FORM 4 END TERM 2 SERIES 2 EXAMS

'an investment of knowledge pays'

For marking schemes,prefer calling Mdm Mariam:0746711892

Other available resources are;

- well summarised primary and secondary notes
- F1-F4 termly exams
- primary exams
- KCSE past papers
- KCPE past papers
- Mocks
- lesson plans
- schemes of work

Note:Exam questions are always free of charge

Marking scheme are not free

NAME…….…….. CLASS…….……

ADM NO……SIGNATURE……..

DATE……..

FORM 4 END TERM 2 SERIES 2 EXAMS

443/1
AGRICULTURE
Paper 1
2021
Time: 2 Hours

INSTRUCTIONS TO CANDIDATES

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

For Examiner's Use Only

Section	Question	Maximum Score	Candidate's Score
A	1 – 16	30	
B	17-20	20	
C	21-23	20	
		20	
	Total Score	**90**	

SECTION A (30 MARKS)

(Answer all the questions from this section)

1. State **two** causes of hard pan in the farm. **(1 mark)**

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2. State **four** information contained in a delivery note. **(2 marks)**

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3. Give **four** advantages of using certified seeds in crop production**.** **(2 marks)**

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4. Give **four** disadvantages of minimum tillage. **(2 marks)**

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5. State **four** conditions under which shifting cultivation is practiced. **(2 marks)**

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6. Give **four** importance of sub-soiling. **(2 marks)**

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7. State **three** conditions under which opportunity cost is zero. **(1 1/2 marks)**

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8. State **four** methods of harvesting water on the farm. **(2 marks)**

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9. Name **three** basis on which the classification of fertilizers is done**.** **(1 1/2 narks)**

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10. Outline **four** advantages of land reforms in Kenya. **(2 marks)**

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11. State **two** causes of forking in carrots. **(1 mark)**

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12.(a). State **three** types of capital. **(1 1/2 marks)**

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(b). Apart from capital, state other **three** factors of production. **(1½ marks)**

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13. State **four** reasons for conserving forage. **(2 marks)**

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14. State **four** factors that affect the efficiency of herbicides. **(2 marks)**

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15. Give **four** scientific aspects of agriculture. **(2 marks)**

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16. Name **four** methods of harvesting trees in agroforestry. **(2 marks)**

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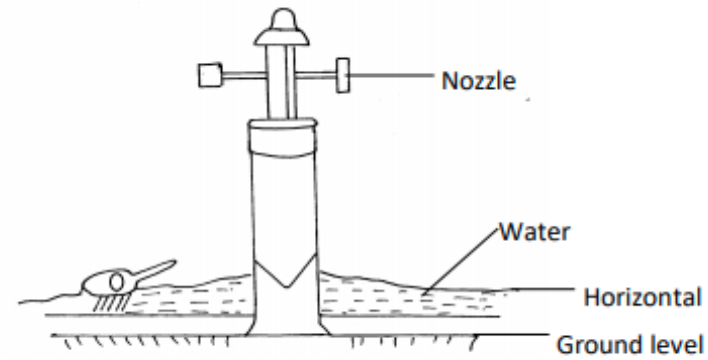
SECTION B (20 MARKS)

(Answer all the questions from this section)

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



a) Name the method of irrigation illustrated above. **(1 mark)**

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b) State **two** advantages of this method of irrigation. **(2 marks)**

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c) Give **four** factors which determine the choice of type of irrigation to use.

(2 marks)

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18. The diagram below shows a common weed in the farm. Study it and answer the questions that follow.

a) Identify the weed shown above. **(1 mark)**

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b) State one harmful effect of the weed to cereals. **(1 marks)**

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c) Give **three** ways that can be used to control the weed. **(3 marks)**

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19. The diagram below shows irish tubers after being subjected to some conditions before transplanting. Study them carefully and answer the questions that follow.

(a). Name the process of potato treatment illustrated above. **(1 mark)**

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(b). State **two** conditions necessary for the above process. **(2 marks)**

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(c). Give **two** reasons for carrying out the above practice. **(2 marks)**

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20. Students were to apply a compound fertilizer 5:20:10 on their agriculture plot measuring 3 m by 4 m, at the rate of 200kg per hectare.

(a). Calculate the amount of fertilizer they would require for each plot. (Show your working). **(2 marks)**

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(b). What do figures 20 and 10 in the fertilizer stand for? **(2 marks)**

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(c) Give two methods of soil sampling. **(1 mark)**

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SECTION C (40 MARKS)

(Answer any two questions from this section)

21.(a) Describe ways in which cultural measures control crop diseases **(8mks)**

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(b) Describe seven nursery practices carried out while seedlings are still growing. **(7marks)**

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(c) State the qualities of a good farm manager. **(5 marks)**

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22.a) Describe the field production of bulb onions under the following sub headings.

i. Ecological requirements. **(4 marks)**

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ii. Planting. **(3 marks)**

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iii. Harvesting. **(3 marks)**

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(b). Discuss six reasons for pruning in coffee. **(6 marks)**

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(c). Highlight four characteristics of plants used as green manure. **(4 marks)**

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23. (a). Briefly explain **six** factors influencing mass wasting. **(6 marks)**

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(b). Describe the procedure of harvesting sugar cane. **(6 marks)**

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(c). Describe four ways in which soil depth influences crop production. **(8 marks)**

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NAME……..…….... **CLASS**…….……

ADM NO……**SIGNATURE**……

DATE……..

FORM 4 END TERM 2 SERIES 2 EXAMS

443/2
AGRICULTURE
Paper 2
Time: 2 Hours

INSTRUCTIONS TO CANDIDATES

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

For Examiner's Use Only

Section	Question	Maximum Score	Candidate's Score
A	1 – 20	30	
B	21-24	20	
C	25-27	20	
		20	
	Total Score	**90**	

SECTION A (30 MARKS)

(Answer all the questions in this section in the spaces provided)

1. Name **two** kinds of livestock which can be castrated using a rubber ring.
(1mark)

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2. Define the term "breach of birth" as used in livestock production. **(1 mark)**

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3. a) Name the camel breed that is adapted to cooler regions and has a wooly body covering. **($\frac{1}{2}$ mark)**

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b) Give **three** ways used to improve production in indigenous cattle.

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

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4. Give **four** methods of administering vaccines to livestock**.** **(2 marks)**

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5. State **two** uses of bedding materials in a poultry house in deep litter system.

(1mark)

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6. Give any **two** pairs of livestock tools which are always used together.

(1 mark)

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7. List **two** types of feed additives. **(1 mark)**

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8. State **three** factors that may lead to dip wash being exhausted or weakened while in the dip tank. **(1 $\frac{1}{2}$ marks)**

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9. State **four** practices which are carried out to control mastitis in lactating cows.

(2 marks)

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10. Give **two** signs of heat in rabbits. **(1 mark)**

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11. State **four** maintenance practices carried out on the water-cooling system of a tractor

(2 marks)

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12. State **four** observations on the behavior of chicks which would indicate that the temperature in the brooder is too high. **(2 marks)**

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13. Highlights **four** desirable characteristics that should be considered when selecting a heifer for milk production. **(2 marks)**

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14. Give **four** functions of calcium in dairy cows. **(2 marks)**

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15. Name **two** notifiable diseases in cattle. **(1 mark)**

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16. State any **two** channels through which beef is marketed in Kenya. **(1 mark)**

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17. State **four** factors that may influence the pulse rate of a sheep**.** **(2 marks)**

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18. List **three** properties of concrete that make it suitable for constructing farm building. **($1\frac{1}{2}$ mark)**

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19. Give **four** reasons why breeding boar may be culled. **(2 marks)**

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20. Give **two** functions of a footbath in a plunge cattle dip. **(1 mark)**

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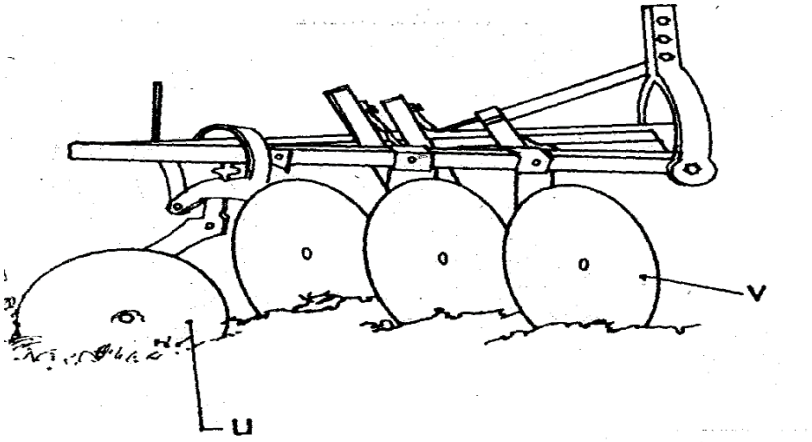
SECTION B (20 MARKS)

(Answer all the questions in this section in the spaces provided)

21. The diagram below represents an implement.



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

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(ii) Name the parts labelled U and V and give one function of each. **(2 marks)**

U……

V……

(iii) State two ways of adjusting the depth of ploughing when using the implement.

(2 marks)

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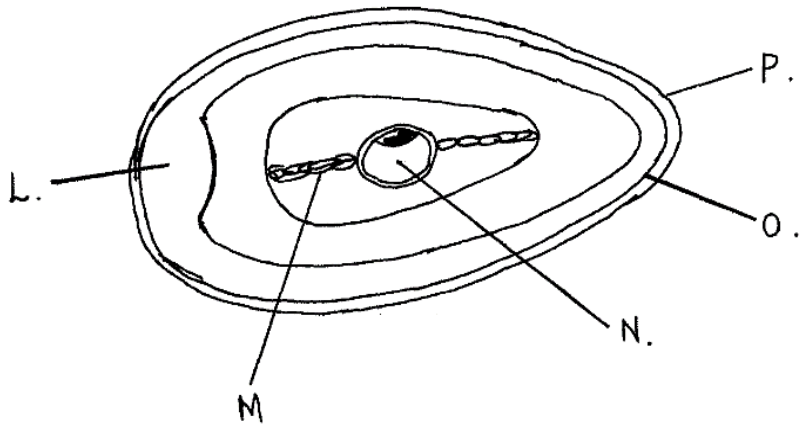
22. Study the diagram of an egg below and answer the questions that follow.



i) Name the parts labeled O, and P **(2 marks)**

O ……

P ……

ii) State the functions of the parts M and L. **(2 marks)**

M

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L

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

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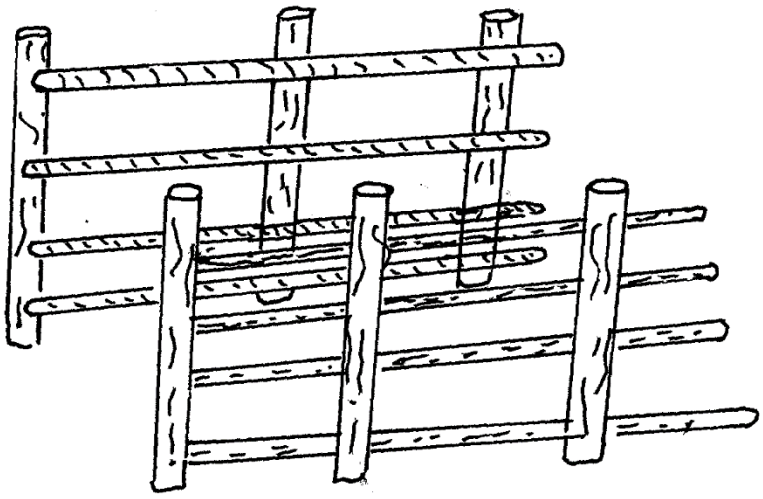
23. Below is an illustration of a farm structure.



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

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b) State **Six** livestock routine practices which may be carried out in the structure above **(3 marks)**

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c) Give **Two** maintenance practices which should be carried out in the structure above. **(1 mark)**

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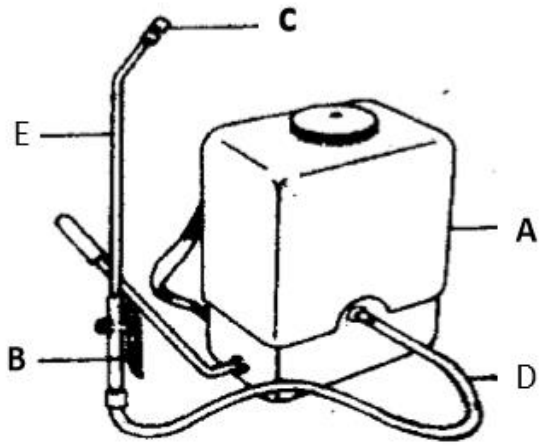
24. The diagram below shows the farm equipment. Study it carefully and use it to answer the questions that follow.



(a) Name the parts labeled **A, B** and **C** **(3 marks)**

A……

B……

C……

(b) State the use of the equipment shown above. **(1 mark)**

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(c) Give one maintenance practice carried out on the equipment. **(1 mark)**

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SECTION C

(Answer any two questions in this section on the spaces provided)

25. a) Describe the live cycle of a named tapeworm (*Taenia spp*). **(10 marks)**

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b) Describe the management practices that would ensure maximum yield of fish in a fish pond. **(5 marks)**

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c) Explain **<u>five</u>** functions of water in nutrition. **(5 marks)**

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26.(a) Discuss the management of layers from one day old to the start of laying in a deep litter system. **(l0 marks)**

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(b) State any **<u>five</u>** advantages of using animal power in the farm. **(5 marks)**

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(c) Describe **<u>five</u>** importance of keeping animals healthy. **(5 marks)**

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27. Discuss mastitis disease under the following subheading:

(i) Causal organism . **(1 mark)**

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(ii) Predisposing factors **(4 marks)**

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(iii) Symptoms

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(iv) Control and treatment **(3 marks)**

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b) Explain **<u>eight</u>** factors that affect milk composition in dairy farming**.** **(8 marks)**

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NAME……..…….. CLASS……..……..

ADM NO……SIGNATURE……

DATE……..

FORM 4 END TERM 2 SERIES 2 EXAMS

231/ 1
BIOLOGY
Paper 1
(Theory)
TIME:2 HRS

Instructions to candidates

Write your name and class in the spaces provided above.
Append your signature and write the date of examination in the spaces provided above.
Spelling errors especially of biological terms shall be penalized
Candidates should answer the questions in English.
Answer ALL questions in the spaces provided.

For Examiner's Use Only

Question	Maximum Score	Candidate's Score
1 – 29	80	

This paper consists of 12 printed pages.
Candidates should check the question paper to ascertain that all the pages are printed as indicated and no questions are missing.

1. Name the group of organisms that are found on the boarder of living and non-living organisms **[1mark]**

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2. State **two** features characteristic of fruits dispersed by animals **[2marks]**

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3. Define each of the following biological phenomena

(a) Irritability **[1 mark]**

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(b) Seed dormancy **[1 mark]**

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(c) Double fertilisation in angiosperms **[1 mark]**

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4. Name the disease condition caused by deficiency of each of the following

(a) Iodine **[1mark]**

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(b) Vitamin B_1 **[1 mark]**

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5. State the function of the mitochondrial cristae **[1 mark]**

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6. Give **the** difference between **transpiration** and **guttation** **[2 marks]**

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7. Name **two** enzymes in the human digestive system which are secreted in an inactive form **[2 marks]**

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8. Outline the function of the cilia in the mammalian fallopian tube **[1 mark]**

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9. Name the blood vessel that supplies blood to the

(a) Brain **[1 mark]**

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(b) Cardiac muscle **[1 mark]**

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10. Explain why when placed in fresh water *Entamoeba histolytica* does not burst **(2mks)**

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11.(a) Name the taxonomic class of woodlice **[1 mark]**

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(b) Name **two** other organisms in the taxonomic class in **(a)** above **[2 marks]**

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(c) State **two** features characteristic of organisms in the taxonomic class in **(a)(i)** above **[2 marks]**

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12. To estimate the population size of grasshoppers in the $5km^2$ field behind the Matope school farm, a group of students caught 100 grasshoppers on the first day. They marked them and released them back into the field. 48 hours later, the students went back to the field and caught 80 grasshoppers. Of these, 40 were found to have been marked

(a) Suggest a suitable method used to mark the grasshoppers **[1 mark]**

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(b) Calculate the population density of grasshoppers in the field **[3 marks]**

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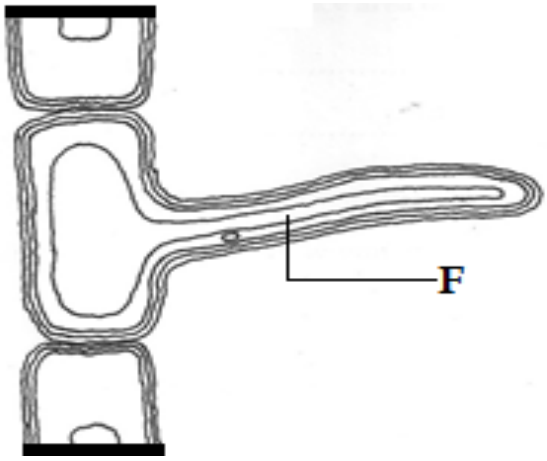
13. The diagram below shows a specialized plant cell



(a) (i) Identify the cell **[1 mark]**

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(ii) State **one** feature observable in the diagram above that adapts the cell to its function **[1 mark]**

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(b) Name the part labelled **F** **[1 mark]**

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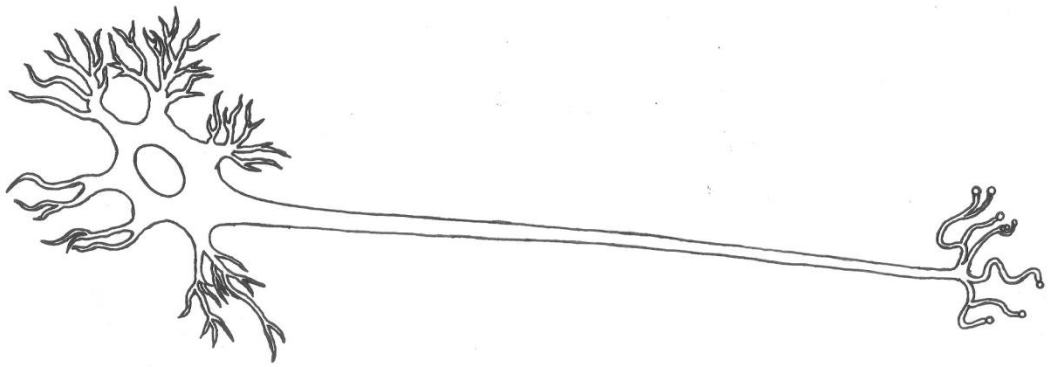
14. Shown below is a diagram of a neurone



(a) (i) Identify the type of neurone in the diagram above **[1 mark]**

……

24. Give **one** reason for your answer in **(a)(i)** above **[1 mark]**

……

(b) Draw an arrow, alongside the diagram above, to indicate the direction of flow of a nerve impulse in the neurone **[1 mark]**

15. Study the equation below which represents a reaction which takes place in the mammalian body

$$CO_{2(g)} + H_2O_{(l)} \xrightarrow{\text{Enzyme } \mathbf{X}} H_2CO_{3(aq)}$$

(a) Where in the mammalian body does the reaction above take place? **[1 mark]**

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(b) Name the enzyme **X** **[1 mark]**

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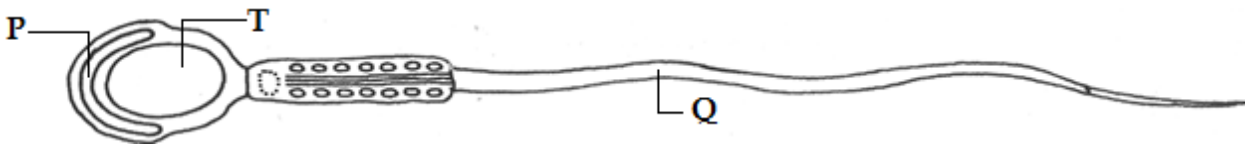
16. The diagram below shows a specialized cell from a human being



(a) Name the part labelled **P** **[1 mark]**

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(b) Give **one** adaptive feature of the organelle labelled **T** **[1 mark]**

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(c) State the function of the part labelled **Q** **[1 mark]**

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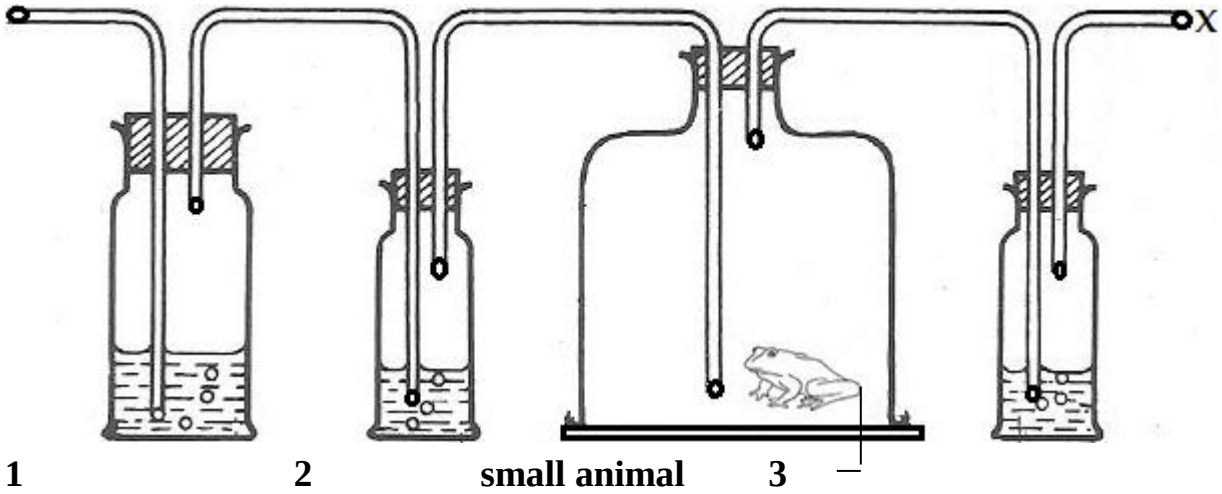
17. The apparatus shown in the diagram below may be used to demonstrate aerobic respiration. Air is drawn through the apparatus by attaching it to a vacuum pump at the point labelled **X**. Sodium hydroxide solution is placed in flask **1** to remove carbon(IV)oxide



(a) Why was it necessary to remove carbon(IV)oxide? **[1 mark]**

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(b) Calcium hydroxide solution is put in the jars labelled **2** and **3**. Explain why **[2 marks]**

Jar
2……

Jar
3……

(c) Suggest a suitable control for this experiment **[1 mark]**

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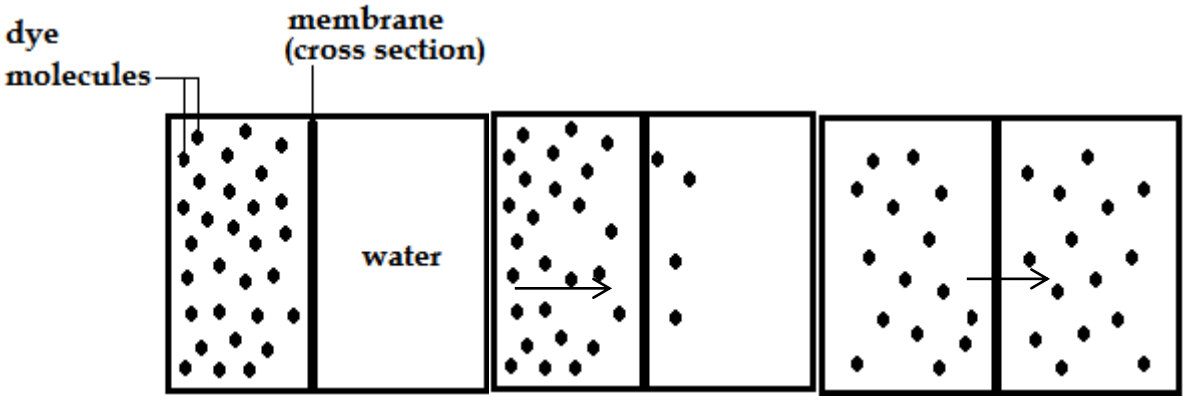
18. Illustrated below is the movement of material in a certain physiological process



