon. The set up was initially kept in a dark cupboard for 6 hours. Use it to answer the questions that follow.




(a) What was the aim of the set up? (2mks)

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(b) Identify gas **A**.

i) When the set up was kept in a dark cupboard. (1mk)

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ii) When the set up was exposed to sunlight. (1mk)

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(c) Why is submerged water plant more suitable for the experiment that non-submerged water plant? (2mks)

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(d) Suggest **two** ways of increasing the rate of production of gas A. when the set up is exposed to sunlight. (2mks)

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4. a) What is the difference between *Darwinian* and *Larmackian* theories of evolution? (2mks)

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b) What is meant by the following terms?

(i) Homologous structures. (1mk)

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(ii) Analogous Structures. (1mk)

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c) State the methods of fossil formation. (3mks)

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d) What is a vestigial structure? (1mk)

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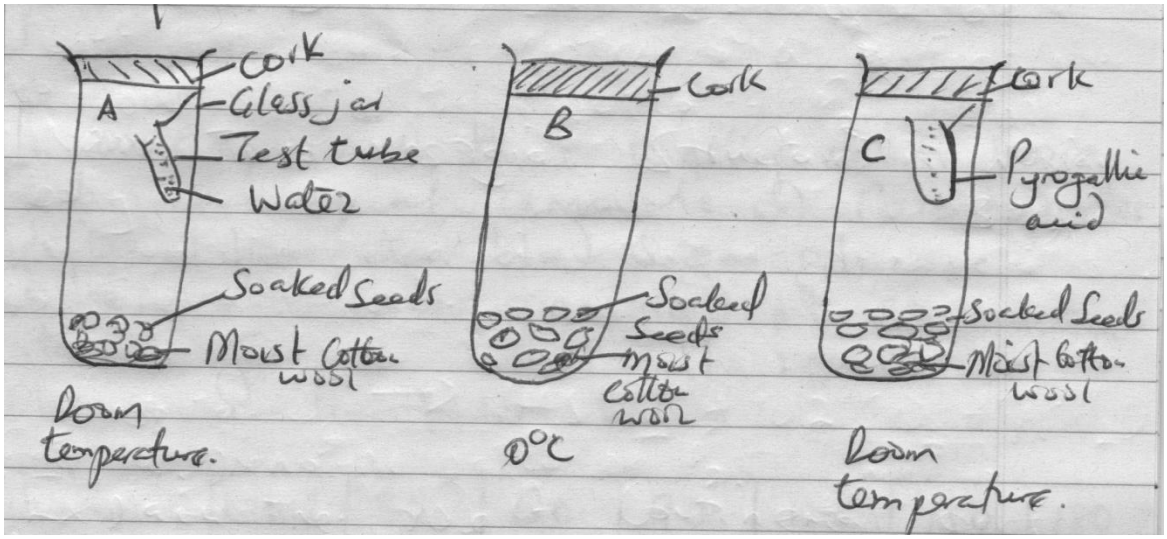
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5. The diagram below represent set up to investigate the conditions necessary for seed germination. The Set up was left for 5 days.




i) What conditions were being investigated in the experiment? (2mks)

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ii) Explain the role of water during seed germination . (2mks)

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iii) State the observation made in glass jars A and B after five days. (2mks)

A

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B

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iv) Account for the results obtained in set up A and B after five days. (2mks)

**A----**

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**B ----**

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**SECTION B: (40MKS)**

**QUESTION 6 is COMPULSARY: *Answer either question 7 or 8.***

6. In an experiment, three healthy rabbits were fed with equal amounts of carbohydrates. After 1 hour their blood sugar glucose concentration was measured at 30 minutes intervals for 3 hour. The results are as shown in the table below.

| **Glucose conce Mg/ml Rabbit** | **Initial time(minutes)** | **30 Minutes** | **60Minutes** | **90 Minutes** | **120 Minutes** | **150 Minutes** | **180 Minutes** |
|---|---|---|---|---|---|---|---|
| P | 1.6 | 1.55 | 1.43 | 1.36 | 1.3 | 1.19 | 1.11 |
| Q | 1.49 | 1.39 | 1.34 | 1.32 | 1.27 | 1.2 | 1.09 |
| R | 1.59 | 1.39 | 1.33 | 1.27 | 1.18 | 1.1 | 0.99 |
| Mean | 1.56 | 1.44 | | 1.32 | 1.25 | 1.16 | - |

a.(i) Calculate the **mea**n glucose concentration 1mg/ml of blood at 60 and 90 minutes. (2mks)

(ii) On the grid provided plot a graph of mean glucose concentration against time. (6mk)

**PROVIDE A GRAPH PAPER**



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(iii) What was the mean concentration in the blood after 75 minutes? (2mks)

(iv) Why was it necessary to use 3 rabbits in the experiment? (2mks)

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(v) Account for differences in mean glucose concentration during the period. (3mks)

(b) Name three products of digestion other than glucose (3mks)

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(c) What is the fate of excess glucose in plants? (2mks)

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Answer either Questions **7** or **8** on the Space provided

7. (a) How are xerophytes adapted to their environment? (10mks)
   (b) Explain the causes of seed dormancy. (10mks)

8. Describe how the male reproductive system is adapted to its functions. (20mks)


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# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

**BIOLOGY**
**231/3**
**PAPER 3**

## INSTRUCTIONS:-

- Answer all the questions in this paper
- You are supposed to spend the first 15 minutes of the $1\frac{3}{4}$ hours allowed for this paper reading the whole paper carefully before commencing your work.
- Answers must be written in the spaces provided on the question paper.
- Answers **MUST** be written in English only.

***FOR EXAMINER'S USE ONLY.***

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


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**Q1**. (a) You are provided with specimen **F** using a scapel, make a transverse section of F.
Draw one half of **F** and label four parts. (4mks)

(b) Name the type of fruits represented by specimen **F**. (1mk)

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(c) State the type of placentation in Specimen **F**. (1mk)

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(d) (i) By what means specimen **F** dispersed. (1mk)

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

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(e)(i) Squeeze the juice from Specimen F using the reagents provided, carry out the required food Tests and complete the table below.

| ***FOOD SUBSTRATE*** | ***PROCEDURE*** | ***OBSERVATION*** | ***CONCLUSION*** |
|---|---|---|---|
| | | | |


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

(4mks)

(ii) Name the deficiency disease in humans that would result from lack of fruits such as Specimen **F** is the diet. (1mk)

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(iii) State **one** symptom of the disease named e(ii) above. (1mk)

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**Q**2. You are provided with iodine solution, starch suspension and visking tubing.wet the visking tubing in

running water to soften it and make it easy to open. Tie one end of the tubing tightly using a Dropper, put starch suspension in to the tubing until about three-quarters full.

- Tie the open end of the tubing tightly.
- Ensure that there is no leakage at both ends of the tubing.
- Clean outer surface of the visking tubing over running water to remove all traces of starch Suspension.
- Place the visking tubing containing starch suspension into the beaker with iodine solution and leave the set up undisturbed for about 30minutes.
- Remove the tubing from the beaker and observe.

(a) Record your observation in a table by indicating the colour of the solution at the beginning on at the end of the experiment.

| | **Starch solution inside tubing** | **Iodine solution in the beaker** |
|---|---|---|
| **Start experiment** | | |
| **End of experiment** | | |

(4mks)



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(b) Account for the observations. (7mks)

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(c) State the process being investigated. (1mk)

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Q3. You are provided with specimen **PQR** and S obtained from the same animal.

a,(i) Name each of the specimens **PQR** and **S** **(4mks)**

**P** _____

**Q** _____

**R** _____

**S** _____

(ii) State the part of the body from where each of the specimens were obtained, (3mks)

**P** _____

**Q** _____

**R** and **S** _____



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b, Examine specimen **P** with reasons name the type of joints formed at the proximal/ autenor and distal/

Posterior end proximal. _____(4mks)

***Reason:***

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Distal end:_____

Reason:

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c. Name the bone which articulates P and Q. (1mk)

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d. State **two** ways by which specimen **Q** is adapted to its functions. (2mks)

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# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

**FORM 4**

**TIME: 2HRS**

**INSTRUCTIONS: ANSWER ALL QUESTIONS IN THE SPACES PROVIDED.**

1. State whether the following represent injection into or leakages from the circular flow of income. (4mks)

| | Item | Injection/leakages |
|---|---|---|
| a) | Savings | |
| b) | Taxes | |
| c) | Government expenditure | |
| d) | Investment | |

2. Outline four macro environmental factors of a business that can lead to its success.(4mks)

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3. State four functions of money. (4mks)

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4. Name the factor of production that each of the following resource relate to (4mks)

| | Resource | Factor of production |
|---|---|---|
| a) | Manager | |
| b) | Equipment | |
| c) | Farmer | |
| d) | River | |

5. List four essential services provided by the county governments to the public. (4mks)

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6. Outline four factors to be considered when choosing a means of reproducing documents in an office. (4mks)

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7 Outline four advantages of after sale services as a method of sales promotion to a customer. 4mks

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8. Outline four benefits of the newly constructed standard guage railway line. (4mks)

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9. In the spaces provided, indicate the account to be debited and to be credited in the following transactions. (4mks)

| | Transaction | A/C DEBITED | A/C CREDITED |
|---|---|---|---|
| a | Bought machine in cash | | |
| b | Started business with sh.30,000 in cash | | |
| c | Took sh.20,000 cash from business for personal use | | |
| d | Credit sales of old machine to Kamau | | |



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10. The following balances were extracted from the books of kumi kumi traders on 31 dec.2017.

| | |
|---|---|
| Gross profit | ksh.80,000 |
| Rent | 8,000 |
| Discount received | 2,000 |
| Salaries | 10,000 |
| Discount allowed | 5,000 |
| Commission received | 3,000 |
| Maintenance expense | 9,000 |
| Debtors | 10,000 |
| Creditors | 12,000 |

Required: prepare kumi kumi traders profit and loss account for the year ended 31 Dec 2017. (4mks)

11. Highlight four circumstances under which goods can be delayed in a bonded warehouse. (4mks)

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12. State four causes of cost-push inflation. (4mks)

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13. Highlight four factors that can cause a firm to develop into a monopoly. (4mks)

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14. On 3rd Feb 2016 Jomo bought goods worth ksh.12000.Terms of payment were, trade discount 5% and cash discount 10% if payment is made within 30 days.If Jomo paid on 26th Feb 2016 determine the amount he paid. (4mks)

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15. In the spaces provided below indicate with a tick (√ ) whether each of the following statements relates to preference or ordinary shares. (3mks)

| | Statement | Preference | Ordinary |
|---|---|---|---|
| a | Represent real owners of a company | | |
| b | Rate of dividend is fixed. | | |
| c | Has voting rights | | |
| d | Redeemable | | |
| e | May be cummulative | | |
| f | Considered last in liquidation | | |



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16. Highlight four ways in which the government can use to influence the supply of maize in Kenya. (4mks)

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17. Highlight four purposes of public finance (4mks)

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18. State the type of insurance policy described by the following statements. (4mks)

| | Statement | Type of policy |
|---|---|---|
| a) | Cover losses caused by employees dishonesty/fraud | |
| b) | Protects employees against injuries while at work. | |
| c) | Cover damage on motor vehicle, other people and property caused by the vehicle. | |
| d) | Cover claims by the members of public against a business | |



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19. Indicate whether each of the following business transaction will increase, decrease or no effect on balance sheet totals.

| | Transaction | Effect |
|---|---|---|
| i) | Buying stock in cash | |
| ii) | Buying stock on credit | |
| iii) | Withdrawing cash from bank for personal use | |
| iii) | Received cash from a debtor | |

20. Outline four problems Kenya would suffer if she does not participate in foreign trade. 4mks

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21. The following balances were extracted from the books of Juma traders for the year ended 31.12.2016.

| | |
|---|---|
| Capital | 800,000 |
| Machines | 600,000 |
| Fixtures and fittings | 200000 |
| Net profit | 100,000 |
| Additional capital | 50,000 |
| Drawings | 20,000 |
| Debtors | 50,000 |
| Cash | 100,000 |
| Stock | 50,000 |
| Creditors | 70,000 |


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Required: prepare Juma traders balance sheet as at 31.12.2016. (5mks)

22. Highlight four measures taken by the government to encourage entrepreneurial practices in Kenya today. (4mks)

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23. Outline four features of the basic human wants. (4mks)

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24. Outline four circumstances under which signs and gestures can be used in communication. (4mks)

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25. Highlight four factors that determine populations fertility rate in a country. (4mks)

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# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

**565/2: BUSINESS STUDEIS PAPER 2**
**FORM FOUR**
**TIME: 2 ½ HOURS**
**INSTRUCTIONS: ANSWER ANY FIVE QUESTIONS.**

1. a) Explain five types of wholesalers found in Kenya. (10mks)
   b) Explain five criteria that is used to determine the size of a firm. (10mks)

2. a) Explain five ways through which the central bank of Kenya can control the supply of money in the country. (10mks)
   b) Explain five limitations of using radio as a means of advertising. (10mks)

3. a) Explain five types of unemployment. (10 mks)
   b) Musa traders had the following transactions during the month of April 2016.

   April 2: sold goods on credit to Mary sh.1800
   3: Sold goods worth sh.45,000 to Njau on credit
   5: Bought stock on credit worth sh.7600 from Kima
   6: Sold stock to Magi on credit at sh.3000
   8: sold an old machinery on credit to Heri sh.20,000
   10: Bought goods worth sh.2400 on credit from Ciku.
   15: Bought stock worth sh.180,000 on credit from Meja
   20: Bought a van worth sh.250,000 on credit from Gari motors.

   Required : record the above transactions in the relevant journals. (10mks)

4. a) Explain five differences between public limited company and partnership forms of business units. (10mks)

   b) Sharks and Shujaa are importers of vehicles from Japan. Explain five terms of sale that may be quoted by the exporters of the vehicles. (10mks)

5. a) With an aid of a well labeled diagram explain the effect on the equilibrium price and equilibrium quantity when the supply of vehicles increase in the market. (10mks)


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b) Explain five principles of insurance. (10mks)

6. a) Explain four measures that should be taken to ensure that office machines are in good working condition all the times. (8mks)

b) The following information relates to Kewa enterprises.

| | |
|---|---|
| Stock (1.1.2016) | 430,000 |
| Stock (31.12.2016) | 470,000 |
| Purchases | 930,000 |
| Sales | 1,155,000 |
| Carriage outwards | 25,000 |
| Carriage inwards | 10,000 |
| Returns outwards | 20,000 |
| Returns inwards | 30,000 |
| General expenses | 100,000 |
| Insurance | 25,000 |

Required
Calculate

a) Net sales (2mks)
b) Rate of stock turn over (2mks)
c) Gross profit (2mks)
d) Mark – up (2mks)
e) Margin (2mks)
f) Net profit (2mks)


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# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

233/1

**CHEMISTRY**

Paper 1(THEORY)

Time: 2 Hours

**INSTRUCTIONS TO CANDIDATES**

- Write your name and index number in the spaces provided above.
- Sign and write the date of examination in the spaces provided.
- Answer **all** the questions in the spaces provided.
- KNEC mathematical tables and non-programmable electronic calculators may be used.
- All working **must** be clearly shown where necessary
- Candidates should check whether the question paper to ascertain that all the pages are printed and that no questions are missing.
- Candidates should answer the questions in **English**

**FOR EXAMINER'S USE ONLY**

| Questions | Maximum Score | Candidates Score |
|---|---|---|
| 1 – 30 | 80 | |



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1. a) When the air hole is fully opened, the Bunsen burner produces a non-luminous flame. (1mks)

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b) Draw a labeled diagram of a non-luminous flame (2mks)

2. Describe an experimental procedure that can be used to extract oil from nuts seeds (2mks)

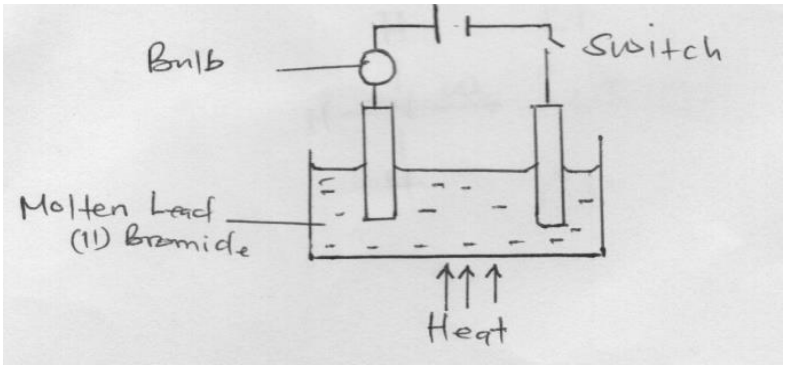
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3. Study the diagram below and use it to answer the questions that follow




a) Write the equations for the reactions taking place at the;

I. Anode (1mks)

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II. Cathode (1mks)

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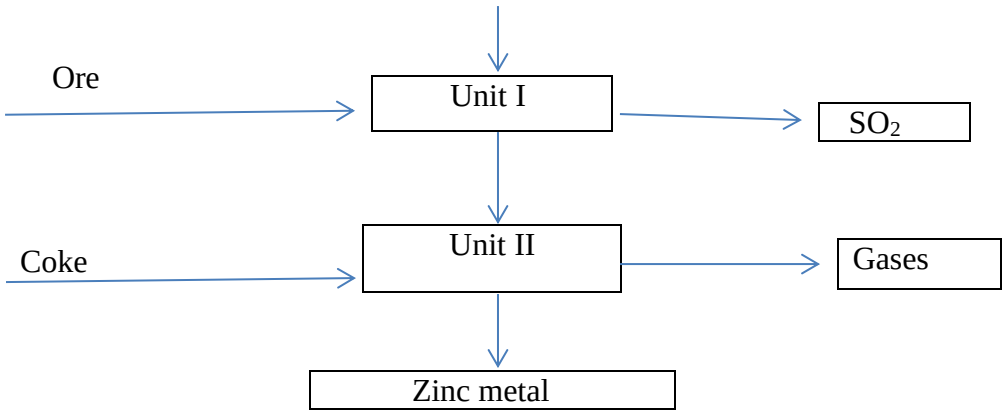
b) Name one application of electrolysis (1mks)

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4. In a titration experiment, 25cm$^3$ of a solution of sodium hydroxide containing 8 g per litre was required for complete neutralization of 0.245 g of a dibasic acid. Calculate the relative molecular mass of the acid ( Na = 23.0, O = 16.0, H = 1) (3mks)

5. The flow chart below shows processes involved in the industrial extraction of Zinc metal




a) Name **one** ore from which zinc is extracted (1mks)

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b) Write the equation of the reaction taking place in unit II (1mks)

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c) Name **two** uses of zinc metal (1mks)

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6. The table below shows the pH values of solutions P, R, Q and S

| Solution | P | R | Q | S |
|---|---|---|---|---|
| pH | 2 | 7 | 6.5 | 13.5 |

a) Which solution represents:

i) Strong base (1mks)

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ii) Weak acid (1mks)

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b) Give an example of solution S (1mks)

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7. The electron arrangement of ions of a certain elements represented by letters P, Q, R and S are:

**$P^{2-}$ -2.8.8**

**$Q^{2+}$ -2.8**

**$R^{+}$ - 2.8**

**S -2.8.8**

a) Explain why S is not represented as an ion (1mks)

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b) Which element has the largest atomic radius? Explain. (2mks)

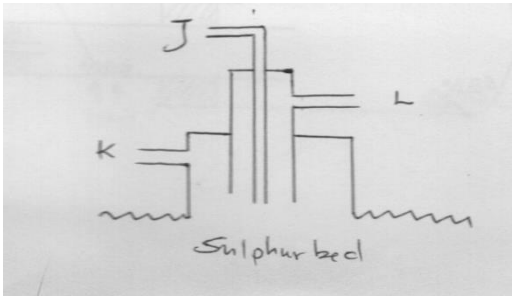
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8. Sulphur is extracted from underground deposits by a process in which three concentric pipes are sunk down to the deposits as shown




a) Name the process represented above (1mks)

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b) What is passed down through pipe J? (1mk)

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c) Name the **two** allotropes of sulphur (1mk)

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9. Element **A** has atomic mass 23 and element **B** has atomic mass 7 and also have 12 neutrons and 4 neutrons respectively.

a) Write the electronic arrangement of **A** and **B**. (1mk)

……

……

……

b) Which element has higher ionization energy? Explain (2mks)

……

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10. W grammes of a radioactive isotope decayed to 5 grammes in 100 days. The half life of the isotope is 25 days.

    a) What is meant by half life? (1mk)

.....

.....

    b) Calculate the initial mass W of the radioactive isotope (3mks)

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11. Haber process ( the manufacture of ammonia gas) is given by the following equation

$N_{2\,(g)} + 3H_{2\,(g)} \rightleftharpoons 2NH_{3\,(g)}$ $\Delta H = -92kJ/mole$

State and explain the effect of

    a) Introducing some drops of water to the equilibrium (1mk)

.....

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    b) Pumping nitrogen gas to the equilibrium mixture (1mk)

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    c) Lowering the temperature of the reaction (1mk)

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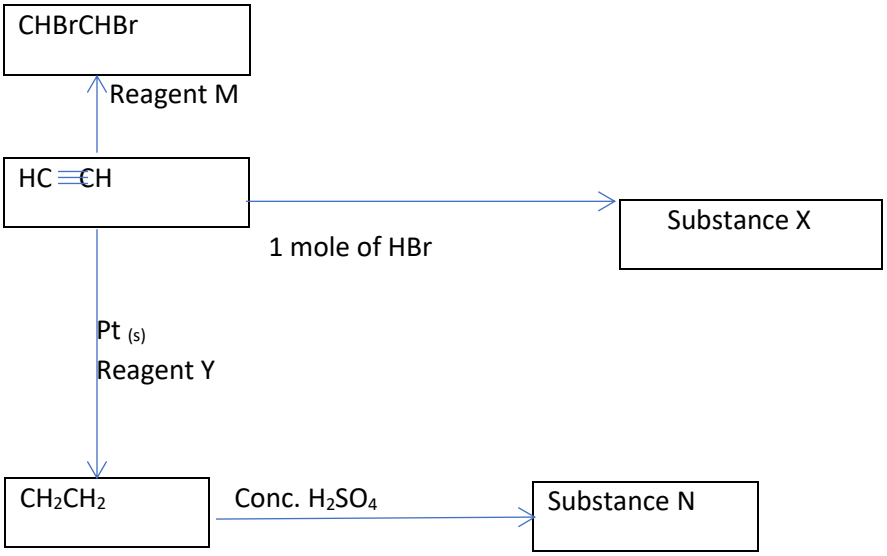
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12. The scheme below shows some reactions starting with ethyne. Study it and answer the questions that follow.




a) Name substance

i) X ……. (½mk)

ii) N …… (½mk)

b) Name the reagent M (½mk)

……

……

c) Ethene undergoes polymerization to form a polymer. Write an equation for the reaction and name the product (1½mks)

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

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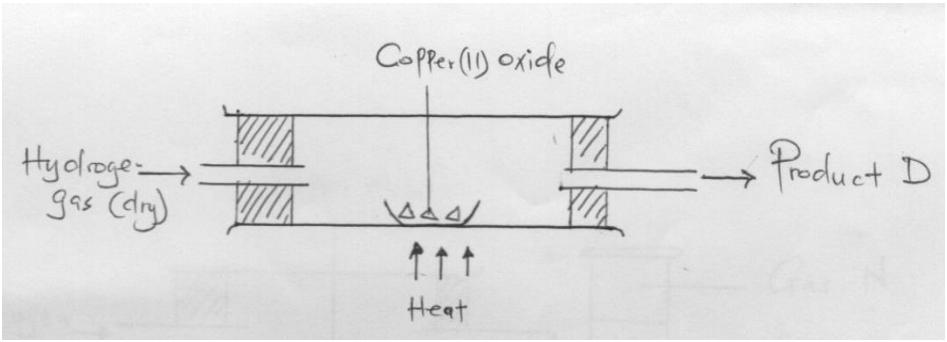
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c) 30cm$^3$of hydrogen chloride gas diffuses through a porous in 20 seconds. How long would it take 42cm$^3$ of sulphur (IV) gas to diffuse through the same pot under the same conditions? ( H = 1, Cl = 35.5, S = 32, O = 16) (2mks)

14. In the laboratory experiment, hydrogen gas was passed over heated copper (II) oxide as shown in the diagram below




a) Write equation for the reaction taking place in the combustion tube (1mk)

……

……

b) Describe a chemical test that can be used to identify the product D (2mks)

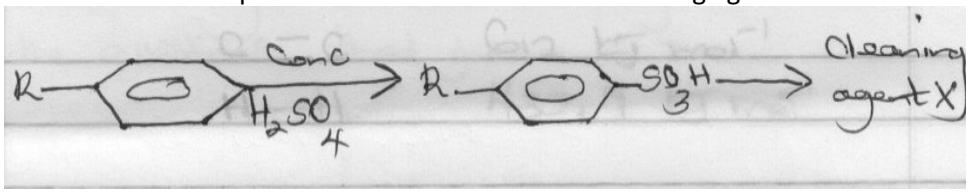
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15. The scheme below represents the manufacture of a cleaning agent X





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a) Draw the structure of X and state the type of clearing agent to which X belong (1mk)

b) State **one** disadvantage of using X as a cleaning agent (1mk)

.....