(a)(i) Name the physiological process illustrated above **[1 mark]**

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(ii) Give **two** examples of applicability of the process named in **(a)(i)** above in plants **[2 marks]**

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(b) State **two** ways by which the movement of the dye molecules would be slowed down **[2 marks]**

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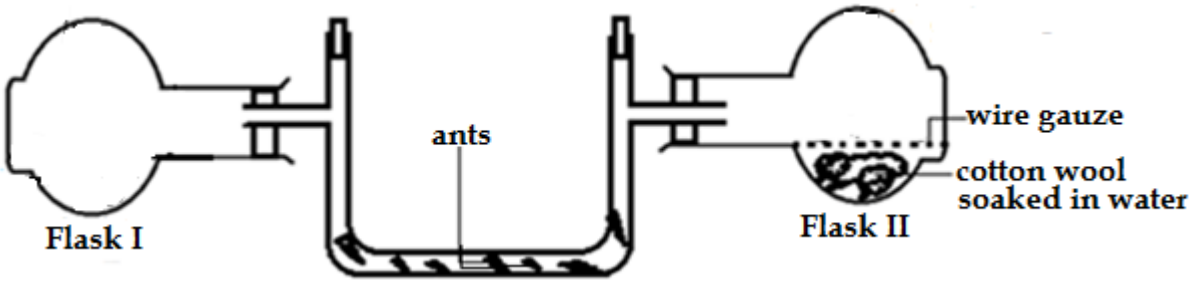
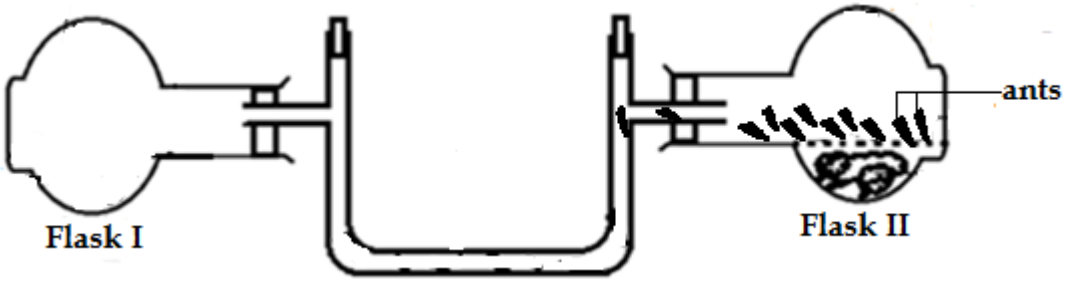
19. The diagrams below represent an experimental set up to investigate a certain biological phenomenon

START OF EXPERIMENT



END OF EXPERIMENT



(a)(i) What was being investigated in the experiment? **[1 mark]**

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(ii) Explain your answer in **(a)(i)** above **[3 marks]**

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(b) What was the role of flask **II** in the experiment? **[1 mark]**

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20. Outline **two** adaptive features of guard cells **[2 marks]**

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21. The scientific name of the European wildcat, a nocturnal mammal that inhabits forests of Western, Southern, Central and Eastern Europe, is *Felis silvestris*. Write down

i) the scientific name of the European wildcat **[1 mark]**

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ii) the species name of the European wildcat **[1 mark]**

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22. Name the hormone, in man, responsible for each of the following

(a) Stimulates secretion of bile by hepatocytes **[1 mark]**

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(b) Stimulates release of bile juice from gall bladder into the duodenum **[1 mark]**

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23. The following text messages on a cellular phone represent gene mutations

	Intended message	**Actual message**
I	Metere is a top school	Metre is a top school
II	The microscope is my tool	The microscope is my loot

Identify the type of gene mutation represented in each case

I……[1 mark]

II……[1 mark]

24.(a) Define **omnivores** **[1 mark]**

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(b) Name **two** mammals that are omnivores **[2 marks]**

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25.(a) Two alleles in heterozygous state can be fully expressed phenotypically in an organism e.g. the alleles for black and white skin colour in guinea pigs (*Cavia porcellus*). Give the term used to describe this phenomenon **[1 mark]**

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(b) Give **one** example of a trait in human beings where the condition whose term is named in **(a)** above expresses itself **[1 mark]**

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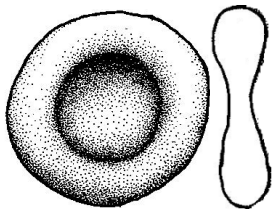
26. Shown below are diagrams of the same mammalian blood cell



Surface view Cross section

State **two** morphological features of cell represented in the diagram above **[1 mark]**

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27. The table below shows the effect of wind, still air and stomatal opening on the rate of transpiration of a plant in milligrams of water lost per hour dm^2. Study the table and answer the following questions

Stomatal opening (μm)	1	2	3	4	5	6	7
Windy	40	63	74	86	94	110	124
Still air	0	6	12	19	23	27	30

(a) (i) Compare the rates of transpiration in windy and still air conditions **[1 mark]**

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(ii) Explain your observation in a(i) above **[2marks]**

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(b) How does stomatal opening affect transpiration rate? **[1mark]**

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28. The relationship between oxygen concentration, potassium uptake and sugar consumption in isolated barley roots was determined. The loss of sugar and potassium uptake are in arbitrary units

	Percentage oxygen in aeration stream					
	0	5	10	15	20	100
Sugar loss	15	20	42	45	45	48
Potassium gain	5	55	70	73	75	70

a) Account for the sugar loss and potassium gain at between 5% and 20% oxygen concentration **[3marks]**

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b) State two ways in which you can stop the above process from taking place

[2marks]

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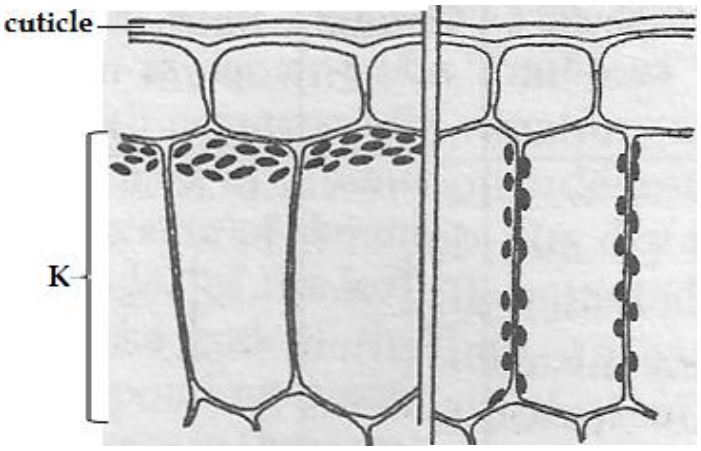
29. Illustrated in the diagrams below is the position of chloroplasts (shown as dark structures,) in a tropical plant species, at two different times of the day

I **II**



At 6am **At 2pm**

(a) Identify the tissue labelled **K** **[1 mark)**

……

(b) Name the response shown by the chloroplasts in diagram **I** **[2marks]**

……

(c) Outline the importance of the orientation of the chloroplasts as illustrated in diagram **II**

[2 marks]

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NAME……..…….. CLASS…….……..

ADM NO……SIGNATURE…….

DATE……..

FORM 4 END TERM 2 SERIES 2 EXAMS

231/2
BIOLOGY
PAPER 2
(Theory)
TIME: 2HOURS

Kenya Certificate of Secondary Education

INSTRUCTIONS TO CANDIDATES

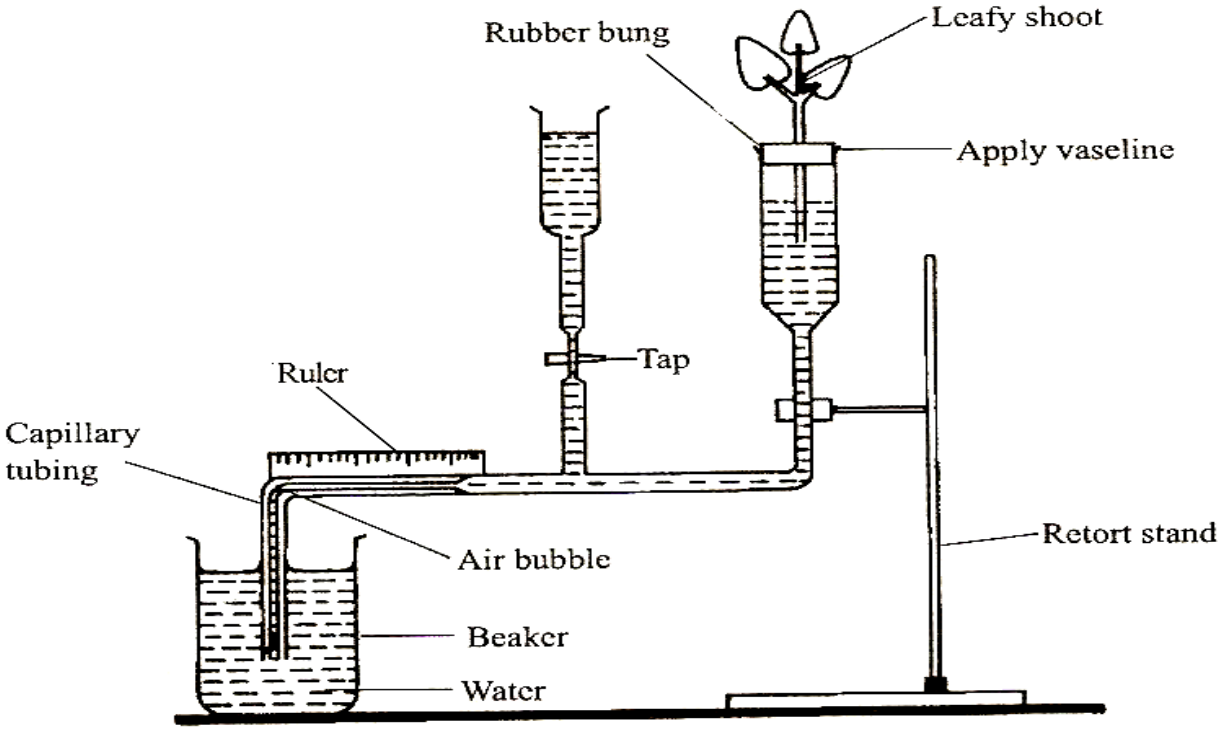
(a) *Write your name and Admission number in the spaces provided.*
(b) *Sign and write the date.*
(c) *This paper consists of two sections.* ***A and B.***
(d) *Answer* ***ALL*** *the questions in section A in the spaces provided.*
(e) *In section* ***B****, answer question* ***6 (compulsory)*** *and either question* ***7 or 8*** *in the spaces provided.*

For examiners use only:

Section	Question	Maximum score	Candidates score
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
TOTAL SCORE		**80**	

SECTION A (40 MARKS)

1. Below is a set up that was used to investigate a certain process in plants



(a) State what the above apparatus can be used to measure

i. Directly **[1mark]**

……

ii. Indirectly **[1mark]**

……

(b)i) Give **<u>two</u>** precautions that should be taken when setting up the experiment **[2marks]**

……

……

(ii) State a reason for each precautions stated in b(i) above **[2marks]**

……

……

(c) List <u>two</u> structural factors that affect the process under investigation **[2marks]**

……
……

2. A Covidiot at Nakuru National park wanted to estimate the population size of grasshoppers , **70** grasshoppers were trapped , marked and released. A week later , a second sample was captured. In this second sample , **27** had marks on their bodies while **13** did not have the marks.

(a) Calculate the estimated size of the grasshopper population **[3marks]**

(b) Explain why it is important that the samples contain as many grasshoppers as possible **[1mark]**

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……

(c) Name an appropriate instrument that was used to capture the grasshoppers **[1mark]**

……

(d) Give 3 assumptions that must be made when using this method of population estimation **[3marks]**

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3. In an experiment, *Drosophila melanogaster* (fruit fly) with broad abdomens were crossed with those having narrow abdomens. All the F1 offspring from the crosses had broad abdomens :

(a) Using A to denote the genes for the abdomen size, give the genotypes of the parents **[2marks]**

……

(b) If 150 fruit flies had narrow abdomens in the F2 generation, how many had broad abdomens in the same generation? Show your working **[2marks]**

(c) In a related expt, fruit flies with broad abdomens were crossed with flies with narrow abdomens. The offspring with broad abdomen and the ones with narrow abdomen were in the ratio of 1:1

i. What is the genotype of the parent with broad abdomen? **[1mark]**

……

ii. What is the biological significance of this experiment? **[1mark]**

……

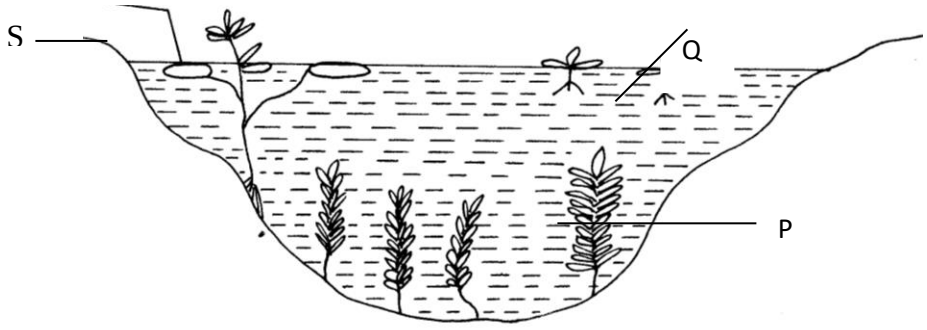
……

iii. Suggest 2 reasons why fruit flies are suitable organisms to use in this genetic experiment **[2marks]**

……

……

4. The diagram below shows a fresh water ecosystem. Study it carefully and answer the questions that follow.



a) What is an ecosystem. **[1mark]**

……

……

b) Identify the type of plants labeled S,P and Q. **[3marks]**

……

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……

c) Explain adaptations of plant P to their environment. **[4marks]**

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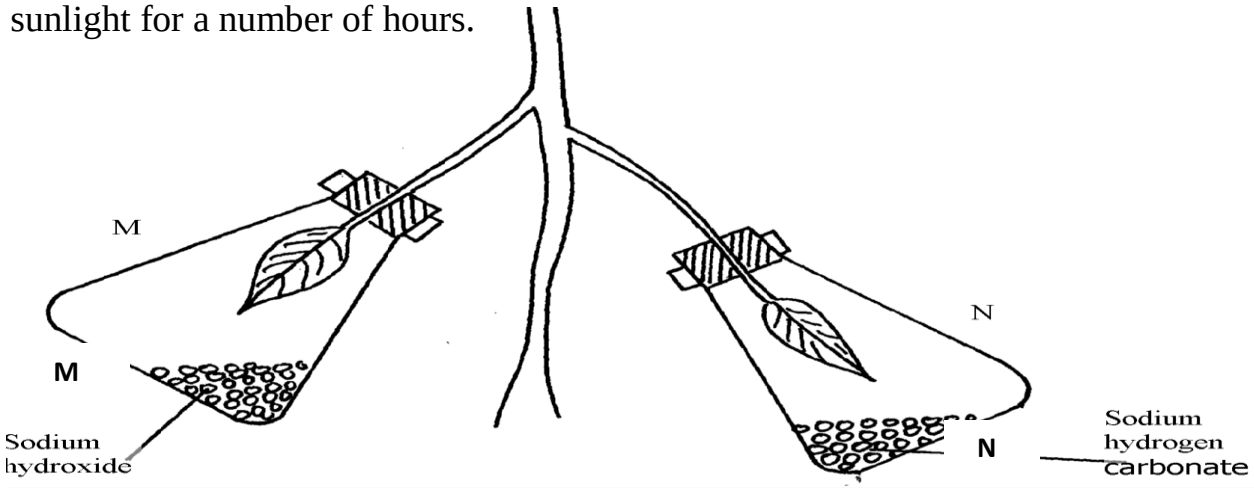
5. A healthy plant was kept in the dark for 24hours following which two of its leaves were enclosed in glass flasks as shown below. The set up was the exposed to sunlight for a number of hours.



(a) Why was it necessary to keep the plant in the dark for 24 hours? **[1mark]**

……

(b) Give the function of each of the following in the experiment

(i) Sodium hydroxide **[1mark]**

……

(ii) Sodium hydrogen corbonate **[1mark]**

……..

(c) Explain the expected observations in leaf.

(i) M when tested for starch **[2mark]**

……

……

(ii) N when tested for starch? **[2mark]**

……

……

(d) Apart from light intensity, name one other aspect of light that affects photosynthesis [1mark]

SECTION B (40 MARKS)

Answer question 6 and either question 7 or 8

6. An experiment was carried out to investigate a certain physiological process in plants. The experimental set-up was as follows: three vacuum flasks were labelled X, Y and Z. wet cotton wool was placed in flasks X and Y. 50 soaked bean seeds were placed in flask X; while 50 boiled and then cooled seeds were placed in flask Y. Cotton wool soaked in methylated spirit was placed in flask Z. 50 seeds, boiled, cooled and then soaked in methylated spirit was placed in flask Z and a thermometer was placed in each flask and held in place with dry cotton wool. The set-up was left standing on the side bench in the laboratory. Temperature readings were taken at the same time each day for nine days.
The results are as shown below

Flask	**Temperature (^{O}C)-recorded daily**								
	1	2	3	4	5	6	7	8	9 (DAYS)
X	22	25	30	35	38	38	37	33	26
Y	20	20	20	22	25	30	33	39	45
Z	20	20	19	20	20	19	20	20	19

(i) Using the same axes plot the temperatures against time in days for flask X and **Y** **[8marks]**

(ii) Account for the shape of the graphs from day 1 to day 9 in :

(a) Flask X **[4marks]**

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(b) Flask Y **[3marks]**

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(iii) Explain the results obtained in flask Z **[2marks]**

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(iv) Explain why :

(a) Vacuum flask were used in this experiment **[1mark]**

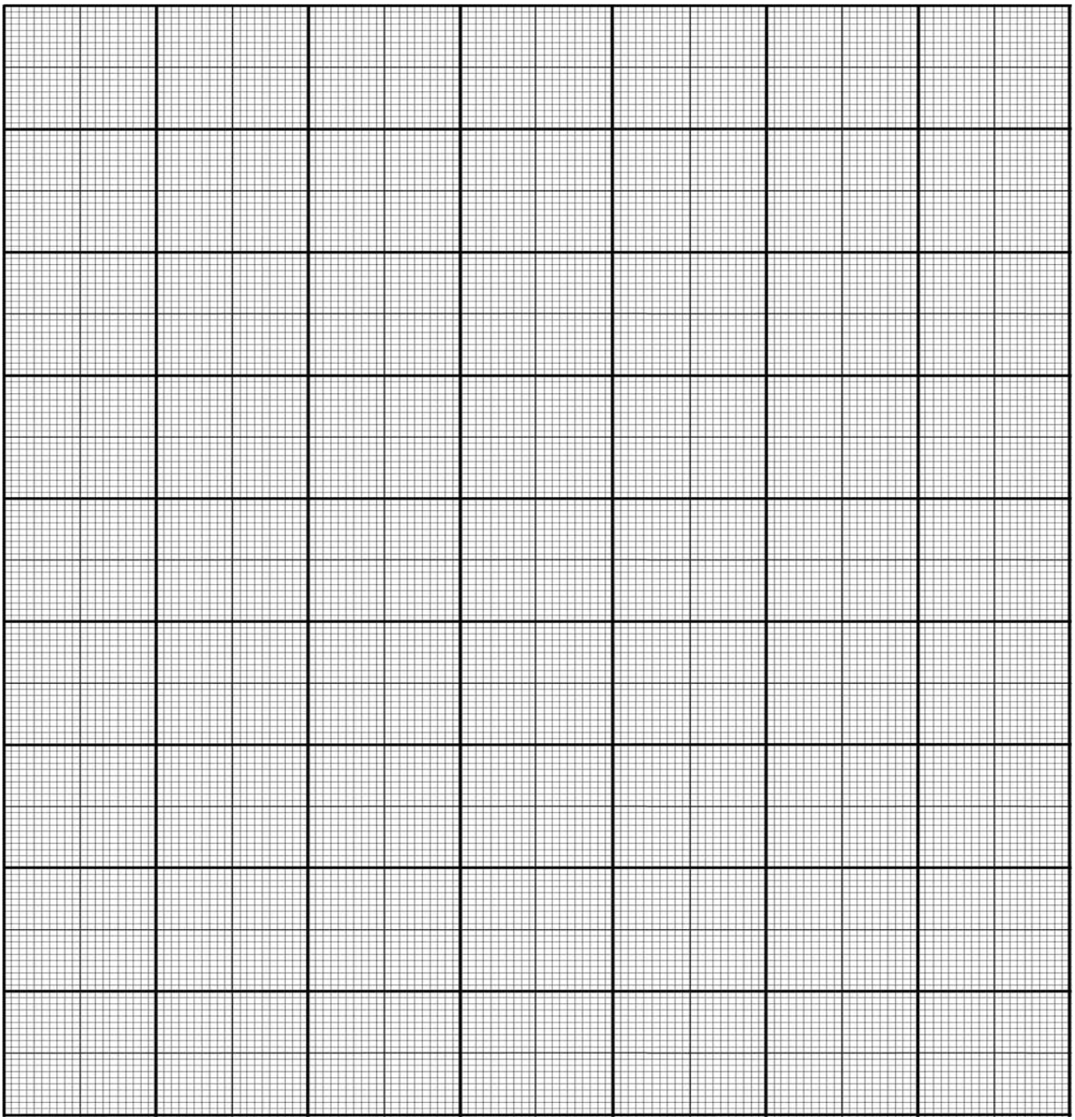
……

(b) Cotton wool and not rubber bungs were used to hold the thermometer in place **[1mk]**

……

(v) State the aim of the above investigation **[1mark]**

……



7. Evolution of an organism is towards better adaptation and survival to its habitat.

(a) Explain how this is achieved to members of Class Insecta towards locomotion and protection **[7marks]**

(b) Suggest how the modern long necked giraffes may have evolved from short necked stock **[13marks]**

8. Briefly

(a) Describe the process of fertilization in flowering plants **[16marks]**

(b) Describe the changes that take place on the flower after fertilization **[4marks]**

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NAME…….…….. CLASS…….……

ADM NO……SIGNATURE……

DATE……..

FORM 4 END TERM 2 SERIES 2 EXAMS

BIOLOGY (231/3)

Paper 3 (PRACTICAL)

TIME: $1^{3}/_{4}$ HOURS

Instructions to candidates

(a) Write your name and Admission number in the spaces provided.

*(b) Answer **all** the questions in the spaces provided.*

(c) You are required to spend the first 15 minutes of the $1^{3}/_{4}$ hours allowed for this paper reading the whole paper carefully before commencing your work.

(d) This paper consists of 6 printed pages.

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

For Examiner's Use Only

QUESTION	MAXIMUM SCORE	CANDIDATE SCORE
	14	
	13	
	13	
40		

1. You are provided with small pieces of two tissues, labeled P and Q, obtained from an animal.

(a). Cut each specimen into two equal halves. From each specimen, crush one half and leave the other half as a solid piece. Place the solid half of specimen P into a test tube labeled K. Place the solid half of specimen Q into a test tube labeled L.

Put about $2cm^3$ hydrogen peroxide into each of the test tubes.

(i) State the observations made in the two test tubes. **[2marks]**

Test tube **K**

……

……

Test tube **L**

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……

(ii) Place the crushed specimen **P** into test tube labeled M and also place the crushed specimen **Q** into test tube labeled **N.** Add 2cm3 hydrogen peroxide into test tube **M** and **N**. Record the observation for each test tubes **M** and **N** in comparison to **K** and **L**

[2marks]

Test tube **M**

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……..