.....

.....

16. Diamond and graphite are allotrope of carbon.

a) What are **allotropes**? (1mk)

.....

.....

.....

b) Explain why graphite can be used as a lubricant while diamond cannot? (1mk)

.....

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.....

c) Give another element which exhibit allotropy (1mk)

.....

.....

17. Given sodium carbonate solid, lead II nitrate solid and water, Explain how you can obtain a solid sample of lead II carbonate (3mks)



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18. Given the following bond energies:

| | |
|---|---|
| C - C | 347kJ/mol |
| C - H | 413kJ/mol |
| C = C | 612 kJ/mol |
| H - H | 435.9kJ/mol |

Calculate the enthalpy change of hydrogenation of ethane (3mks)

19. Excess magnesium ribbon sample was heated in equal volumes of:

i) Pure oxygen gas

ii) Air

a) Why was the mass of the resulting product in (ii) more than in (i)? (1mk)

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b) Write the equations for the reactions in part (ii) (2mks)

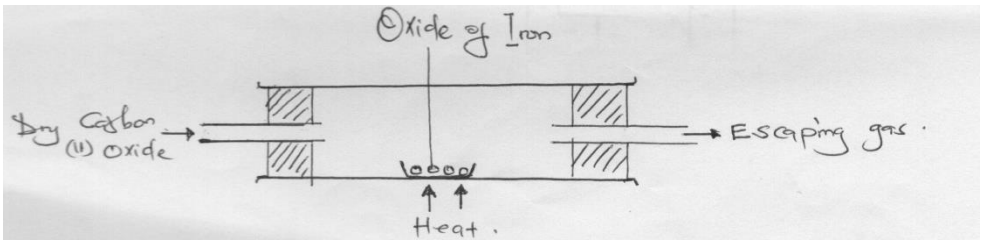
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20. Excess carbon (II) oxude was passed over heated sample of an oxide of ironas shown in the diagram below. Study it and answer the questions that follow.




Data collected as follows:

| | |
|---|---|
| Mass of empty crucible | 10.98 g |
| Mass of empty crucible + oxide of iron | 13.30 g |
| Mass of crucible + residue | 12.66 g |

Determine;

i) The mass of the iron (½mk)

ii) The mass of oxygen (½mk)

iii) The empirical formula of the oxide of iron (2mks)

21. The table below gives some properties of three elements in groups (VII) of the periodic table. Study it and answer the questions that follow

| Element | Atomic No. | Melting point ($^0$C) | Boiling point($^0$C) |
|---|---|---|---|
| Chlorine | 17 | -101 | -34.7 |
| Bromine | 35 | -7 | 58.8 |
| iodine | 53 | 114 | 185 |


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a) Which element is a gas at room temperature ($25^0$C)? Explain. (1mk)

……

……

……

b) Explain why the boiling point of bromine is higher than that of chlorine (1mk)

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c) Identify the element which has the highest electron affinity. Give a reason (imk)

……

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……

22. An element X has relative atomic mass of 88. When a current of 0.5 Ampheres was passed through the fused chloride of X for 32 minutes 10 seconds, 0.44 g of X was deposited at the cathode. ( IF = 96500C)

a) Calculate the number of Faradays needed to liberate 1 mole of X (2mks)

b) Write the formula of the chloride of X (1mk)

23. Aqueous ammonia was added to copper (II) sulphate solution dropwise until in excess.

a) What observations were made? (1½ mks)

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b) Write down the ionic equations representing the observations mentioned in (a) above. ( 1½mks)

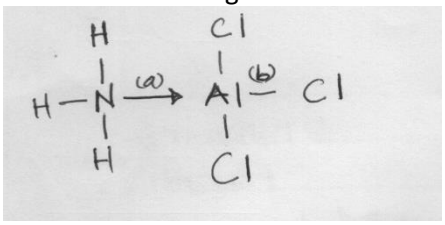
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24. The diagram below shows the bonding between aluminium chloride and ammonia



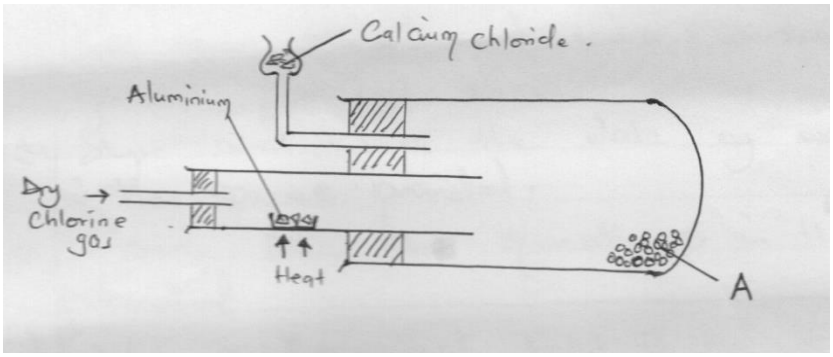

**i)** Name the type of bond labeled

a) …… (1mk)

b) …… (1mk)

ii) How many electrons are used for bonding in the molecule? (1mk)

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




i) Name substance A (1mk)

……

……

ii) Write an equation for the reaction that took place in the combustion tube (1mk)

……

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iii) State the function of the calcium chloride in the set up above (1mk)

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26. a) State the **Gay Lussaic's** law (1mk)

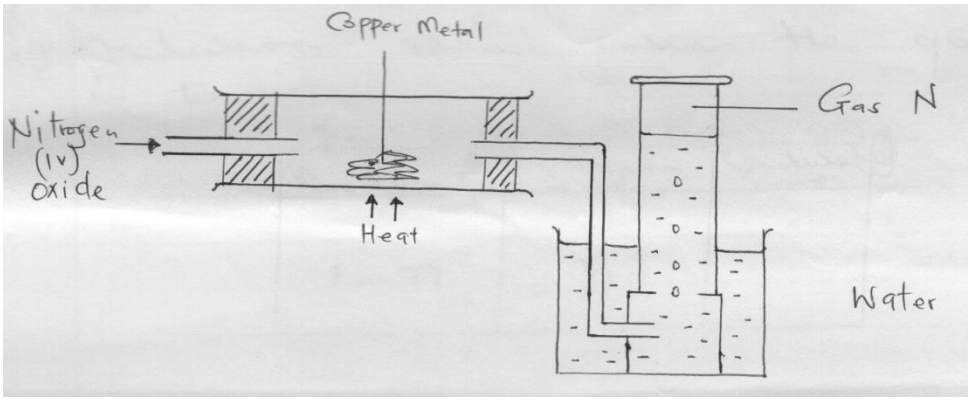
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c) $10cm^3$ of gaseous hydrocarbon $C_2H_X$ required $30cm^3$ of oxygen for combustion. If 1 mole of steam and $20cm^3$ of carbon (IV) oxide were produced, what is the value of X? (2mks)

27. The set up below is an arrangement showing how metals react with nitrogen (IV) oxide. Study it and answer the questions that follow.




a) Nitrogen (IV) oxide is passed through the combustion tube before copper is heated. Give a reason. (1mk)

……

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b) State the observations that would be made at the end of the experiment in the combustion tube (1mk)

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c) Name gas N (1mk)

……

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**INDEX NO: ……..…..… SIGN: ……..…. DATE:……**

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# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

233/2

**CHEMISTRY**

Paper 2 (THEORY)

Time: 2 Hours

**INSTRUCTIONS TO CANDIDATES**

- Write your name and index number in the spaces provided above.
- Sign and write the date of examination in the spaces provided.
- Answer **all** the questions in the spaces provided.
- KNEC mathematical tables and non-programmable electronic calculators may be used.
- All working **must** be clearly shown where necessary
- Candidates should check whether the question paper to ascertain that all the pages are printed and that no questions are missing.
- Candidates should answer the questions in **English**

**FOR EXAMINER'S USE ONLY**

| Q | MARKS | CANDITATE SCORE |
|---|---|---|
| 1 | 12 | |
| 2 | 9 | |
| 3 | 13 | |
| 4 | 11 | |
| 5 | 12 | |
| 6 | 12 | |
| 7 | 11 | |
| TOTAL | 80 | |



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1. Use the information below on standard electrode potentials to answer the questions that follow

| Electronic reaction | $E^{\Theta}$ volts |
|---|---|
| $C^{2+}_{(aq)} + 2e^{-}$ $C_{(s)}$ | +0.34 |
| $D^{2+}_{(aq)} + 2e^{-}$ $D_{(s)}$ | +0.44 |
| $E^{+}_{(aq)} + e^{-}$ $E_{(s)}$ | -2.92 |
| $F^{2+}_{(aq)} + 2e^{-}$ $F_{(s)}$ | -2.71 |
| $G^{2+}_{(aq)} + 2e^{-}$ $G_{(s)}$ | -0.14 |
| $\frac{1}{2}H_{2(g)} + e^{-}$ $H^{-}_{(aq)}$ | +2.87 |
| $\frac{1}{2}K_{2(g)} + e^{-}$ $K^{-}_{(aq)}$ | +1.09 |
| $L^{+}_{(aq)} + e^{-}$ $\frac{1}{2}L_{2(aq)}$ | 0.00 |

a) i) Identify the strongest reducing agent and oxidizing half cells. Give reasons (2mks)

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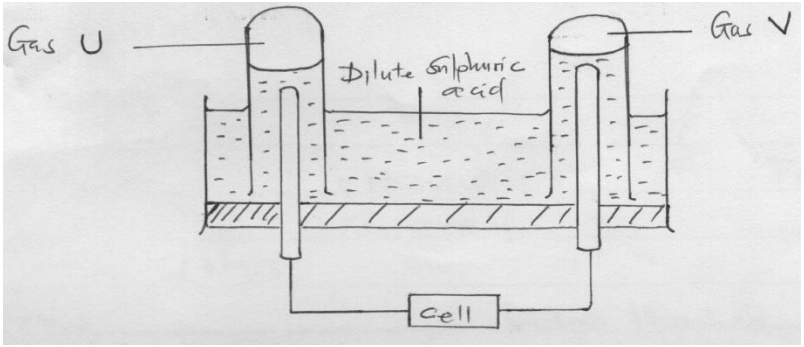
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ii) Calculate the emf of the cell obtained by connecting half cells **C** and **D** (1mk)

b) Draw a well labeled diagram of a cell formed by connecting half cells **E** and **D**. on the diagram indicate the flow of electrons (3mks)


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c) The figure below shows the electrolysis of dilute sulphuric (VI) acid




i) On the diagram label the cathode and anode (1mk)

ii) Name the gases **U** and **V** (1mk)

Gas **U** ……..

Gas **V** ……..

iii) Write the equation taking place at the anode (1mk)

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d) Define electrolysis and state any **two** applications of electrolysis (3mks)

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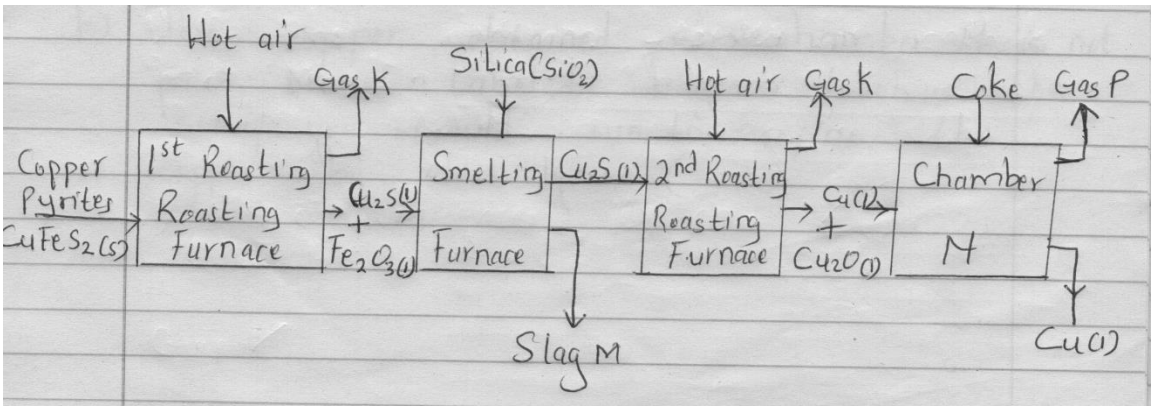
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2. a) The flow chart below outlines some of the processes involved during extraction of copper from copper pyrites. Study it and answer the questions that follow.




i) Name gas K (1mk)

……

……

ii) Write an equation for the reaction that takes place in the 1st roasting furnace(1mk)

……

……

iii) Write the formula of the cation present in slag **M** (1mk)

……

……

iv) Identify gas **P** (1mk)

……

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v) What name is given to the reaction that takes place in chamber **N**? Give a reason for the answer (1mk)

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b) The copper obtained from chamber **N** is not pure. Draw a labeled diagram to show the set up you would use to refine the copper by electrolysis (2mks)

c) Give two effects that this process could have on the environment (2mks)

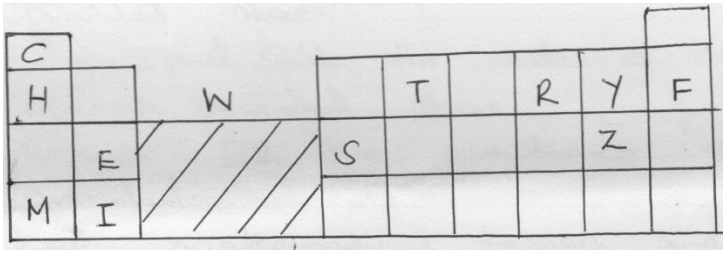
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3. a) The grid below represents part of the periodic table. Study the information and answer the questions that follow. The letters do not represent the actual symbol of the elements.




i) Which element would form a trivalent cation? (1mk)

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……

ii) Write the equation for the reaction that would occur between **E** and **Y** (1mk)

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iii) Which elements belong to the region labeled W? (1mk)

iv) Which is the most reactive non-metallic element in the table above? Explain (2mks)

v) How does the atomic radius of **T** compare with that of **Y** (2mks)

b) The table below shows some properties and electronic arrangements of common ions of elements represented by letters **D** to **K**. Study the information and answer the questions that follow>

| Element | Formula of ion | Ionic electronic arrangement | Atomic radius (nm) | Ionic radius (nm) |
|---|---|---|---|---|
| D | $D^-$ | 2.8 | 0.072 | 0.136 |
| E | $E^+$ | 2.8.8 | 0.231 | 0.133 |
| F | $F^{3+}$ | 2.8 | 0.143 | 0.050 |
| G | $G^{2+}$ | 2.8.8 | 0.133 | 0.074 |
| H | $H^{2+}$ | 2.8 | 0.160 | 0.064 |
| I | $I^+$ | 2.8 | 0.186 | 0.095 |
| J | $J^{3-}$ | 2.8.8 | 0.110 | 0.190 |
| K | $K^-$ | 2.8.8 | 0.099 | 0.181 |

i) State the atomic numbers of elements **F** and **G** (1mk)

**F …….**

**G ……..**

ii) Select two metals that belong to period 3 (1mk)

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iii) Element **I** reacts violently with water. Write the equation for the reaction. (1mk)

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iv) Why is the ionic radius of **G** smaller than its atomic radius (1mk)

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v) Compare and explain the reactivity of **G** and **H** (2mks)

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4. In an experiment to study the rate of reaction between duralumin (an alloy of aluminum, magnesium and copper) and hydrochloric acid, **0.5 g** of the alloy were reacted with excess **4M** hydrochloric acid. The data in the table below was recorded. Use it to answer the questions that follow.

| Time (minutes) | Total volume of gas ($cm^3$) |
|---|---|
| 1 | 0 |
| 2 | 220 |
| 3 | 410 |
| 4 | 540 |
| 5 | 620 |
| 6 | 640 |
| 7 | 640 |


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a) i) on the graph paper provided plot a graph of total volume of a gas produced against time (3mks)

**PROVIDE A GRAPH PAPER**

ii) From the graph determine the volume of gas produced at the end of 2½ minutes (1mk)

b) Determine the rate of reaction between the 3rd and 4th minute (1mk)

c) Give a reason why some solid remained at the end of the experiment (1mk)

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d) Given that 2.5cm$^3$ of the total volume of the gas was from the reaction between magnesium and aqueous hydrochloric acid, calculate the percentage mass of aluminium present in 0.5 g of the alloy. (Al = 27, and molar gas volume = 24000cm$^3$ at 298K) (3mks)


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e) State **two** properties of duralumin that makes it more suitable than aluminum in aero plane construction (2mks)

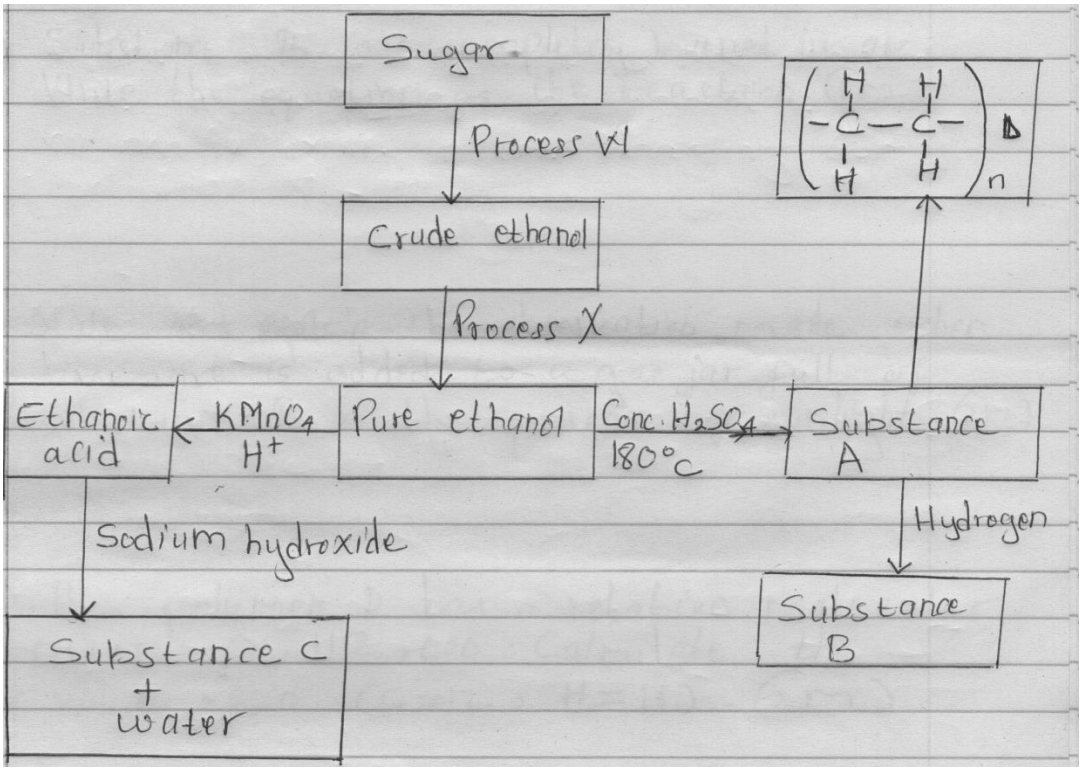
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5. The flow chart below is for the manufacture of sodium carbonate using Solvay process. Use it to answer the questions that follow




a) Name :

i) Gas **W** …… (1mk)

ii) Solution **H** …… (1mk)

iii) Solid **X** …… (1mk)



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iv) The product **J** (1mk)

……

……

b) Write an equation for the reaction in chamber B (1mk)

……

……

c) Name **two** raw materials used in Solvay process (2mks)

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d) i) Name **one** substance recycled in Solvay process (1mk)

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……

……

ii) Give **two** reasons why $CO_2$ is used as fire extinguisher (2mks)

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iii) Explain why lead carbonate is not reacted with dilute $H_2SO_4$ in preparation of $CO_2$ in the laboratory (2mks)

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6. a) Name four components of crude oil (2mks)

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b) What is the difference between thermal cracking and catalytic cracking? (2mks)

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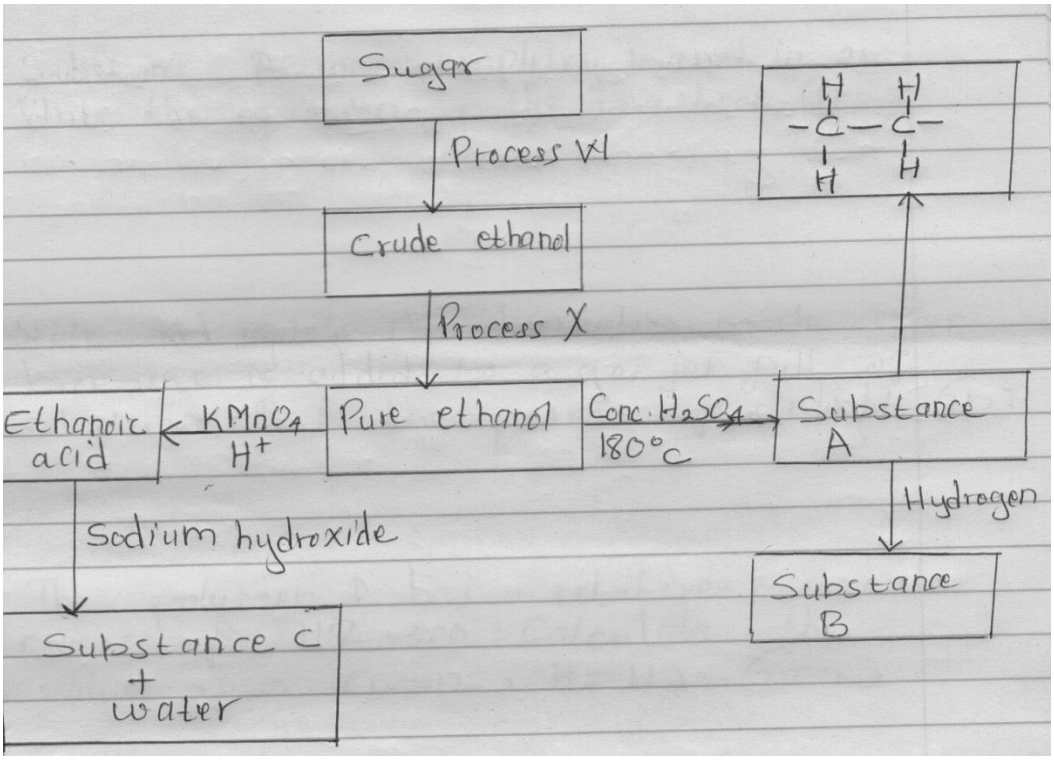
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c) Study the flow chart below and answer the questions that follow.