Test tube **N**

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……

(iii) Write down an equation for the reaction that was responsible for your observations in the experiments above. **[1mark]**

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(iv) Name the process represented by the equation in (iii) above. **[1mark]**

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(b) Explain how crushing affected the results of the experiments. **[2marks]**

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(c) Apart from the process named in (a) (iv) above, name three other functions of specimen **Q** **[3marks]**

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(d) Explain the importance of the process named in (a) (iv) above in living organisms **[3marks]**

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2. You are provided with specimen labelled **Z** which has been grounded into flour.
Make a solution of the flour provided by adding water and stirring properly. Sieve or decant to obtain a solution from the mixture.

(a) (i) Using the reagents provided test for the presence of starch, proteins and lipids in the solution from specimen Z. Record the procedures, observation, and conclusions in the table below. **[9marks]**

FOODSUBSTANCE	PROCEDURE	OBSERVATION	CONCLUSION
Starch			
Proteins			
Lipids			

(ii) From the conclusions made in (a) (i) above, suggest the regions of the alimentary canal where the digestion of specimen Z would take place. **[3marks]**

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(b) State **one** use of any two food substances found in specimen Z. **[2 marks]**

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3. You are provided with leaves of specimens **A, B, C, D, and E.**

(a) Use the following features in the order in which they are listed, to prepare a dichotomous key: **[8 marks]**

Type of leaf

Shape of the lamina

Succulent or non-succulent

Leaf margin

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(b) (i) Name the likely habitat of specimen **C**. **[1mark]**

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

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……

(c) State the significance of the shiny upper surface of specimen **A**. **[2marks]**

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NAME……..…….... **CLASS**…….……

ADM NO……**SIGNATURE**……

DATE……..

FORM 4 END TERM 2 SERIES 2 EXAMS

BUSINESS STUDIES
Paper 1
TIME: 2 HOURS

Instructions to Candidates

(a) *Write your name and index number in the spaces provided above.*
(b) *Sign and write the date of the examination in the spaces provided above.*
(c) *This paper consists of **25** questions.*
(d) *Answer ALL questions in the spaces provided*
(e) *This paper consists of **9**printed pages. Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing*
(f) *Candidates should answer the questions in **English***

For Examiner's Use Only

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

Questions	16	17	18	19	20	21	22	23	24	25
Marks										

TOTAL MARKS

1. State four benefits of learning business studies to a Kenyan student **(4mks)**

i.……
ii.……
iii.……
iv.……

2. Highlight **four** measures a business may take to ensure that its environment is conducive to its business activities **(4mks)**

i.……
ii.……
iii.……
iv.……

3. State **four** factors to consider when evaluating a viable business opportunity **(4mks)**

i) ……
ii) ……
iii) ……
iv) ……

4. Most organizations have come up with customer care desks. outline **three** functions that they play . **(3mks)**

i. ……
ii. ……
iv. ……

5. Identify the documents that each of the following descriptions refer to **(4mks)**

Description	Document
1.Used to inform buyer that seller has received the order	
2. Used to ask about the availability of goods.	
3. Used to organize for transportation of goods between seller and buyer	
4. Used to show goods sold on credit	

6. State four factors affecting the circular flow of income **(4mks)**

i. ……

ii. ……

iii. ……

iv. ……

7. The following balances were extracted from the books of WINNICO Limited on 31st December 2020.

Item	Ksh.
Capital	150,000
Furniture	110,000
Purchases	285,000
Hawi (supplier)	180,000
Sales	230,000
Wages paid	41,000
Return inwards	5,000
Return outwards	15,000
Cash	139,000
Rent received	5,000

Prepare the trial balance of the business as of 31st December 2020 **(5mks)**

8. The information given below relates to Jomo Traders for the year ended 31st August 2021

Rate of stock turn over 3 times

Mark -up 20%

Opening stock ksh. 90,000

Closing stock ksh. 150,000

Required

a) Gross profit **(2mks)**

……

……

b) Sales **(2mks)**

……

……

9. Highlight four features of services . **(4mks)**

i) ……

ii) ……

iii) ……

iv) ……

10. State **four** causes of seasonal unemployment in Kenya **(4mks)**

i. ……

ii. ……

iii. ……

iv. ……

11. Highlight **four** circumstances under which the capital of a business may change **(4mks)**

i) ……

ii) ……

iii) ……

iv) ……

12. On 1 January 2006, Romano Traders started sh. 180,000 in cash and sh. 170,000 at bank. During the month, the following transactions took place:

2006

January 10 paid ABM Traders sh. 25,000 by cheque less sh. 1000 cash discount

16 sold goods for sh. 14,000 cash.

31 Banked all the cash except sh. 5,200

Enter the above transactions in the relevant cash book and balance it off. **(4mks)**

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13. List **four** clauses of memorandum of association for joint stock companies **(4mks)**

i. ……
ii. ……
iii. ……
iv. ……

14. State **four** causes of demand- pull inflation **(4mks)**

i) ……
ii) ……
iii) ……
iv) ……

15. State **four** activities carried out in the process of distribution **(4mks)**

i) ……
ii) ……
iii) ……
iv) ……

16. Outline **four** structural changes that may take place when a country is experiencing economic development **(4mks)**

i. ……
ii. ……
iii. ……
iv. ……

17. State **four** reasons why it is suitable to locate a bonded warehouse at the point of entry of a country **(4mks)**

i) ……

ii) ……
iii) ……
iv) ……

18. Highlight **four** reasons why business still use radios to promote their products despite other highly advanced media **(4mks)**

i) ……
ii) ……
iii) ……
iv) ……

19. State **four** factors that may lead to an increase in market supply of a product

i. ……
ii. ……
iii. ……
iv. ……

20. State reward of each factor of production **(4mks)**

i) ……
ii) ……
iii) ……
iv) ……

21. Highlight **four** methods used by a monopolistic firm to differentiate its products **(4mks)**

i) ……
ii) ……
iii) ……
iv) ……

22. Juma wholesalers owned a motor vehicle at ksh. 2,000,000 which they comprehensively insured for ksh. 1,600,000. The vehicle was involved in an accident and written off. determine the amount of money Juma wholesalers should expect to get from their insurer

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23. State four ways in which the government is involved in business activities.
(4marks)

i) ……
ii) ……
iii) ……
iv) ……

24. State **four** ways in which the nature of goods would influence the choice of transport **(4mks)**

i) ……
ii) ……
iii) ……
iv) ……

25. State **four** advantages of locating a firm near the source of raw materials **(4mks)**

i. ……
ii. ……
iii. ……
iv. ……

NAME…….…….. CLASS…….……

ADM NO……SIGNATURE……

DATE……..

FORM 4 END TERM 2 SERIES 2 EXAMS

BUSINESS STUDIES

PAPER 2

TIME: $2^1/_2$ HRS

Instructions to Candidates

- ***i.*** *Write your name and index number in the spaces provided above.*
- ***ii.*** *Sign and write the date of the examination in the spaces provided above.*
- ***iii.*** *This paper consists of **6** questions.*
- ***iv.*** *Answer ANY FIVE questions in the spaces provided*
- ***v.*** *This paper consists of **3**printed pages. Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing*
- ***vi.*** *Candidates should answer the questions in **English***

Question	Maximum score	Candidates score
	20	
	20	
	20	
	20	
	20	

1. **(a)** Explain **five** measures that Kenya may take to control unemployment problem **(10 marks)**

(b) Highlight **five** differences between direct tax and indirect tax . **(10 marks)**

2. **(a)** Explain the meaning and significance in each of the following terms as used in foreign trade. **(10 marks)**

i) Terms of trade.

ii) Balance of payment.

iii) Exchange rate.

iv) Balance trade.

v) Common market.

(b)Explain **five** functions of the national budget as a tool of planning. **(10 marks)**

3. **(a)**Discuss five factors that have led to survival of small-scale retailers despite competition from Supermarkets. **(10 marks)**

(b) The following balances were extracted from the books of Mutei trader son31st December,2017.

	Shs
Gross profit	800,000
General expenses	180,000
Buildings	1,250,000
Equipment	380,000
Capital	1,400,000
Furniture	117,000
Insurance	48,000
Stock	25,000
Commission income	125,800
Discount allowed	55,000
Discount received	56,200
Bank Overdraft	79,000

Salaries and wages	320,000
Creditors	90,000
Carriage outwards	60,000
Debtors	65,500
Carriage inwards	34,500
Cash	51,000

Prepare:

i. Profit and loss account for the period ended 31st December 2017.

ii. Balance sheet as at 31stDecember,2017**.** **(10marks)**

4. (a) Highlight five benefits accruing to a seller who uses the personal selling method to promote herproducts. **(10marks)**

(**b)**The following transactions relate to Furaha traders for the month of July,2008

July 1 : Balance brought down cash sh.16,250 and Bank Shs.19,847

July2 : Sold goods worth Shs.1,348 to Patel and received a calculator in exchange

July 5 : Paid transport by cheque Shs.2,000

July 6 : Issued a cheque to Kerio Traders setting an invoice for Shs.10,000 deducting 2% cash discount

July 10: Transfer Shs.15 000 from cash till to bank

July 12: Sold goods for cash Shs.12,000 less 2% cash discount

July 13: Sold goods to Onyango on credit worth Shs.15, 000

July 14: The owner of the business withdrew Shs.3000 in cash to buy a present for his daughter

July 16 : Received a cheque from Kuria Shs.2,500 less 5 % cash discount

July 22 : Bought furniture from Babu Traders on credit worth

Shs.16,500 and cash

discount of 10% if payment is made within 2 weeks

July 24: Withdrew cash from bank for office use Shs8,000

July 26: The owner brought into the business Shs.9,000 cash

July 27: Issued a cheque to Babu Traders for amount due

July 28: Sold goods to Kuria worth Shs.5,000 for Shs.3,800 and received payment by

cheque

July 30: Banked all cash and remained with Shs.100 in the cash till

Required; Prepare Furaha Traders three column cash book for the month of July 2008.

(10 marks)

5. a) Explain **five** means of written communication**.** **(10marks)**

b)Explain **five** measures that are adopted by the government to protect consumers against exploitation. **(10marks)**

c) (a) Explain **five** characteristics of perfect competition market structure.(**10marks)**

(b) Commodity A and B are subtitute products. Using well label diagrams explain how increase in supply of commodity A would affect the equilibrium price and quantity demanded of commodity B. (**10mks)**

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NAME…….…….. CLASS…….……

ADM NO……SIGNATURE……

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FORM 4 END TERM 2 SERIES 2 EXAMS

CHEMISTRY

PAPER 1

TIME 2HRS

1. Element K has atomic number 20 while element M has atomic number 8.

i) Write the electron configuration of K and M

K …… (1mk)

M …….. (1mk)

ii) Write the symbol of the most stable ion of K and M

K …… (**1/2 mk)**

M …….. **(1/2mk)**

2. Molten lead (ii) iodide is electrolyzed using inert electrodes. Write the half equation of the reactions that occur at the anode and cathode.

i. Anode …… **(1mk)**

ii. Cathode …….. **(1mk)**

b)Explain why the conductivity of metals decrease with increase in temperature

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……

3. Some sodium chloride was found to be contaminated with copper (ii) oxide. Describe how a sample of dry sodium chloride can be obtained from the mixline

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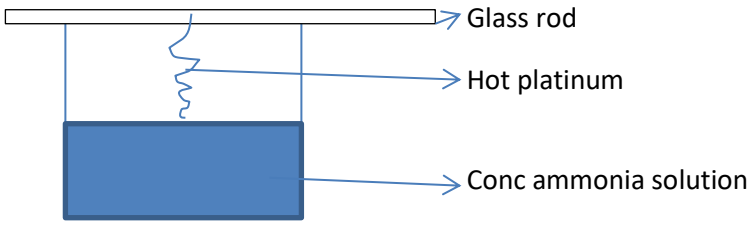
4. Hot platinum wire was lowered into a flask containing concentrated ammonia solution as shown below



State and explain the observations made **(3mks)**

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5. a) What is a dative boud? **(1mk)**

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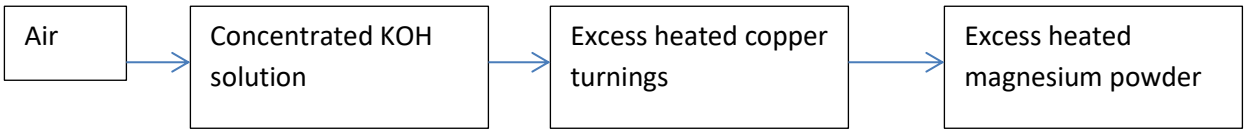
b) Draw a dot (.) and cross (x) diagram to show bouding in carbon (ii) oxide (2mks)

6. Air was passed through several reagents as shown in the flow chart diagram



i) What is the purpose of concentrated potassium hydroxide solution? **(1mk)**

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ii) Write an equation for the reaction which takes place in the chamber with magnesium powder **(1mk)**

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……

iii) Name one gas which escapes from the chamber containing magnesium powder **(1mk)**

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……

7. Name the following substances

i) $CH_2CH\ CH_2CH_3$ …… **(1mk)**

ii) $CH_3CHCHCH_2CH_3$ …… **(1mk)**

iii) State the observation made when compound in (a) above was passed through acidified potassium (vii) manganite **(1mk)**

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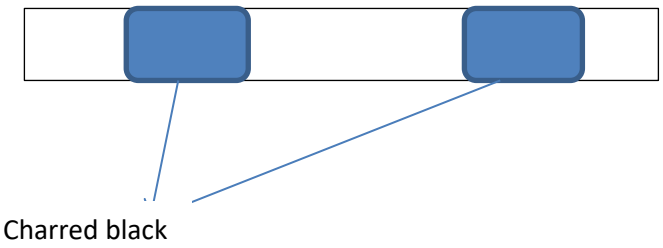
8. The diagram below shows a wooden splint that was placed horizontally across the middle part of a non-luminous flame.



i) Explain the observation made **(2mks)**

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……

ii) Explain why non-luminous flame is preferred for heating than luminous flame **(1mk)**

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9. Explain giving reasons why?

(a) Sulphuric(vi) acide is not used with marble in the preparation of carbon(iv) oxide

(2mks)

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……

(b) Water cannot be used to extinguish oil fire

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……

10. 15cm^3 of a solution containg 2.88g/dm^3 of an alkali XOH completely reacts with 20.0cm^3 of 0.045m sulphuric(vi) acid. Calculate the molarity and relative atomic mass of x present in the alkali

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11. An hydrocarbon Q was found to decolourise potassium manganate(vii)solution. When two moles of Q were burnt completely six moles of carbon(iv)oxide and six moles of water were formed.

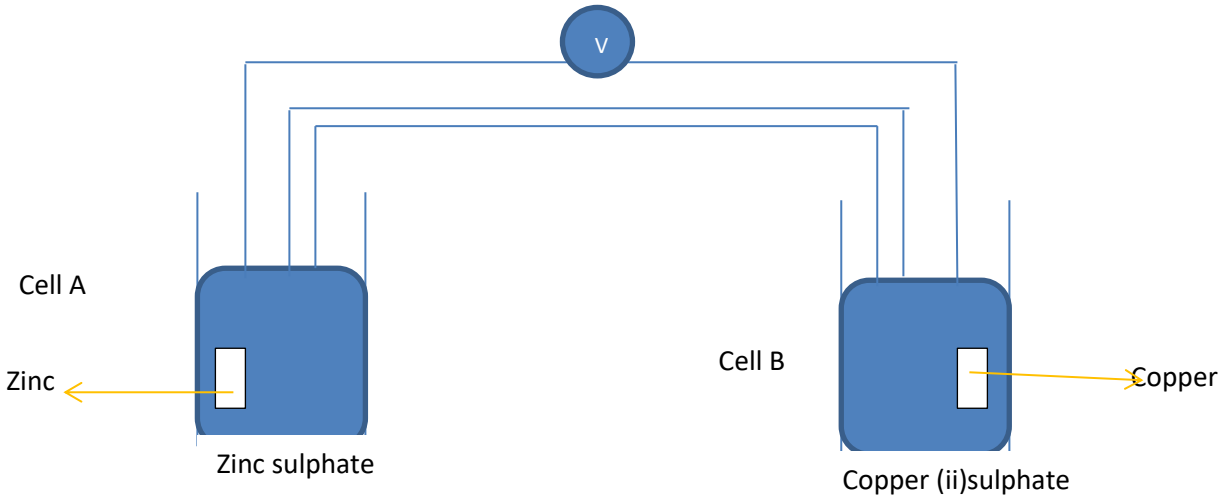
a) Write the structural formula of **Q** **(2mks)**

……
……

b) Name the homologous series to which **Q** belongs

……
……

12. The diagram below represents an electrochemical cell



i) On the diagram label the salt bridge **(1mk)**

ii) State two observations made in cell **B** **(1mk)**

……
……

iii. Write the overall ionic equation of the cell **(1mk)**

……
……

13. During the extraction of copper and zinc from their ores, some of the processes include

i) Crushing

ii) Mixing of the crushed ore with oil and water and bubbling air through it.

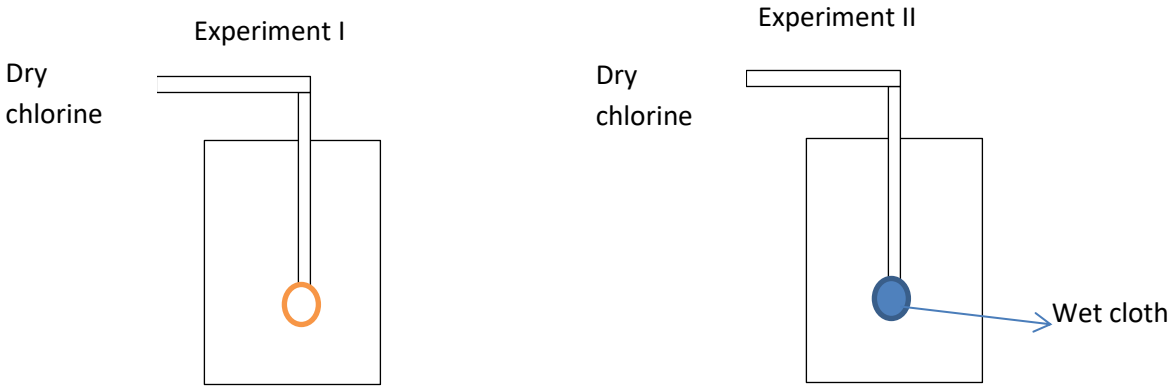
(a) (i) Name the process **(ii)** above **(1mk)**

……
……

(ii) What is the purpose of **(ii)** above

……
……

14. Dry chlorine gas was passed through two pieces of coloured cotton cloth as shown



i. State what is observed in each experiment **(1mk)**

Experiment **I**

……

……

Experiment **II**

……

……

ii. Explain your observation using an equation **(1mk)**

……

……

15.a) what is meant by solubility? **(1mk)**

……

……

b) In an experiment to determine the solubility of solid Y in water at 30^{o}C the following results were obtained.
Mass of evaporating dish = 26.2g
Mass of evaporating dish + saturated solution = 42.4g
Mass of evaporating dish + dry solid y = 30.4g
Using the information, determine the solubility of solid Y at 30^{o}c in grams per 100g of water **(2mks)**

……

……

16. the molar heat of formation of carbon(ii) oxide is $^{-}105 kjmol^{-1}$, molar heat of combustion of carbon is -393 $kjmol^{-1}$
by using an energy cycle diagram, determine the molar heat of combustion of carbon(ii)oxide **(3mks)**

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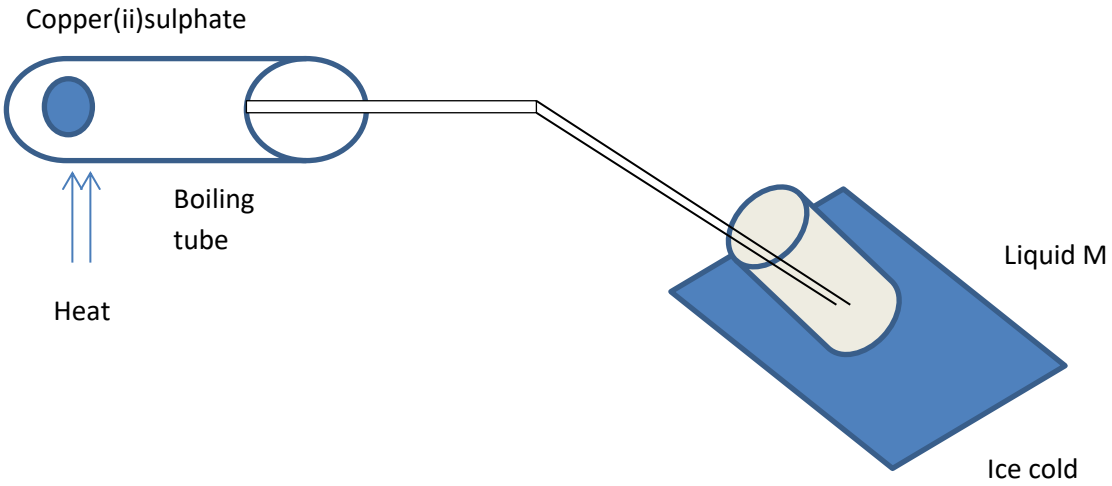
……

17. The diagram below was used to study the effect of heat on copper(ii)sulphate crystals



i) Name liquid **M** **(1mk)**

……

ii) State and explain the precaution that should be made before stopping heating **(2mks)**

……
……

18. Deuterium $^{2}_{1}D$ and tritium $^{3}_{1}T$ are two isotopers of hydrogen. They react to form element Y and neutron particles according to the equation below.

$$^{2}_{1}D + {}^{3}_{1}T \longrightarrow {}^{a}_{b}Y + {}^{1}_{0}n$$

i) Find the value of a and b **(2mks)**

……
……

……

……

ii) What name is given to the type of reaction undergone by the isotope of hydrogen **(1mk)**

……

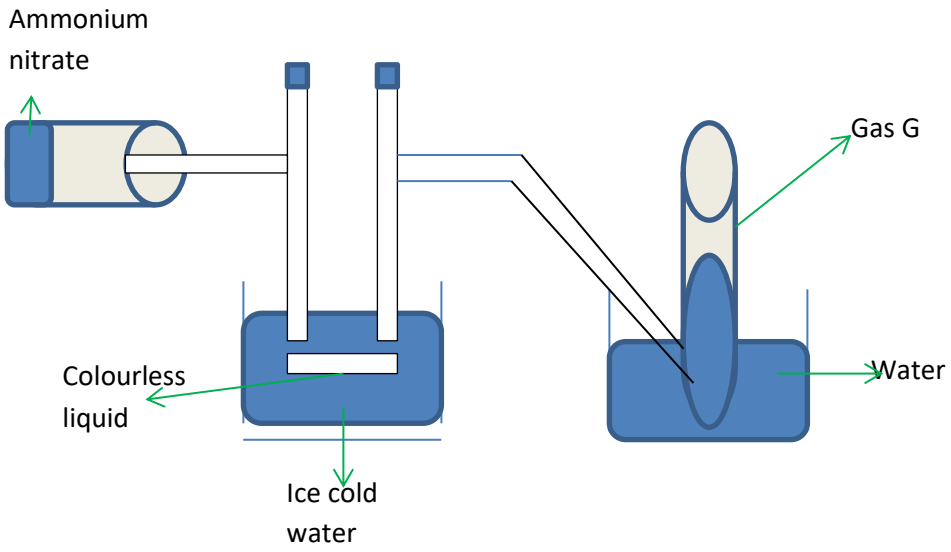
……

A gas occupies $4dm^3$ at -23^0c and 152mmHg. At what pressure will its volume be halved, if the temperature then is 227^0c?

……

……

19. Ammonium nitrate was gently heated and the products collected as shown in the diagram



a) Identify

i. Colourless liquid **H** **(1mk)**

……

ii) Gas **G** **(1mk)**

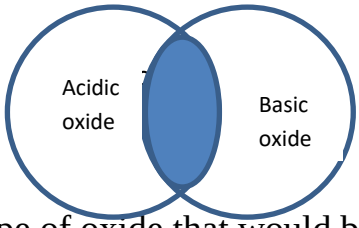
……

b) Describe one chemical test that can be used to identify gas G

……

……

20. The diagram below shows the acidic and basic oxides fit into the general family of oxide



(c) State the type of oxide that would be placed in the shaded area **(1mk)**

……

(d) Name an oxide that would be placed in the shaded area **(1mk)**

……

21. A dynamic equilibrium between dichromate and chromate ions is established as shown in the equation below.

$Cr_2O_7^{2-}(aq) + ZOH^-(aq) \rightleftharpoons 2Cro^{2-}_4 + H_2O\ (l)$

Orange Yellow

a) What is meant by dynamic equilibrium? (**1mk)**

……

……

b) State and explain the observation made if a dilute hydrochloric acid is added to the equilibrium mixture **(2mks)**

……

……

22. An experiment showed that the composition of a compound to be 5838% Barium, 13.72% Sulphur and 27.47% oxygen. Calculate the empirical formula of the compound (Ba = 137; S=32, O=16) **(3mks)**

23. In an experiment to study diffusion of gases, the following set up was used

Cotton wool soaked in conc. $NH_3(aq)$

Cotton wool soaked in con. Hcl

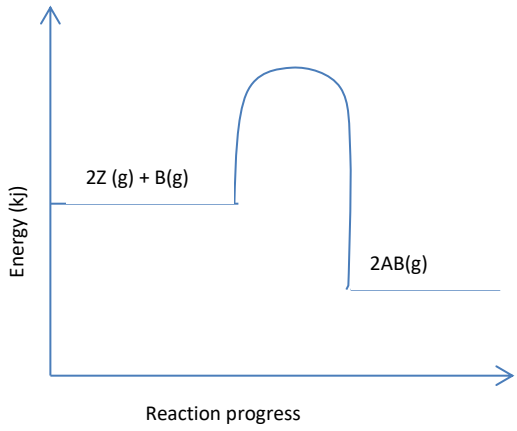
(i) State and explain observations made in the experiment **(2mks)**

……
……
……

(ii) Write an equation for the reaction that occurs in the experiment **(1mks)**

……
……

24. The figure below is an energy level diagram for the reaction 2Z (g) + 2B(g) = 2AB(g)



Explain the effect of yield AB by

(a) Increase in pressure **(1 ½ mk)**

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……
……

(b) Decrease in temperaline. **(1 ½ mk)**

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……
……

25. Study the following changes that took place when the following substances are exposed to air.

(a) $NaOH(s) \xrightarrow{} I \quad NaOH(aq)$

(b) $N_2CO_3.IOH_2O(s) \xrightarrow{} II \quad Na_2CO_3(s) + IOH_2O(l)$

(c) $CuSO_4(s) + 5H_2O(l) \xrightarrow{} III \quad CuSO_4.5H_2O(s)$

Name the process **(3mks)**

I ……

II ……

III……

26. A white solid K was heated. It produced a brown gas A and another gas B which relights a glowing splint. The residue left was yellow when hot and white when cold.

i) Identify gases A and B **(2mks)**

A ……..

B ……..

ii) Write an equation for the decomposition of solid K **(1mk)**

……
……

27. Bronze is an alloy of copper and another metal. Identify the other metal.

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NAME……..…….... CLASS……..……

ADM NO……SIGNATURE……

DATE……..

FORM 4 END TERM 2 SERIES 2 EXAMS

CHEMISTRY
(THEORY)
PAPER 2
THEORY

(a) The grid below shows part of the periodic table. Study it and answer the questions that follow. The letters do not represent the true symbols of the elements.

						A		
I	B		C		D		E	
F	G						H	

i. (a) Which element forms an ion of charge - 2? Explain your answer **2marks**

……
……
……

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

……

ii. How does the reactivity of H compare with that of E? Explain. **2marks**

……
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iii. Write the chemical equation for the reaction between B and chlorine? (**1mark)**

……
……

iv. Explain how the atomic radii of the following compare; (**2marks)**

(a) F and G

……
……

(b) B and G

……
……

v. The oxides of B and D are separately dissolved in water. State the effect of each product on litmus paper. (**2marks)**

……
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vi. $20cm^3$ of a solution of a hydroxide of I completely neutralizes $17.5cm^3$ of 0.5M sulphuric (VI) acid. Calculate the concentration in moles/litre of solution of the hydroxide of I **3marks**

(b) a) Sulphur occurs naturally in two different forms called allotropes;

i) What are allotropes? **1mark**

……

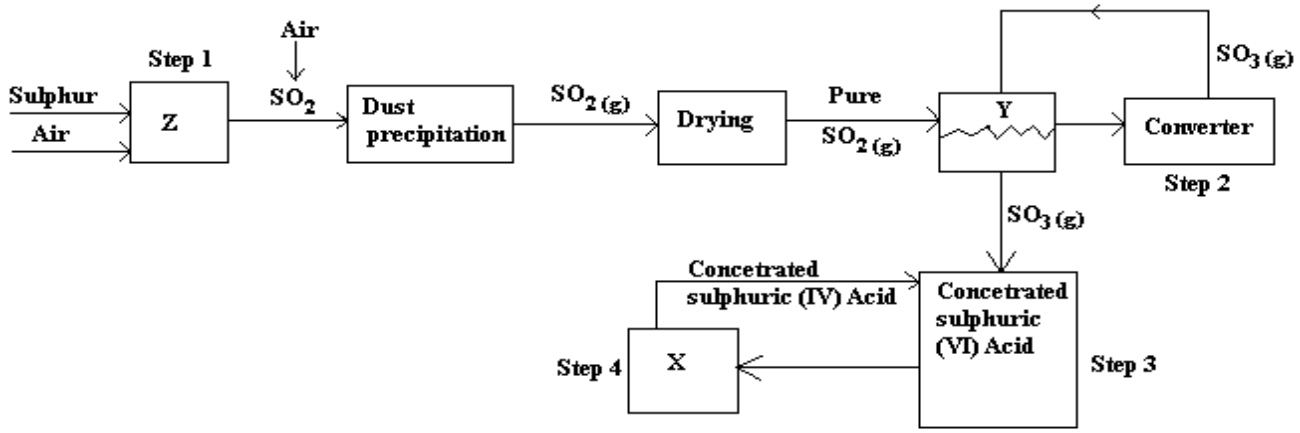
ii) The two allotropes of sulphur are stable at different temperatures, as shown in the equation below.

$$\text{Rhombic sulphur} \underset{\text{Below } 95.5^0\text{C}}{\overset{\text{Above } 95.5^0\text{C}}{\rightleftharpoons}} \text{Monoclinic sulphur}$$

Give a name to the temperature 95.5^0C **1mark**

……

b) Below is a flow chart diagram for the contact process for the manufacture of sulphuric (VI) acid.



i. Give the name of chambers labeled **(1 ½ mark)**

X……

Y……

Z…….

ii. State the three conditions in the converter. **(1 ½ mark)**

……

……

……

……

iii. Explain why gases are passed through ; **(2marks)**

I – The dust precipitator and drying power

……
……
……

28. II- The chamber labeled Y Write the balanced equations for the reactions in; **3marks**

(a)i.Step 2:

……

ii. Step 3:

……

iii. Step 4:

……

b) Calculate the volume of sulphur (VI) oxide gas in litres that would be required to produce 178kg of Oleum in step 3. (Molar gas volume at s.t.p.=22.4l, H=1, O=16, S=32) **3marks**

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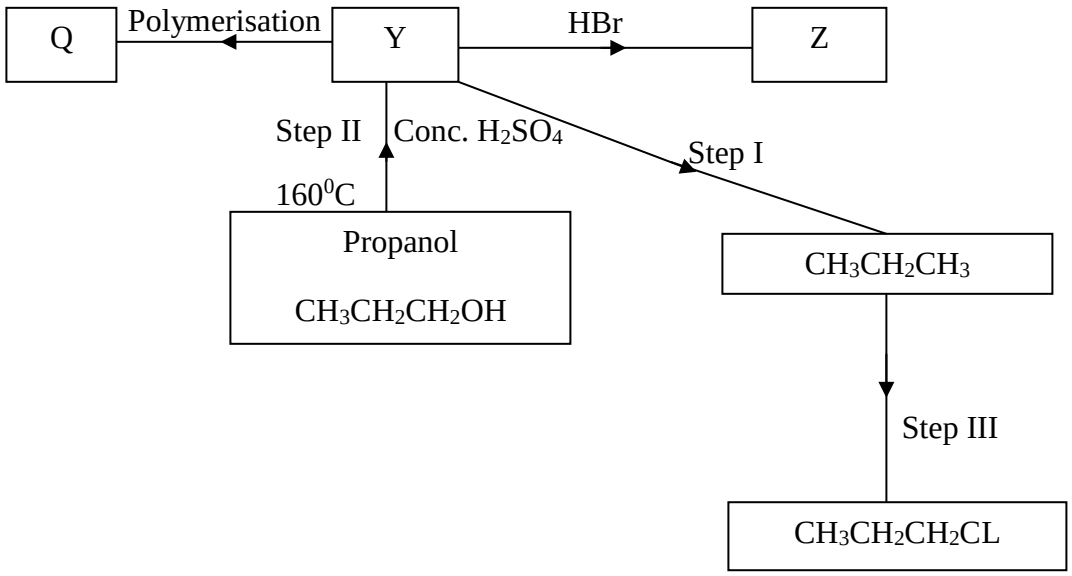
(c) Below is a scheme of some reactions of propanol. Study it and answer the questions that follow.



a) State the reagents and conditions required to effect step I **(3 marks)**

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……

b) Draw the structural formulae and name product Z. **(1mark)**

……
……

c) Name product Q **(1mark)**

……

d) Explain how product Y can be distinguished from the product formed after step I has taken place. **(2marks)**

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e) What name is given to the process in Step II and step III **2marks**

Step II

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……

Step III

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……

f) (i) Define the term hydrocarbon **(1mark)**

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……

(ii) Draw the structure of 1, 2 – dibromopropane (**1mark)**

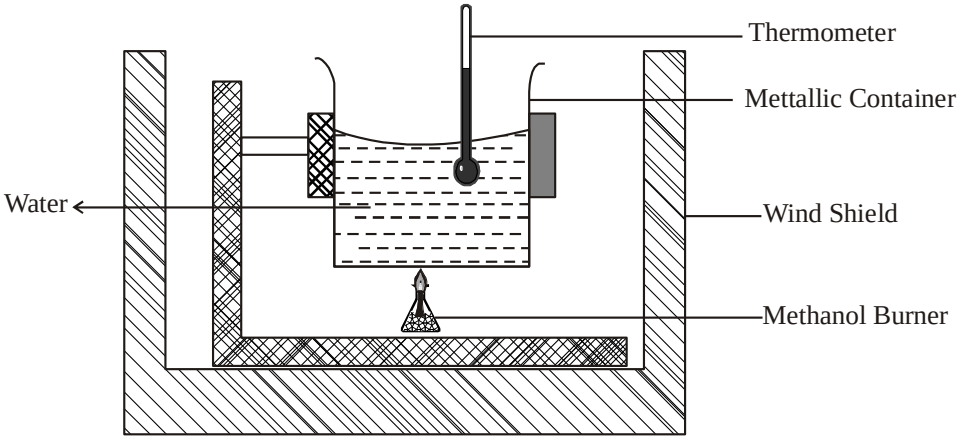
4.

a) What is the molar heat of combustion of a substance? **(1mark)**

……

……

b) The experiment below was set up to determine the molar heat of combustion of methanol.



The following data was obtained from the above experiment.

Mass of burner + methanol before burning = 62.74g

Mass of burner + methanol after burning = 62.36g Final temperature of water = 38.5^0C

Initial temperature of water = 23.5^0C

Volume of water used = $100cm^3$

i) From the above results work out the molar heat of combustion of methanol**(3marks)**
(Density of water =$1g/cm^3$, C = 12, O=16, H= 1.0)
Specific heat capacity of solution 4.2Kj $K^{-1}{}_g$ K^{-1})

ii) Write a thermo chemical equation for this reaction. **(1mark)**

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iii) Explain why the value obtained in (i) above may be lower than the actual value. **(1mark)**

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f) Study the data given below

$C_3H_{8(g)} + 5O_{2(g)} \longrightarrow 3CO_{2(g)} + 4H_2O_{(l)}$ $\Delta H = -2209\ KJmol^{-1}$

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

$C_{(s)} + O_{2(g)} \longrightarrow CO_{2(g)}$ $\Delta H = -406KJmol^{-1}$

i)Use this information to find the heat of formation of propane. **(3marks)**

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……
……

ii)What do you understand by the term heating value of a given fuel? **(1mark)**

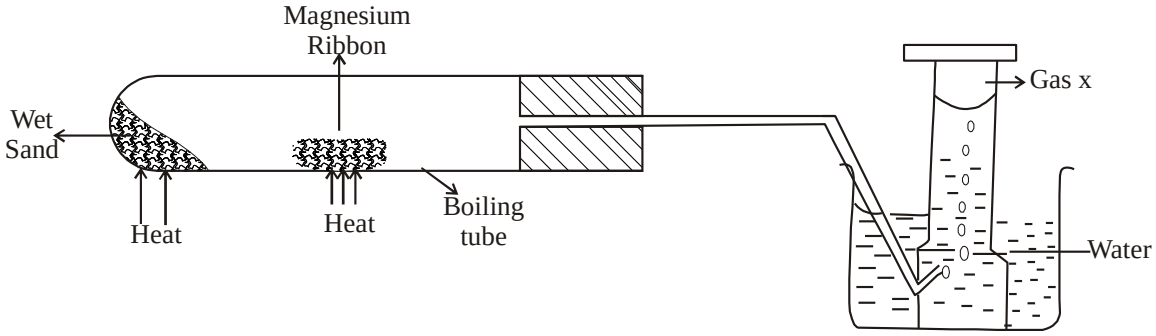
……

iii)State two factors you consider when choosing a fuel. **(1mark)**

……

5.

i) Magnesium ribbon was reacted with steam as shown in the diagram below.



i. State **two** observations in the boiling tube. **(2marks)**

……

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……

ii. Describe how you test for gas **x** **(2marks)**

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……

iii. State one industrial use of the product formed in the boiling tube at the end of the experiment. **(1mark)**

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……

iv)

a. Explain what is meant by the term neutralisation. **(1mark)**

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……..

b. Starting with $50cm^3$ of 2M nitric (v) acid, describe how you would prepare crystals of sodium nitrate. **(3marks)**

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……

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v) Complete the table below. **(1mark)**

Indicator	Colour in	
	Acidic solution	Alkaline solution

Phenolphthalein	_____	Pink
Methyl Orange	Pink	_____

vi) When magnesium is burnt in air two reactions take place forming two different compounds. Write down the equations for the two reactions. **(2marks)**

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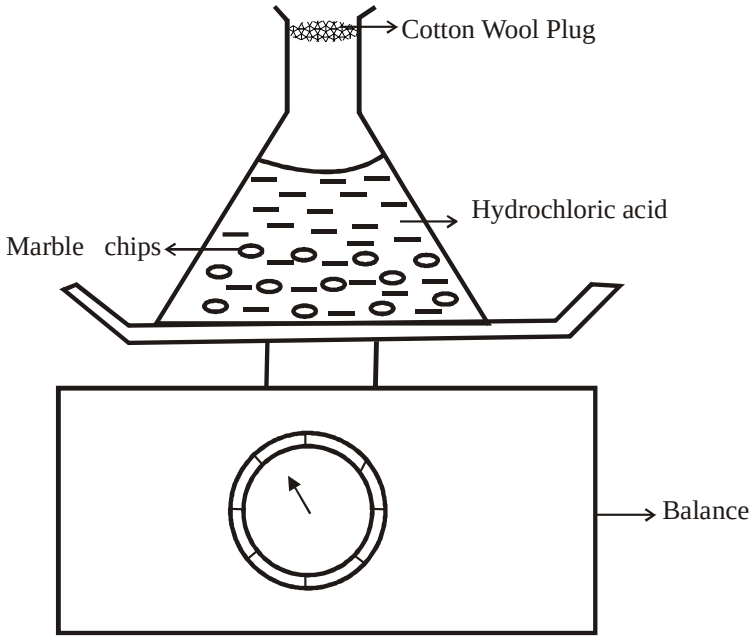
6. The set up below is used to measure the change in mass during the course of the reaction between dilute hydrochloric acid (Excess) and marble chips at 22^0C.



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

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

1. Write an equation for the reaction taking place in the flask. **(1mark)**

……

……

2. Give a reason why the mass of the flask charged with time? **(1mark)**

……

……

3. What is the role of cotton wool at the mouth of the flask? **(1mark)**

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……

4. Explain why it is not advisable to use dilute sulphuric (VI) acid with marble chips in this experiment **(1mark)**

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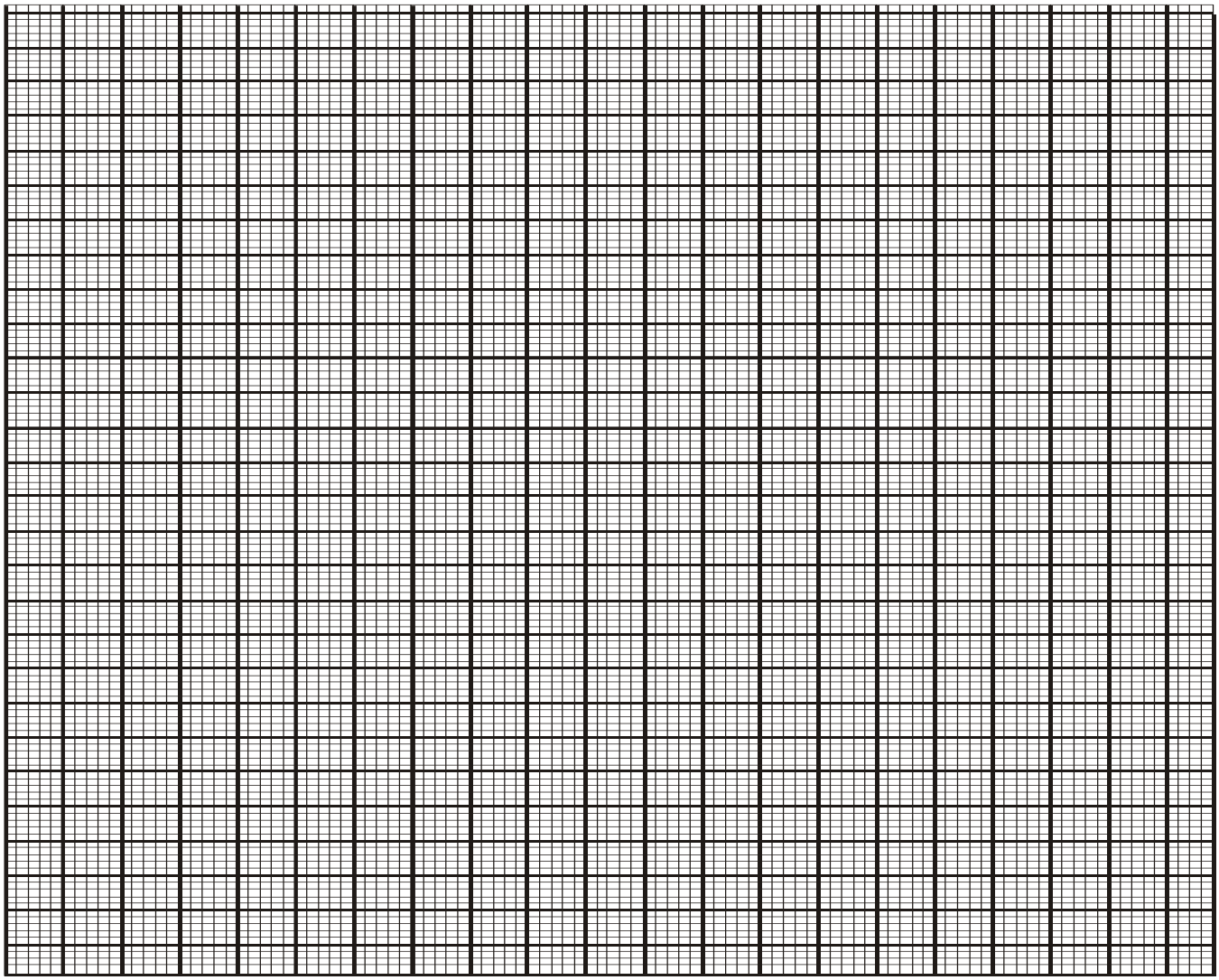
5. Plot a graph of loss in mass (vertical axis) against time. Label the curve 22^0C

(3marks)



6. On the same axis in (e) above sketch the graph you would expect to obtain if the experiment was repeated at 35^0C. Label the curve 35^0C. **(1mark)**

7. State what would happen if the marble chips were replaced with the same mass of marble powder. Explain your answer. **(1mark)**

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8. Determine the volume of carbon (IV) oxide produced if 0.12g of marble chips was reacted with excess dilute hydrochloric acid. (Experiment done at room temperature and pressure. Molar gas volume at r.t.p = 24dm^3,Ca = 40.0,O = 16, C = 12.0)

(2marks)

7. In an experiment ,0.71g of hydrated sodium carbonate ($Na_2CO_3.XH_2O$) was treated with dilute nitric v acid and the gas evolved was carbon iv oxide which was measured using a syringe at stp.The volume of carbon iv oxide obtained was 56cm^3

a.Write the equation for the reaction between anhydrous sodium carbonate and dilute nitric v acid **(1mk)**

b. Calculate the number of moles of carbon iv oxide gas collected at s.t.p (molar gas volume at stp=22,400) **(2mks)**

c.Calculate the mass of anhydrous sodium carbonate reacted **(3mks)**

d.Calculate the mass of water in 0.715g of hydrated sodium carbonate **(1mk)**

e. Determine the R.F.M of hydrated sodium carbonate, hence the value of X **(3mks)**

NAME…….…….. CLASS…….……

ADM NO……SIGNATURE……

DATE……

FORM 4 END TERM 2 SERIES 2 EXAMS

CHEMISTRY

PAPER 3

PRACTICAL

2 ¼ HOURS

INSTRUCTIONS TO CANDIDATES

- ***i)*** *Write your name and admission number in the spaces provided.*
- ***ii)*** *Sign and write the date of examination in the spaces provided above.*
- ***iii)*** *Answer all questions in the spaces provided.*
- ***iv)*** *KNEC Mathematical tables and silent non-programmable electronic calculators may be used.*
- ***v)*** *All working must be clearly shown where necessary.*
- ***vi)*** *Candidates should answer all the questions in English.*

FOR EXAMINER'SUSE ONLY

Question	Maximum Score	Candidate's Score
1	19	
2	10	
3	11	
TOTAL SCORE	**40**	

This paper consists of 8 printed pages

1. You are provided with:

- Solution **A**, a mixture of two bases sodium hydroxide and sodium carbonate solids dissolved in a 1 litre solution.
- Solution **B**, **0.2**M hydrochloric acid.
- Phenolphthalein and methyl orange indicators.
- Solution **C**, barium chloride solution.

You are required to determine the **concentration** of **each** of the reactants in the mixture.

Procedure 1

Pipette **25.0**cm^3 of solution **A** into a conical flask.

Add two drops of methyl orange indicator.

Titrate solution **A** with **B** until the yellow colour just changes to pink.

Record your results in the table below.

Repeat the procedure to obtain two more readings.

Table I **(3 marks)**

	1	**2**	**3**
Final burette reading (cm^3)			
Initial burette reading (cm^3)			
Volume of solution **B** used (cm^3)			

(a) Calculate the average volume (V_1) of solution **B** used. **(1 mark)**

(b) Calculate the number of moles of hydrochloric acid that reacted. **(1 ½ marks)**

Procedure II

Pipette **25.0**cm^3 of solution **A** into a conical flask. Measure **15.0**cm^3 of barium chloride solution (solution **C**) with clean measuring cylinder.

Add it to the solution **A** in the conical flask. Shake it gently and add three drops of phenolphthalein indicator.

Titrate solution **B** into the conical flask until the pink colour just changes to colourless.

NB: The white precipitate should remain in the flask.