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i) identify process **W** and **X** (1mk)

……

……

……

ii) Name substances **B** and **C** (1mks)

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……

iii) Write the equation for the reaction leading to production of substance **A** (1mk)

……

……

iv) Substance **B** was completely burned in air. Write the equation for the reaction (1mk)

……

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v) State and explain the observations made when bromine is added to a das jar full of substance **B** in the presence of sunlight. (2mks)

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vi) The polymer **D** has a relative molecular mass of 112,000. Calculate the value of n (C=12, H = 1) (2mks)



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7. a) What is meant by molar heat of combustion? (1mk)

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b) State the Hess's law (1mk)

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c) Use the following standard enthalpies of combustion of graphite, hydrogen and enthalpy of formation of propane.

$$\Delta H^{\Theta}_{C}\ \textbf{(Graphite) = -393kJ/mol}$$
$$\Delta H^{\Theta}_{C}\ (H_{2\,(g)}) = \textbf{-286kJ/mol}$$
$$\Delta H^{\Theta}_{f}\ (C_3H_8) = \textbf{-104kJ/mol}$$

i) Write the equation for the formation of propane (1mk)

……

……

ii) Draw an energy cycle diagram that links the heat of formation of propane with its heat of combustion and the heats of combustion of graphite and hydrogen (3mks)

iii) Calculate the standard heat of combustion of propane (1mk)



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iv) Other than the enthalpy of combustion, state one factor which should be considered when choosing a fuel (1mk)

……

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v) The molar enthalpies of neutralization for dilute hydrochloric acid and dilute nitric (V) acid are -57.2kJ/mole while that of ethanoic acid is -55.2kJ/mol. Explain this observations. (2mks)


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**NAME: ……..**

**INDEX NO: ……..…..… SIGN: ……..…. DATE:……**

**SCHOOL: ……..**

# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

233/3
**CHEMISTRY**
Paper 3 (PRACTICAL)
Time: 2 Hours 15mins

**INSTRUCTIONS TO CANDIDATES**

- Write your name and index number in the spaces provided above.
- Sign and write the date of examination in the spaces provided.
- Answer **all** the questions in the spaces provided.
- KNEC mathematical tables and non-programmable electronic calculators may be used.
- All working **must** be clearly shown where necessary
- Candidates should check whether the question paper to ascertain that all the pages are printed and that no questions are missing.
- Candidates should answer the questions in **English**

For Examiners Use Only

| Question | Maxi. score | Candidate's score |
|---|---|---|
| 1 | 24 | |
| 2 | 9 | |
| 3 | 7 | |
| Total | 40 | |


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1. **You are provided with:**
    - Sodium hydroxide solution **K**
    - **0.128M** hydrochloric acid solution **L**
    - Carboxylic acid solution **M**

Solution **N** is prepared by diluting **25**$cm^3$ of solution **K** with distilled water to 150$cm^3$ of solution.

You are required to;

a) Standardize solution **N** with solution **L**
b) Determine the reaction ratio between sodium hydroxide solution **K** and the carboxylic acid solution **M.**

**Procedure I**
Fill the burette with solution **L**. Pipette **25**$cm^3$ of solution **N** into a clean conical flask. Add **two** drops of **phenolphthalein** indicator and titrate with solution **L**.
Record your results in the table below. Repeat the titration two more times and complete the table below.

**Table I**

| | I | II | III |
|---|---|---|---|
| Final burette reading($cm^3$) | | | |
| Initial burette reading($cm^3$) | | | |
| Volume of **L** used($cm^3$) | | | |

(4mks)

a) Determine the average volume of solution L used (1mk)

b) Calculate
    i) The concentration of sodium hydroxide in mole per litre in solution **N** (2mk)


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ii) The concentration of sodium hydroxide in moles per litre in solution K (2mk)

**Procedure II**

Using a clean burette, place **16** $cm^3$ of solution **M** into a boiling tube. Take its initial temperature and record it in the table below. Using a clean measuring cylinder, place **4** $cm^3$ of solution **K** in the boiling tube. Stir the mixture immediately with thermometer and record the maximum temperature reached.

Repeat the experiment with other set of volume of **M** and **K** to complete table **II**.

N/B: Rinse the thermometer and boiling tube after each experiment.

**Table II** (6mks)

| | | | | | | |
|---|---|---|---|---|---|---|
| Volume of solution **M** ($cm^3$) | 16 | 12 | 8 | 6 | 4 | 2 |
| Volume of solution **K** ($cm^3$) | 4 | 8 | 12 | 14 | 16 | 18 |
| Final temperature ($^oC$) | | | | | | |
| Initial temperature ($^oC$) | | | | | | |
| Change in temperature ($\Delta$**T**) | | | | | | |

a) On the graph paper provided plot a graph of $\Delta$**T** against volume of sodium hydroxide solution **K** (3mks)

b) From the graph, determine the volume of sodium hydroxide, solution **K** required to neutralize the carboxylic acid (1mk)


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c) Calculate the volume of carboxylic acid solution **M** used for neutralization. (1mk)

d) Calculate:

i) Ratio between the volumes of solutions **K** and **M** (2mks)

ii) Concentration in moles per litre of carboxylic acid, solution **M.** (assume the volume ratio is the same as mole ratio) (2mks)

**2. You are provided with:**

- Solid **Q**
- Aqueous sodium hydroxide
- Dilute nitric (V) acid
- Wooden splint
- Potassium Iodide solution

Solid Q is **suspected** to be **lead (II) carbonate**.

a) From the reagents provided, select and describe three tests that could be carried out **consecutively** to confirm if solid Q is **lead (II) carbonate**. Write the tests and expected observations in the spaces provided.

i)

| Test 1 | Expected observations |
|---|---|
| (1mk) | (1mk) |



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ii)

| Test 2 | Expected observations |
|---|---|
| (1mk) | (1mk) |

iii)

| Test 3 | Expected observations |
|---|---|
| (1mk) | (1mk) |

b) Carry out the tests described in (a) using solid Q and record the observations and inferences in the spaces provided

Test 1

| Observations | Inferences |
|---|---|
| (½mk) | (½mk) |

Test 2

| Observations | Inferences |
|---|---|
| (½mk) | (½mk) |


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Test 3

| Observations | Inferences |
|---|---|
| (½mk) | (½mk) |

3. You are provided with solid **T**.Carry out the tests and write your observations and inferences in the spaces provided.
   a) Place a third of solid **T** on a metallic spatula and burn it over a Bunsen burner flame

| Observations | Inferences |
|---|---|
| (1mk) | (1mk) |

   b) Place the rest of solid **T** in a boiling tube. Add about **8 cm$^3$** of distilled water. Shake the mixture well. Retain the mixture.

| Observations | Inferences |
|---|---|
| (½mk) | |


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Divide the mixture into four portions of $2cm^3$ each.

i) To the first portion of $2cm^3$ of the mixture, add the **magnesium ribbon** provided.

| Observations | Inferences |
|---|---|
| (½mk) | (½mk) |

ii) To the second portion of the mixture, add about $1cm^3$ of **acidified potassium dichromate (VI)** solution and warm.

| observations | Inferences |
|---|---|
| (½mk) | (½mk) |

iii) To the third portion of the mixture, add 2 drops of **bromine water.**

| Observations | Inferences |
|---|---|
| (½mk) | (½mk) |

iv) Determine the **pH** of the mixture using the forth portion

| Method used | Inferences |
|---|---|
| (1mk) | (½mk) |


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**NAME: ……..**

**INDEX NO: ……..…..… SIGN: ……..…. DATE:……**

**SCHOOL: ……..**

# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

**KENYACERTIFICATE OF SECONDARY SCHOOL**
**451/1**
**COMPUTER STUDIES**
**PAPER 1**
**TIME: 2 HOURS 30 MINS**

***INSTRUCTIONS***

- ***a) Write your name and index number in spaces provided***
- ***b) Sign and write the date of examination in spaces provided***
- ***c) All answers must be written in the spaces provided in this question paper.***
- ***d) This paper contains two sections A and B***
- ***e) Answer all the questions in section A***
- ***f) In section B, answer question 16 (compulsory) and any other three questions.***

**TOTAL SCORE**


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1. What is a **search engine** as used in internet? 2mks

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2. Give **two** features of a user friendly operating system. 2mks

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3. a). Define a computer laboratory. 1mk

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b) State **two** functions of an UPS. 2mks

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4. List 3 areas that would be considered in the requirements specifications during system development. 3mks

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5. Discuss **two** computational errors giving example in each case. 4mks

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6. With the aid of a diagram, explain amplitude and periodic time. 3mks

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7. State **three** improvements that were done on the 3rd generation computers. 3mks

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8. a). Explain the term industrial espionage. 1mk

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b). Describe the concept of data encryption. 2mks

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9. a) Email users often get unsolicited mail in their inbox. Give the term used to refer to such mails. 1mk

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b) Other than congesting the inbox, state any other potential harm such mail can bring about. 2mks

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10. Distinguish between the following as used in disk management. 4mks

i) Formatting disk and scanning disk

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ii) Defragmenting a disk and compressing a disk.

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11. List four stages involved in the data processing cycle. 2mks

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12. State **two** advantages of using biometric devices in voting. 2mks

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13. State the extension used by the operating system for the following types of files. 2mks

a) System files

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b) Executable file

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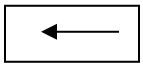
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14. Convert $110011.0110_2$ to decimal notation. 3mks

15. Name and state the se of the following key on the keyboard. 1mk



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**SECTION B**

***Answer question 16 (compulsory) and any other three questions from this section.***

16. a). State two types of selection controls used in high level programming language. 2mks

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b). A program is required that can be used to enter marks for 40 students. The program is supposed to get the sum after every input and compute the average once all the marks have been entered, then display the average marks.

i) Write a pseudo code for the program. 5mks

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ii) Draw a flowchart for the above program. 8mks

17. a). State and explain **two** challenges that will come about if a network was to be installed in your school. 4mks

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b). Discuss **two** disadvantages of wireless networks. 4mks

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c) Write the following abbreviations in full; 2mks

i) FTP

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ii) HTTP

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d) With the aid of a diagram, discuss hybrid topology. 3mks

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e) Discuss one advantage of a client/server network. 2mks

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18. (i) What is open learning? 1mk

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(ii) Computers are used to enhance marketing in a variety of ways, one of which is E-business. Explain how computers are used in E-business. 2mks

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b). Explain two benefits which an organization may enjoy after automating their production systems. 4mks

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c). Discuss one way in which computers can be used in science research. 2mks

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d) (i) State three roles of a computer engineer. 3mks

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ii) State three roles of a computer trainer. 3mks

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19. (i). In relation to computer memory capacities, distinguish between a bit and a byte. 2mks

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(ii). Discuss types of special memories found in a computer system. 4mks

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b) List any four factors that a buyer should consider before buying computer hardware. 4mks

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c) State and explain any **two** examples of system software. 4mks

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d) State one reason why a DVD is preferred for storage over a CD. 1mk

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20. a). Name and explain four text alignment features used in word processing. 4mks

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b) Name and explain two paper orientations in word processor. 2mks

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c). List three arithmetic operations that can be performed on a row of numeric data in a word processing table. 3mks

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d).(i). Name four types of action queries. 2mks

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(ii). State and explain two categories of database controls. 4mks

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**NAME: ……..**

**INDEX NO: ……..…..… SIGN: ……..…. DATE:……**

**SCHOOL: ……..**

# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

COMPUTER STUDIES

PAPER 2

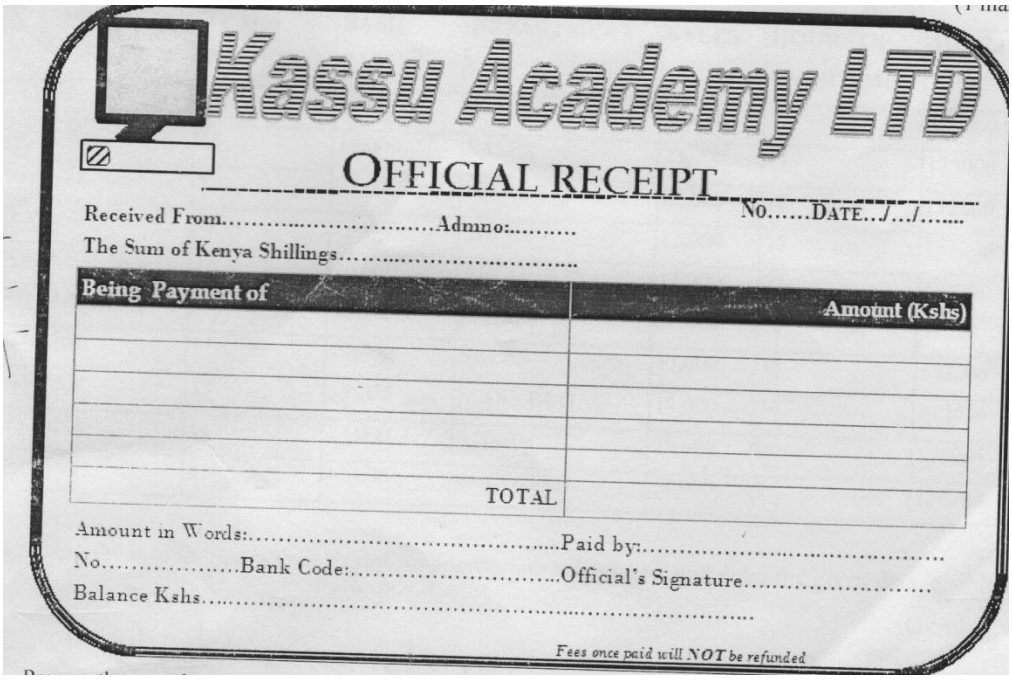
Time 2 1/2 hrs

**TOTAL SCORE:**



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a) Use a DTP software to design the publication as shown below (1mk)




b. prepare the page layout as follows

i) Paper size A4 portrait (2mks )

ii) Set the margins to 0.5 inches all round (2mks)

iii) Divide the page into Two equal horizontal parts using a ruler (2mks)

iv) The bonder should occupy half the page from the margins (2mks)

c. Create the logo to occupy between 0.8" to 1.80" left and 0.70" to 1.85" from top (9mks)

d. The title should occupy between 1.70" to 7.50" across and 0.75" to 1.45" from top. Font Arial black


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With italics and fill effect pattern of dark horizontal (7mks)

e. The OFFICIAL RECEIPT should occupy 2.50" to 5.70" across and 1.50" to 2.00 from top. Font Book antique size 26, bold and centered (4mks)

f. The rest of the text is in font Bodoni MT size 12, except for the footer which is size 9 (9mks)

i) Align all the text as shown (2mks )

ii) Group the publication as one (2mks )

iii) Fit TWO copies of the design into a single page (1mk)

g. Include a page header with your name, class and index (4mks)

h. Save as INVOICE (1mk)

i. Print the publication (2mks)

2. A firm in Nairobi provides computer spare parts to its customers. The firm wishes to work out the pay details for its employees and present a report

| **NAME** | **YEARS WORKED** | **BASIC PAY** | **DEPARTMENT** | **SALES** | **HOURS OF OVERTIME** | **MILEAGE** |
|---|---|---|---|---|---|---|
| JOHN | 9 | 14,000 | ADMIN | 16,000 | 10 | 120000 |
| BILLY | 23 | 18,000 | SALES | 25,000 | 11 | 130000 |
| LILLY | 5 | 7,000 | MARKETING | 22,000 | 12 | 112000 |
| EVANS | 17 | 18,000 | SALES | 12,000 | 15 | 134200 |
| GIDEON | 18 | 16,000 | ACCOUNTS | 11,000 | 22 | 123000 |
| HUMPHREY | 3 | 25,000 | ADMIN | 30,000 | 12 | 10200 |
| CEDRIC | 11 | 19,000 | SALES | 35,000 | 33 | 132000 |
| ALVAN | 15 | 15,000 | MARKETING | 14,000 | 14 | 112000 |
| PENINA | 11 | 23,000 | ADMIN | 25,000 | 0 | 12000 |
| STEVE | 8 | 17,000 | ACCOUNTS | 14,000 | 7 | 154000 |


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a) Using the information above, design an appropriate spreadsheet and enter the given data, give it a

Suitable title. Save the worksheet as FIRM1. (14mks)

b) i) Copy sheet 1 to sheet 2

ii) The employee's sales commission is calculated as 11 % of the employee's sales. Input this commission rate in cello C20 and label it appropriately (6mks )

iii) Insert a new column labeled "Sales commission" between "sales" and hours of overtime (2mks)

iv) Create formulae to give the amount of sales commission by making references to sales commission cell ( 4mks)

v) Copy the formulae to get the sales commission for all the other employees and save as FIRM2

Copy the work in sheet 3 (3mks )

c) i) Convert the basic pay and sales to two decimal places

ii) Use the IF function to put the remark "GOOD" in a new column labeled REMARK for only those employee whose sales is greater than 22,000

iii) Apply a double line border to the whole worksheet. Save as FIRM 3 (3mks)

d) Print FIRM1. FORM2 and FIRM 3 (3mks)

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**SCHOOL: ……..**

# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

## CHRISTIAN RELIGIOUS EDUCATIN

## PAPER 1

## TIME: 2 ½ HOURS

### INSTRUCTIONS TO CANDIDATES

- Answer ALL the questions.
- Each question on its own foolscap.
- Question must be answered neatly in a good hand writing.

| QTN | 1 | 2 | 3 | 4 | 5 | TOTAL SCORE |
|---|---|---|---|---|---|---|
| SCORE | | | | | | |


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1. a) Outline the first account of creation in Genesis 1:1-2:49 (7mks)

   b) State **seven** responsibilities given to human beings by God in the genesis stories of creation. (7mks)

   c) Outline **six** ways in which Christians care for God's creation today. (6mks)

2. a) Explain the factors that led to the division of Israel after the death of King Solomon. (7mks)

   b) Identify **seven** reasons that led to the Mt. Carmel contest. (7mks)

   c) State **six** reasons why leaders are rejected in society today. (6mks)

3. a) Mention seven ways in which the old Testament prophets communicated their messages. (7mks)

   b) Give **seven** reasons why Israel and Judah would face God's judgement according to prophet Amos. (7mks)

   c) State six ways in which modern Christians may invite Gods punishment on them. (6mks)

4. a) Describe the call of prophet Jeremiah. (7mks)

   b) Outline **seven** reasons why Jeremiah condemned human sacrifice. (7mks)

   c) State **six** ways in which Christians can reduce human suffering. (6mks)

5. a) Identify seven factors that promote harmony and social responsibility in traditional African Community. (7mks)

   b) Mention seven factors that influence the naming of children in traditional African society. (7mks)

   c) Show how modern trends have affected burial rites in traditional African communities. (6mks)


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**NAME: ……..**

**INDEX NO: ……..…..… SIGN: ……..…. DATE:……**

**SCHOOL: ……..**

# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

**313/2**

**CHRISTIAN RELIGIOUS EDUCATION**

**PAPER 2**

**TIME: 2 ½ HRS**

**INSTRUCTIONS TO CANDIDATES**

1. The paper has six questions
2. Answer any five questions.
3. Each question carries 20 marks.
4. Candidates should answer all questions in English.

| QTN | 1 | 2 | 3 | 4 | 5 | TOTAL SCORE |
|---|---|---|---|---|---|---|
| SCORE | | | | | | |



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1.(a) Discuss how Deutro-Isaiah's prophecy about the coming of the Messiah was fulfilled by Jesus Christ (8mks)

(b) State six prophecies of Zachariah about the mission of John the Baptism. (6mks)

(c) Give six reasons why new converts are baptized in the church today. (6mks)

2.(a) Relate the miracle of the feeding of the five thousand in Luke 9:12-17. (9mks)

(b) What are the teaching to Christians from the miracle of feeding of the five thousand. (7mks)

(c) State four ways in which Christians are taking care of the needy today. (4mks)

3.(a) Describe the efforts made by the Jewish leaders to have Jesus arrested and put to death.(7mks)

(b) What was the reactions of the people who witnessed the crucifixion of Jesus? (8mks)

(c) State five lessons that Christians learn from the testimony of the repentant thief. (5mks)

4.(a) Outline the teachings of Jesus on the role of the Holy spirit. (8 mks)

(b) What activities of the church show that the Holy spirit is working among the Christians. (7mks)

(c) State five ways in which the gift of the Holy spirit have been abused in our churches today. (5mks)

5.(a) Explain the relationship between work and leisure from the biblical teachings (7 mks)

(b) Give seven injustices related to work in employment. (7mks)

(c) How can Christians deal with issues of child labour in Kenya today? (6 mks)

6.(a) What are the causes of crime in Kenya today. (8 mks)

(b) In what ways can injustice disrupt peace in the society today? (7mks)

(c) Sate five remedies that the churches can put in place to minimize ethnicity in Kenya.(5mks)


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**NAME: ……..**

**INDEX NO: ……..…..… SIGN: ……..…. DATE:……**

**SCHOOL: ……..**

# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

**101/1**
**ENGLISH**
**PAPER 1**
**(FUNCTIONAL SKILLS, CLOZE TEST AND ORAL SKILLS)**
**TIME: 2 HOURS**

***INSTRUCTIONS***

g) Write your name and index number in spaces provided
h) Sign and write the date of examination in spaces provided
i) Answer ALL questions
j) All answers must be written in the spaces provided

**FOR EXAMINER'S USE ONLY**

| **QUESTION** | **MAXIMUM SCORE** | **CANDIDATE'S SCORE** |
|---|---|---|
| 1. | 20 | |
| 2. | 10 | |
| 3. | 30 | |
| **TOTAL** | **60** | |


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## 1. FUNCTIONAL WRITING (20MKS)

Your drama club is organizing to stage a performance of Bertolt Brecht's play. The Caucasian chalk circle. You are inviting the neighboring schools and the general public to the event.

a) Write a notice announcing and inviting other schools and the public to attend. 8mks


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b) In not more than 200 words, write a synopsis of the play to accompany the notice. 12mks

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

**Read the following passage and fill in the gaps with the most appropriate word.**

The police frequently _____1 our slum village in search of hidden illicit

brews. It was one of _____2 raids that Constable Amka Twende earned himself unexpected

honor_____3 respect for his detective skills. _____4 chang'aa brewers

in the village had devised several smart ways of hiding their liquor in spots _____5 even the nosiest cops would not dream of looking.

A new favorite trick was to put the chang'aa _____6 twenty litre jerry cans, close

them tightly, tie strong sisal ropes _____7 the necks and dangle them down pit

_____8. This of course necessitated boring extra opening at the back of the toilet's

structures for the jerry cans to be let down before the holes were ingeniously covered and disguised

_____9 soil, refuse or even green grass.

No policeman in his right _____10 was going to start looking for hidden
chang'aa down a toilet pit, surely.

3. **ORAL NARRATIVE30 MARKS)**

**Read the oral narrative below and answer the questions that follow.**

One afternoon, a big wolf waited in a dark forest for a little girl to come along carrying a basket of food to her grandmother. Finally the little did come along and she was carrying the basket of food. "Are you carrying the basket to your grandmother?" asked the wolf. The little girl answered, "Yes I am." So the wolf asked the girl where her grandmother lived. When the girl told him, he disappeared to the woods.

When the little girl opened the door of her grandmother's house, she noticed there was somebody in bed with a night cap and a night gown.

She realized that it was the wolf, so the little girl took a gun from her basket and shot the wolf dead.



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**Questions.**

i) If you were narrating this story, how would you ensure your audience remains glued to the story? 3mks

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ii) How would you say the words of the girl and the wolf in your narration? 2mks

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iii) How would you prepare yourself to effectively tell the story? 2mks

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3.b). **Provide another word that is identical in pronunciation as the underlined words in the sentences below.** **3mks**

i) Why did the <u>idlebridal</u> party <u>groan</u>? -**…….**

ii) The <u>bearcaught</u> the <u>whale</u>. -**……**

3c). **State whether the following words have sound** /ð/ /θ/ **3mks**

i) Thin **…….**

ii) Than -**…….**

iii) Thought -**……**



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3d). 1. **Identify the silent letters in each of the words below.** **3mks**

i) Succumb

ii) Whet

iii) Poignant

3d. 2) **Indicate the correct intonation for the following sentences.** **3mks**

**i)** Why did you oversleep?

……

……

**ii)** Could I come with you, please?

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**iii)** What a tragic experience that was!

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**3e)** Imagine that you are required to give an impromptu speech in a crowded assembly of inattentive students. State what you would do to capture their attention.4mks

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**3.f) The following conversation is between a teacher and a student who has come to class late and seeks to join the rest. Fill in the missing speech. 7mks**

**Student: (***knocking at the slightly opened door) 1mk*

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**Teacher:** Why are you late for class?

**Student: 2mks**

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**Teacher:** How would I know that you have a sick mother? Isn't that an excuse?