Repeat the procedure to obtain two more readings

Table II **(3 marks)**

	1	**2**	**3**
Final burette readings (cm^3			
Initial burette reading (cm^3)			
Volume of solution **B** used (cm^3)			

(a) Calculate the average volume (V_2) of solution **B** used. **(1 mark)**

(b) The equation for the formation of white precipitate

$$Na_2CO_{3\,(aq)} + BaCl_{2\,(aq)} \longrightarrow BaCO_{3\,(s)} + 2NaCl_{\,(aq)}$$

During titration **II** the white precipitate formed after adding barium chloride does not take part in the titration but all the hydroxide ions (OH^-) in the solution are neutralized.

(i) Calculate the moles of the acid (solution **B**) reacting in titration **II**. **(1 ½ marks)**

(iii) Calculate moles of sodium hydroxide (OH^-) reacting during the titration. **(1 ½ marks)**

(c) Calculate number of moles of acid that reacted with sodium carbonate in the mixture.

(1 ½ marks)

(d) Calculate the concentration of solution **A** in terms of sodium hydroxide in moles per litre. **(1 ½ marks)**

iv) Write an ionic equation for the reaction of the acid with sodium carbonate**.**

(1 mark)

(g) (i) Calculate the number of moles of sodium carbonate in the mixture**. (1 mark)**

(ii) Calculate concentration of solution **A** in terms of sodium carbonate in moles per litre. **(1 ½ marks)**

2. You are provided with solid **Z**. Carry out the tests below and write your observations and inferences.

(a) Using a clean metallic spatula, heat a half of solid **Z** in a Bunsen burner flame.

Observation	**Inferences**
(1 ½ marks)	**(1 marks)**

(b) Dissolve the remaining portion of solid **Z** into **10**cm^3 of distilled water in a boiling tube. Divide the resulting solution into four portions.

Observation	Inferences
(1 mark)	**(½ mark)**

(c) To 1st portion, add **3** drops of acidified potassium manganate (VII)

Observation	Inferences
(½ mark)	**(1 ½ marks)**

(d) To the 2nd portion, add **3** drops of acidified potassium dichromate (VI) and warm.

Observation	Inferences
(½ mark)	**(1 ½ marks)**

(e) To the 3rd portion, add all the $NaHCO_3$ provided.

Observation	Inferences
(1 mark)	(½ mark)

(f) To the 4th portion, add **3** drops of universal indicator and determine the pH value.

Observation	Inferences
(1mark)	(½ mark)

3. You are provided with solid **Y**. Carry out the tests below and record your observations and

inferences in the spaces provided.

(a) Place half of solid **Y** in a boiling tube and heat. Test any gas produced with litmus paper.

Observation	Inferences
(1 ½ marks)	(1 mark)

(b) Place the remaining solid **Y** into a boiling tube. Add about **10**cm^3 distilled water and shake. Divide the resulting solution into **5** portions.

Observation	Inferences
(½ mark)	(½ mark)

(c) To the 1^{st} portion, add $NaOH_{(aq)}$ dropwise till in excess.

Observation	Inferences
(1mark)	(½ mark)

(d) To the 2nd portion, add $NH_{3\,(aq)}$ dropwise till in excess.

Observation	Inferences
(1 mark)	(½ mark)

(e) To the 3rd portion, add **1**cm^3 of acidified hydrogen peroxide followed by

$NaOH_{\,(aq)}$ dropwise till in excess.

Observation	Inferences
(1 mark)	(½ mark)

(f) To the 4th portion, add **3** drops of lead (II) nitrate and then filter.

Observation	Inferences
(1 mark)	(1 mark)

(g) To the 5th portion, add **3** drops of acidified barium nitrate solution.

Observation	Inferences
(½ mark)	(½ mark)

NAME…….…….. CLASS…….……

ADM NO……SIGNATURE……

DATE……..

FORM 4 END TERM 2 SERIES 2 EXAMS

101/1
ENGLISH
PAPER 1
FUNCTIONAL SKILLS, CLOZE TEST AND ORAL SKILLS
TIME: 2 HOURS
INSTRUCTIONS TO CANDIDATES.

(c) Write your name and index number in the spaces provided.
(d) Answer all questions in this question paper.
(e) All your answers should be written in the spaces provided in this question paper.
(f) *Contains four printed pages.*

FOR EXAMINER'S USE ONLY.

Question	Maximum Score	Candidate's Score
1	20	
2	10	
3	30	
Total	60	

This paper consists of 7 printed pages. Candidates should check the question paper to ascertain that all pages are printed as indicated and that no pages are missing.

i) FUNCTIONAL WRITING ***(20 marks)***

Imagine you are the principal at Kilimambogo Teachers Training College. Lydia Moraa, a former employee at the college, has been invited to attend an interview at Rift Valley Institute of Technology. The principal has written to you requesting that you provide information about Moraa's; professionalism, inter-personal relationship, reliability, mastery and content delivery and her general conduct. Send this information to the principal via an email. Copy in, the chairperson of the board without the Principal knowing that the chair has the same information.

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ii) Read the passage below and fill in the blanks with the most appropriate word. (10marks)

The world is fast hurtling 1**……..** self-imposed isolation, with Denmark 2**……..** Italy as the other European Nation 3**…….** quarantine. Indications show that 4**……..** more countries will go down that 5 **……..** as the corona virus that caused Covid-19 spreads 6 **……..**the world.

The World Health Organization (WHO) declared the Corona virus a global 7**…….** on Wednesday evening. WHO Director-General Tendros Adhanom Ghebreyesus said 8**…….** a terse statement that this is the first time the world is battling a pandemic 9**……** as corona virus 10**……..**

(Adopted from the Daily Nation Friday, March 13, 2020 by Elizabeth Merab and Nasibo Kabale)

iii) ORAL SKILLS (30marks)

a. Read the narrative below and answer the questions that follow.

THE BEAST WHO BOASTED

Once upon a time, an elephant, a lion, a fox and a peacock met at a pond in the forest. The Elephant began flapping his huge ears, looked down at the others from his great height and blew his trumpet.

"You have agreed that I am the strongest of all the Beasts". With my tusks, I can tear through the thickest forest. Trees are like twigs to me" he trumpeted.

"You may be strong," roared the lion, "but nothing compares to my bravery. It is because I am brave that I am the king of the forest."

"Not at all. Brains are more important than bravery and more strength," said the fox. "I live extremely well just by my wits."

"To be able to crash through woods, or leap into thin air, or sneak into the chicken yard is worthless compared to beauty," said the peacock. He demonstrated this by preening his colorful feathers in a dance. All this while, an ugly toad, whom no man had ever hunted, had been listening to the beasts bragging. "Men kill the elephant to make boxes and

jewellary from the ivory of his tusks," he said. "They hunt the lion and decorate their walls with his skin because his courage leads him to prey on their heard. Because he can find his way into the farmyard the fox's far is used on the collar of a robe. The peacocks' glorious blue gold feathers are used to make a fan for a lady. It is what you boast of that is indeed your downfall."

(Adopted from Oral literature of Asians in East Africa by Mubina Hassanali. Kirmani and Sanaullah Kirmani. Nairobi, East Africa Education Publisher 2002)

(a) Identify any three examples of onomatopoeia in this narrative. **(3 mks)**

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(b) Which words would you particularly emphasize in the elephant's speech**?** **(2 mks)**

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How would you deliver the speech by the ugly toad? Explain**.** **(3 mks)**

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b. for each of the following words indicate the stressed syllable using a stress marker, so that it gives the meaning of the definition given after it.
(4 marks)

(d) Re.fuse -(rubbish/waste)
(e) Re.bel -(a person who fights against an established government)
(f) De.sert -(To abandon)
(g) Pro.gress -(To advance or develop)

c. Imagine you meet a stranger who is asking for direction to a neighboring school. Write the dialogue that took place between you and the stranger. You may use some or all of the following landmarks in your dialogue: a shopping center, a primary school, a church, an unfinished house, a water tank and a maize plantation (6 marks)

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d. In the following sets of words identify the underlined speech sound that is odd.

(4 marks)

1. **G**ene, **J**udge, **J**une, **G**ore.
2. **E**xhort, **E**xist, **E**xile, Exhibit.
3. **J**oy, **J**ust, **G**aoler, **G**ate.

4. **A**mbush, **A**mass, **A**moeba, **A**maze.

e. You have been appointed to a committee to interview candidates who have applied for the post of your school patron.

(i) What two things would you do before the date of the interview to ensure that you are well prepared? **(2mks)**

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(ii)Apart from the interviewee's oral presentations, what other two communicative competencies would you lookout for during the interview?

(2mks)

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f. Read the following telephone conversation between Mato and the secretary and then answer the questions that come after it.

Mato: I am Mato and want to speak with the manager.

Secretary: Why? What do you want with him?

Mato : That is none of your business. I want to speak with the manager now.

Secretary: He is not in. Say what you wanted and I will tell him.

Mato: Why are you wasting my time? Tell him to call me.

Secretary: How will he reach you? What is your telephone...

(Phone is disconnected)

(a) Identify any four instance of lack of telephone conversations etiquette in the above conversation. **(4marks)**

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NAME…….…….. CLASS…….……

ADM NO……SIGNATURE……

DATE……..

FORM 4 END TERM 2 SERIES 2 EXAMS

101/2

ENGLISH

(COMPREHENSION, LITERARY APPRECIATION AND GRAMMAR)

PAPER 2

TIME: 2 ½ HOURS

INSTRUCTIONS TO THE CANDIDATES

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

FOR EXAMINER'S USE ONLY

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

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

1.Comprehension (20marks)

Read the passage below and then answer the questions that follow

People must be careful the kind of personal information they post on sites. It is difficult to imagine life in what seems like a century ago without the internet and the cell phone. Just how did we manage our lives before the age of instant communication at a fraction of the cost of the landline?

As a little child in 1960's, I could not visualize what my teenage sons do with technology today.

Could I have even dreamt of a cell phone, a device that I could have taken to school with me and been able to chat with my friends wherever I was and whenever I wanted? You know the answer. However, today's heaven of instant communication can easily turn into the hell of deadly sin. I mean quite literally.

Instant communication devices and portable entertainment products could of course be addictive to anybody, but such addiction can be particularly destructive to young people in school. They can distract students from homework and house chores. They can also damage ear drums. Think of the **ubiquitous** iPod which the youth equate to oxygen without which life is unsuitable!

I have even seen some grown men behaving like teenagers with iPods! Last year, a person was killed by a vehicle that spun out of control and hit him as he crossed the road somewhere in the United States. The footage showed clearly that the victim could have heard or seen the rogue vehicle had his ears not been plugged up to loud music.

While I do not want to sound like a Neanderthal, I nevertheless would like to reflect on the perils of this new gadgetry and technology. The first obvious point is that not all technology is good. Think of the A-Bomb for example, and you get my point.

I disagree with those who argue that it is not technology that is bad, but the users who misapply it. This is how some scientists justify their abdication of social responsibility. Thus we do not have to buy every little silly gadget that market puts out. Haven't you noticed that the companies always time the release of these gadgets to Christmas, or some other consumer holiday? They surely know how to apply peer pressure and pit children against parents as a marketing tool. Sometimes I wonder whether capitalism can be any more devious!

To be sure I cannot gainsay the benefits of new technologies. The computer and the internet are without doubt the greatest inventions of our age. Information and knowledge that was

inaccessible just several decades ago is now a click away even in the remotest village in the world. And it is all quite cheap. Access to information and knowledge is being democratized in a way that was unthinkable just a few decades ago. Think about the revolution of the cell phone for the individual communication and business transactions. Landlines are becoming virtually obsolete. It is this revolution that should lift millions out of poverty in the near future.

But these advances come with perilous clouds over them. I particularly, I want to focus on social networking sites and the dangers of the instant transmission of information and images. We have known for a long time that the internet is the new Wild West where everything goes.
Countries that are afraid of democracy and dissent, like China or Syria, limit, monitor, control, censure or deny access to the internet. They claim they must keep at bay pornography and sexual predators like pedophiles who troll the interment with demonic schemes. These are real problems, but do not think that censorship is the answer. Cyber surveillance by law enforcement and the prosecution of these malignant forces is the only effective and civilized response.

But individuals must themselves act responsibly. Ultimately, the **pivot** of any democracy responsible citizen action. This is where parents, civil society and the media come in. Take Face Book, the wildly popular social networking site, for example. Some of the things I have seen there are downright stupid, dangerous, malevolent or just plain crazy. Teenagers on these sites sometimes communicate with imposters bent on luring the naïve to a dead end. How many times have we seen reports of some 60-year-old pervert posing as a teen? Even scarier, how many times have we read about such rendezvous ending in a fatality? There are other less deadly, but very destructive dangers. Prospective employers are increasingly looking into social networking sites for personal information about applicants. Even some colleges are snooping around for information about prospective students. There are reports that some people have been rejected because of the personal information they posted to the sites. Such information has ranged from **lurid** pictures to abusive language.

This means that young folks must be very careful about posting intimate details including personal pictures and other personal data such as birth dates, personal ID numbers and home address on such sites. Such information about yourself can only hurt you if displayed for the entire world to see. Teenagers need to be particularly careful about the new fad of "**sexting**". This is an epidemic in New York among teenagers. Teens and other young people are sending nude pictures of themselves to their friends or lovers. A large number of such pictures have been shared widely beyond the intended audience. In one case, a child whose nude pictures were revealed took her own life. It can cause untold grief.

Questions

1.Why not censor modern technology? **(2mks)**

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2.What is the purpose of a cell-phone**?** **(2mks)**

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3.make notes on the dangers of modern technology. **(6mks)**

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4.What is the attitude of the author towards modern technology? **(2mks)**

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5.How do scientists justify their innovations. **(1mk)**

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……

6.What is implied by the expression "perilous clouds" **(2mks)**

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……

7.Write the following sentence in indirect speech. **(1mk)**

I wonder whether capitalism can be more devious!

……
……

8.Explain the meaning of the following words; **(4mks**)

i) Lurid

……
……

ii) Pivot

……
……

iii) Sexting

……
……

iv) Ubiquitous

……
……

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

"Who? Not me," Resian said vehemently "I don't want to be a parent. At least not in the foreseeable future.

I want to study. When I'll have obtained my degree, other peripheral matters such as a husband, children and such may be considered."

They were walking back to the homestead talking animatedly when they were accosted by a tall heavyset young man with a thick dark beard and moustache. He wore a pair of faded jeans and a dirty blue shirt. On his face was a wide impudent grin. Taiyo glanced at the young man and looked away. She moved closer to Resian and nudged her to change direction. But the man walked directly to Taiyo. On seeing the man approaching, a heavy knobkerry in his hand, Resian almost fainted.

"Please do not harm us," she pleaded. "We do not have any money with us."

"Who told you I want any money?" the man jeered as he strode menacingly towards them. "Are you

not the *intoiyenemengalana* from Nakuru town?" he asked laughing contemptuously. "I want to have a good look at you and know what kind of stuff you are made of!" He roughly grabbed Taiyo's arm.

"Leave my sister alone!" Resian hissed indignantly lifting her eyes and glaring into his. "Let go her arm at once!"

"Let go of my hand," Taiyo demanded, trembling with anger. "We are not the kind of women you have in mind!"
"What women!" the man retorted acidly. "Soon, you will be able to differentiate decent women from *intoiyenemengalana."*
Taiyo tried to wrestle her arm from the man's grip without success. But suddenly, he seemed to change

his mind. With a sour smile, he spat and glared at the girls. Then, releasing Taiyo's hand, he told them: "You have not seen the last of me. Soon you will come to know that there is no place in our society for women of your ilk." He turned and disappeared down the road as suddenly as he had appeared.

The two girls sighed heavily and shook their heads as they watched him walk away. Although they had put up brave faces, they were terribly shaken.

"Thank God his intention was not to rape us," Resian said tears streaming down her face. "We would have been helpless in the hands of such a brute."

Taiyo bit her lower lip struggling to maintain control. "His intention could have been worse than rape," she said, tears of anger and indignation welling up in her eyes.
They quickened their steps to their uncle's home. True, the incident had taken the sparkle from the day that had begun so joyfully, but they reasoned that it could have been worse.

The girls debated as to whether to inform their parents of the ordeal. They knew their mother would understand and empathize with them. But judging from past experience, their father would be less supportive. He would blame them for having dared venture into an unknown territory without his approval. Finally, they decided to keep the incident to themselves.

(c) Briefly discuss the events leading to Resian's question "Who?" in the excerpt. (**3marks)**

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(d) "Thank God his intention was not to rape us," Resian said tears streaming down her face. "We would have been helpless in the hands of such a brute." *(Rewrite as a reported speech*) **(1mark)**

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(e) Describe two similar traits demonstrated by both Resian and Taiyo in the excerpt.

(6marks)

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(f) Discuss two stylistic devices used by the author in the excerpt. **(4marks)**

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(g) Highlight and illustrate two themes presented in the excerpt**.** **(4marks)**

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……..……

(h) "But judging from past experience, their father would be less supportive." Point out two incidences in which the father shows less support to his daughters from what happens in the rest of the novel. **(2marks)**

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(i) What happens immediately after this excerpt? **(2marks)**

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……

(j) Give the meaning of the following words as used in the excerpt. (3marks)

i. vehemently**……..**

ii. accosted**……**

iii .ilk**…….**

3. Read the poem below and answer the questions below 20marks)

Advice to my son

The trick is, to live your days

as if each one may be your last

(for they go fast, and young men lose their lives

in strange and unimaginable ways)

but at the same time, plan long range

(for they go slow: if you survive

the shattered windshield and burning shell

you will arrive

at our approximation here below

or heaven or hell)

To be specific, between the peony and the rose

Plant, squash and spinach, turnips and tomatoes;

beauty in nectar

and nectar, in desert saves

but the stomach craves stronger sustenance

than the homed vine.

therefore, marry a pretty girl

after seeing her mother;

speak truth to one man,

work with another;

and always, serve bread with your wine.

But son,

Always serve wine

(Peter Meinke)

a) Who is the speaker in the poem. Illustrate your answer. 2marks

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……

b) In what circumstances do many young people die? Illustrate your answer from the poem. **(4marks)**

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c) What do heaven and hell symbolize? **(2marks)**

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d) Identify items in the poem that represent life's necessities on one hand and life's luxuries on the other**.** **2marks**

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e) Identify and illustrate the use of the paradox in the poem. 3marks

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f) What does the persona mean by 'marry a pretty girl after seeing the mother?" **(2marks)**

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g) The stomach craves stronger sustenance. (Rewrite using (What") **(1mark)**

……
……

h) Give two meanings of each of the following words. 2marks

-Last

……..……

……..

-Fast

……

……

i) Give the meaning of the last two lines. 2mark

4. GRAMMAR (15MKS)

a) <u>Rewrite the following sentences according to the instructions given (6mks)</u>

i) He will not be given a driving license. He passes the road test (Rewrite as one using'unless')

……...

ii) The woman left the child with a neighbor and went to the market. (Begin: leaving….)

……

iii) The boys went to play in the field (underline the adverbial)

……

iv) He said that he had not insulted me. (Use: 'denied')

……

e) <u>Write the following sentence in indirect speech</u>(1mk)

"These are juicy mangoes," Ken said.

……

f) You do not require to cheat to pass (1mk) (Supply a suitable question tag)

……

b) <u>Supply the correct preposition to complete the sentences given. (3mks)</u>

a. Property worth millions of shillings went up **…….** flames.

b. The three boys shared the bread **……...**themselves.

c. We should strive to live **……**our means.

(ii)<u>Use the correct form of the word in brackets to fill in the blank spaces in the sentences below.</u>(3mks)

i. The audience was offended by the **…….……** (sense) of the speaker.

ii.The **……...**(acquire) of a university degree is a great milestone to a student.

iii) Everyone should obey the law **……** (regard) of their position in the society.

d)<u>Use the correct alternative to complete the sentences below (3mks)</u>

i.Teaching **……**(practice/practice) is not an easy job for teacher trainees.

ii. The prophet's **……** (prophesy/prophecy) was misleading to his audience.

iii.He **……** ((insured/ensured) his car with Madison.

NAME…….…….. CLASS…….……

ADM NO……SIGNATURE……

DATE……..

FORM 4 END TERM 2 SERIES 2 EXAMS

101/3

ENGLISH

PAPER 3

(CREATIVE COMPOSITION AND ESSAYS BASED ON SET TEXTS)

TIME: 2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

(i) *Answer **three** questions only*
(ii) *Questions **one** and **two** are compulsory*
(iii) *In question three choose only **one** of the optional texts you have prepared on.*
(iv) *Where a candidate presents work on more than one optional text, only the first to appear will be marked*
(v) *Each of your essay must not exceed **450** words*
(vi) *All answers should be written in the answer booklet provided*
(vii) *This paper consists of **2** printed pages*
(viii) *Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing*
(ix) *Candidates **must** answer **ALL** questions in English*

For Examiner's use only

Question	*Maximum Score*	Student's Score
1.	20	
2.	20	
3.	20	
Total	60	

This paper consists of 2 printed pages. Candidates should check the question paper to ascertain that all pages are printed as indicated and that no pages are missing.

(a) Imaginative Composition (Compulsory)

Either

i. Write a story that ends with the following sentence.
I never believed that I would see Kisali again.

Or

ii. Write a composition explaining what Kenyan youths can do to help in the fight against corruption.

(b) The Compulsory Set Text

Henrik Ibsen, A Doll's House

"Appearances are often misleading." Validate this statement basing your illustrations from Henrik Ibsen's A Doll's House.

(c) The Optional Set Texts

Answer any **one** of the following three questions.

Either

(a) The Short Story

Memories We Lost and Other Stories'

Using Leo Tolstoy's story "How Much Land Does Man Need," write an essay to prove that "He who wants all loses all."

Or

(b) Drama

David Mulwa, Inheritance

The peace, stability and growth of a nation is dependent on the people in leadership. Write an essay in support of this assertion using illustrations from Inheritance.

Or

(c) The Novel

John Steinbeck, The Pearl

Kino was never meant to be rich. Discuss using The Pearl as basis for your argument.

NAME…….…... CLASS…….……

ADM NO……SIGNATURE……

DATE……

FORM 4 END TERM 2 SERIES 2 EXAMS

FORM 4

CHRISTIAN RELIGIOUS EDUCATION

PAPER 1

TIME:2 ½ HOURS

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 provided above.*

(c)*This paper consists of six questions.*

(d)*Answer any five questions in the spaces provided*

(e)*Each question carries 20 marks.*

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

(g)*Candidates should answer the questions in English.*

1. **a)** Give reasons why the use of the Bible is central in the study of C.R. E **(7marks)**

b) Identify **five** causes of sin with reference to Genesis chapter 3. **(5marks)**

c) State ways through which human beings continue to be co-creators with God. **(8marks)**

2. a) Describe the covenant ceremony between God and Abraham in Genesis 15: 1- 19. **(7marks)**

b) Identify **seven** ways in which God prepared Moses to be the future leader for his people. **(7marks)**

c) State ways in which Christians keep their vows to serve God. **(5marks)**

3.a) Identify the factors that led to the split of Israel after the death of King Solomon**.(7marks)**

b) Give **seven** attributes that shows the nature of the Canaanite religion**.(7marks)**

c) Outline ways in which Christian leaders misuse their positions today**.(6marks)**

4.a) Explain **four** differences between the Traditional African and Old Testament prophets.**(8marks)**

b) Give **seven** duties of the prophets of God in Israel**.(7marks)**

c) Outline the relevance of Old Testament prophets to Christians today**.(5marks)**

5.a) Identify the occasions in which Nehemiah prayed to justify his needs in Judah. **(7marks)**

(d) a)Give the promises made when the Israelites renewed their covenant with God during Nehemiah's time. **(7marks)**

c) Give **six** reasons why people seek refuge in other countries. **(6marks)**

6. a) Outline **seven** roles played by ancestors in traditional African communities. **(7marks)**

b) Explain the changes that have taken place in the rite of initiation **(6marks)**

c) Identify the moral values taught to the youth during initiation to adulthood in Traditional African communities. **(7marks)**

NAME…….…….. CLASS…….……

ADM NO……SIGNATURE……

DATE……..