**Student:** I would never use my mother as an excuse.

**Teacher: 2mks**

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**Student:** She is at home. I got late preparing her breakfast.

**Teacher:** I am sorry about your mother. Now join the rest.

**Student: (***walking to his seat)2mks*

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**NAME: ……..**

**INDEX NO: ……..…..… SIGN: ……..…. DATE:……**

**SCHOOL: ……..**

# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

**101/2**
**ENGLISH**
**PAPER 2**
**(COMPREHENSION, LITERARY APPRECIATION AND GRAMMAR)**
**TIME: 2 HOURS 30 MINS**

***INSTRUCTIONS***

k) Write your name and index number in spaces provided
l) Sign and write the date of examination in spaces provided
m) All answers must be written in the spaces provided in this question paper.

**FOR EXAMINER'S USE ONLY**

| QUESTION | MAXIMUM SCORE | CANDIDATE'S SCORE |
|---|---|---|
| 1. | 20 | |
| 2. | 25 | |
| 3. | 20 | |
| 4. | 15 | |
| **TOTAL** | **80** | |


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1. **COMPREHENSION (20MKS)**

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

The plan by the national government to import doctors and other health specialists from Cuba to plug a "shortage" of workers has been warmly welcomed by county government through the council of governors.

In the deal, the national government will pay the medics' salaries while the counties foot the transport, accommodation and security bill.

As per the 2010 constitution, which ushered in devolution, health was to be managed as a shared responsibility between the two levels of government in a vertical and horizontal manner.

But the transition authority, in this hurry, devolved health and seconded healthcare workers to counties without proper legal framework to address the challenges of this complicated cadre.

Devolution was meant to increase inclusivity and have resources enjoyed at the local level without political favors as it had been. Previously, many areas had been neglected, with little access to healthcare professionals, let alone specialists.

At the height of devolution debate, the drafters of the constitution agreed to have healthcare shared so that marginalized parts of the country would get the necessary attention through efforts such as equalization funds.

As rightly captured in the Bomas Draft, a health service commission (HSC) was to be informed to ensure issues of personnel are dealt with at the national level. This was in a bid to have adequate resource sharing, proper retention of scarce resources (specialists) and promotion of training to achieve the recommended population-to-health worker ratio.

The commission was, however, somehow excluded from the Constitution by the committee of experts in a process that lacked wide participation.

As it were, the devolution of healthcare was done hurriedly and the chicken has come home to roost. It is clear that something has gone very wrong with the management of this important national resource. Health sector strikes which should rightly be frowned upon, have become common place. The media are awash with reports of tribalism, nepotism and "countysm" in recruitment. Lack of equipment, medication and common supplies is also rampant. The national government stepped in with medical equipment leasing (MES) scheme, which saw high-tech tools and machines supplied to much-unprepared institutions, putting to question the whole structure of what exactly is devolution of health.

One must still support the tension of devolution but question its implementation. Unable to attract, train and retain specialists, the counties are salivating at the prospect of receiving "free" Cuban doctors. This is a clear admission that the devolved units are quite incapable of managing this vital resource.

Accepting human resource sourced and managed for them is to lend credence to the belief that this is a role that at best coordinated by the national government.

***Daily nation, June 6 2018***



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**Questions**

a) Referring to the first paragraph, why is the term "shortage" put in quotation. 2mks

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b) What shared responsibilities are highlighted in the hiring process? 2mks

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c) For the drafters of 2010 constitution, what was envisaged under a new constitution order pertaining to healthcare? 2mk

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d) According to the Bomas draft, what was the work of the health service commission? 2mks

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e) What evidence is given to show that health sector is in crisis. 3mks

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f) In note form, show according to the passage, how devolved units are un-prepared to handle health. 4mks

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g) Identify a case of idiomatic expression in the passage. 2mks

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h)

i) Give the meaning of the following words and phrases. 3mks

j) Ushered-…….

ii) Marginalized parts-……

iii) Incapable…….

**Q2.** ***Read the Fathers of Nations excerpt below and answer questions that follow(25 mks)***

"Tad," said the cranky passenger as he was settling down in economy class, in a seat next toDr Afolabi's. "Tad Longway," he added. His voice, deep, lingered on like the boom of a bigdrum. He held up a card. Dr Afolabi took it. It said the man was a Director of Special Projects at the Agency for Governance and Development in Africa. "Pleased to meet you, Mr Longway," Dr Afolabisaid. "My name is Abiola Afolabi. I teach at the University of Ibadan, Nigeria. "

"You gave an excellent keynote the other day, Dr Afolabi," said the cranky passenger. Sparksof earnestness were crossing his eyes, both crystal-green like toy marbles, confirming the compliment was sincere. "Your keynote address at the Foundation for Democratic Rule, I mean. It was brilliant."

"I'm glad you liked it, Mr Longway," Dr Afolabi said. His voice had become warm. "Youwere there, then, Mr Longway?"



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"Yes, but back in the last row. As a mere spectator, I did not want to be obtrusive. Anyway, you were superb, Dr Afolabi. If you don't mind my adding this, I was more impressed by thepoints that the audience raised afterwards, during the question-and-answer period. "

Dr Afolabi felt the praise he had just heard turn into reproach. "So what were those points,Mr Longway?" he asked. His voice was less warm.

"Remember the guy from Grassroots International: short fellow, round of body andoutspoken of manner? What was his name? It's on the tip of my tongue."

You must mean the fire-eater who kept accusing me of looking for answers where I shouldnot even look," Dr Afolabi said.

"Exactly, that's our man. Yes, I thought he was right on point, Dr Afolabi. He too wasunhappy with the present state."

"Wait, the present state of what?" "Africa.""I don 't understand. "

"No problem. I'll spell it out for you. You see, Dr Afolabi, Africa, in its present state, has twonew arrivals: corruption and impunity. The first is a crime the Second protects from punishment, the second is another crime the first rewards with kickbacks. That is Africa in its present state. Now can it change?"

"Tell me. Can it?"

"Well, let's ask the Law of Will." "" What?"

"Unless there is will to change, there will be no change."

## EXCERPT QUESTIONS

**(a)** Briefly explain what happens before the excerpt. **(3mks)**

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**(b)** Discuss one-character traits of Dr Afolabi and two of Mr Longway. **(6mks)**

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**(c)** Highlight two themes evident in the excerpt. **(4mks)**

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**(d)** **(i)** It's on the tip of my tongue. *(Add a question tag)* **(1mk)**

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**ii)** Unless there is will to change, there will be no change. (Rewrite using "if") **(1mk)**

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

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**(f)** Explain the meaning of the following words and expressions used in the excerpt**.** **(4mks)**

Lingered

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Earnestness

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**Q3. Read the poem below and answer the questions that follow. 20mks**

**POEM FOR MY SISTER**

My little sister likes to try my shoes to strut them,
Admire her spindle thin-twelve year-old legs
In this season's style
She says they fit perfectly,
But wobbles
On their high heels, they're
Hard to balance.

I like to watch my
little sister playing
hopscotch, admire the
neat hops-and –skips
of her, their quick
peck,
never missing their
mark, not over-
Stepping the line. She is competent at peever.

I try to warn my little sister
about unsuitable shoes,
Point out my distorted feet, the
Callouses, odd patches of hard skin.
I should not like to see her
in my shoes.
I wish she would stay
Sure footed,
Sensibly should.

***(by Liz Loch head in poems I' ed. Celeste flower. Singapore: Longman 1995)***

a) Why does the little sister try the persona's shoes? 3mks

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b) How do we know from the first stanza that the shoes do not fit? 1mk

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c) Why does the persona like watching her younger sister play hopscotch? 4mks

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d) In the third stanza, the persona gives us new reasons why her little sister should not wear her shoes. What are these reasons? 2mks

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e) What is the message of this poem? 5mks

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f) Describe the tone of the poem. 3mks

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g) Explain the meaning of the following line. 2mks
"I should not like to see her in my shoes."

……

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**4. GRAMMAR (15 MKS)**

**a) Fill in the blank spaces with the correct preposition. 3mks**

i) He persisted _____ his folly despite the advice I gave him.

ii) The brothers look so alike; one can easily mistake one _____ the other.

iii) The girl was sitting _____ shade.

**b) Fill in the blank spaces with the correct form of the words in the brackets. 3mks**

i). It took the police quite some time to _____ (peace) the agitated demonstrators.

ii) The criminal refused to reveal to his _____ (capture) how he escaped from the Prison.

iii) Some Christians only think of divine _____ (provide) when in need.

**c) Replace the underlined word in each of the sentences with the most suitable phrasal verbs. 3mks**

i). The doctor remarked that the girl _____ (resembles) her father.

ii) The looters _____ (stole) goods of unknown value during the city riots.

iii). When the _____ (regained) consciousness he was amazed to realize that he was in hospital.


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**d) Rewrite the sentences below according to the instructions given after each. DO NOT CHANGE THE MEANING. 3mks**

i). That was the worst storm the village had ever experienced. (Rewrite beginning: Never….)

……

……

ii). John was so ill that the doctor advised him to stay at home for a few days. (Rewrite beginning with: Being…..)

……

……

iii) The farmer bought a cow that had been stolen from school. (Rewrite in passive)

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……

**e) Fill in the blank spaces in the sentences below with a suitable connector. 3mks**

i). The thieves talked in whispers _____ they be overheard.

ii). My dog is small _____ fierce.

iii) The old woman is very sharp _____ her age.



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# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

**1.Imaginative Composition** **20 marks**

**Creative composition and text based essays**

**1 a.** Write a composition ending with the following statement

……..a final look at her made me realize that choices have consequences **(20 mks)**

**Or**

b. Write a story to illustrate the proverb Hurry hurry has no blessings **(20mks)**

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

A society driven by greed suffers a lot. Drawing your illustrations from The Samaritan, by John Lara write an essay supporting this statement. **(20mks)**

**3.Optional Set Texts**

*Answer one question only*

**Either**

**a) The Short Story: A Silent Songs**

Discuss the theme of suffering as depicted in the Gloria Mwaninga's story, 'Boyi' **(20mks)**

**OR**

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

"Worthiness Is a Matter of Constantly Shifting Perception" Using evidence from The Novel Artist of the floating world , show the truth of this statement. **(20mks)**



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# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

**312/1**

**GEOGRAPHY**

**PAPER 1**

**TIME: 2HRS 45 MIN**

## INSTRUCTIONS

1. Answer all questions in section A
2. In section B answer question 6 and any other two questions.
3. All answers to be written in the answer booklet provided.

**TOTAL SCORE**



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

## SECTION A

### Answer all the questions in this section

1.a) Mention the two main branches of Geography. 2mks

b) State three reasons why Geography is taught in schools. 3mks

2.a) What is weather forecasting? 2mks

b) Give three reasons why weather forecasting is important. 3mks

3.a) List three ways of classifying rocks. 3mks

b) Give two sources of sedimentary rocks. 2mks

4.a) Differentiate between a dyke and a sill. 2mks

b) Name three volcanic plateaus in Kenya. 3mks

5.a) Outline the factors influencing the rate of weathering of rocks in Kenya Highlands areas. 3mks

b) Mention two features formed as a result of weathering of rocks. 2mks


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

## SECTION B

6. Study the map of Oyugis (1:50,000) provided and answer the following questions.

a.(i) Covert the scale of the map to statement scale. 2mks

(ii) What is the latitudinal extent of the area covered by the map? 2mks

iii) Give the approximate height of GodPuro hill. 2mks

b.(i) Measure the length of the all weather loose surface road C 20 from the junction at Rodi Kopany to the bridge in grid square 7124. Give your answer in kilometers. 2mks

ii) What is the bearing and direction of the trigonometric and direction of the trigonometric station 130 T 93 from the spotheight in grid square 7144? 3mks

c) Draw a square 10cm by 10cm to represent the area bound by Eastings 80 and 90 and Northings 30 and 40. 1mk

In the square mark and name:

- Kodera Forest Reserve 1mk
- District boundary 1mk
- Dry weather road C 18 1mk

d) Describe the relief of the area covered by the map. 4mks

e.(i) Give three social services offered in the area covered by the map. 3mks

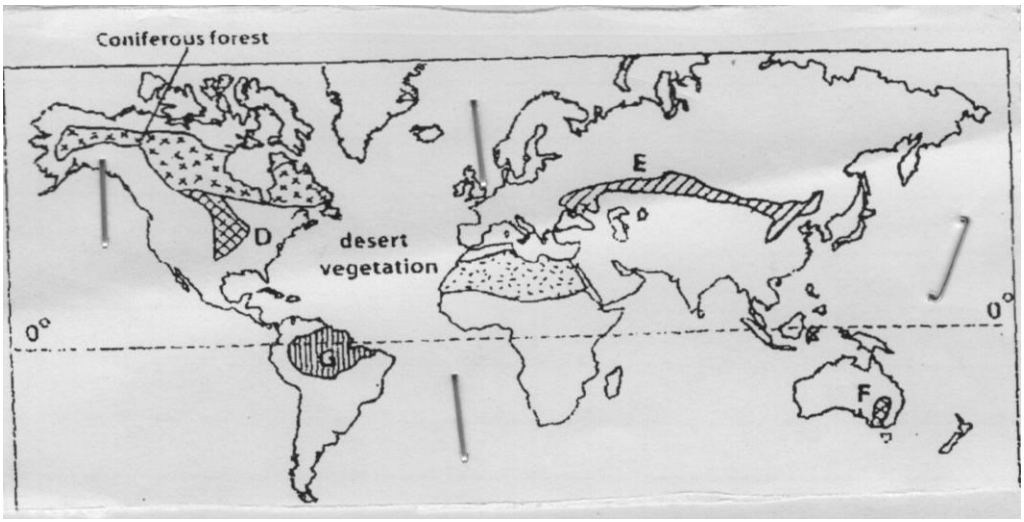
ii) Citing evidence from the map. Give three economic activities carried out in the area covered by the map. 3mks


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7. a) State three factors which influence the distribution of vegetation in Kenya. 3mks

b) Name three Lowland forests in Kenya along the coastal region if Kenya. 3mks

c) The diagram below shows the vegetation regions of the world. Use it to answer the questions that follows.




(i) Name the temperature grasslands marked E, D and F. 3mks

(ii) Describe the characteristics of the vegetation found in the shaded region marked G. 4mks

iii) Apart from the grasslands marked E, D and F mention any other grasslands vegetation in the world. 2mks

d) Explain the role of vegetation in influencing global warming and climate change. 6mks

e) Form four students from your school conducted a field study on vegetation in Mt. Kenya Forest.

i) State two ways in which they identified different plants. 2mks

ii) Apart from identifying different types of plants mention two other activities they conducted in their study. 2mks


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8.a)i) Differentiate between aridity and desertification. 2mks

ii) Briefly explain three physical causes of aridity. 6mks

b.i) Describe two processes of wind erosion in deserts. 4mks

ii) Describe the formation of mushroom block. 4mks

c)i) State three causes of soil degeneration. 3mks

ii) Explain three methods used to conserve soils in Kenya. 6mks

9. (i) What is a coast. 2mks

(ii) Explain two ways in which the nature of rocks influences the shape of coast. 4mks

b) Outline three characteristics of a fiorded coast. 3mks

c) Describe the formation of oceanic islands. 4mks

d.(i) State four causes of ocean currents. 4mks

ii) Explain four ways Kenya benefits from coastal landforms. 8mks

10. (a) (i) What is an iceberg? 2mks

(ii) State three factors which determine the speed of a glacier. 3mks

b). (i) Other than a Pyramidal Peak, name three features on a glaciated highland. 3mks

(ii) Describe the formation of a Pyramidal Peak. 5mks

c) With the aid of a well labeled diagram, describe the formation of a Crag and tail. 4mks

d) Explain two ways in which glaciation in highlands is of economic benefits to human beings. 4mks

e) Your class carried out a field study on a glaciated lowland.

(i) State two reasons why you needed a route map. 2mks

ii) Identify two problems you were likely to face during your study. 2mks



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# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

**312/2**

**GEOGRAPHY**

**PAPER 2**

**TIME: 2HRS 45 MIN**

INSTRUCTIONS

1. Answer all questions in section A
2. In section B answer question 6 and any other two questions.
3. All answers to be written in the answer booklet provided.

## TOTAL SCORE



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## SECTION A

## Answer all the questions in this section

| | | | |
|---|---|---|---|
| 1. | (a) | Name two areas where gold is mined in South Africa. | 2mks |
| | b) | State three contributions of gold mining to the economy of South Africa. | 3mks |
| 2. | (a) | What is forestry? | 2mks |
| | b) | Give three importance of forests. | 3mks |
| 3. | a) | What is energy crisis? | 2mks |
| | b) | Name three sources of renewable energy. | 3mks |
| 4. | (a) | Outline three factors that favour car manufacturing in Japan. | 3mks |
| | b) | Name two major car manufacturing areas in Japan. | 2mks |
| 5. | a) | What does ECOWAS stand for? | 2mks |
| | b) | List three objectives of ECOWAS. | 3mks |


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## SESCITON B

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

6. The table shows the number of tourists who visited Kenya between 1996 and 1999. Use it to answer the following questions.

| | Year | | | |
|---|---|---|---|---|
| **County** | **1996** | **1997** | **1998** | **1999** |
| Britain | 100,000 | 80,000 | 60,000 | 40,000 |
| N. America | 80,000 | 50,000 | 45,000 | 48,000 |
| Germany | 70,000 | 40,000 | 35,000 | 30,000 |
| S.E Asia | 40,000 | 30,000 | 25,000 | 25,000 |

a) Using a vertical scale of 1cm to represent 10,000 people, draw a comparative bar graph to represent the above data. 8mks

b) State four possible reasons for the general decline in the number of tourists since 1997. 4mks

c.(i) Define eco-tourism. 1mk

(ii) State two objectives of eco-tourism. 2mks

(d)(i) Explain three factors that hinder tourism in Kenya. 6mks

(ii) Identify four measurers that the Kenya government has undertaken to promote tourism in the country. 4mks

7. (a) i) Differentiate between market gardening and floriculture. 2mks

(ii) State four features of horticulture. 4mks

i) State three physical factors that favour development of horticulture in Kenya. 3mks

ii) Explain why horticulture is more developed in Netherlands than in Kenya. 8mks

c) State and explain four contributions of horticulture to the economy of Kenya. 8mks

8. a) Differentiate between Land reclamation and Land rehabilitation. 4mks

b.i) Give three problems facing farmers in Mwea Tebere irrigation scheme. 3mks


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c) Explain four ways in which Land reclamation in Kenya differs from that of the Netherlands. 8mks

d) Outline four benefits resulting from the draining of Yala and Bunyala swamps. 4mks

9.a)i) Define the term fisheries. 2mks

ii) Name two countries in Southern Africa that are important for marine fishing. 2mks

b) Explain four factors that favour the fishing industry in Japan. 8mks

c) Describe purse seining as a fishing method. 6mks

d)(i) State four problems experienced in the marketing of fish in Kenya. 4mks

(ii) State three ways in which the government of Kenya is promoting the fishing industries in Kenya. 3mks

10.a) Draw a sketch map of Kenya. 2mks

On the sketch indicate the following towns.

- Eldoret 1mk
- Kisumu 1mk
- Mombasa ` 1mk

b(i) Outline four functions of Nairobi. 4mks

(ii) Name four common problems facing Nairobi and Newyork cities. 4mks

(iii) Give three characteristics of central business districts. 3mks

c) Identify five factors that have led to the growth of Thika town. 5mks

d) List four benefits that result from urbanization. 4mks


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# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

**KENYA CERTIFICATE OF SECONDARY EDUCATION**
**FORM FOUR (4)**

**HISTORY AND GOVERNMENT**
**PAPER 1**
**311/1**

**TIME: 2 HRS 30MINS**

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

**TOTAL SCORE**


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**SECTION A (25 MARKS)**
**Answer all questions in this section**

1. Name the **branch** of history that deals with traditions, values and cultural practices of people. 1mk
2. Name the **only** southern Cushites group remaining in Kenya. 1mk
3. Give **two** age sets among the Nandi in the pre-colonial period 2mks
4. Apart from Vasco de gamma, name **two** other Portuguese generals who conquered the East African Coast. 2mks
5. State the **main** way through which one qualifies to be a Kenyan citizen by their birth.1mk
6. Give **one** economic factor that promotes national unity in Kenya. 1mk
7. State **two** functions of a constitution. 2mks
8. What is direct or pure democracy? 1mk
9. Apart from the Nandi, which other **two** communities resisted British invasion in Kenya. 2mks
10. Who introduced settler farming in Kenya. 1mk
11. Name **two** nationalists outside central Kenya who were detained at Kapenguria in 1952. 2mks
12. Give the **main** political challenge that faced Mzee Jomo Kenyatta immediately after independence. 1mk
13. State **two** electoral offences that are applicable to a voter. 2mks
14. Mention the **document** in which African socialism as a national philosophy was expounded. 1mk
15. State **two** ways through which the government has encouraged the preservation of African culture since independence. 2mks
16. Name **two** members of the county executive committee. 2mks
17. Give the **main** function of the commission on revenue allocation in Kenya. 1mk


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**SECTION B(45 MARKS)**
**Answer three questions only from this section.**

18 a) State **five** results of the settlement of Luo during pre-colonial period. 5mks

b) Describe the **social** organization of the Maasai in the 19th Century. 10mks

19 a). Stat **five** reasons why the Portuguese built Fort Jesus in 1593. 5mks

b) Explain **five** results of the coming of Christian missionaries to Kenya. 10mks

20. a) State **three** roles of Mekatilili wa Menza in the Agiriama resistance against the British. 3mks

b). Explain **six** effects of the Wanga collaboration against invasion in western Kenya. 12mks

21. a). State **five** factors that prompted the colonial government to construct the Kenya –Uganda railway. 5mks

b). Explain **five** factors that intensified African Nationalism in Kenya after 1945. 10mks

**SECTION C (30MKS)**
**Answer two questions only from this section.**

22. a). Give **three** ways in which education promotes national unity in Kenya. 3mks

b). Explain **six** factors that undermine National unity in Kenya. 12mks

23. a). State **five** characteristics of a good constitution 5mks

b). Explain **five** reasons why human rights are important in Kenya. 10mks

24. a). State **three** ways in which the High court supervises the work of the subordinate courts. 3mks

b). Explain **six** functions of the cabinet in Kenya. 12mks


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# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

**KENYACERTIFICATE OF SECONDARY EDUCATION**
**FORM FOUR (4)**

**HISTORY AND GOVERNMENT**
**PAPER 2**
**311/2**

**TIME: 2 HRS 30MINS**

**INSTRUCTIONS**

1. **ANSWER *ALL* QUESTIONS IN SECTION A**
2. **ANSWER *THREE* QUESTIONS IN SECTION B**
3. **ANSWER *TWO* QUESTIONS IN SECTION C.**

**TOTAL SCORE**


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**SECTION A (25 MARKS)**

**Answer all questions from this section.**

1. Give **two** disadvantages of using electronic sources to study history and government. 2mks
2. Who was the **architect** of the theory of Evolution? 1mk
3. Mention **one** river associated with early agriculture in Mesopotamia. 1mk
4. Give **two** roles of the takshifs during the Trans-Saharan trade. 2mks
5. What is the **main** limitation of use of airships in transport? 1mk
6. Give **two** disadvantages of use of radio. 2mks
7. State **two** political effects of industrial revolution in Europe. 2mks
8. Identify the **main** factor that contributed to the growth of Athens in ancient Greece. 1mk
9. Name the **main** symbol of unity among the shona in the 19th Century. 1mk
10. State **two** ways in which the partition of Africa affected Europeans. 2mks
11. What was the **name** of the company that administered Zimbabwe on behalf of Britain? 1mk
12. Apart from Nelson Mandela, mention **any other** Nationalist in South Africa. 1mk
13. Identify **two** reasons why United States of America was reluctant to join the First World War on the side of Allies. 2mks
14. Give **two** specialized agencies of the United Nations which deals with provision of loans to member countries. 2mks
15. Identify **two** organs of economic community of west African States (ECOWAS) 2mks
16. Identify the **main** principle of the Arusha declaration of 1967. 1mk
17. Give **one** major political party in India. 1mk.



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**SECTION B (45 MARKS)**

**Answer any three questions only from this section.**

18. a). What **three** challenges did the early man face as he lived in caves. 3mks
    b). Explain **six** effects of development of early agriculture in Egypt. 12mks

19. a). State **three** factors that facilitated the acquisition of slaves during the Trans- Saharan trade 3mks
    b). Explain **six** factors that led to the decline of Trans-Saharan trade. 12mks

20. a). What **five** factors characterized industrialization in Britain. 5mks
    b). Explain the **problems** facing industrialization in South Africa. 10mks

21. a). Identify **five** factors that enabled Europeans to easily conquer Africa during the scramble for Africa. 5mks
    b). Explain **five** reasons why assimilation failed in Senegal. 10mks

**SECTION C (30 MARKS)**

**Answer any two questions from this section.**

22. a). State **five** peace treaties signed between Allies and the central powers to bring peace in Europe. 5mks
    b). Explain **five** social effects of World War II. 10mks

23. a). State f**ive** reasons why Pan Africanism became more active in Africa after 1945. 5mks
    b). Explain **five** functions of the United Nations Security Council. 10mks

24. a). Mention **three** ways of becoming a member of parliament in Britain. 3mks
    b) Explain **six** functions of the president in USA. 12mks



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**INDEX NO: ……..…..… SIGN: ……..…. DATE:……**

**SCHOOL: ……..**

# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

441/1

**HOMESCIENCE**

Paper 1

Time: 2 Hours 30 Minutes

**INSTRUCTIONS TO CANDIDATES**

1. Write your name, school and index number in the spaces provided.
2. This paper consists of three sections A, B and C
3. Answer ALL the questions in section A and B and any **two** questions from section C in the spaces provided.

FOR EXAMINERS USE ONLY

| SECTION | QUESTION | MAXIMUM SCORE | CANDIDATE SCORE |
|---|---|---|---|
| A | 1-18 | 40 | |
| B | 19 | 20 | |
| C | 20-22 | 40 | |
| | | | |



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1. Give two importance of exercise in good grooming (2mks)

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2. Give two qualities to look for in hand sewing needle (2mks)

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3. List two ways of lengthening a skirt (2mks)

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4. What are effects of immersing a hot alluminium frying pan in water (2mks)

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5. Give two qualities of a good dustbin (2mks)

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6. Give two reasons why food should be stored properly (2mks)

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7. Give two rules to observe in jam making (2mks)

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8. Mention three measures that you would take to control bedbags in a house (3mks)

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9. Give two reasons for coating food before deep frying (2mks)

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10. What are the functions of riboflavin in the body? (2mks)

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11. Name two causes of anaemia other than nutritional deficiency (2mks)

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12. Give three characteristics of a well-made patch pocket (3mks)

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13. What is the importance of KEBS diamond mark of quality on goods (2mks)

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14. Give three disadvantages of impulse buying (3mks)

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15. Give two reasons why sodium bicarbonate is combined with tartanic acid when preparing flour mixture (2mks)

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16. What are determinants of safe parenthood (3mks)

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17. Give two reasons why clothes are steeped (2mks)

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18. Name two fabrics that should not be wrung during laundering (2mks)

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**SECTION B: COMPULSORY 20 MARKS**

19. Your parents are away and you have been left in charge of the home. Using knowledge and skills learnt in home science;

    i) Explain how you would launder your mother's viscose rayon dress (10mks)

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ii) Describe the method you would use to clean a varnished wooden table to be used for the occasion (6mks)

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iii) Explain how you would use charcoal as an abrasive in cleaning a stained aluminium sufuria (4mks)

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## SECTION C: ANSWER ANY TWO QUESTIONS 40 MARKS

20. a) Give four reasons for management of fullness in clothing construction (4mks)

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b) With the aid of a diagram where possible describe the working of a single pointed dart (10mks)

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c) Differentiate between pleats and tucks (2mks)

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d) Explain how you would reinforce a shirred area during garment construction (4mks)

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21. a) What do the following terms mean in a meal planning and management (6mks)

i) Accompaniment

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ii) Savoury foods

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iii) Flavourings

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b) State eight points to bear in mind when setting a table (8mks)

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c) i) Define food budget (2mks)

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ii) Identify advantages of budgeting for food (4mks)

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22. a) Explain how detergents work (6mks)

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b) Why is wooden furniture finished (4mks)

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c) Explain five reasons why a baby is weaned (10mks)

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**INDEX NO: ……..…..… SIGN: ……..…. DATE:……**

**SCHOOL: ……..**

# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

441/2
**HOMESCIENCE**
Paper 2
**(CLOTHING CONSTRUCTION)**
Time: 2 Hours 30 Minutes

**INSTRUCTIONS TO CANDIDATES**

1. Write your name, school and index number in the spaces provided.
2. Candidates must use machine stitches appropriately in the construction of the garment. Hand stitches uses instead of machine stitches will not be marked
3. Hand stitches will only be allowed for the making of hemming and tacking stitches

**TOTAL SCORE:**


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A pattern of a childs dress is provided. You are adviced to study the sketchs, the question paper and the layout before you begin the test.

**1. MATERIALS PROVIDED**

A dress front
B dress back
C dress sleeve

D back facing
E cuff
F sleeve opening

2. Plain cotton paplin material 85cm by 91cm

3. Macerised sewing cotton thread to match

4. 1 shirt button (1cm diameter)

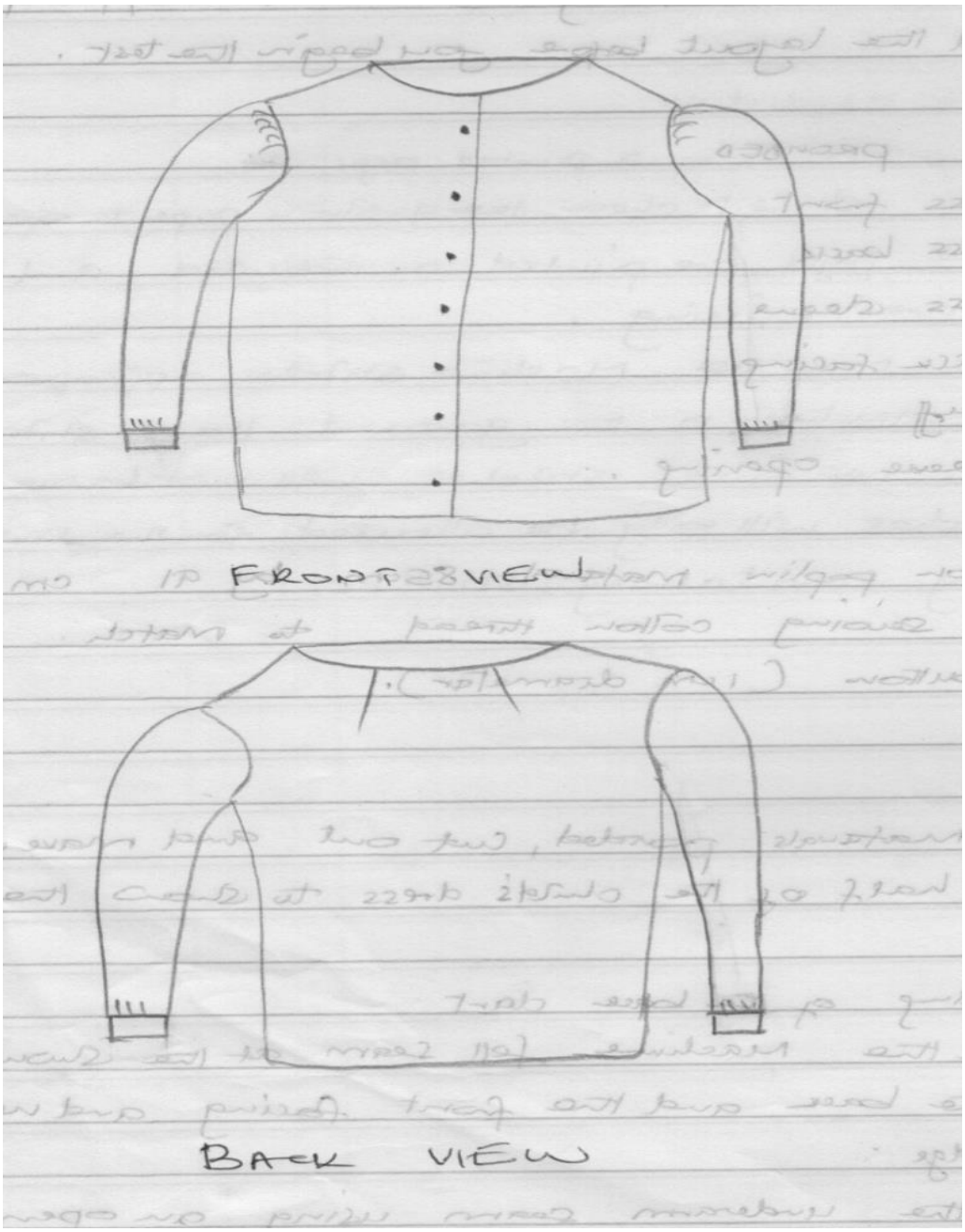
**THE TEST**

Using the materials provided, cut out and make up the right half of the child's dress to show the following:

a) The working of the back dart
b) Working of the machine fell seam at the shoulder
c) Joining the back and the front facing and neatening the free edge.
d) Making the underarm seam using an open seam
e) Making of the French seam at the side
f) Preparing of the sleeve to include
   i) Bound opening at the lower edge
   ii) Cuff at the sleeve opening
   iii) Making a buttonhole and fixing a button
g) Attaching of the sleeve. (Do not neaten the armhole seam).

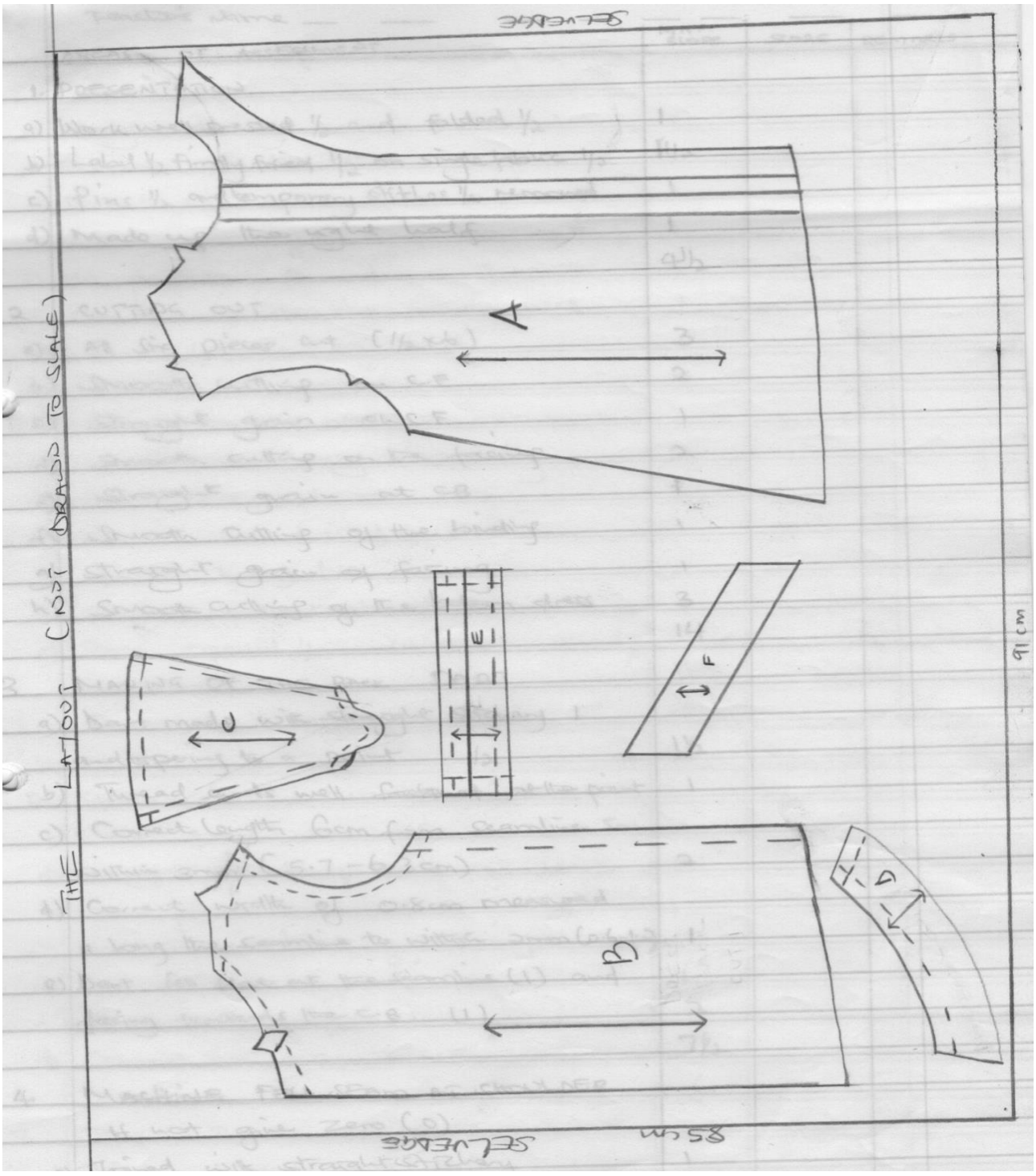
At the end of the examination remove all the pins, firmly sew onto your work on a single fabric a label bearing your name and index number.


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**NAME: ……..**

**INDEX NO: ……..…..… SIGN: ……..…. DATE:……**

**SCHOOL: ……..**

# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

**FOOD AND NUTRITION**

441/3
**HOMESCIENCE**
Time: 1 Hour 45 Minutes
PLANNING SESSION: 30 Minutes
PRACTICAL TEST SESSION: 1HR 15Min

**INSTRUCTIONS TO CANDIDATES**

1. Read the test carefully
2. Write your name and index number on every sheet of paper used
3. Text books and recipes may be used during planning sessions as reference materials
4. You will be expected to keep to your order of during the practical session
5. You are only allowed to take your reference materials at the end of the planning session
6. You are not allowed to bring additional notes to the practical session


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**THE TEST**

Your friend will be coming to spend at your place over the weekend. Using the ingredients and foodstuffs listed below, prepare, cook and serve a one course meal for both of you. Include a refreshing drink.

**Ingredients**

- Beef/green
- Tomatoes
- Carrots
- Fruit in season
- Water
- Margarine
- Rice
- Fat/oil
- Green leafy vegetables
- Sugar
- Onion
- Salt
- Beef cubes

**Planning session**

For each task listed below, use separate sheets of paper and make duplicate copies using carbon paper then proceed as follows:

1. Identify the dishes and write down the recipes
2. Make a list of equipment and materials you will require
3. Write down your order of work.


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**JINA: ……..**

**NAMBARI YA USAJILI: ……..…..… SAHIHI: ……..…. TAREHE:……**

**SHULE: ……..**

# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

**102/1**

**KISWAHILI**

**KARATASI YA 1**

**INSHA**

**MUDA: SAA 1 ¾**

**MTIHANI WA MWISHO WA MUHULA 2, KIDATO CHA NNE**

## MAAGIZO

1. Andika insha mbili, insha ya kwanza ni ya lazima.
2. Kisha chagua insha nyingine moja kutoka kwa hizo tatu zilizobakia.
3. Kila insha isipungue maneno 400.
4. Kila insha ina alama 20.

**ALAMA**



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# MASWALI

1. Andika tahariri kwa gazeti la mwananchi ukieleza hatua zinazochukuliwa nchini ili kumwendeleza kielimu mtoto msichana.

2. Kupunguza mishahara ya watumishi wa umma ni hatua mwafaka kama maendeleo ya nchi yatafanikiwa. Jadili

3. Andika insha itakayoafikiana na methali. ‘Baniani mbaya kiatu chake dawa’.

4. Andika insha itakayomalizikia kwa:

   …… Walipofungua mlango huo hatimaye, wengi hawakuweza kuzuia hisia zao. Waliangua vilio kwa maafa waliyoshuhudia.


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**JINA: ……..**

**NAMBARI YA USAJILI: ……..…..… SAHIHI: ……..…. TAREHE:……**

**SHULE: ……..**

# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

**102/2**

**KISWAHILI**

**LUGHA**

**KARATASI YA PILI**

**MUDA: SAA 2 ½**

**MTIHANI WA MWISHO WA MUHULA WA PILI KIDATO CHA NNE**

## MAAGIZO

(a) Jibu maswali **yote.**
(b) Majibu yako yaandikwe katika nafasi ulizoachiwa katika kijitabu hiki cha maswali.

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


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**1. UFAHAMU (alama 15)**
**Soma kifungu kifuatacho kisha ujibu maswali.**

Suala la mahusiano ya wanadamu katika jamii, uainishaji wake na uathirikaji wake limewashughulisha wataalamu wa elimu jamii kwa dahari ya miaka. Suala hili huwatafakarisha wataalamu hao kutokana na umuhimu wake katika maisha ya binadamu, msingi mkuu wa uinishaji wa mahusiano hayo ni kukichunguza kipindi cha mahusiano yenyewe. Yapo mahusiano baina ya waja ambayo yanachukua muda mfupi, kwa mfano saa au dakika chache, na mengine ambayo huenda yakachukua miaka ayami.

Mahusiano ya muda mrefu kabisa ni yale yanayojulikana kama mahusiano ya kudumu inamkinika kudai kuwa miundo ya kijamii, kisiasa na kiuchumi huweza kuyadhibiti mahusiano hayo kwa kiasi kikubwa. Watu wengi huitikadi kuwa uhusiani uliopo baina ya mtu na jamaa yake utachukua muda mrefu, na kwa hivyo ni uhusiano wa kudumu. Hali hii hutokana na uhalisi kuwa tunahusiana na jamaa zetu kwa kipindi kirefu labda tangu ukembe hadi utu uzima wetu. Uhusiani huu hautarajiwi kuvunjwa na umbali wa masafa baina yetu; tutaendelea kuwasiliana kwa barua au, katika enzi hii ya utandawazi, kwa kutumia nyenzo za teknohama kama mtandao na simu za mkononi, na kudumisha uhusiano wetu wa kijamaa. Hata hivyo, inawezekana baadhi ya mahusiano ya kijamaa yasiwe ya kudumu. Mathalan, uhusiano uliopo baina ya mke na mume, na ambao unatarajiwa kuwa wa kudumu au kipindi kirefu, unaweza kuvunjwa kwa kutokea kwa talaka. Talaka hiyo inavunja ule uwezekano wa uhusiano wa kudumu unaofubatwa na sitiari ya pingu za maisha.

Katika ngazi ya pili, mahusiano ya kiwango cha wastani, kuna mahusiano yanayohusisha marafaki zetu maishani, shuleni au kwenye taasisi zozote zile, majirani zetu, wenzetu katika mwahali mwa kazi, washirika kwenye sehemu za ibada au za burudani na wenzetu kwenye vyama tofauti na makundi ya kujitolea. Inawezekana kudahili kuwa baadhi ya mahusiano haya, hususan baina ya marafiki na majirani huweza kuwa ya miongo na daima. Hali hii huweza kutegemea muundo na mfano wa jamii. Kwa mfano, kwa majirani wanaoishi kwenye janibu, fulami mahususi, na kwa miaka tawili bila ya kuhajiri. Uhusiano wao na majirani huweza kuwa wa kudumu. Hali hii **inasigana** na hali iliyoko kwenye maisha ya mijini. Maisha ya mijini yana sifa ya kubadilikabadilika. Isitoshe, kutokana na mfumo wa maisha ya kibepari **yameghoshi** ubinafsi mwingi. Mawimbi ya mabadiliko na ubinafsi huweza kuumomonyoa ukuta wa uhusiano wa kudumu.


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Mwelekeo wa maisha ya siku hizi ya uhamaji kutoka maeneo au viambo walikoishi watu unasababisha kupombojea kwa mahusiano ya kudumu baina yao na majirani zao. Uhusiano kati ya wenza katika mazingira ya kazi unahusiana kwa kiasi fulani na ule wa majirani. Vimbunga vya ufutwaji kazi, ubadilishaji wa kazi, hali zisizotegemewa na mifumo ya kimataifa pamoja na hata mifumo ya kisiasa huweza kuathiri mshikamano wa wanaohusika kazini.

Kiwango cha mwisho cha mahusiano ni uhusiano wa mpito au wa muda mfupi. Mahusiano ya aina hii hujiri katika muktadha ambapo pana huduma fulani. Huduma hizi zinaweza kuwa dukani, kwenye sehemu za ibada, kwenye kituo cha mafuta, kwa kinyozi,kwa msusi na kadhalika. Kuna sababu kadha zinazotufanya kuyazungumzia mahusiano ya aina hii kama ya mapito. Kwanza, uwezekano wa mabadiliko ya anayeitoa huduma hiyo ni mkubwa. Si ajabu kuwa unaporudi kwa kinyozi au msusi unatambua aliyekushughulikia hayupo. Hata hivyo, kuna **vighairi** hususa pale ambapo mtoa huduma anayehusika ni yule mmoja.

Mahusiano ya mpito yanatawaliwa na "uhusiano wa chembe". Uhusiano wa chembe chembe, bidhaa ya mfumo wa kibepari, unamaanisha kuwa kinachomshughulisha mtu ni chembe ndogo tu ya mwenzake. Chembe hiyo inaweza kuwa huduma, kwa mfano, gazeti analokuuzia mtu, kiatu anachokushonea, nguo anazokufulia, ususi anaokufanyia n.k. mahusiano ya aina hii yametovukwa na hisia za utu na ni zao la mifumo ya kisiasa na kiuchumi na kijamii. Mtu anayehusiana na mwenzake kwa misingi ya chembe ndogo tu, huenda asijali kama mwenzake amekosa chakula, amefutwa kazi, amefiliwa na kadhalika.

Suala kuu tunalopaswa kujiuliza ni: Je, tunahusiana vipi na jamaa zetu, taasisi zetu, marafiki zetu na majirani zetu? Je, uhusiano wetu na raia wenzetu ni wa aina gani? Je, uhusiano wetu na nchi yetu ni wa mpito au ni wa kudumu?

**Maswali**

(a) Taja kigezo muhimu cha kuzungumzia mahusiano. (alama1)

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(b) Eleza imani ya watu kuhusu uhusiano baina ya jamaa. (alama1)


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(c ) Fafanua athari ya teknolojia kwenye mahusiano ya watu. (alama 2)

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(d) Eleza sababu nne kuu za kuharibika kwa mahusiano katika maisha ya leo (alama 4)

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(e) Taja sifa kuu ya mahusiano ya muda mfupi. (alama2)

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(f ) Je, kifungu hiki kina ujumbe gani mkuu? (alama 2)

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(g) Eleza maana ya maneno yafuatayo kama yalivyotumiwa katika kifungu. (alama3)

(i) inasigana

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(ii) yameghoshi

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(ii) vighairi

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## 2. UFUPISHO (ALAMA 15)

Ujambazi wa kimataifa ni tatizo ililowasumbua walimwengu kwa muda mrefu sana. Serikali nyingi zimetumia mapesa mengi kwa miaka mingi sana zikijitahidi kupambana na janga hili. Hata hivyo, fanaka haijapatikana, wala halielekei kamwe kuwa itapatikana leo au karne nyingi baadaye.

Yumkini tatizo kubwa lilipo ni kuhusu jelezi la dhana ya "ujambazi" tena "kimataifa". Hili ni tatizo mojawapo na yapo mengi sana. Tatizo la pili ni kiburi. Kuna wale watu binafsi na hasa viongozi wa nchi kubwakubwa na serikali zao zilizojiaminisha kuwa ujambazi ni balaa kweli, tena belua, lakini huo ni wa huko, wala hauwezi kuwagusa licha ya kuwashtua wao.

Kulingana na maoni ya watakaburi hao, ujambazi ni wa watu "washenzi" wasiostaaraka, wapatikanao katika nchi zisizoendelea bado. Ujambazi peke wanaouona unafaa kukabiliwa ni dhidi ya mbubujiko wa dawa za kulevya uliosababishwa na vinyangarika kutoka nci hizo maaluni za "ulimwengu wa tatu". Kulingana na wastaarabu wa nchi zilizoendelea, vinyangarila hivi ndivyo hasa adui mkubwa wa ustaarabu ulimwenguni na ni sharti vifagiliwe mbali bila huruma. Baada ya kusagwasagwa, ulimwengu mstaarabu utazidi kutokana na ahadi ya mbingu hapa ardhini itakamilika.