FORM 4 END TERM 2 SERIES 2 EXAMS

CHRISTIAN RELIGIOUS EDUCATION

PAPER 2

TIME: 2 ½ HOURS

Instructions to candidates

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

1.(a) Outline the psalmist prophecies concerning the messiah Psalms 41:9, 110:1-2

(6marks)

(b) In what ***seven*** ways was the birth of Jesus going to be extra ordinary according to Angel Gabriel? **(7marks)**

(c) What lessons can Christians learn from the infancy stories about children.?**(7marks)**

2.(a) Describe the healing of the paralytic man in Luke 5:1-11. **(8marks)**

(b) Identify ***eight*** ways through which Jesus promoted social equality. **(8marks)**

(c) State ***five*** reasons why Christians should practice forgiveness in their lives**.(5marks)**

3.(a) Relate the parable of the tenants as recorded in Luke 20:9-19**.(7marks)**

(h) Identify ***seven*** ways through which the disciples of Jesus demonstrated their love for Jesus. **(7marks)**

(c) How do Christians show demonstrate their love for God? **(6marks)**

4.(a) Outline the message of Peter concerning Joel's prophecy on the day of Pentecost (*Acts 2:7-21)***.(7marks)**

(b) Explain the unity of believers as expressed in the image of the church. **(8marks)**

(c) State ***five*** factors that bind members together in a local church in Keny today. **(6marks)**

5.(a) State seven factors contributing to unemployment in Kenya today. **(7marks)**

(b) Identify ways in which the church is helping to solve social problems resulting from misuse of leisure. **(7marks)**

(c) Give the dangers of using illicit drugs among the youths in Kenya today. **(6marks)**

6.(a) Identify ways through which wealth is acquired by people in Kenya today. **(7marks)**

(b) Give **seven** reasons why Christians should respect the law of the country. **(7marks)**

(c) How can the youth in the church today carry out environment restoration. (**6marks)**

NAME…….…….. CLASS……..……

ADM NO……SIGNATURE……

DATE……..

FORM 4 END TERM 2 SERIES 2 EXAMS

GEOGRAPHY
PAPER ONE
TIME:2 ¾ HOURS

INSTRUCTIONS TO CANDIDATES

i) *This paper has* ***two sections****:* ***A*** *and* ***B****.*

ii) *Answer* ***all the questions*** *in* ***SectionA.***

iii) *Answer* ***question 6*** *and any other two questions from* ***section B.***

iv) *All answers must be written in the* ***answer booklet*** *provided.*

v) ***Candidates*** *should answer the questions in* ***English****.*

SECTION A (25 MARKS)

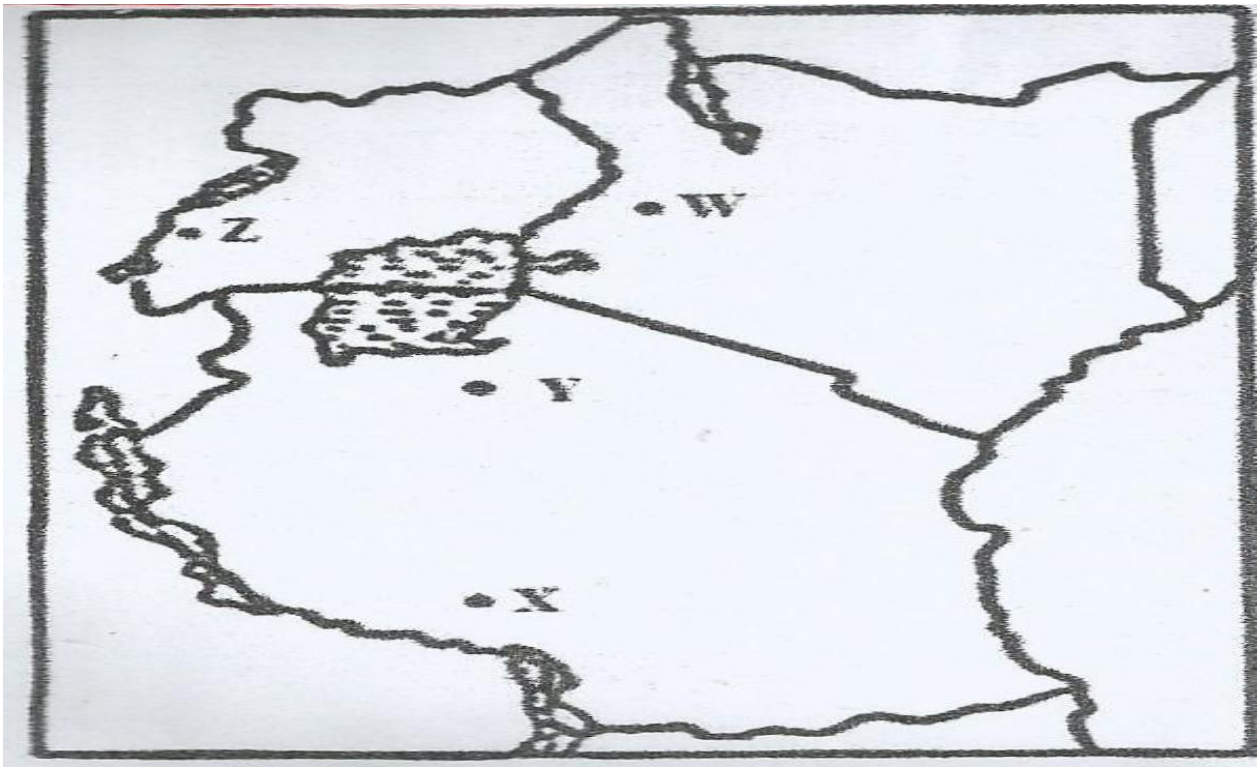
1.(a) define ecotourism (**2 Marks)**

(b) State **two** reasons why domestic tourism is encouraged in Kenya **(2 Marks)**

2. (a) State **three** physical features that favoured the development of the seven forks hydro-electric power scheme. **(3 Marks)**

(b) State **two** human problems facing hydro-electric power projects development in Kenya. **(2 Marks)**

3. Use the map of Eat Africa below to answer questions (**a (i)**



(a) Identify the minerals which are mined in the areas marked **W, X, Y** and **Z.**

(4 Marks)

(b) State **three** problems facing gold mining in South Africa. **(3 Marks)**

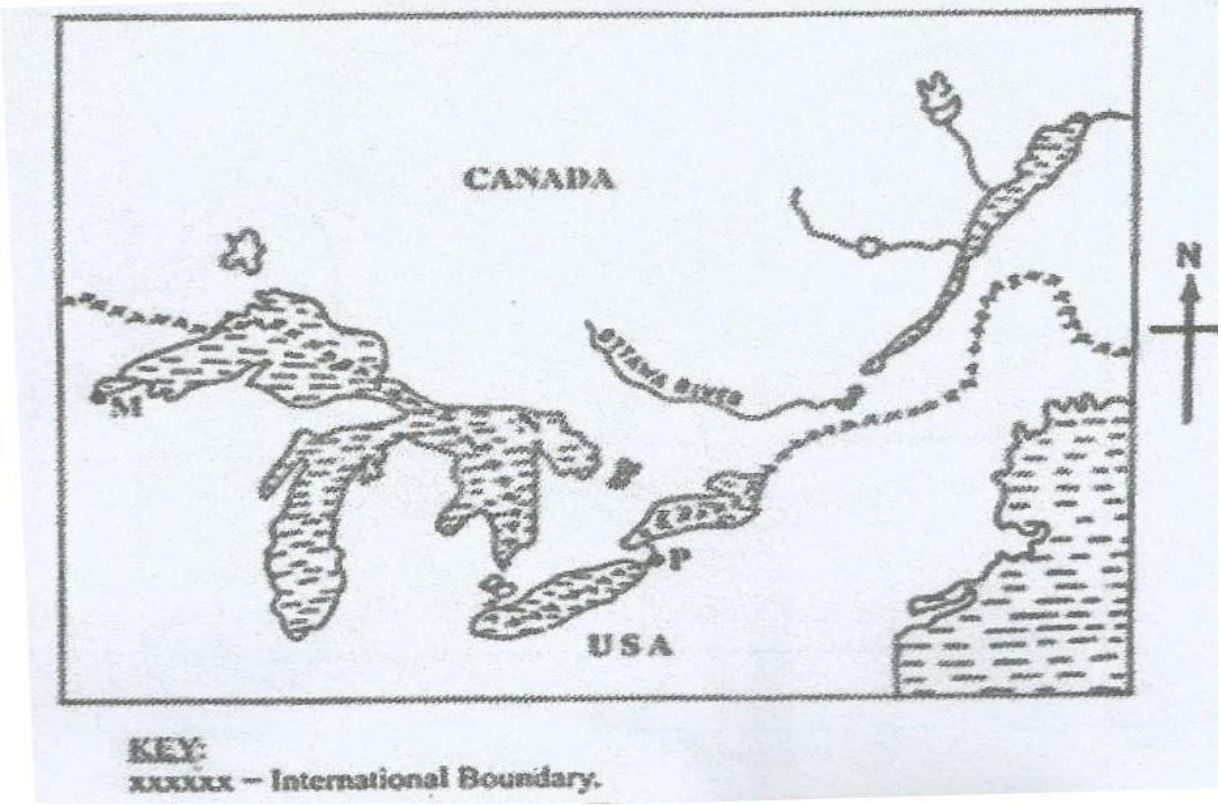
(c) State two factors which influence the mode of occurrence of minerals.

(2 Marks)

4. (a) Give **three** features of the cottage industry in India. **(3 Marks)**

(b) Identify **two** human factors which influenced the development of the Iron and Steel industry in the Ruhr Region of Germany in the 19th century. **(2 Marks.)**

5. Below is a map of the Great Lakes of North America - St. Lawrence Seaway. Use it to answer question **(a).**



(a) Name:

i) The Lake marked **L** **(1 Mark)**

ii) The waterfall marked **M.** **(1 Mark)**

iii) The port marked **N.** **(1 Mark)**

(b) Give **two** activities which were carried out by the St. Lawrence Seaway Project between 1954 and 1959. **(2 Marks)**

SECTION B (75 MARKS)

6. The table below shows the population distribution within various sub counties of county T.

Sub - County	Population Size
K	65,000
L	55,000
M	40,000
N	35,000

(a) (i) Use the Base Map provided on page 7 to present the above population distribution data.Use a scale of one (1) dot to represent 5000 people. **(14 Marks)**

(ii) State **three** disadvantages of Dot Maps in data presentation. **(3 Marks).**

(b) State **four** measures which the government of Kenya has taken to reduce infant mortality. **(4 Marks)**

(c) State**four** similarities between the population trends of Kenya and Sweden. **(4 Marks)**

7. (a) (i) Differentiate land reclamation from land rehabilitation. **(2 Marks)**

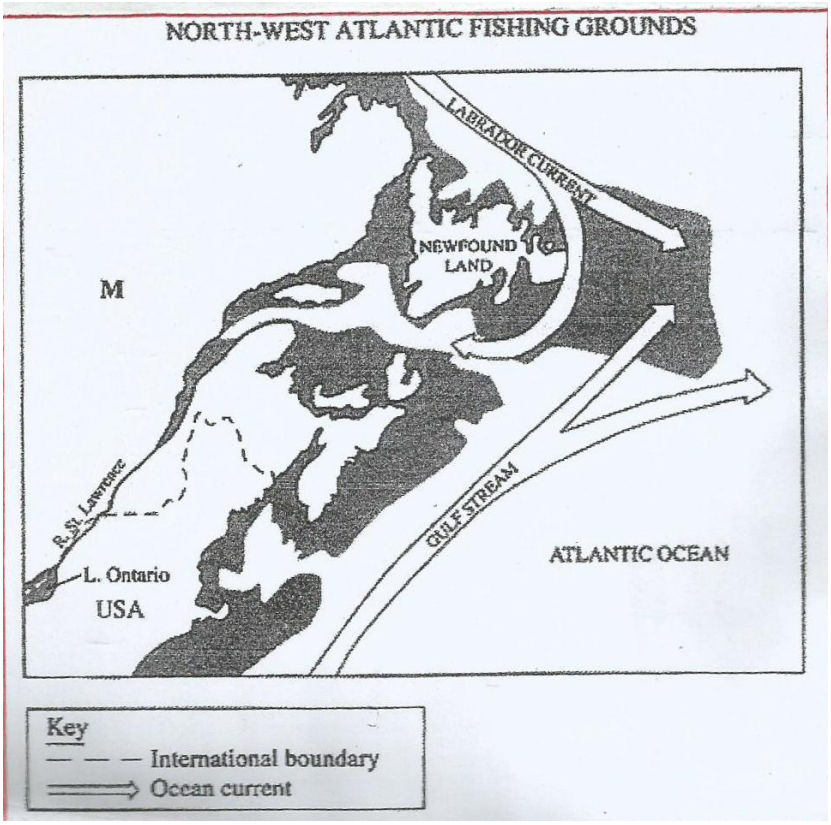
(ii) Describe the stages of land reclamation from the sea in the Netherlands **(6 Marks)**

(b) Explain four ways in which the Zuyder Zee economically benefits the Netherlands**.** **(8 Marks)**

(c) (i) State four ways in which land is reclaimed in Kenya excluding irrigation. **(4 Marks)**

(ii) State five problems facing the Perkerra Irrigation Scheme. **(5 Marks)**

8. Use the map of the North-West Atlantic fishing ground below to answer questions (a) and (b)



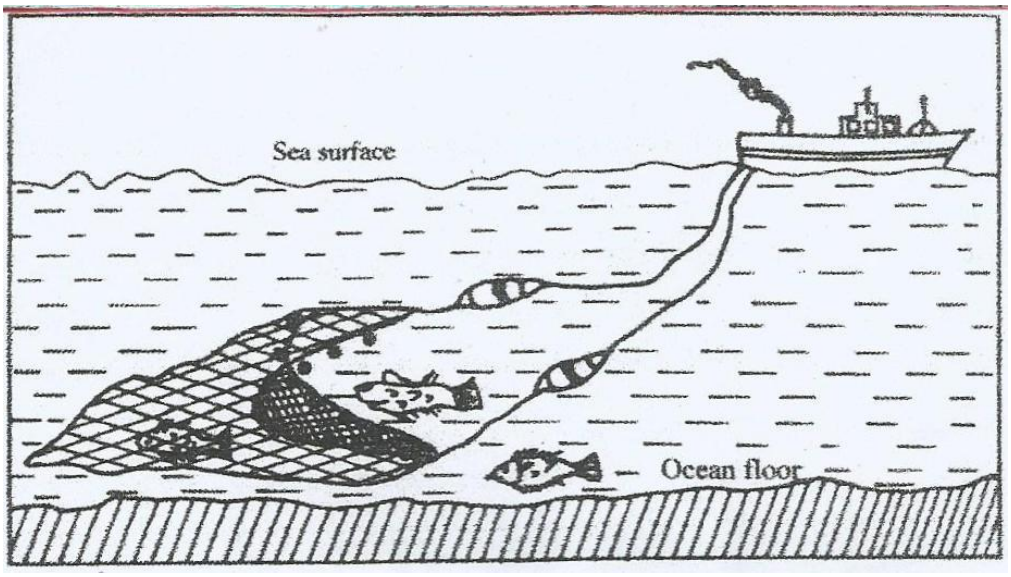
(a) (i) Name the country marked M. **(1 Mark)**

(ii) Explain how the two ocean currents shown on the map influence fishing in the area. **(4 Marks)**

(b) Explain **three** factors which favour commercial fishing in the area shaded on the map other than ocean currents. **(6 Marks)**

(c) Explain **three** human reasons why fresh water fishing is more developed than marine fishing in East Africa. **(6 Marks)**

(d) The diagram below shows a commercial fishing method.



i) Describe how the method is used in catching fish. **(5 Marks)**

ii) List **three** methods used to preserve fish **(3 Marks)**

9. (a) State **three** physical conditions that favour coffee growing in the Central Highlands of Kenya. **(3 Marks)**

(b) Describe the stages involved in coffee production from picking to marketing**. (8 Marks)**

(c) Explain **four** problems facing coffee farming in Brazil. **(8 Marks)**

(d) Your Geography class carried out a field study on a coffee farm.

i)State **four** methods the class may have used to collect data. **(4 Marks)**

ii) During the field study, the class collected data on the quantities of coffee produced from the farm in the last five years.

iii) State **two** methods that the class may have used to present the data. **(2 Marks)**

10.(a) (i) A part from water and air pollution, name **two** other types of pollution. **(2 Marks)**

(ii) Identify **three** ways in which water is polluted**. (3 Marks)**

(iii) Explain **three** effects of air pollution on the environment. **(6 Marks)**

(c) (i) Explain **three** factors that lead to frequent flooding in the Lake Region of Kenya. **(6 Marks)**

(ii) Explain **two** ways through which floods are controlled in the Lake Region of Kenya. **(4 Marks)**

(d) State **four** negative effects of wind as an environmental hazard in Kenya. **(4 Marks)**

NAME…….…….. CLASS…….……

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DATE……..

FORM 4 END TERM 2 SERIES 2 EXAMS

GEOGRAPHY
PAPER TWO
TIME:2 ¾ HOURS

INSTRUCTIONS TO CANDIDATES

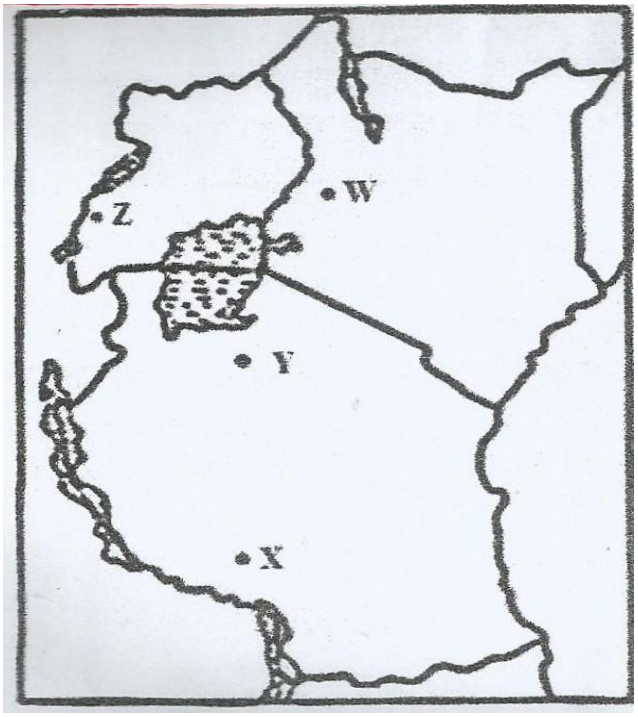
i) *This paper has* ***two sections****: A and B.*
ii) *Answer* ***all the questions*** *in* ***Section A.***
iii) *Answer* ***question 6*** *and any other two questions from* ***section B.***
iv) *All answers must be written in the* ***answer booklet*** *provided.*
v) ***Candidates*** *should answer the questions in* ***English****.*

SECTION A (25 MARKS)

1. (**a)** define ecotourism **(2 Marks)**
(b) State **two** reasons why domestic tourism is encouraged in Kenya **(2 Marks)**

2. (a) State **three** physical features that favoured the development of the seven forks hydro-electric power scheme. **(3 Marks)**
(c) State **two** human problems facing hydro-electric power projects development in Kenya. **(2 Marks)**

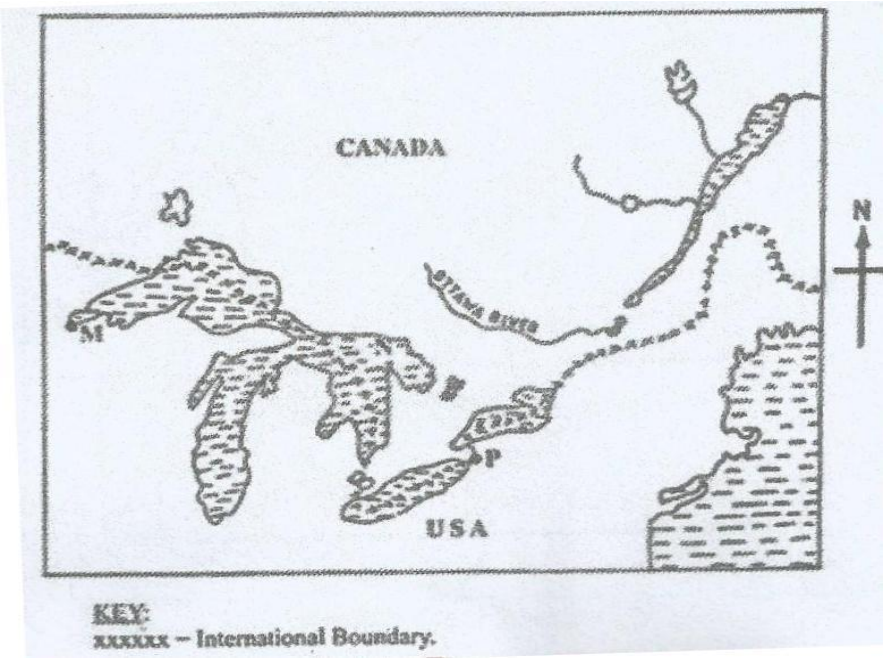
3. Use the map of Eat Africa below to answer questions (**a (i)**



(a) Identify the minerals which are mined in the areas marked W, X, Y and Z. **(4 Marks)**
(b) State **two** problems facing gold mining in South Africa. **(2 Marks)**
(c) State two factors which influence the mode of occurrence of minerals. **(2 Marks)**

4. (a) Give **three** features of the cottage industry in India. **(3 Marks)**
(b) Identify **two** human factors which influenced the development of the Iron and Steel industry in the Ruhr Region of Germany in the 19th century. **(2 Marks.)**

5. Below is a map of the Great Lakes of North America - St. Lawrence Seaway. Use it to answer question **(a).**



(a) Name:

i) The Lake marked L **(1 Mark)**

ii) The waterfall marked T. **(1 Mark)**

iii) The port marked N**. (1 Mark)**

(b) Give **two** activities which were carried out by the St. Lawrence Seaway Project between 1954 and 1959. (2 Marks)

SECTION B (75 MARKS)

6. The table below shows the population distribution within various sub counties of county T.

Sub - County	Population Size
K	65,000
L	55,000
M	40,000
N	35,000

(a) **(i)** Use the Base Map provided on page 7 to present the above population distribution data.

Use a scale of one (1) dot to represent 5000 people. **(14 Marks)**

(ii) State **three** disadvantages of Dot Maps in data presentation.

(3 Marks).

(b) State **four** measures which the government of Kenya has taken to reduce infant mortality. **(4 Marks)**

(c) State **four** similarities between the population trends of Kenya and Sweden. **(4 Marks)**

7. (a) (i) Differentiate land reclamation from land rehabilitation. **(2 Marks)**

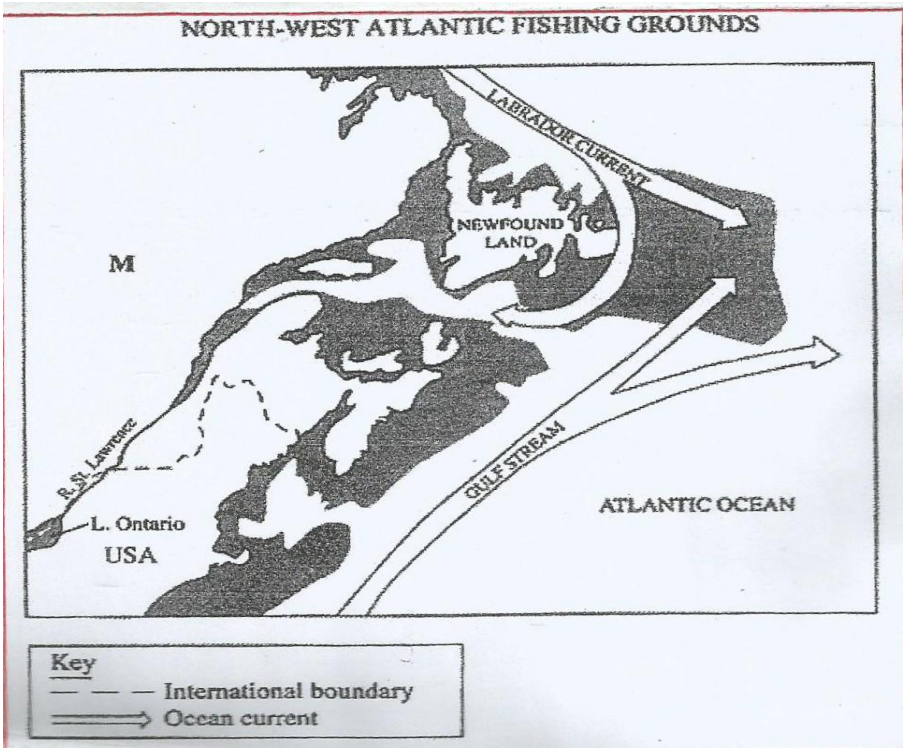
(iii) Describe the stages of land reclamation from the sea in the Netherlands **(6 Marks)**

(b) Explain four ways in which the Zuyder Zee economically benefits the Netherlands. (**8 Marks)**

(c) (i) State four ways in which land is reclaimed in Kenya excludin irrigation. **(4 Marks)**

(ii) State five problems facing the Perkerra Irrigation Scheme. **(5 Marks)**

8. Use the map of the North-West Atlantic fishing ground below to answer questions **(a)** and **(b)**



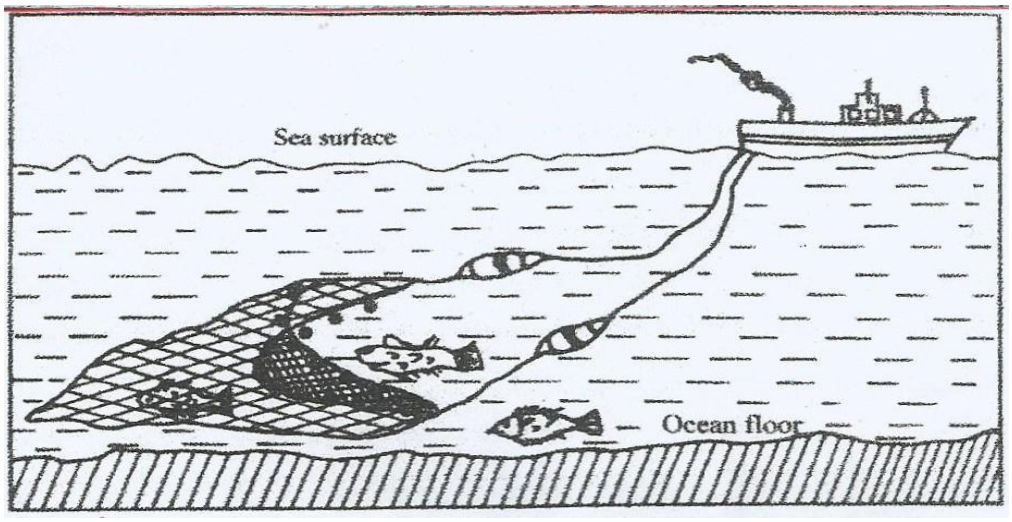
(a) (i) Name the country marked M. **(1 Mark)**

(ii) Explain how the two ocean currents shown on the map influence fishing in the area. **(4 Marks)**

(b) Explain **three** factors which favour commercial fishing in the area shaded on the map other than ocean currents. **(6 Marks)**

(c) Explain **three** human reasons why fresh water fishing is more developed than marine fishing in East Africa. **(6 Marks)**

(d) The diagram below shows a commercial fishing method.



i) Describe how the method is used in catching fish. **(5 Marks)**

ii) List **three** methods used to preserve fish **(3 Marks)**

9. (a) State **three** physical conditions that favour coffee growing in the Central Highlands of Kenya**.** **(3 Marks)**

(b) Describe the stages involved in coffee production from picking to marketing. **(8 Marks)**

(c) Explain **four** problems facing coffee farming in Brazil**.** **(8 Marks)**

(d) Your Geography class carried out a field study on a coffee farm.

i. State **four** methods the class may have used to collect data. **(4 Marks)**

ii. During the field study, the class collected data on the quantities of coffee produced from the farm in the last five years.
State **two** methods that the class may have used to present the data. **(2 Marks)**

10.(a) (i) A part from water and air pollution, name **two** other types of pollution. **(2 Marks)**

(ii) Identify **three** ways in which water is polluted. **(3 Marks)**

iii. Explain **three** effects of air pollution on the environment. **(6 Marks)**

(c) (i) Explain **three** factors that lead to frequent flooding in the Lake Region of Kenya. **(6 Marks)**

(ii) Explain **two** ways through which floods are controlled in the Lake Region of Kenya. **(4 Marks)**

(c) State **four** negative effects of wind as an environmental hazard in Kenya. **(4 Marks)**

A BASE MAP FOR QUESTION 6 (a) (i)

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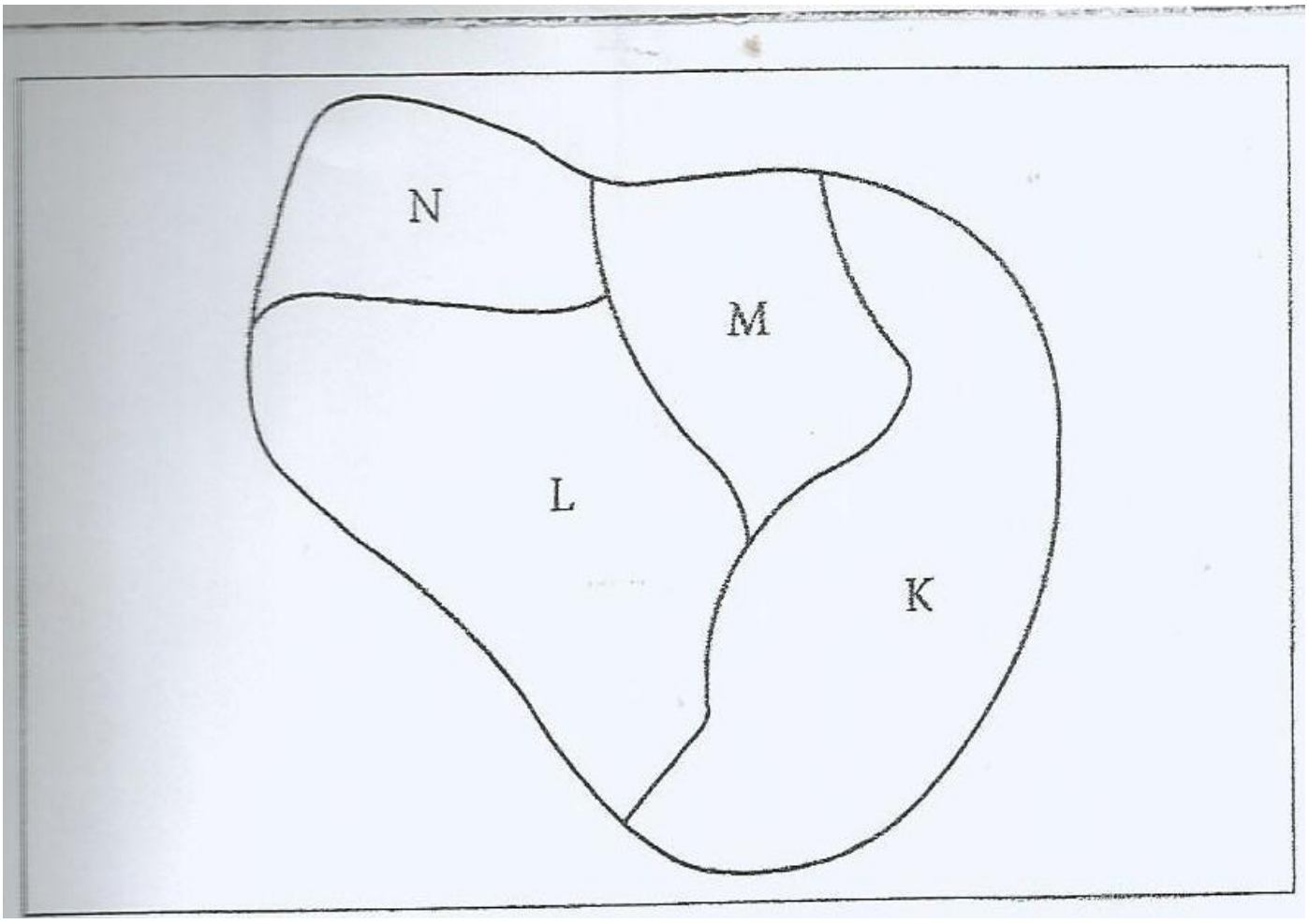

NAME……..…….... CLASS……..……

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DATE……..

FORM 4 END TERM 2 SERIES 2 EXAMS

HISTORY AND GOVERNMENT

PAPER ONE

SECTION A (25 MARKS)

(Answer all questions in this section)

1. Define the **legitimacy** as a characteristic of government. **(1mark)**
2. Identify **two** examples of highland Bantu in Kenya. **(2marks)**
3. Give the name of the god worshipped by the Abagusii during the pre-colonial period**.** **(1mark)**
4. State **two** political functions of the orkoiyot among the Nandi during the 19th Century**.** **(2marks)**
5. Identify **one** treaty that was signed to end slave trade along the East Africa Coast during the time of Seyyid Said**.** **(1mark)**
6. Give **one** limitation to the right to start a family in Kenya. **(1mark)**
7. Identify **one** way in which the presidency promotes National Unity **(1mark)**
8. State **two** factors that determine the form of constitution to be adopted in a country.

(2marks)

9. Identify **one main** aspect of democracy**.** **(1mark)**

10. Name the treaty that marked the end of scramble and partition of East Africa**.**
(1mark)

11. Give **two** reasons why Africans were not allowed to grow coffee until 1937.
(2mark)

12. Identify **two** roles played by Kenya Africa Democratic Union KADU in the struggle for independence**.** **(2marks)**

13. Who is regarded as the father of trade union in Kenya?
(1mark)

14. Outline the composition of the National Security Council.
(2mark)

15. Identify **one** source of the Nyayo philosophy**.** **(1mark)**

16. Give **two** conditions that can make a county governor be removed from office under the Kenyan constitution 2010.
(2marks)

17. Identify **two** types of funds established by the constitution of kenya. **(2marks)**

SECTION B (45 MARKS)

(Answer any three questions in this section)

18.a) State **five** factors that led to migration of the plain Nilotes into Kenya**(5marks)**.

b) Explain **five** effects of the Bantu migration into Kenya. **(10marks)**

19.a) State **five** factors which influenced the Akamba to participate in long distance trade. **(5marks)**

b) Explain **five** factors which promoted the development of the Indian Ocean trade**.**
(10marks)

20. a) Outline the **terms** of the Devonshire White Paper of 1923. **(5marks)**

b) Explain **five** problems experienced by the white settlers in Kenya. **(10 marks)**

21 a) Give **five** factors that facilitated industrial development in Kenya since the colonial period**.** **(5marks)**

b) Explain **five** ways through which the government has encouraged the preservation of African culture since independence. (**10marks)**

SECTION C (30MARKS)

(ANSWER ANY THREE QUESTIONS IN THIS SECTION)

22. a) State **three** symbols of National Unity in Kenya**.** **(3marks)**

b) Explain **six** importance of National Integration. **(12marks)**

23. a) State **three** characteristics of a good constitution**.** **(3marks)**

b) Describe the features of the Constitution of Kenya at independence. (**12marks)**

24. a) Name the branches of the National Security Organs in Kenya.

(3marks)

b) Explain **six** functions of the correctional services in Kenya.

(12marks)

NAME…….…….. CLASS……..……

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FORM 4 END TERM 2 SERIES 2 EXAMS

HISTORY AND GOVERNMENT

PAPER 2

SECTION A (25MARKS)

(ANSWER ALL QUESTIONS IN THIS SECTION)

1. Identify **one** form of government**.** **(1mark)**
2. Give **one** characteristic of microlithic tools. **(1mark)**
3. Identify **two** problems encountered by the pioneer settlers of America. **(2marks)**
4. Give **two** features of local trade. **(2marks)**
5. Identify the **main** challenge of using sailing ships as a means of transport. **(1mark)**
6. Identify **one** way in which sign language is applied in Kenya. **(1mark)**
7. Identify **one** theory explaining the origin of iron-working in Africa. **(1mark)**
8. Give **two** advantages of steel over iron during the Industrial Revolution in Europe. **(2marks)**
9. Name **one** modern center in Africa. **(1mark)**
10. Identify the **main** factor for the growth of Buganda Kingdom **(1mark)**

11. Identify **one** country in West Africa which was colonized by the British. **(1mark)**

12. Give **two** duties of the emirs during the application of British indirect rule in Northern Nigeria**.** **(2marks)**

13. Identify **two** peaceful methods used by nationalists in South Africa in the struggle for independence. **(2marks)**

14. Name **one** organ that make up the League of Nations**.(1mark)**

15. Identify **two** weapons which were used during the cold war.**(2marks)**

16. Name **two** leaders who signed the treaty leading to the re-birth of the East Africa Community**.** **(2marks)**

17. Give **two** conditions that one has to fulfill in order to be elected president if India. **(2marks)**

SECTION B (45MARKS)

(answer any three questions in this section)

18.a) Give **five** features of Homo Sapiens**.** **(5marks)**

b) Describe the culture of man during the Old Stone Age Period. **(10 marks)**

19. a) Identify any **five** traditional forms of communication**.(5marks)**

b) Explain **five** Negative impact of modern means of communication. **(10marks)**

20. a) Identify **five** communities in Tanganyika which resisted the Germans during the Maji Maji Rebellion**.** **(5marks)**

b) Explain **five** reasons for the failure of the Maji-Maji Rebellion. **(10marks)**

21. a) Identify **five** aims of the United Nations**.** **(5marks)**

b) Explain **five** challenges that faced the Non-Aligned Movement. **(10marks)**

SECTION C (30 MARKS)

(ANSWER ANY TWO QUESTIONS IN THIS SECTION)

22. a) Give **three** factors for the rise of the Asante Kingdom during the 19th Century. **(3marks)**

b) Describe the political organization of the Shona Kingdom during the 19th Century. **(12marks)**

23.a) Identify **three** reasons why Pan-African Movement had not established itself in African Continent before 1945. **(3marks)**

b) Explain **six** Achievements of Common Market for Eastern and Southern Africa (COMESA). **(12marks)**

24. a) Give **three** conditions that one had to fulfill in order to be elected President in India. **(3marks)**

b) Explain **six** functions of the Indian President. **(12marks)**

NAME……..…….... CLASS……..……

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DATE……..

FORM 4 END TERM 2 SERIES 2 EXAMS

441/1

HOMESCIENCE THEORY

TIME: 2 ½ HOURS

INSTRUCTIONS TO CANDIDATES:

*( ) Write your **name** and **index number** in the spaces provided.*
*(a) This paper consists of three section **A,B** and **C***
*(b) Answer **all** the questions in section **A** and **B***
*(c) Answer only **two** questions in section **C.***
(d) Answers should be written in proper English and in the spaces provided in this booklet.
For Examiner's Use Only:

QUESTIONS	MAXIMUM SCORE	CANDIDATES SCORE
1-20	40	
21	20	
22	20	
23	20	
24	20	
Total	**100**	

This paper consists of 15 printed pages. Candidates should check to ascertain that all papers are printed as indicated and that no questions are missing.

SECTION A (COMPULSORY) 40 MARKS

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

1. State **two** methods of cooking using dry heat. **(2 marks)**

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2. Name **two** types of tacking stitches. **(2 marks)**

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3. List **two** types of hand sewing needles**.** **(2 marks)**

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4. Highlight **two** ways of enhancing personal health. **(2 marks)**

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5. Give **two** advantages of baking as a cooking method**.** **(2 marks)**

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6. Give **two** methods of ventilation**.** **(2 marks)**

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7. Mention **two** ways of reducing a bulk in a seam. **(2 marks)**

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8. List **four** items in the house that can be recycled **(2 marks)**

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9. Mention **two** general functions of minerals in the body. **(2 marks)**

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10. Give the meaning of Kitchen hygiene**.** **(2 marks)**

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11. Mention the **two** colour schemes that are used for interior decoration. **(2 marks)**

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12. State **two** functions of sebaceous glands in the skin**.** **(2 marks)**

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13. Give **two** uses of a seam ripper**.** **(2 marks)**

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14. Give **two** agents used in coating food during deep frying. **(2 marks)**

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15. Give **two** factors that determine size of a patch pocket. **(2 marks)**

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16. State **two** points to be observed when washing articles with non-fast colour.**(2 marks)**

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17. Mention **two** ways to identifying silk using burning test. **(2 marks)**

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18. Mention **two** ways of enriching leftover foods. **(2 marks)**

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19. Give **two** disadvantages of using candles for lighting**.** **(2 marks)**

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20. Mention **two** uses charcoal as fuel. **(2 marks**)

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SECTION B (COMPULSORY) 20 MARKS

Give your answers in the space provided after the question

21.) You have been left alone at home and you have decided to do some cleaning,

a) Describe how you would wash a neglected aluminum pan **(4marks)**

b) Explain how to thorough clean an enamel plate. **(7 marks)**

c) Give the procedure of cleaning a hurricane lamp (omitting the glass) **(9 marks)**

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SECTION C (40 MARKS)

Answer only two questions from this section and use the spaces provided below.
Each question carries equal marks

22 a) Give **five** points on conservation of energy in lighting. **(5 marks)**

b) Explain **three** suitable conditions for the growth of yeast. **(6 marks).**

c) Describe how to prepare and attach a shaped round patch pocket .

(9 marks)

23 a) Explain **four** advantages of stewing as a method of cooking. **(8 marks)**

b) Draw and name three different symbols likely to be found on care label of a woolen garment. **(6 marks)**

c) Describe how to prepare a front and back facing using one well labeled diagram.

(6 marks)

24 a) Explain **four** reasons why hospitals would not use silk fabric for their bed sheets. **(8 marks)**

b) Give **four** precautions to observe when using a micro – wave oven. **(6 marks)**

c) Explain **three** good qualities of a kitchen plan. **(6 marks)**

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NAME……..…….... CLASS……..……

ADM NO……SIGNATURE……

DATE……..

FORM 4 END TERM 2 SERIES 2 EXAMS

441/2

(CLOTHING CONSTRUCTION)

PAPER 2

(PRACTICAL)

TIME: 2½ HOURS

Instructions

A pattern of a pair of shorts is provided.

You are advised to study the sketches, instructions, and the layout carefully before you begin the test

Materials Provided

1. Pattern pieces

- **a.** Short front
- **b.** Short back
- **c.** Motif
- **d**. Waist band

2. Plain light weight cotton fabric 50cm long by 90cm wide.

3. Cotton sewing thread to match the fabric.

4. Embroidery thread 125 cm long.

5. One button 1.3 cm with two holes.

6. One large envelope.

THE TEST

Using the materials provided, cut out and make the LEFT LEG of the shorts to show the following processes:

a. Cutting of the pattern pieces**.** **(13 ½marks)**

b. Making of the back dart**.** **(7 ½ marks)**

c. Placement of the motif using satin stitches**.** **(14 marks)**

d. Working on the side seam using an open seam**.** **(12 marks)**

e. Working of the inner leg seam using a French seam. (**10 ½ marks)**

f. Preparing and attaching the waistband. **(14 marks)**

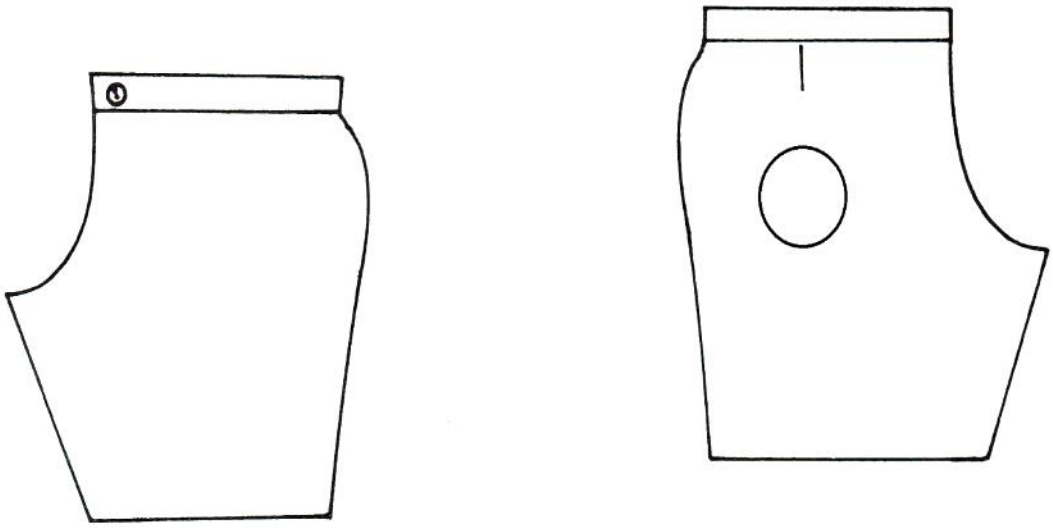
g. Fixing the button. (5 ½ marks)

h. Managing half of the slip hemming stitches (include both seams**). (6 marks)**

i. Presentation of the work**.** **(7 marks)**

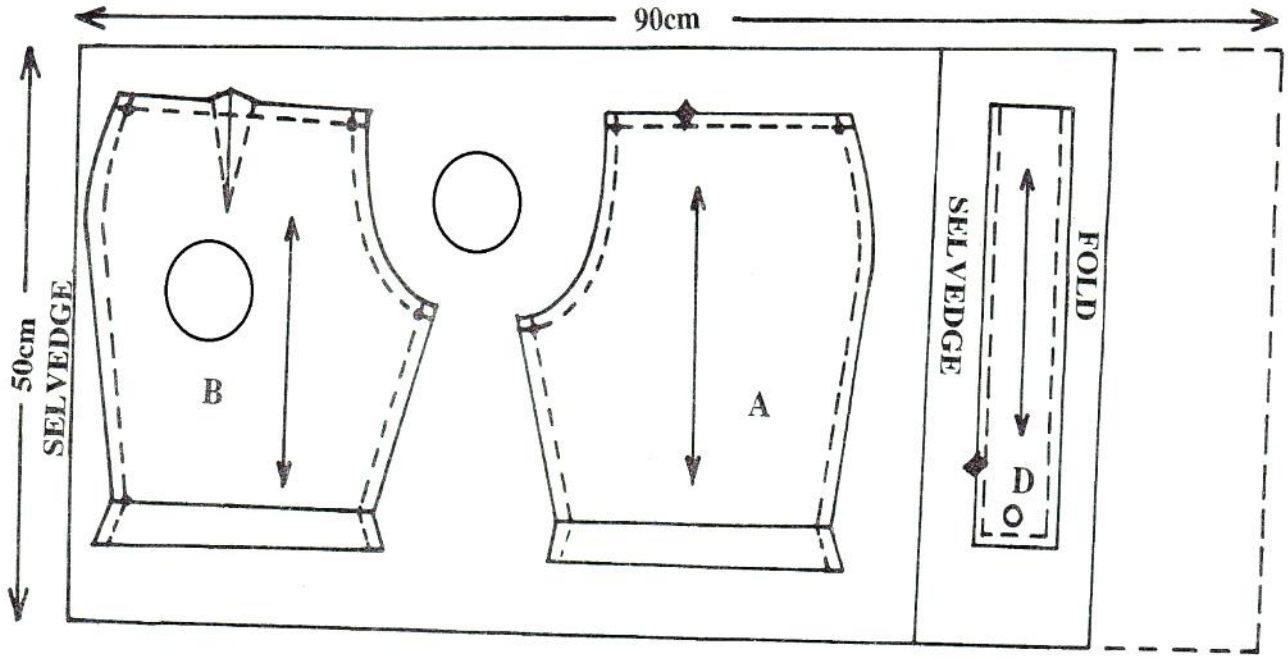
At the end of the examination, firmly sew on your work, on a single fabric, a label bearing your name and index number. Remove the needle and pins from your work, then fold your work neatly and place it in the envelope provided. Do not put scraps of fabric in the envelope.