Imani ya watu hawa ya kuwaa ujambazi wa kimataifa, hata iwapo upo, hauwezi kuwashtua wala kuwatingisha wao ilikuwa kamili na timamu. Ilikuwa kamili na timamu hadi hapo mwezi Septemba tarehe 11 mwaka wa 2001, ndege tatu za abiria zilipolekezwa katika majumba mawili ya fahari, yenye urefu wa zaidi ya ghorofa mia moja na kuyatwangilia mbali. Mshtuko na kimako! Kimako kwa kuwa, kabla ya siku hiyo. Wamarekani hawangeweza kudhani kwamba ingewezekana taifa


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lolote au mtu yeyote kuthubutu kushambulia nchi yao, taifa wasifa lililojihami barabara dhidi ya ina yoyote ile ya uchokozi kutoka pembe yoyote ya dunia.

Hakuna ulimwenguni mzima, aliyeamini kuwa Marekani ingeweza kushambuliwa. Kwa ajili hiyo, mshtuko uliitingisha ardhi yote na huzuni ilitanda kote, kama kwamba sayari nzima imeshambuliwa, wala sio Marekani pekee.

Mintarafu hiyo, Marekani ilipolipiza kisasi kwa kuwaunguza waliokuweko na wasiokuwemo kwa mabomu hatari huko Afghanistan, idadi kubwa ya watu duniani ilishangilia na kusherehekea. Kwa bahati mbaya, tafsiri ya shambulizi la minara-pacha na Newyork na lile la Pentagon, uti wa uwezo wa kivita wa Marekani, ulizorota. Kuna wengi waliodhani huo ni mwanzo wa vita vya Waislamu dhidi ya Wakristo na kwa muda, Waislamu wote wakashukiwa kimakosa kuwa ni majambazi wa kimataifa.

**Maswali**

(a) Bila kubadilisha maana, fupisha aya tatu za kwanza. (maneno 60-75) (alama 8)

**Matayarisho:**

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**Nakala safi**

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(b) Ukizingatia aya tatu za mwisho, fafanua fikira za watu na mambo yote yaliyotokea baada ya Septemba tarehe 11, 2001. (maneno 65 - 75) (alama 7)

**Matayarisho:**

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**Nakala safi**

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**3. <u>MATUMIZI YA LUGHA (Alama 40)</u>**

(a) Toa mfano mmoja wa: (alama 2)

(i) Kipasuo ……

(ii) Kitambaza ……

(b)(i) Kiimbo ni nini? (alama 1)

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(c) Andika maneno yenye miundo ifuatayo ya sauti. (alama 2)

(i) KIKKKI

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(ii) IIIKI

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……

(d) Kanusha sentensi ifuatayo: (alama 2)

Amekuja kukuona na ataondoka kesho

……

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

"Hicho kijicho cha paka cheupe leo marufuku kwangu". alisema mzee kambumbu

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(f) Unda nomino kutokana na vitenzi vifuatavyo (alama 2)

(i) Chuma

……

(ii) Zawadi

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(g) Eleza matumizi mawili ya nukta pacha. (alama 2)

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(h) Andika sentensi ifuatayo katika udogo wingi (alama 2
Uso wake umefura kabisa baada ya kuumwa na mbwa.

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(i) Changanua sentensi ifuatayo kwa kutumia mchoro wa matawi. (alama 4)
Mchezaji atakayeshinda atatuzwa zawadi murua

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(j) Andika sentensi ifuatayo upya bila kubadilisha maana ukitumia 'O'rejeshi. (alama 2)
Mwanafunzi alitumwa nyumbani juzi na hajapata karo hadi leo.

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(k) Andika kinyume cha sentensi ifuatayo: (alama 2)
Wazee watatu walitoka mangweni mchana.

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(L) Onesha kishazi huru na tegemezi
Msichana mtukutu alifukuzwa shuleni leo asubuhi. (alama 2)

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(m) Nyambua vitenzi vifuatavyo katika kauli zilizo mabanoni. (alama 2)
(i) Nata (kutendesha)
……
(ii) Kaa (kutendana)
……

(n) Bainisha yambwa katika sentensi ifuatayo. (alama 3)
Mgeni aliandaliwa chakula kitamu na mwenyeji wake kwa sinia.

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(o) Tambua matumizi ya kiambishi –ji- (alama 2)
Jino la jitu hilo lililiwezesha kujilia chakula kingi kuliko mkimbiaji yule.

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(p) Tunga sentensi moja kudhihirisha maana ya vitate *rika* na *lika.* (alama 2)

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(q) Tambua aina ya vihusishi katika sentensi zifuatazo. (alama 2)
(i) Jumba lifuatalo li mbele ya msikiti wa Musa.

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(ii) Kisiwa cha Giningi kimekauka

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(r ) Tambua hisia zinazojitokeza katika sentensi hizi: (alama 2)

(i) Ngo! Mtu kama wewe hawezi kufaulu.

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……

(ii) Maskini! Alikuwa moto maskini.

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(s) Tunga sentensi kudhihirisha matumizi ya nahau ifuatayo. (alama 2)
Zunguka mbuyu

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**4. ISIMUJAMII (ALAMA 10)**

(a) Eleza dhana ya uwingi lugha. (alama 2)

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(b) Fafanua mambo **manne** yanayochangia uwingi lugha katika jamii. (alama 8)

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**JINA: ……..**

**NAMBARI YA USAJILI: ……..…..… SAHIHI: ……..…. TAREHE:……**

**SHULE: ……..**

# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

**KISWAHILI**

**KARATASI YA 3, FASIHI 1,**

**MUDA: 2 ½**

**MAAGIZO**

**(a) Jibu maswali manne pekee.**
**(b) Swali la kwanza ni lazima.**
**(c) Maswali hayo mengine matatu yachaguliww kutoka sehemu nne zilizobaki**
**(d) Usijibu maswali mawili kutoka sehemu moja.**

## ALAMA


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**SEHEMU YA A: FASIHI SIMULIZI**

1.

**a)** Taja mifano minane ya vipera vya utanzu wa semi katika fasihi simulizi. **(alama4)**

**b)** Fafanua sifa zozote tatu za mawaidha katika fasihi simulizi **(alama3)**

**c)** Eleza umuhimu tatu wa ngomezi. **(alama3)**

**d)** Eleza istilahi hizi za fasihi simulizi. **(alama3**

i) Maghani

ii) Mapisi

iii) Misimu/simo

**e)** Fafanua sifa zozote tatu ambazo mtambaji wa hadithi anastahili kuwa nazo. **(alama3)**

**f)** Taja methali zozote mbili zilizo na dhana ya tashibihi. **(alama2)**

**g)** Eleza sifa zozote mbili za nyimbo. **(alama2)**

**SEHEMU YA B: USHAIRI**

**2.Soma shairi lifuatalo kisha ujibu maswali yanayofuata**

Mkata ni mkatika,harithi hatoridhiwa
Sina ninalolishika,wala ninalochukuwa
Mlimwengu kanipoka, hata tone la muruwa!
Mrithi nini wanangu?

Sina ngo'mbe sina mbuzi,sina konde sina buwa
Sina hata makaazi,mupasayo kuyajuwa
Sina mazuri makuzi,jinsi nilivyoachwa
Mrithi nini wanangu?
Sina kazi sina bazi ila wingi wa shakawa
Sina chembe ya majazi mno ni kukamuliwa
Nakwa'cheni upagazi,ngumu kwenu ku'tuwa
Mrithi nini wanangu?


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Sina sikuachi jina,mkata hatasifiwa
Hata nifanye la mana,mno mi kulaumiwa
Poleni wangu sana,sana kwenu cha kutowa
Mrithi nini wanangu?

Sina leo sina jana,sina kesho kutwaliwa
Sina zizi sina shina,wala tawi kuchipuwa
Sina wanangu mi sina,sana la kuacha kuraduwa
Mrithi nini wanangu?

Sina utu sina haki,mila yangu meuliwa
Nyuma yangu ili dhiki,na mbele imakaliwa
N'na wana na milik,hadi nitakapofukiwa
Mrithi nini wanangu?

Sina ila kesho kwenu,wenyewe kulongowa
Muwane kwa nyinyi mbinu,mwende pasi kupumuwa
Leo siyo kesho yenu,kama mutajikamuwa
Mrithi nini wananngu?

**MASWALI**

**a)** Taja mambo yoyote mawili ambayo mtunzi angewarithisha wanawe. **(alama2)**

b) Eleza sababu ya mtunzi kutoweza kuwarithisha wanawe. **(alama3)**

**c)** Andika ubeti wa nne kwa lugha nathari. **(alama4)**

d) Dondoa mifano miwili miwili ya: **(alama2)**

i. Inkisari
ii. Tabdila

e) Chambua shairi hili kwa upande wa:

**i.** Dhamira **(alama2)**

ii. Muundo **(alama4)**


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**f)** Eleza maana ya vifungu vifuatavyo kama vilivyotumiwa katika shairi. **(alama3)**

i. Mlimwengu kanipoka

ii. Sina konde sina buwa.

iii. Wingi wa shakawa.

**SEHEMU YA: C HADITHI FUPI; MAPAMBAZUKO YA MACHWEO**

**3.** Mwandishi wa hadithi ya "mapambazuko ya machweo" uwajibikaji kwa kiasi kikubwa mno. Illihirisha ukweli na kauli hii **(alm20)**

**4.** "Thank you. U mteja wa pekee, unajua kuthamini huduma nzuri unapopewa."

**i)** Fafanua muktadha wa dondoo hili. **(al.4)**

**ii)** Taja na ueleze mbinu mbili za kimtindo katika dondoo hili. **(al.4)**

**iii)** Kwa kurejelea hadithi ya "Kila Mchezea Wembe," Fafanua changamoto zinazowakumba watumiaji wa vileo kupita kiasi. **(al.12)**

**SEHEMU YA D: TAMTHILIA: BEMBEA YA MAISHA**

**5.** Huku ukirejelea tamthilia ya Bembea ya Maisha, eleza tofauti ya hali maendeleo kati ya hospitali za mjini na hospitali za kijijini **(alm20)**

**6.** 'Mwanangu binadamu mchoyo kwa lake lakini mkarimu ajabu kwa la mwenziwe. Atakukirimu kwa la mwenziwe na atakupa nyongeza usiyohitaji lakini atalizika katika giza kina cha moyo wake. Ndiyo hulka yake hiyo mwana wa Adamu. '

**a)** Eleza muktadha wa dondoo hili. **(alm4)**

**b)** Jadili sifa za msemaji wa maneno haya. **(alm6)**

**c)** Fafanua umuhimu wa mazungumzo kati ya msemaji na msemewa katika kujenga tamthilia ya Bembea ya Maisha. **(alm10)**

**SEHEMU YA E:**

**7.** Mwandishi wa riwaya ya Nguu za Jadi amewachora wanaumme kama wakombozi wa jamii. Fafanua. **(al.20)**

**8.** "Chuki na uhasama ni mwiba unaokwaza maendeleo katika jamii".

Jadili kwa kurejelea riwaya ya Nguu za Jadi. **(al.20)**



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**NAME: ……..**

**INDEX NO: ……..…..… SIGN: ……..…. DATE:……**

**SCHOOL: ……..**

# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

121/1
MATHEMATICS
PAPER 1
2 ½ HRS

**INSTRUCTIONS TO CANDIDATES**

a) write your name and index number in the spaces provided above
b) Sign and write the date of the examination in the spaces provide above
c) This paper consists of two sections: Section I and II
d) Answer all the questions in section I and only five questions from section II
e) Show all the steps in your calculations, giving your answers at each stage in the spaces provided below each questions
f) Mark may be given for correct working even if the answer is wrong
g) Non-programmable silent electronic calculators and KNEC mathematical tables may be used, except where stated otherwise.
h) This paper consists of 15 printed pages as indicated and that no questions are missing
i) Candidates should check the question paper to ascertain that all pages are printed as indicated that no questions are missing
j) Candidates should answer the questions in English

For Examiner's 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 1 ( 50 MARKS)

Answer all the questions from this section

1. Without using tables or calculator evaluate (3mks )

$$\sqrt{\frac{0.38\ x\ 0.23\ x\ 2.7}{0.114\ x\ 0.0575}}$$

2. Express the following as a single fraction (3mks)

$$\frac{2x-3}{3} - \frac{x-2}{2} - \frac{1-x}{4}$$

3. Use reciprocal and square tables to evaluate to 4 significant figures, the expression

$\frac{1}{24.56} + 4.362^2$ (3mks)


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4. A Kenyan bank buys and sells foreign currencies as shown in the table below

| | Buying ( Kshs) | Selling ( kshs) |
|---|---|---|
| 1 Euro | 84.15 | 84.26 |
| 1 sterling pound | 118.35 | 121.47 |

A tourist came to Kenya from London with 5000 Euros which he converts to Kenya shillings at the bank. While in Kenya he spent a total of shs 289,000 then converted the balance into sterling pounds at the same bank.

Calculate the amount in sterling pound that he received. (3mks )

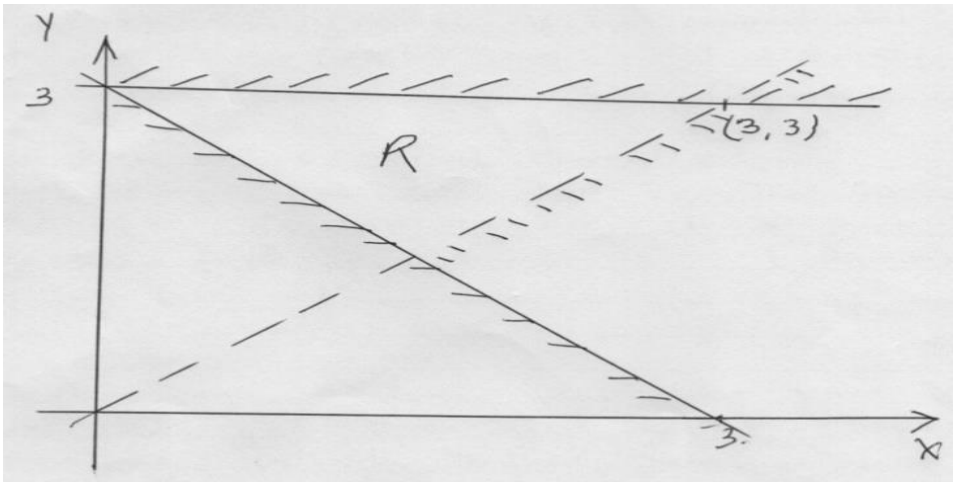
5. A closed rectangular box is made of wood of density $0.4g/cm^3$. If the wood is 1.5cm thick and its external measurements are 30cm by 240cm by 20cm. calculate the mass of wood making the box. (Give your answer in Kg).(4marks)


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6. The exterior angle of a regular polygon is equal to one- third of the interior angle. Calculate the number of sides of the polygon (2mks)

7. Simplify $\frac{2x^2 - y^2 + xy}{x^2 - y^2}$ (3mks )

8. Determine the inequalities that satisfy the region R in the figure below (3mks)





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9. Find the equation of a perpendicular bisector of line PQ, in the form y = mx+ c. If the co-ordinates of P and Q are ( -2,6) and ( 4,-2) respectively. (3mks)

10. Using a ruler and a pair of compasses only construct triangle PQR such that PQ=7cm, QR=5cm and <PQR=30$^{o}$. Construct the locus L of points equidistant from RP and RQ (3mks)

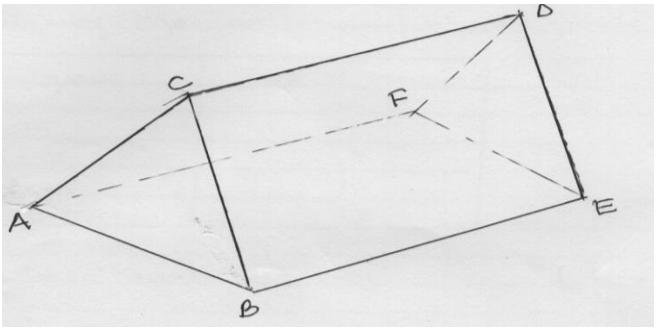
11. Three years ago, a father was three times as old as his son. In three years time, the sum of their ages will be 76 years. Determine their present ages. (3mks)


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12. Solve $8^x = 4^{2y+1}$ and $27^{2x} = 9^{y-3}$ giving your answers as an exact fraction. (4mks)

13. A piece of wire is bent into the shape of an isosceles triangle. The base angles are each 48° and perpendicular height to the base is 6cm. Calculate correct to 1 decimal place the length of the wire. (3mks)

14. The figure below is a prism whose cross-section is an equilateral triangle AB=3cm, BE=5cm





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i)Draw the net of the prism (2mks)

ii) Calculate the surface area of the prism (2mks)

15. Given that P= $5\underset{\sim}{a} - 2\underset{\sim}{b}$ where $\underset{\sim}{a} = \begin{pmatrix}3\\2\end{pmatrix}$ and $\underset{\sim}{b} = \begin{pmatrix}4\\1\end{pmatrix}$ find $|p|$ (3mks)


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16. Express the number 1470 and 7056 each as a product of prime factors.
Hence evaluate $\frac{1470^2}{\sqrt{7056}}$ leaving your answer in prime factor form. (3mks)

SECTION II (50 MARKS)

Answer any five questions from this section

17. Patients who attended clinic in one week were grouped by age as shown in the table below

| Age in (years) | No. of patients |
|---|---|
| 0-5 | 14 |
| 5-15 | 41 |
| 15-25 | 59 |
| 25-45 | 70 |
| 45-75 | 15 |


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a) State the modal frequency (1mk)

b) Estimate the mean age (4mks)

c) On the grid provided, draw a histogram to represent the distribution. (5mks)

**PROVIDE A GRAPH PAPER**


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18. A bus left Kisumu at 9.30 a.m towards Nairobi at an average speed of 81Km/hr. A matatu left Nairobi at 10.10a.m at an average speed of 72km/hr. The distance between Kisumu and Nairobi is 360km.

a) Determine

i) The time taken before the two vehicles met. (3mks)

ii) The distance between the two vehicles 40 minutes after meeting.(2mks)

b) A car left Kisumu towards Nairobi at 9.50 a.m at an average speed of 90km/hr.

Determine

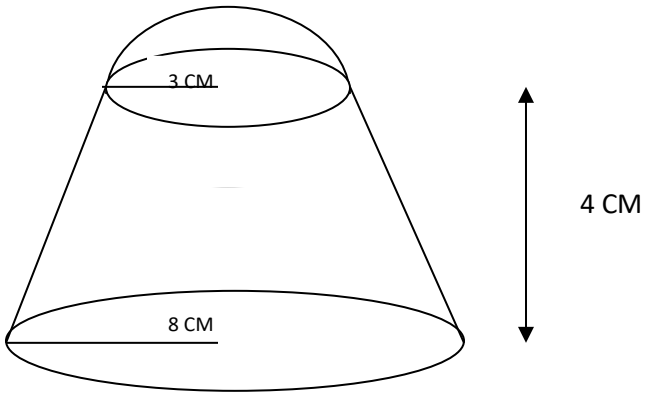
i) The time when the car caught up with the bus. (3mks)



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ii) The distance of Nairobi from the place where the car caught up with the bus . (2mks)

19. The diagram below shows a hemisphere on top of a frustrum. The top radius of the frustrum is 3cm and the bottom radius is 8cm. The height of the frustrum is 4cm.




Calculate

a) The height of the cone from which the frustrum was taken (3mks)


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b) The volume of the frustrum (4mks)

c) The total volume of the solid (3mks)

20. Three ports A, B and C are situated in such a way that port A is 140km on a compass bearing N65$^{o}$E of B. Port C is 200km on a compass bearing S32$^{o}$E of A. A ship S is docked in sea, 86km on a bearing of 190$^{0}$ from port B.

a) Using a scale of 1cm to represent 20km, draw a diagram to show the position of ports A,B C and ship S (4mks)


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b) Using you diagram find

i) The distance between the ship and port A (1mk)

ii) The bearing of the ship from port C (1mk)

iii) The distance from B to C (1mk)

iv) Find how far C is South of A (2mks)

v) Compass bearing of S from A (1mk)

21. A construction company is to use 144 tonnes of stones in site A and site B Kimani and James are to supply the company with stones from their quarry. The company pays sh 24000 to transport 48 tonnes of stones for every 28km.


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a) Kimani transported 96 tonnes to site A, 49km away.

i) Find how much he was paid (4mks)

ii) If Kimani spends kshs 3000 to transport every 8 tonnes of stones to site A. Calculate his total profit.
(3mks)

b. James transports the remaining 48 tonnes to site B, 84km away. If he made 44% profit, find the money he spent on transporting the stones
(3mks)


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22. A certain number of people agreed to contribute equally to buy books worth sh.12000 for a school library. Five people pulled out so that others agreed to contribute an extra shs 100 each. Their contribution enabled them to buy books worth shs 2000 more that they originally expected.

a) If the original number of people was x. Write down
   i) An expression of how much each was to contribute originally (1mk)

   ii) Two distinct expressions of how much each contributed after the five pulled out (2mks)

b) Calculate the original number of people (4mks)


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c) The ratio of the supposed original contribution to the new contribution
(3mks)

23. The quadrilateral PQRS and P'Q'R'S' have co-ordinates P(-2,5) Q(-1,6) R(-4,7) S(-4,5) and P'(4,2)Q'(2,0) R'(8,-2) and S'(8,2)

a) On the grid provided plot PQRS and P'Q'R'S' (2mks )

b) Given that P'Q'R'S' is image of PQRS after an enlargement. Find the co-ordinates of the centre and the scale factor of enlargement
(2mks )


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c) On the same axes plot $P^2Q^2R^2S^2$ the image of P'Q'R'S' after a rotation centre (0, -1) through $-90^o$. Write down the co-ordinates of $P^2Q^2R^2S^2$
(3mks)

d) $P^3Q^3R^3S^3$ is the image of $P^2Q^2R^2S^2$ after a translation vector $\begin{pmatrix} -4 \\ 2 \end{pmatrix}$. Plot $P^3Q^3R^3S^3$ on the same axes
(3mks)

24. The displacement S metres covered by a moving particle after time t seconds is given by

$S = 2t^3 + 4t^2 - 8t + 3$

Find

a) The displacement of the particle at t = 5 seconds (2mks)


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b) The velocity of the particle at t = 5 seconds (3mks)

c) The value of t when the particle is momentarily at rest (3mks)

d) The acceleration of the particle at t = 2 seconds
(2mks )

**NAME: ……..**


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**INDEX NO: ……..…..… SIGN: ……..…. DATE:……**

**SCHOOL: ……..**

# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

121/2
MATHEMATICS
PAPER 2
2 ½ HRS

**INSTRUCTIONS TO CANDIDATES**

a) write your name and index number in the spaces provided above
b) Sign and write the date of the examination in the spaces provide above
c) This paper consists of two sections: Section I and II
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Section II

| 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | Total |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |

Grand total


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SECTION 1 ( 50MKS)

Answer all the questions from this section 1

1. Use tables of logarithms to evaluate (4mks)

$$\sqrt[3]{\frac{58.32\ X\ (0.9823)^2}{693.5}}$$

2. Simplify $\frac{3}{\sqrt{7}-2} + \frac{1}{\sqrt{7}+2}$ ( 3mks )

3. Make y the subject of the formula given

$q = m\sqrt{\frac{r^2-y^2}{y^2+3}}$ (3mks)

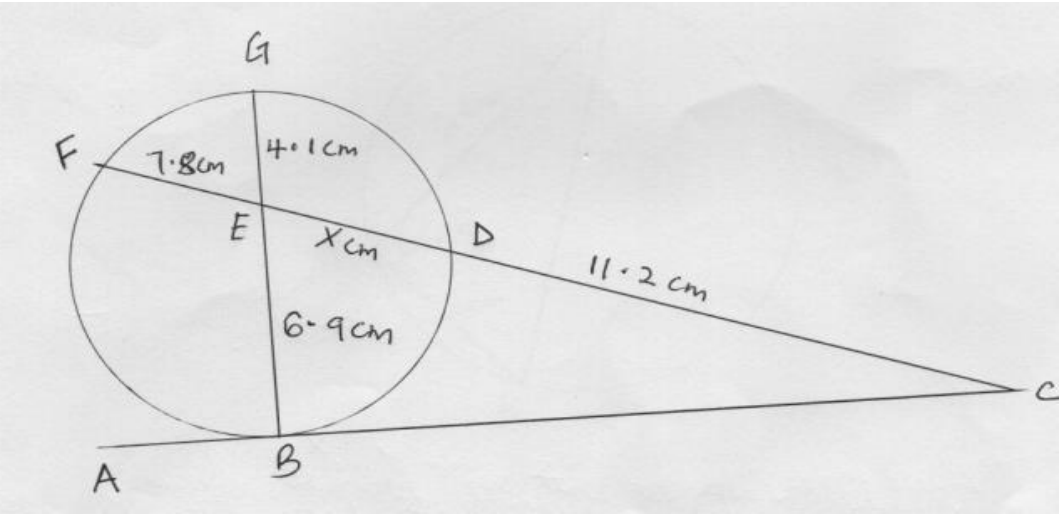


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4. Find the percentage error in the area of a parallelogram whose base is 23.2m and height is 11.5cm. (3mks)

5. In what ratio should grade P of tea costing sh 450 per kg be mixed with grade Q of tea costing sh 350 per kg so that a profit of 10% is made by selling the mixture at sh 451 per kg? ` (3mks)

6. In the figure below ABC is a tangent to the circle at point B. Given that BE = 6.9cm, FE = 7.8cm GE=4.1cm, DC= 11.2cm and ED= xcm. Determine the length BC, give your answer to four significant figures . (3mks)



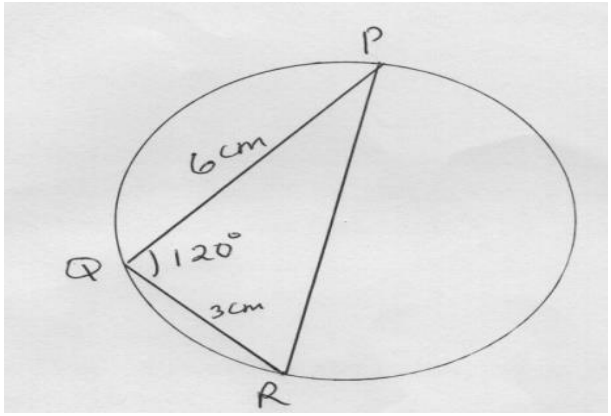


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7. Find Y without using tables. If $2 + \log_2 3 + \log_2 y = \log_2 5 + 1$ (3mks)

8. Three quantities X, Y and Z are such that X varies directly as the square of Y and inversely as the square root of Z. Given that Y increases by 5% and Z decreases by 36%. Find the percentage change in X. ( 3mks)

9. The figure below shows triangle PQR inscribed in a circle PQ=6cm, QR = 3cm and angle PQR= $120^o$




Calculate the length PR and the radius of the circle (4mks)


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10. Given that the matrix $\begin{pmatrix} 5-x & 2 \\ 3x & 4 \end{pmatrix}$ has no inverse. Find x ( 2mks)

11a. Expand and simplify the first four terms $(2 - ½ x)^6$ (2mks)

b. Use the first three terms of the expansion above to find the approximate value of $(1.97)^6$ (2mks)

12. Determine the quartile deviation for the set of data given below (3mks)

20, 40, 30, 42, 10, 18, 26, 32


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13. The points A ( -4,2) and B (-8,-4) are the end points of a diameter of a circle. Find the equation of the circle and leave your answer in the form $ax^2 + bx^2 + cx + dy + e = 0$ where a,b,c,d and e are constants (4mks)

14. Solve for $\theta$ in the equation

$6\cos^2\theta - \sin\theta - 4 = 0$ in the range $0^o \leq \theta \leq 180^0$ (3mks)

15. Mrs. Kazi deposits shs 15,000 in a bank that pays compound interest at 12% p.a If the interest is compounded quarterly, Calculate the amount at the end of 2 years ( Round off your values to 4 decimal places) (3mks)


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16. The probability that a student gets grade A in Mathematics is $\frac{9}{10}$ .If she gets grade A in mathematics then the probability that she gets A in physics is $\frac{4}{5}$. If she does not get grade A in mathematics then the probability that she get grade A in physics is $\frac{3}{8}$. Calculate the probability that she gets grade A in physics only. (2mks )

SECTION II ( 50 MARKS)

Answer any five questions from this section

17. Mr. Njagi, a civil servant earns a basic salary of sh 38,300 house allowance of sh 12,000 and medical allowance of shs 3600 every month. He claims a family relief of sh 1172 and insurance relief of 3% of the premium's paid. Using tax table below

| Taxable income (£)p.a | Tax Ksh/£ |
|---|---|
| 1 - 8800 | 2 |
| 8801 -16800 | 3 |
| 16801 - 24800 | 5 |
| 24801 - 36800 | 7 |
| 36801 - 48800 | 9 |
| Over 48800 | 10 |


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a) Calculate Mr. Njagi's annual taxable income in Kenya pounds per annum (2mks)

b) Tax due every month from Mr. Njagi to 2 decimal places (5mks)

c) If further deductions are made every month from his salary
- WCPS of 2 % of basic salary
- Life insurance premium of shs. 4600
- Sacco loan repayment shs. 14200

Calculate

i) Total deductions (1mk)

ii) His net pay per month (2mks)


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18. Complete the table below for the trigonometric function y=2 Cos $\theta$ and y = sin ½ $\theta$

(2mks)

| $\theta$ | 0 | 30 | 60 | 90 | 120 | 150 | 180 | 210 | 240 | 270 | 300 | 330 | 360 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Y=Sin ½ $\theta$ | 0 | | | 0.71 | | | | | | | | | |
| Y=2 Cos $\theta$ | 2 | | | | | | -2 | | | | 1.73 | | |

b. Using the table above draw the graph of y = Sin ½ $\theta$ and y = 2 cos $\theta$ on the same axes (5mks )

(Use the scale: 1cm to represent 30 $^{o}$ on the x axis and 2cm to represent 1 unit on the y axis)

**PROVIDE A GRAPH PAPER**

c. Use your curves to find solution to the equation Sin ½ $\theta$ - 2 Cos $\theta$ =0 (1mk)

d. State the

i) Amplitude of the curve y = 2 Cos $\theta$ (1mk)


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ii)Period of the curve y = Sin ½ $\theta$ (1mk)

19. A point P ( 50°N, 10°W) is on the earth's surface. A plane flies from P due east on a parallel of latitude for 6 hours at 300 knots to port Q.

a) Determine the position of Q to the nearest degree. (4mks)

b) If the time at Q when the plane lands is 11.20a.m what time is it at P. (2mks)

c) The plane leaves Q at the same speed and flies due north for 7 hours along a longitude to airport R. Determine the position of R . (4mks)


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20) . The sum of $21^{st}$ and $65^{th}$ terms of an arithmetic sequence is 368. Given that the seventh term of the sequence is 40. Find

a) The common difference (3mks)

b) The first term (2mks )

c)The sum of the first 16 terms of the A.P. (2mks)

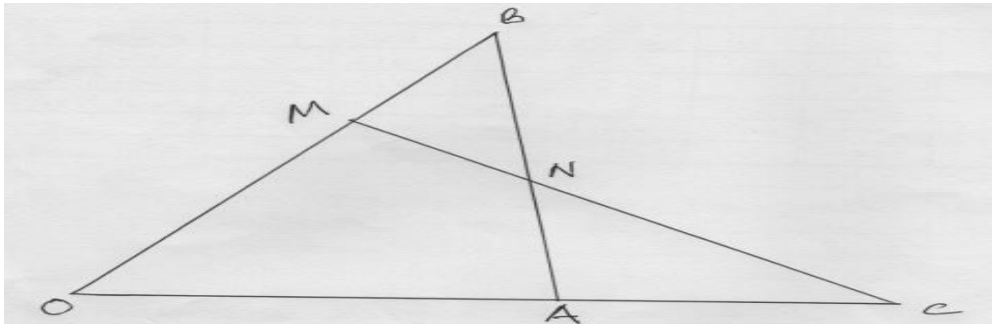
d) Given further that the $1^{st}$, $5^{th}$ and $13^{th}$ terms of the arithmetic sequence form the first three consecutive terms of a geometric progression,
Find

i) The common ratio . (1mk)


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ii) The sum of the first 20 terms of the G.P. (2mks)

21. In the figure below OA = $\underset{\sim}{a}$ OB = $\underset{\sim}{b}$ and OC = 3O A . Point M divides OB in the ratio 3:2




a) Express in terms of $\underset{\sim}{a}$ and $\underset{\sim}{b}$

i) AB (1mk)

ii) MC (1mk)

iii) MA (1mk)


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b. Given that MN = kMC and AN = hAB where k and h are scalars, express MN in two ways hence find

i) The value of k and h (5mks)

ii)The ratio of AN:NB (1mk)

iii) Express MN in terms of $\underset{\sim}{a}$ and $\underset{\sim}{b}$ only (1mk)

22a. Complete the following table for the equation $y = 2x^3 + 3x^2 - 6x - 4$

| x | -4 | -3 | -2 | -1 | 0 | 1 | 2 |
|---|---|---|---|---|---|---|---|
| $2x^3$ | -128 | | -16 | | 0 | 2 | 16 |
| $3x^2$ | 48 | 27 | 12 | 3 | 0 | | 12 |
| -6x | 24 | | | | 0 | | -12 |
| -4 | -4 | -4 | -4 | -4 | -4 | -4 | -4 |
| y | -60 | | 4 | | -4 | | 12 |


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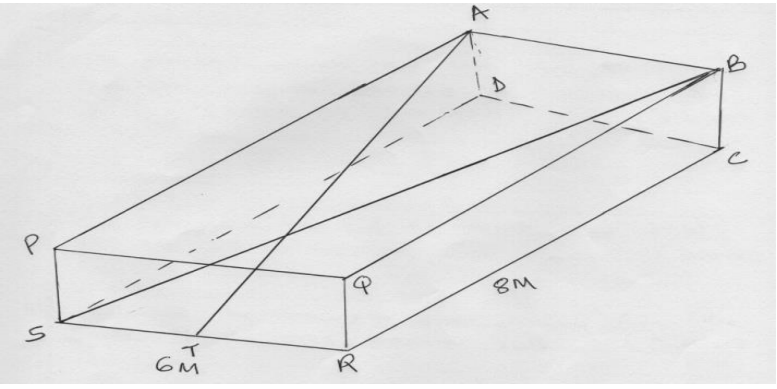
b. On the grid provided draw the graph of $y=2x^3 + 3x^2 -6x -4$ (3mks )

c)By drawing a suitable straight line use your graph to solve the equations

i) $2x^3 + 3x^2 -4x -2 =0$ (3mks)

ii)$2x^3+ 3x^2 – 6x =4=0$ (2mks)

23. The figure below shows a rectangular tank of length 8m, width 6m and height 4m. SB is a diagonal of the tank and T is the midpoint of SR.





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Calculate

a) The length SB (3mks )

b) The angle between SB and the plane CDSR (2mks)

c) The length AT to 1 d.p (3mks )

d) Angle ATD (2mks)

24a) Complete the table below for the function $y = x^2 + 3$ (2mks )

| x | 1 | 1.5 | 2 | 2.5 | 3 | 3.5 | 4 | 4.5 | 5 | 5.5 | 6 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| y | 4 | | 7 | | | 15.25 | 19 | | 28 | | 39 |


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b) Use the mid-ordinate rule with five strips to estimate the area bounded by the curve, the line x =1 and the line x = 6 (2mks)

c) Use integration to find the exact area in ( b) above (3mks)

d) Calculate the percentage error arising from the use of the mid-ordinate rule (3mks)


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# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

**232/1**
**PHYSICS PAPER 1**
**TIME 2 HOURS**

***INSTRUCTIONS TO CANDIDATE:***

(a) Write your name and admission number in the spaces provided above

(b) This paper consists of two sections ***A*** and ***B***

(c) Answer all questions in section ***A*** and ***B*** in the spaces provided

(d) All working must be clearly shown in the spaces provided

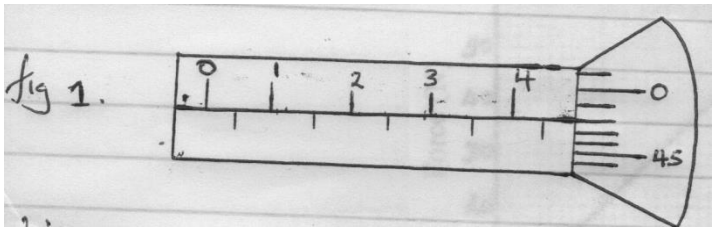
(e) Non-programmable silent electronic calculators and ***KNEC*** Mathematical table may be used.

**TOTAL SCORE**


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## SECTION A: 25 MARKS

1. The figure1 shows a micrometer screw gauge used by a student to measure the thickness of a wire.




If it has a zero error of -0.06mm, what is the actual thickness of the wire (2mks)

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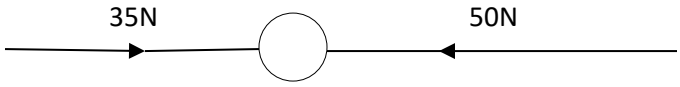
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2. Using a scale of 1cm to represent 10N, draw a diagram to show direction and magnitude of the resultant force for two forces acting as shown below in ***Figure 2*** below. (1 mk)




3. When an inflated balloon is placed in a refrigerator, it is noted that its volume reduces. Use the kinetic theory of gases to explain this observation. (2mks)

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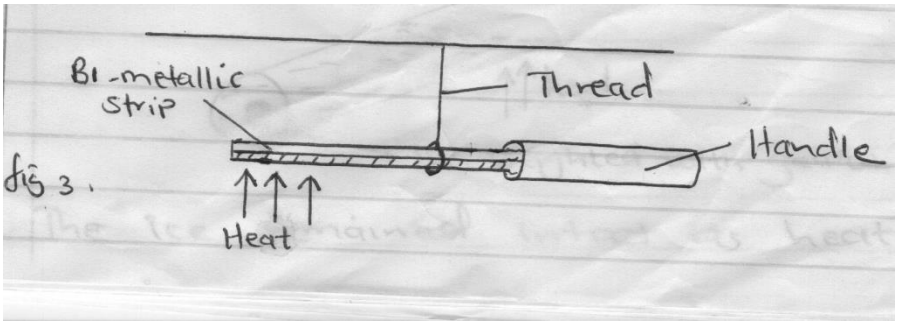
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4. ***Figure 3*** below show a bimetallic strip with a wooden handle suspended horizontally using a thin thread.




The strip is heated at the point shown. Explain why the system tips to the right. (2mks)

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5. ***Figure 4*** shows a graph of force (**F**) against extension. (***E***)

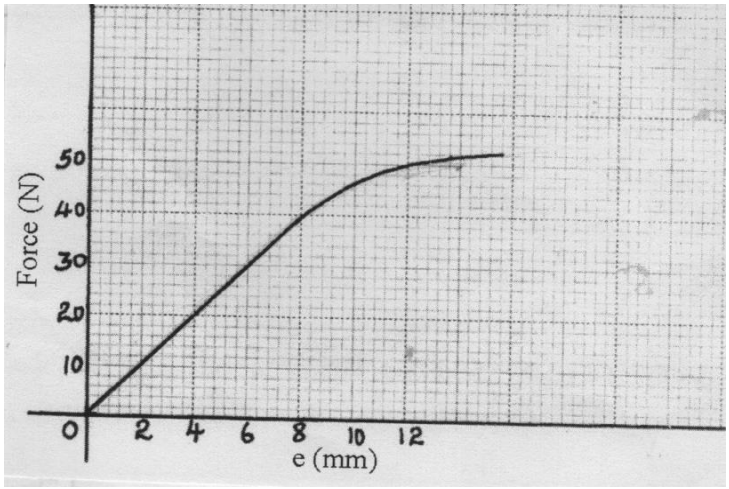



Fig 4

Determine the spring constant of the spring used. (2 mks)


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6. A pipe of radius 6mm is connected to another pipe of radius 9 mm. If water flows in the wider pipe at the speed of 2m/s, what is the speed in the narrower pipe? (3mks)

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7. Ice was placed inside a test tube and water poured into it and then heated as shown in ***figure*** 5 below.

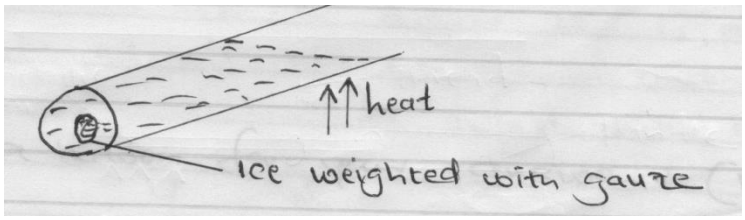



Fig 5

The ice remained intact as heating progressed. Explain this observation. (1mk)

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8. Use the diagram in ***figure 6*** to answer the questions that follow.

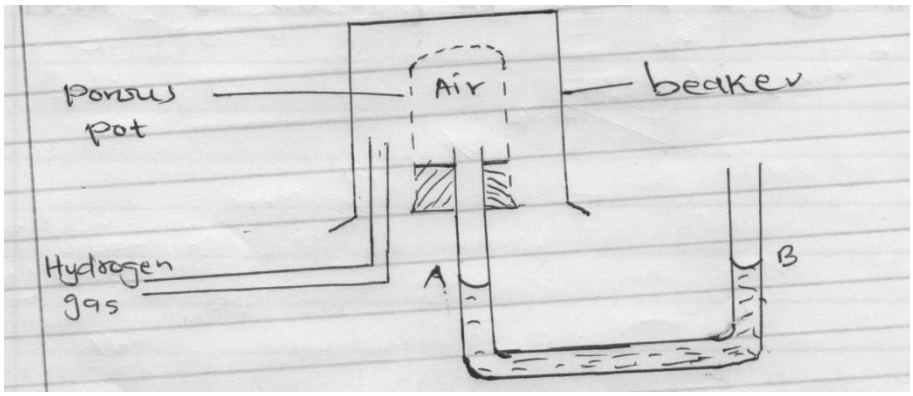



Fig 6


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(i) State the aim of this experiment. (1mk)

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(ii) At the start of the experiment, the region below the beaker had no hydrogen gas. The hydrogen gas from a gas generator is now introduced for some time. State the observation made. (1mk)

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(iii) Give a reason for your answer. (1mk)

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9. A density bottle was used to measure the density of liquid and the following measurements were taken.
   - Mass of empty bottle- 26g
   - Mass of bottle filled with alcohol (of density 800Kg/$m^3$)=66g
   - Mass of bottle filled with liquid L =86g

   Find the density of liquid L. (3mks)

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10. One of the branches of Physics is Geometrical Optics. What does it entail? (1mk)

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11. A part from force, state the other factor that affect moments of a force. (1mk)

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12. The uniform bar in ***figure 7*** is pivoted at its midpoint. It is in equilibrium under the action of two identical balloons filled with equal volumes of different light gases at the same temperature.

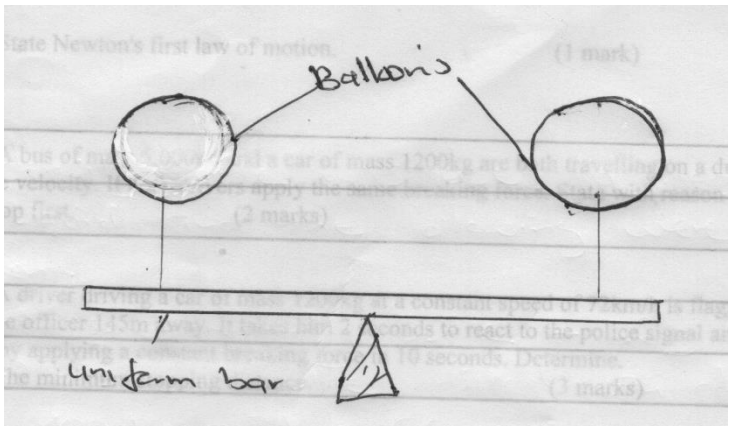



Fig 7

Explain why the bar may not remain in equilibrium if the temperature of the surrounding changes. (2mks)

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13. Calculate the average speed of a motor rated 200W when it raises a load of 40Kg. (2mks)

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## SECTION B (55 MARKS)

14. a) State ***Newton's first law*** of motion. (1mk)

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b) A bus of mass 5,000kg and a car of mass 1200kg are both travelling on a dual carriage way at the same velocity. If both drivers apply same breaking force. State with reason which one will come to stop first. (2mks)

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c) A driver driving a car of mass 1200kg at a constant speed of 72Km/h is flagged down by a traffic police officer 145m away. It takes him 2 seconds to react to the police signal and brings the car to rest by applying a constant breaking force in 10 seconds. Determine.

(i) The minimum stopping distance. (3mks)

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(ii) State whether it will hit the traffic police officer or not. (1mk)

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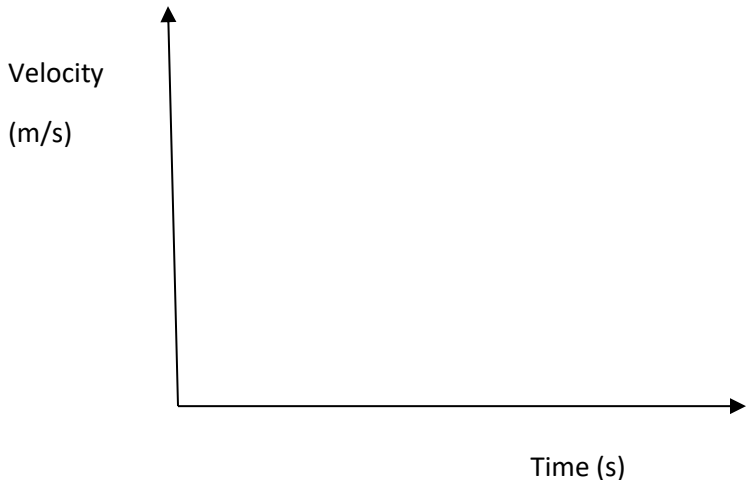
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d) On the axes provided, sketch a velocity-time graph for a body projected vertically upwards. (1mk)




e) A stone is projected vertically upwards with a velocity of 15m/s

Determine:-

i) Time it takes to come back to the point of projection. (3mks)

ii) Maximum height reached. (2mks)

15. A) Define the term angular velocity. (1mk)

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b) A wooden block of mass 200g is placed at a distance of 9cm from the centre of a turn table. When the turn table is rotated at constant angular velocity, the block begins to slide off the table. If the frictional force between the block and the turn table is 1.2N, determine:



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i. The co-efficient of friction between the block and the turn table. (2mks)

ii. The linear speed of the block. (3mks)

iii. If the angular velocity is increased by 2πrads/s, what wouyld be the force required to hold the block at the same place. (4 mks)

iv. What is meant by the term "Banking" in roads? (1mk)

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16. (a) State *Archimede's principle*. (1mk)

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(b) In an experiment to determine the relative density of methylated spirit applying Archimedes Principle, the following apparatus were provided; a spring balance, some masses, a piece of thread water in a beaker and methylated spirit in a beaker. The table below shows the results obtained.

| ***Mass (g)*** | 100 | 150 | 200 |
|---|---|---|---|
| ***Weight in air (N)*** | 1.00 | 1.50 | 2.0 |
| ***Weight in water(N)*** | 0.88 | 1.32 | 1.76 |
| ***Weight in spirit (N)*** | 0.91 | 1.36 | 1.82 |

(i) Draw labeled sketch diagrams to show how the readings in the table were obtained. (1mk)

(ii) For each mass, determine the upthrust in water and the upthrust in the spirit. (2mks)

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(iii) Determine the total average relative density of the spirit. (3mks)



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17. (a) State **two** ways through which the rate of evaporation of a liquid may be increased.(2mks)

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(b) A metal of mass 10kg is heated to $120^0$ C and then dropped into 2kg of water. The final temperature of the mixture is found to be $50^0$C Calculate the initial temperature of the water.
(Specific Heat capacity of the method and water is $450JKg^{-1}K^{-1}$ and $4200KKg^{-1}K^{-1}$respectively. (4 mks)

(c) Give the property of water which makes it suitable for use as a coolant in machines. (1mk)

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(d) Formation of ice on roads during winter in cold countries is known to hamper vehicles. State two ways in which the melting point of ice may be lowered to solve this problem. (2mks)

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(f) Some ether is put in a combustion tube and two glass tubes inserted into the tube through a cork as shown in the figure 8. The combustion tube is then put into a smaller beaker containing some water and a thermometer dipped in the water.

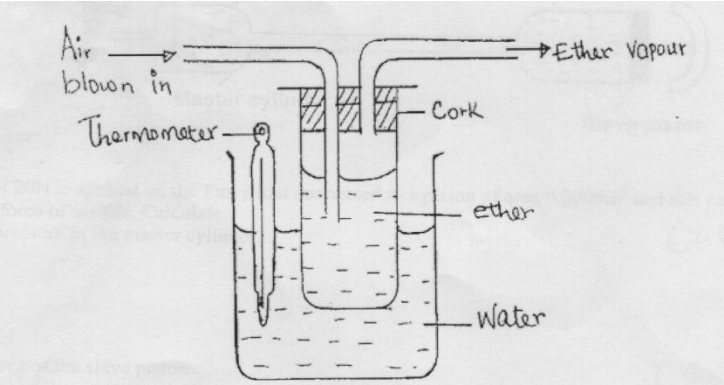



Fig 8

When the air is blown into the either, the reading in the thermometer lowers. Explain this observation. (2mks)

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(f) State two differences between heat and temperature. (2mks)

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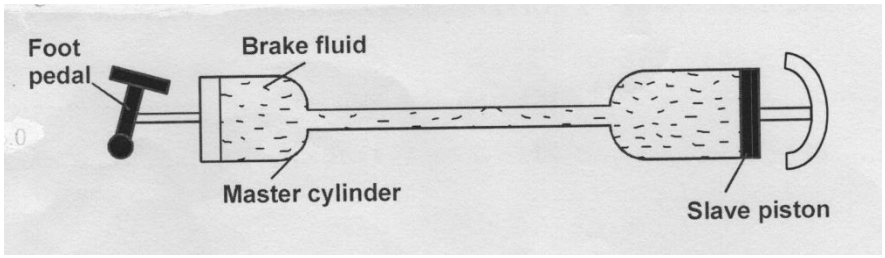
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18. (a) Figure 9 below represents a hydraulic brake. The radius of the master cylinder is **r** and that of the

Slave cylinder is **R**.






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Fig 9

A force of 20N is applied on the foot pedal connected to a piston of area $0.0005m^2$ and this causes a stopping force of 5000N. Calculate.

i) The pressure in the master cylinder. (2mks)

ii) The area of the slave piston. (2mks)

iii) The velocity ratio. (2mks)

iv) Derive an equation for the velocity ratio of the hydraulic brakes. (3 mks)

(b) Give **two** reasons why the efficiency of a machine is not 100%. (2mks)

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# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

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

232 / 2
PHYSICS
PAPER 2
2 HOURS

**INSTRUCTIONS:**

- Answer all questions in the space provided.
- This paper consists of two sections A and B.
- All working must be shown clearly.
- Electronic calculators may be used.

**EXAMINER'S USE ONLY**

| SECTION | QUESTION | MARKS | CANDIDATES SCORE |
|---|---|---|---|
| A | 1 – 13 | 25 | |
| | 14 | 13 | |
| | 15 | 12 | |
| | 16 | 7 | |
| | 17 | 15 | |
| | 18 | 8 | |


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1.State the laws of reflection of light. (2mks)

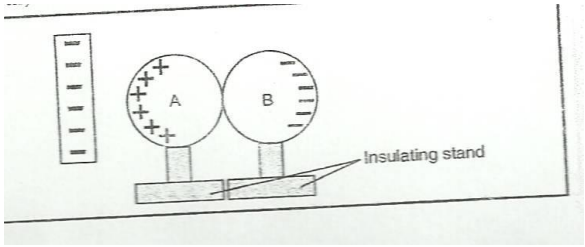
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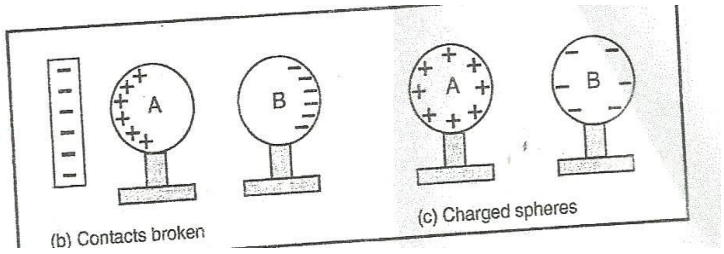
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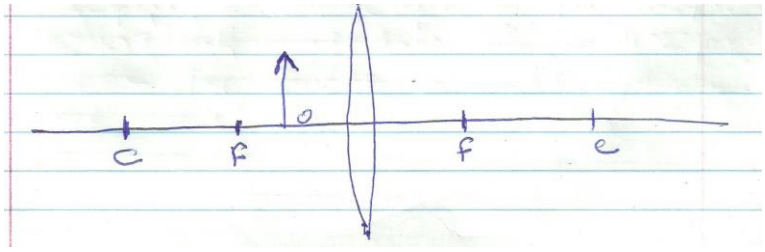
2.The diagram below shows how to charge two spheres simultaneously.




On the diagram indicate the charge acquired by spheres A and B in step two. (2mks)

3.Complete the diagram below to show how the lens forms the image. (1mk)




4.)Name one detector of infra-red radiations (1mk)

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5) Using a diagram explain how soft iron keepers are used to retain magnetism in stored magnets(2mks)

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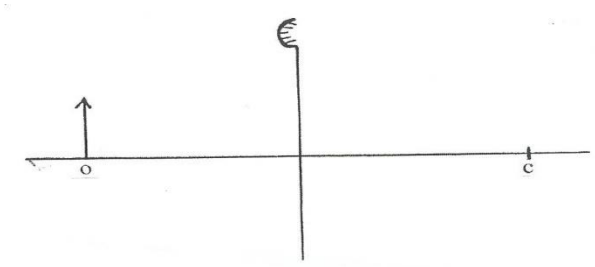
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6) A battery is rated 30Ah,determine the amount of current it can supply in 20 minutes (2mks)

7) Sketch rays to show the image formed by the object in the following. (2mks)



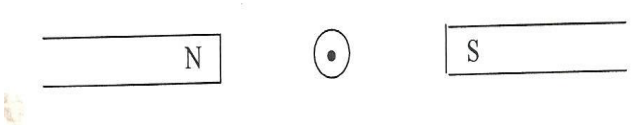

8.Name any one common property of electromagnetic waves. (1mk)

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9.The figure below shows a conductor carrying current placed within the magnetic field of two magnets. Complete the diagram by showing the field pattern and the direction of force F that acts on the conductor. (2mk)






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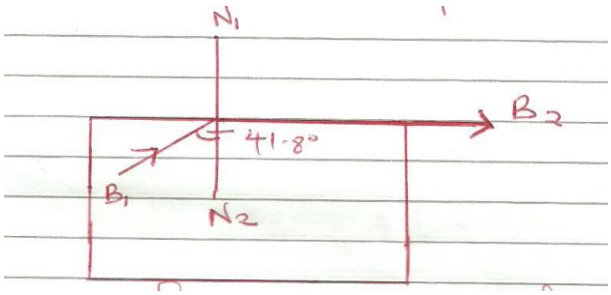
10.What is meant by donor impurity in semiconductor. (1mk)

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11.The figure below shows ray B, incident through a glass block to air interface.




B2 is the emergent ray of B1. Determine the refractive index of the glass block.

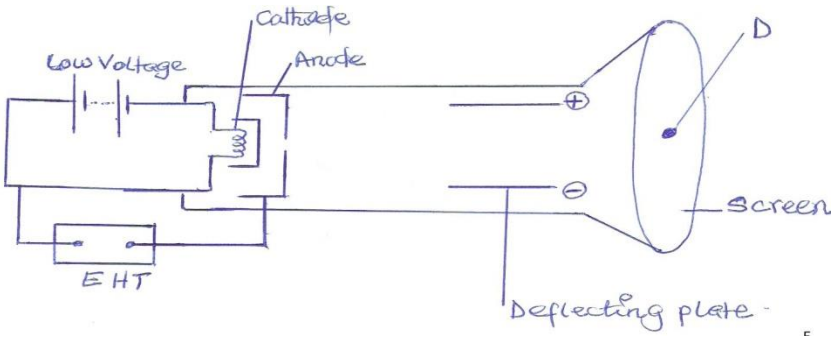
12.A pendulum bob takes 0.5 seconds to move from its mean position to a maximum displacement position. Calculate its frequency. (2mks)

13.A potential difference of 50kv is applied across an x-ray tube. Given that the charge of an electron e = $1.6 \times 10^{-19}$ c and the mass of an electron $m_e = 9.1 \times 10^{-31}$ kg, calculate the velocity of the electron. (3mks)


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14.An electric heater is rated 3kw and 240v when in operation. Calculate the cost of running the heater for 5 hours if the cost per kwh is ksh.6.70. (2mks)

15.The diagram below shows part of a cathode ray tube.




i)Explain how the cathode rays are produced. (2mks)

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ii) On the same diagram draw the path of the cathode rays to the spot produced on the screen at D.

(2mks)

iii)Explain the observation made on the spot when the connection to the high voltage supply are interchanged so that the anode is made negative. (2mks)

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iv)What behavior of cathode rays shows that they move on a straight line. (2mks)

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v)Name the components of an electron gun of a cathode ray oscilloscope. (3mks)

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16.a) In a photoelectric effect experiment, a certain surface was illuminated with radiation of different wavelengths and stopping potential determined for each wavelength. The following results were obtained:

| | | | | | |
|---|---|---|---|---|---|
| Wavelength ($\times 10^{-7}$ m) | 3.77 | 4.05 | 4.36 | 4.92 | 5.46 |
| Stopping potential, ($V_s$), (V) | 1.35 | 1.15 | 0.93 | 0.62 | 0.36 |
| Frequency ($\times 10^{14}$Hz) | | | | | |

i)complete the table above given that $c = 3.0 \times 10^8$ m/s (1mk)

ii)Plot a graph of stopping potential (Y-axis) against frequency (4mks)

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iii) Determine plank's constant, h and the work function of the surface given that $eV_s = hf - hf_o$, where e = 1.6 $x10^{-19}$ C (3mks)

b) A surface whose work function Q = 6.4 x $10^{-19}$ J is illuminated with light of frequency 3.0 $x10^{15}$ $H_z$. Find the maximum velocity of the emitted photo electrons (use value of h obtained in **a(ii)** above) (3mks)

17. a) State the difference between longitudinal and transverse waves. (1mk)

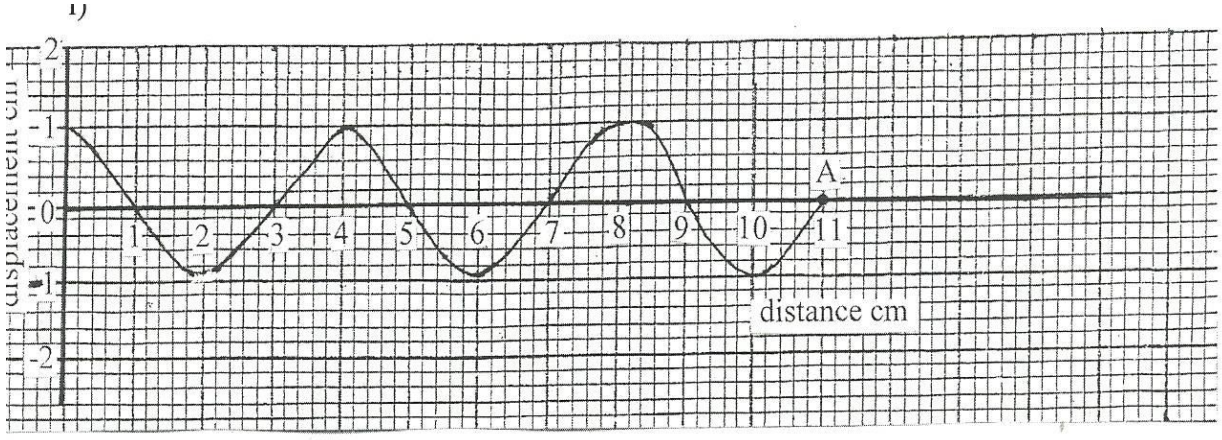
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b)The figure below shows a transverse wave travelling along X-axis. T he frequency of the vibrations producing the waves is 20Hz.





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i)Determine the amplitude in SI unit. (1mk)

ii) If it takes 0.1375 seconds for the wave to move from O to A, determine the speed of the wave. (2mks)

ii)Calculate the periodic time of the wave. (2mks)

c i)State two factors affecting the speed of sound in air. (2mks)

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ii)A man makes a loud sound and hears the echo of the sound after 1.25 seconds. If the speed of sound in air is 330ms-1, calculate the distance between the man and the wall causing the echo. (3mks)

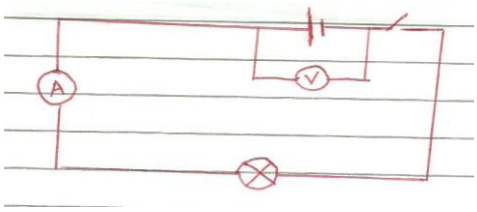


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18. Three resistors of resistance 2Ω, 4Ω and 6Ω are connected together in a circuit. Draw a circuit diagram to show the arrangement of the resistor which gives

a) Effective resistance of 3Ω (2mks)

b) In the figure below, the voltmeter reads 2.1v when the switch is open. When the switch is closed, the voltmeter reads 1.8v and the ammeter reads 0.1A.




Determine :-

i) The e.m.f of the cell (1mk)

ii) The internal resistance of the cell. (3mks)

iii) The resistance of the lamp. (2mks)


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c. Calculate the length of a wire required to make a resistor of 0.5Ω , if the resistivity of the material is $4.9 \times 10^{-7}$ Ω m and the cross sectional area is $2.0 \times 10^{-6}$ m2. (3mks)

19.ai)Define half-life of a radioactive substance. (1mk)

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ii)The following radioactive equation, find the value of N and Z.

b) The half-life of radioactive substance is 4 years. How long will the sample take for the activity to decrease to 1/32 of its original value. (3mks)



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c)The diagram below shows the cross section of a diffusion cloud chamber used to detect radiation from radioactive source.

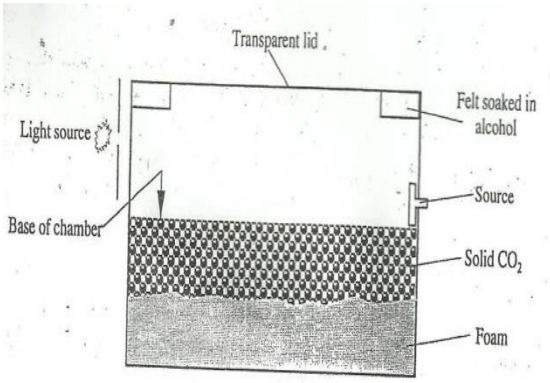



Figure 4

i)State one function of each of the following Alcohol. (1mk)

……

……

Solid carbon dioxide (1mk)

……

……

ii)When radio actions from the source enter the chamber some white traces are observed. Explain how these traces are formed and state how the radio action is identified. (4mks)

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ii)A leaf electroscope can also be used as a detector of radio actions. State two advantages of the diffusion cloud chamber over the leaf electroscope as a detector. (2mks)

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# BRILLIANT STUDENT PRE-MOCK 3 EXAMS

232/3
PHYSICS PAPER 3
(THEORY)
TIME: $2\frac{1}{2}$ HOURS

***INSTRUCTIONS TO CANDIDATES:***

- ***(a)*** Write your name and admission number in spaces provided above.
- ***(b)*** Sign and write the date of examination in spaces provided above
- ***(c)*** Answer all the questions in spaces provided in the question paper.
- ***(d)*** You are allowed to spend the first 15 minutes of $2\frac{1}{2}$ hours allowed for this paper reading the whole paper carefully before commencing the work.
- ***(e)*** Marks given for clear record of the observations actually made, their suitability accuracy and the use made of them.
- ***(f)*** Candidates are advised to record their observations as soon as they are made.
- ***(g)*** Non-programmable silent electronic calculators and KNEC Mathematical table may be used.

**TOTAL SCORE**


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1. This question consists of two parts A and B; attempt both parts.

**PART A (15 MARKS)**

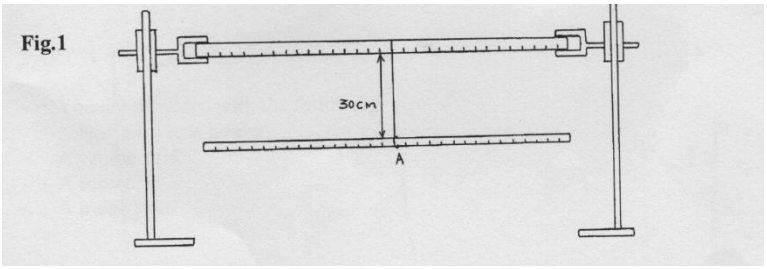
You are provided with the following.

- Two metre-rules
- A stop watch
- A half metre-rule
- Two resort stands, two bosses and two clamps.
- Some sewing thread.
- A pendulum bob.

Proceed as follows:

(a) Clamp one metre rule horizontally on the two stands so that it is on a vertical plane. Suspend the second metre rule so that it balances on one point as shown in figure 1 below. Note the balance point as the centre of gravity of the metre rule.
Let this be point A.

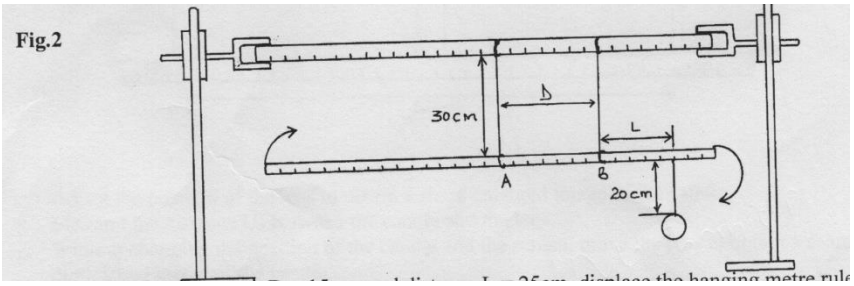
Fig.1




(b) Set the length of the string on which the metre rule is suspended to be 30cm.
Tie a second support to the metre rule a distance D from the first string.
Let the point of support be point B.

(c) Suspend the pendulum bob with a string a distance L from B and set the length of the string to 20cm.
See figure 2 below.

Fig.2




Starting with a distance D=15cm, and distance L=25cm, displace the hanging metre rule on a horizontal plane and record the time taken for it to make 20 complete oscillations on table 1.


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(d) Repeat part (c) above for other values of D and complete the table.

| ***D(cm)*** | ***Time for 20 oscillations (s)*** | ***Periodic time (T) (s)*** | ***$T^2$ ($s^2$)*** |
|---|---|---|---|
| 15 | | | |
| 20 | | | |
| 25 | | | |
| 30 | | | |
| 35 | | | |
| 40 | | | |

Table 1 (6mks)

(e) On the grid provided, plot a graph of D (cm) against $T^2(s^2)$ (5mks)

(f) Determine the slope of the graph. (2mks)

(g) Use your graph to determine the periodic time when the length of distance D is 33cm. (2mks)

**PART B. 5 MARKS**

(b) You are provided with the following apparatus:

- Candle
- Lens
- Lens holder
- Metre rule
- Screen with a crosswire
- Screen.



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Proceed as follows:

i. Arrange the apparatus as shown in the figure 2 below.

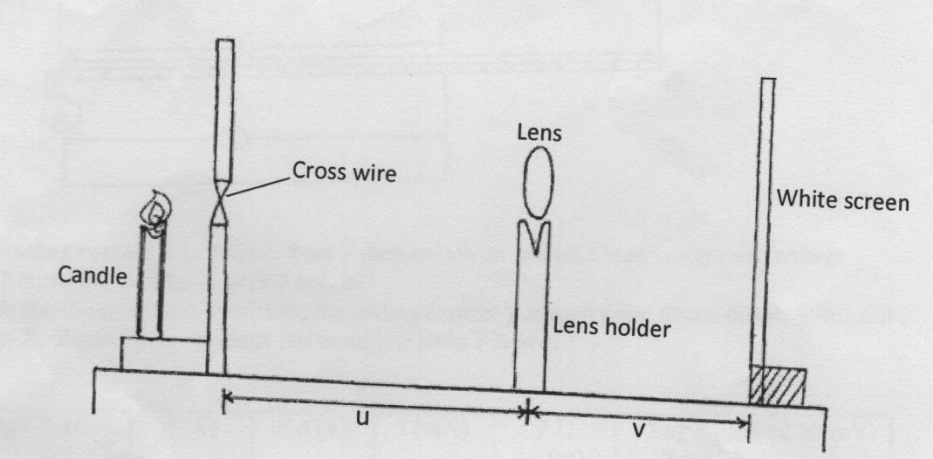



Fig 2

ii. Place the cross-wire before the lens so that U=28cm. The lit candle should be placed close to the cross-wire.

iii. Adjust the position of the screen until a sharp image is cast on the screen.

iv. Measure and record the value distance, V, in the table

v. Repeat the same procedure for the other values in the table.

| **U(cm)** | **V(cm)** | $\boldsymbol{M=\frac{V}{U}}$ |
|---|---|---|
| 30 | | |
| 36 | | |

(3 mks)


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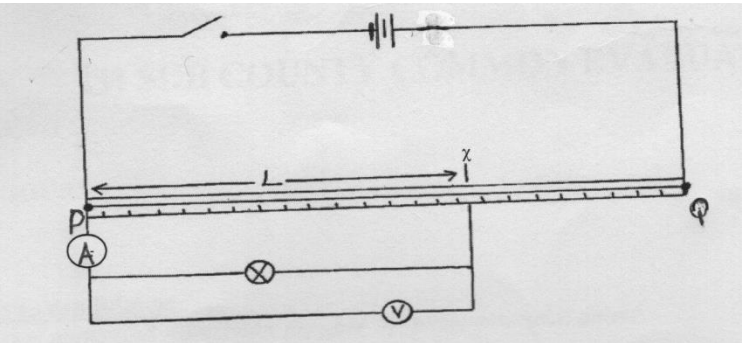
**Table 2**

vi. Given that the focal length f of the lens satisfies the equation $f=\frac{V}{1+M}$, determine the average value of the focal length, f. (2 mks)

2. You are provided with the following.
   - A switch
   - A 100cm nichrome wire mounted on a metre rule.
   - An ammeter
   - 2 dry cells
   - A cell holder
   - A bulb of 2.5V mounted on a holder.
   - Eight connecting wires (four with crocodile clips at one end)
   - Voltmeter (0-3 or 0-5V)

***PROCEED AS FOLLOWS.***

(a) Connect the apparatus provided as shown in the circuit in ***figure 3*** below.
Fig 3




(b) Place the sliding contact x at L=20cm from P then switch on and take both current and voltage reading. Record the reading in ***table 3*** above.

(c) Repeat the above experiment by placing the sliding contact x at each point 40cm, 60cm, 70cm and 80cm from P. Record your readings and complete table 3.


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| *Length L (cm)* | *I (A)* | *P.d (V)* | *1(mA)* | *P.D (mV)* | *Log I (mA)* | *LogV(mV)* |
|---|---|---|---|---|---|---|
| 20 | | | | | | |
| 40 | | | | | | |
| 60 | | | | | | |
| 70 | | | | | | |
| 80 | | | | | | |

**Table 3** (8mks)

(d) Plot a graph of Log ***I*** against Log ***V***. (5mks)

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(e) Determine the slope of the graph. (3mks)

(f) The relationship between I and P.D is given by the equation.
Log I= n Log V+ Log K where K and n are constants. Determine using the graph the value of:

i) K (2mks)

ii) n (2mks)


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