SHORT VIEW



FRONT **BACK**

LAYOUT (Not Drawn to scale)



NAME……..…….... CLASS……..……

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DATE……..

FORM 4 END TERM 2 SERIES 2 EXAMS

441/3

HOMESCIENCE

(FOOD AND NUTRITION PRACTICAL)

PAPER 3

TIME: 1 ¼ HOURS

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

INSTRUCTIONS TO CANDIDATES

i) *Read the test carefully*

ii) *Write your name and index number on every sheet of paper.*

iii) *Textbooks and recipes books may be used during planning session as reference materials.*

iv) *You will be expected to keep to your order of work during the practical session*

v) *You are only allowed t o take away your reference materials at the end of the planning*

vi) *You are not allowed to bring additional notes to the practical session.*

THE TEST

You are expecting your former school mate at around 4 o'clock. Using the ingredients listed below prepare, cook and serve two items and a beverage for the two of you.

Ingredients.

- Wheat flour.
- Bread
- Cooking oil.
- Eggs/sausage
- Sugar
- Beverage
- Milk
- Lettuce/cabbage
- Baking powder
- Essence.

PLANNING SESSION: 30 MINUTES

Use separate sheets of paper for each task listed below and a carbon paper to make duplicate copies.

Then proceed as follows:

1. Identify the dishes and then write down their recipes

2. Write down your order of work.

3. Make a list of the foodstuffs and equipment you will require.

JINA……..…….. KIDATO…….……

NAMBARI YA USAJILI……SAHIHI…….……

TAREHE……

FORM 4 END TERM 2 SERIES 2 EXAMS

102/1
KISWAHILI
KARATASI YA KWANZA
INSHA
MUDA: SAA 1 ¾

MTIHANI WA JIMBO LA ELDORET 2021

MAAGIZO

- *Andika jina lako na nambari ya usajili kwenye nafasi ulizoachiwa hapo juu.*
- *Tia sahihi yako kisha uandike tarehe ya mtihani katika nafasi ulizoachiwa hapo juu.*
- *Andika insha **mbili**. Insha ya kwanza ni ya **lazima.***
- *Kisha chagua insha nyingine moja kati ya hizo tatu zilizobakia.*
- *Kila insha isipungue maneno **400**.*
- *Kila insha ina alama **20.***
- *Kila insha lazima iandikwe kwa lugha ya **Kiswahili.***
- *Insha zote **sharti** ziandikwe katika nafasi ulizoachiwa katika kijitabu hiki cha maswali.*
- ***Karatasi hii ina kurasa 12 zilizopigwa chapa.***
- ***Watahiniwa ni lazima wahakikishe kwamba kurasa zote za karatasi hii zimepigwa chapa sawasawa na kua maswali yote yamo.***

Kwa matumizi ya mtahini pekee

Swali	**Upeo**	**Alama**
1	**20**	
2	**20**	
Jumla	**40**	

1. **Lazima**

Kumekuwa na visa vingi vya utovu wa nidhamu shuleni mwenu. Ukiwa katibu wa viranja, andika kumbukumbu za mkutano uliojadili vyanzo vya utovu huo na suluhisho lake.

2. Usafiri wa pikipiki za bodaboda una manufaa zaidi kuliko hasara. Jadili.

3. Andika insha itakayodhihirisha maana ya methali ifuatayo:

Mpiga ngumi ukuta huumiza mkonowe.

4. Tunga kisa kitakachomalizia maneno yafuatayo:

…nikamtazama Marina huku machozi yakinitiririka njia mbilimbili kutokana na majuto yaliyonijaa.

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JINA……..…….. KIDATO…….……

NAMBARI YA USAJILI……SAHIHI…….……

TAREHE……..

FORM 4 END TERM 2 SERIES 2 EXAMS

KIDATO CHA NNE

102/2

KISWAHILI
KARATASI YA 2
MUDA:SAA $2\frac{1}{2}$
Maagizo

a) *Andika jina na nambari yako ya mtihani katika nafasi ulizoachiwa hapo juu.*
b) *Tia sahihi yako kisha uandike tarehe ya mtihani katika nafasi ulizoachiwa hapo juu.*
c) *Jibu maswali yote.*
d) *Majibu yote yaandikwe katika nafasi ulizoachiwa katika kijitabu hiki cha maswali.*
e) *Majibu yote lazima yaandikwe kwa lugha ya Kiswahili.*
f) *Usitoe ukurasa wowote kutoka kwenye kijitabu hiki.*
g) *Karatasi hii ina kurasa 11 zilizopigwa chapa.*
h) *Watahiniwa ni lazima wahakikishe kwamba kurasa zote za karatasi hii zimepigwa chapa sawasawa na kuwa maswali yote yamo.*

Kwa Matumizi ya Mtahini Pekee

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

1. **Ufahamu (Alama 15)**

Soma makala haya kwa uangalifu kisha ujibu maswali yanayofuata.

Asubuhi hiyo kabla ya mrauko wa watu wengi kama ilivyokuwa ada ya wanakijiji cha Kaulizeni, Kabibi alimrausha mumewe Mzee Mori kwa lengo la kumpeleka kwenye zahanati ya pale pao – heko kwa mfumo mpya wa kiutawala uliotokana na kuanza kutekelezwa kwa katiba iliyoasisi ugatuzi na hapo kuwezesha taasisi zitoazo huduma nyingi muhimu kuletwa karibu na wananchi. Miaka michache iliyopita, wangehitajika kutumia zaidi ya saa nne kufikia kituo cha matibabu kilichokuwa karibu nao. Aidha, wangetakiwa kutumia matwana ambayo haikuwa rahisi kukodeshwa kutoka kwa mwenyewe kwa sababu ya zile barabara zilizoogopa kusakafiwa kutokana na utepetevu wa viongozi wao katika siku zilizotangulia. Chepkwony hakupenda kutesa gari lake kwa kuliruhusu kupitia barabara hizo ambazo ubovu wake ulitia fora. Magenge yaliyosongamana barabarani na mawe yaliyosimama wima ni kama yanapiga saluti yalikuwa tayari **kuhujumu** vigari vya wachochole kama yeye. Licha ya hofu hii, mara mojamoja alijitolea na kuwanusuru wanakijiji waliochungulia kaburi na akina wajawazito ambao siku zao zilikuwa zimetimia. Aghalabu, ubovu wa barabara hizi ulihakikisha kwamba wengi wao walitua mizigo yao kabla ya kuwasili katika Zahanati ya Nusura.

Leo hii, imewachukua dakika ishirini hivi, mwendo wa miguu na lau wangepata pikipiki, au ‘nduthi’ kama vijana wanavyoziita kwa kilugha legevu chao, ingewachukua chini ya dakika tatu kukamilisha safari hii. Mambo yametengenea kwelikweli. Ule mgao wa serikali ya kaunti kutoka kwa hazina kuu ya serikali ya kitaifa ulitumiwa kwa uwajibikaji mkubwa na gavana wao kwa ushirikiano na mwakilishi wa kata hiyo kwenye bunge la kaunti. Na hii sio natija ya pekee iliyopatikana kutokana na mabadiliko haya ya kisiasa. Kabla siku ya leo, ilimbidi mkazi yeyote wa Kijiji cha Kaulizeni ajiandae vyema kabla ya kuenda zahanatini kwa matibabu kwa **chamcha** kilicholiwa asubuhi au kupakiwa kwenye mifuko ya sandarusi kabla ya kupigwa marufuku na shirika linalodhibiti ubora wa mazingira maarufu kama NEMA, ili kiliwe huko ukisubiri kuhudumiwa. Ama kweli milolongo iliyopangwa kuingia katika kila sehemu hapo zahanatini ilikuwa mirefu: si pa usajili, si pa uchunguzi wa daktari, si pa malipo, si maabarani, si pa dawa na hata msalani foleni ilikuwapo si hoja kwamba uchafu uliokuwepo ulitosha kumfanya mja apoteze haja ya kuzuru huko ghafla.

Ilisemekana kwamba wafanyakazi wa hapo zahanatini ndio walisababisha chelewesho hili na kufanya foleni kurefuka katika kila idara. Mathalani, madaktari walisemekana kuingia kazini saa nne hivi baada ya kupitia kliniki zao za kibinafsi na kuondoka kabla ya saa tisa. Maafisa wa usajili nao walificha majalada maksudi ili kubembeleza kadhongo kutoka kwa wagonjwa kabla kuanzisha usajili wao. Wale wanaohusika na dawa walizoea kuwambia wagonjwa kuwa dawa zilikuwa zimeisha na kuwaelekeza kwenye maduka ya wauza dawa karibu sana na zahanati yenyewe. Halafu ukifika huko na kununua dawa, **unapigwa na butwaa** kuona dawa ulizouziwa zikiwa na nembo ya serikali. Hakika waso haya wana mji wao. Sikuelewa ni kwa nini udokozi wa namna hii ulifanywa hadharani mchana wa Mungu.

Kwenye maabara kulisemekana kwamba kemikali maalum za kutumiwa kupima maradhi hazikuweko hivi kwamba matokeo ya uchunguzi yalionyesha kwamba kila mgonjwa alikuwa na aina ile ile ya ugonjwa. Maarufu miongoni mwa maradhi yaliyodhihirishwa maabarani ilikuwa malaria na homa ya matumbo. Sasa haikuwa ajabu mtu kutilia shaka uchunguzi uliofanywa katika maabara haya. Matokeo haya yalitolewa baada ya kipindi kirefu cha kusubiri kwa wastani saa mbili na nusu! Usishangae kwamba

wakati wa kipindi hiki cha kusubiri, wangeonekana wakiwa katika harakati kama wahandisi wanaokarabati mtambo maalum wa tarakilishi mara wanakoroga, mara wanamimina majimaji vyomboni au wanakonyeza macho kutazama miujiza waliyotambua wao pekee yao kama wanajimu wanaozuru anga za juu. Wale wa idara ya malipo walikuwa maarufu kwa kuwambia wateja wao kwamba hawakuwa na hela za kuwarejeshea kama mabaki yao; wakawa na masalio ambayo, kama kawaida kidogo kidogo hujaza kibaba, yalizalisha maelfu ya pesa katika kipindi kifupi na kunenepesha mifuko yao.

Gavana wa gatuzi hili alifagilia mbali uchafu huu wote. Mori alihudumiwa katika kipindi cha chini ya saa moja baada ya ugonjwa wake kupatikana. Ugonjwa wake ulikuwa ni mwiba wa kujidunga ambapo mhasiriwa hastahili kuambiwa pole. Ukaidi wao uliwafanya kukataa kulala chini ya vyandalua vya kuwazuia wadudu wasababishao maradhi haya sugu kwa kuongozwa na imani potofu eti vyandalua huzuia usingizi. Usisahau kwamba vilitolewa bure kwa kila mkazi wa gatuzi hili kupitia mapango maalum wa rais wa taifa mojawapo la ulimwengu lenye ustawi mkubwa wa viwanda. La kuchekesha zaidi ni kuviona vyandalua walivyopewa vikiwa vimetumiwa kuzingira vitalu vilivyopandwa mboga. Hiki ndicho kinaya kilichozuliwa na Mori na mkewe hata wakawa windo rahisi kwa mbu.

Maswali

a) Orodhesha hoja **tatu** zinazoonyesha maendeleo yaliyotokana na ugatuzi kulingana na makala.

(alama 3)

……..

……..

……..

b) Kabla ya ugatuzi, wafanyakazi wa vituo vya afya walikuwa wanawanyanyasa wagonjwa. Taja makosa **matano** yaliyofanywa na wafanyakazi mbalimbali wa vituo vya afya. **(alama 5)**

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c) Wataje viongozi **wawili** wa kuchaguliwa wanaozungumziwa na msimulizi. **(alama 2)**

……

……

d) Nakili neno moja kutoka **aya ya pili** lenye maana sawa na **plastiki**. **(alama 1)**

…….

e) Taja jina la ugonjwa aliokuwa anaugua Mzee Mori. (**alama 1)**

……..

f) Eleza maana ya maneno yafuatayo kama yalivyotumiwa kifunguni**.** **(alama 3)**

i. kuhujumu **…….**

ii. chamcha **……**

iii. unapigwa na butwaa **…….**

2. Ufupisho (Alama 15)

Soma makala kisha ujibu maswali yanayofuata.

Kilimo ni moja kati ya shughuli muhimu sana zinazotekelezwa na binadamu katika vizazi vyote na hujishughulisha na upanzi wa mimea na ufugaji wa wanyama. Maisha ya binadamu katika nyanja zote hutegemea kilimo hivi kwamba endapo harakati za kilimo zitasitishwa, bila shaka maisha ya binadamu yatafikia kikomo. Chakula na mavazi ya binadamu hupatikana kutokana na shughuli hii muhimu na imekuwepo maishani mwa binadamu kwa karne nyingi. Wataalamu wa historia husema kwamba kilimo kilianza wakati ambapo ustaarabu wa binadamu ulianza kustawi yaani kadri binadamu alivyoanza kukumbatia ustaarabu ndivyo kilimo kilianza kustawi hali kadhalika. Kabla ya kustawi kwa kilimo, binadamu wa kwanza aliishi maisha ya kulumbata wanyama akikusanya miti, majani, maganda, mizizi na matunda kwa ajili ya kujikimu maishani mwake. Katika kipindi hiki mtindo huu wa kupata chakula na mavazi ya binadamu ulikuwa mwafaka mradi hakuweza kutindikiwa na chochote.

Baadaye dharura ya kuwa na utaratibu tegemevu wa kujipatia maslahi ya binadamu ikatokea kwa sababu ya kuendelea kuongezeka kwa idadi ya watu, pakawa na haja ya kulainisha mfumo wa uzalishaji wa chakula na kutimiza mahitaji mengine ya kibinadamu. Matokeo ya juhudi hizi yalianzisha shughuli ya uvuvi, uwindaji wa wanyama na ndege na ukusanyaji wa vyakula mbalimbali na kuvihifadhi. Harakati za kusaka chakula kwa wingi zikashadidi katika kila janibu za ulimwengu. Hii ilifuatiwa na kuanza kufuga wanyama waliozalisha bidhaa kama vile maziwa, nyama, ngozi na mayoya yaliyotumiwa kutengeneza mavazi. Wanyama waliofugwa hivi, baada ya miongo fulani, wakaanza kutumiwa mashambani kufanya kazi ya kusaidia kuandaa mashamba kwa minajili ya kuzalisha vyakula.

Ustaarabu ulipoimarika zaidi kutokana na mpito wa wakati, mahitaji ya chakula kilichozalishwa kupitia kilimo yakawa makubwa kushinda chakula kilichokuwepo kwa ajili ya kuyakimu mahitaji ya binadamu katika kipindi hicho cha kizazi cha binadamu. Jambo hili lilisababisha haja ya kubuni mbinu mpya na bora zaidi za uzalishaji wa chakula kutokana na matumizi ya ardhi.Aghalabu katika baadhi ya sehemu, uzalishaji ulizuiwa na hali ngumu ya hewa kwa sababu ya mvua isiyotegemewa, ama ichelewe au ipotee kabisa na kusababisha kiangazi kilichonyausha na kukausha mimea mashambani. Mimea mashambani

inaachwa ikisononeka kutokana na uhaba au ukosefu kabisa kabisa wa maji. Ili kukabiliana na changamoto hii ya hali ya hewa, mitaro mikubwa ilichimbwa kutoka maeneo ya maji kama vile mabwawa, mito ya kudumu, maziwa na vidimbwi ili kuelekeza maji mashambani na kuwezesha mimea kustawi ipandwapo. Huu ulikuwa mwanzo wa kilimo cha kunyunyizia maji mashambani. Mtindo huu ulistawi zaidi nchini Misri Kaskazini mwa Bara la Afrika kwa sababu ya kuwepo kwa Jito la Nile. Mbali na kutumia mtindo wa kunyunyizia maji mashambani ili kuimarisha uzalishaji, haja ilizuka ya kuimarisha aina ya mbegu zilizopandwa ili kuongeza kiwango cha mazao ambayo yangepatikana hata katika eneo dogo. Kadhalika, mbegu zilizoimarishwa hivi zilikuwa na uwezo wa kuhimili hali ngumu ya hewa kama kiangazi, magonjwa na wadudu waharibifu. Hizi zilikuwa baadhi ya hatari zilizokumba mimea na kudunisha kiwango cha mazao yanayotoka kwenye mashamba. uzalishaji.

Usisahau kwamba uvumbuzi wa viwanda ulipozuka kule Ulaya, vifaa bora vya kutumia katika kilimo vilivumbuliwa. Vifaa hivi vilikuwa kama vile plau na tingatinga na vilisaidia sana kuandaa konde kwa njia bora zaidi na tena kwa kipindi kifupi. Hatua hii iliimarisha mchakato mzima wa kuendeleza kilimo kwa manufaa ya binadamu. Kwa kweli akili ni mali na si mali tu bali ni mali ya aina yake. Ni dhahiri kwamba mti hauwezi ukaenda pasipo na nyenzo.

a) Fupisha **aya mbili za kwanza** ukitumia kati ya 70 na 80. **(alama 6)**

Matayarisho

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Nakala Safi

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b) Kwa maneno 80 hadi 90 kuandika hoja muhimu katika aya ya **tatu na ya nne.** **(alama 9)**

Matayarisho

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Nakala Safi

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3. Matumizi ya Lugha (Alama 40)

a) Taja na ainisha konsonanti zilizo katika neno **'ng'ata'** ukizingatia ala za kutamkia**. (alama 1)**

……

b) Toa mifano **minne** ya maneno yenye irabu tatu pekee katika Kiswahili sanifu. **(alama 2)**

……

c) Onyesha silabi zenye kutiliwa mkazo wakati wa kutamka maneno yafuatayo**: (alama 1)**

i. ombea **…….**

ii. hakimu **……..**

d) Eleza maana **mbili** tofauti katika sentensi**: (alama 2)**

Dumu na mwanawe Bor ni waimbaji hodari.

……

……

e) Tunga sentensi **mojamoja** ukitumia kivumishi cha pekee **- ingineo** ukianza kwa maneno yafuatayo**: (alama 3)**

i. sisimizi:

……

ii. mkanda:

……

iii. kuchoka:

……

f) Andika muundo wa sentensi hii kwa kutumia msitari**.** **(alama 2)**

Mgogoro huo ulimalizika leo kwa mapatano.

……

g) Ainisha mofimu katika neno **'iue'**. **(alama 2)**

……

h) Onyesha kisha uainishe nomino katika sentensi hii: (alama 3)

Kipakatalishi cha Wangila kina kasi kubwa.

……

i) Akifisha sentensi hii: (alama 3)

umeanza kusoma tamthilia ya kigogo kigogo alimuuliza kangogo.

……

j) Kanusha:

i. Wanafunzi wengi wameenda kucheza kandanda katika shule jirani. (alama 1)

……

ii) Tukianza safari yetu asubuhi tutachelewa kikaoni. **(alama 2)**

……

……

k) Andika kwa kinyume:

Wananchi wengi walihudhuria mkutano ndani ya uga wa Kitaifa**.** **(alama 2)**

……

……

l) Geuza katika umoja au wingi kulingana na maagizo ndani ya mabano mwishoni mwa kila sentensi.

i. Idara mpya iliundwa na mkurugenzi wa kampuni hiyo. (wingi) **(alama 1)**

……

……

ii. Vyungu vya kupikia vimesahaulika na wapishi. (umoja) (alama 1)

……

……

m) Tunga sentensi zilizo na miundo ifuatayo:

i. S - KN (W+V) + KT (T+E**)** **(alama 2)**

……..

ii. S - KN (N)+ KT (T) **(alama 1)**

……

n) Andika sentensi hii ukitumia maneno yenye maana sawa na yale yaliyopigiwa mistari.

(alama 2)

Banati alishusha beramu saa kumi na mbili jioni.

……

0) Kwa kutumia sentensi **moja**, tofautisha vitate vifuatavyo: **sima, zima** **(alama 2)**

……

p) Ni methali gani inayolengwa na maelezo yafuatayo**?** **(alama 1)**

Panapokuwa na juhudi katika jambo lolote hata likiwa gumu, hatimaye ufanisi hupatikana.

……

q) Tumia nahau '**ng'oa nanga**' katika sentensi ili kudhihirisha maana yake**.** **(alama 1)**

……

(alama 2)

r) Jaza pengo kwa vihisishi mwafaka**.** **(alama 3)**

Unapotaka kupishwa hutumia neno **……** na **……..**

ni tamko la kuagana mnapoachana na mtu usiku kama ambavyo **…….**

hutumiwa unapomwomba mtu msamaha kwa kumkosea.

4. Isimujamii (Alama 10)

Andika sifa **kumi** za lugha utakayotumia ukipata fursa kutangaza mchezo wa kandanda. **(alama 10)**

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Huu ndio ukurasa wa mwisho uliochapishwa.

JINA……..…….. KIDATO…….……

NAMBARI YA USAJILI……SAHIHI…….……..

TAREHE……

FORM 4 END TERM 2 SERIES 2 EXAMS

KISWAHILI

FASIHI

KARATASI YA 3

MUDA:SAA 2½

MAAGIZO

(a) *Jibu maswali manne pekee.*
(b) *Swali la kwanza ni la* ***lazima***
(c) *Maswali hayo mengine matatu yachaguliwe kutoka sehemu nne zilizobaki; yaani Tamthilia,Hadithi Fupi,Ushairi na Fasihi Simulizi.*
(d) *Usijibu maswali mawili kutoka sehemu moja.*
(e) *Watahiniwa ni lazima wahakikishe kwamba kurasa zote za karatasi hii zimepigwa chapa sawasawa na kuwa maswali yote yamo.*

SWALI	UPEO	ALAMA
1	20	
2	20	
3	20	
4	20	
JUMLA	80	

SEHEMU A:

LAZIMA

Assumpta K. Matei: Chozi la heri

"Hili lilimtia ……. uchungu, akajiona kama aliyedhalilishwa na mwanamke."

1. Yaweke maneno haya katika muktadha wake **(alama 4)**
2. Taja suala linalodokezwa katika dondoo hili **(alama 1)**
3. Kwa kutumia hoja kumi na tano, eleza namna suala ulilolitaja hapo juu 1
4. (b) linalijitokeza **(Alm 15)**

SEHEMU YA B

Tamthilia Kigogo na Pauline Kea.

Jibu swali la 2 au 3

2. Kwa kurejelea tamthlia ya 'Kigogo na Pauline Kea, onyesha jinsi ambavyo viongozi wengi katika nchi za kiafrika wamejawa na tamaa.
(alama 20)

3."Mimi ni mtu wa vitendo, si vishindo,"

a) Weka dondoo hili katika muktadha wake. **(alama 4)**

b) Kwa kurejelea dondoo hili, eleza sifa mbili za msemaji. **(alama 4)**

c) Thibitisha ukweli wa kauli ya msemaji. **(alama 12)**

SEHEMU YA C
HADITHI FUPI: TUMBO LISILISHIBA.

Jibu swali la 4 au 5

4. Kwa kurejelea hadithi ya mapenzi ya kifaurongo na shogake dada ana ndevu fafanua changamoto zinazowakumba vijana.
(al.20)

5. **Mame Bakari**

"Una nini? Umeshtuka mwanangu! Unaogopa? Unaogopa nini?"

(a) Weka dondoo hili katika muktadha wake. **(al.4)**
(b) Tambua mbinu mbili za lugha zilizotumika katika dondoo. **(al.2)**

(c) Eleza sifa za mrejelewa. **(al.6)**
(d) Eleza umuhimu wa msemaji. **(al.4)**
(e) Tambua maudhui yanayojitokeza katika kifungu hiki. **(al.1)**
(f) Fafanua maudhui katika swali la (**e)** kwa kurejelea hadithi nzima**.(al.3)**

SEHEMU D ; USHAIRI A

6 MWANA

(a) Kwani mamangu u ng'ombe, au u punda wa dobi ?
Nakuuliza usambe, nayavunja madhehebi
Nalia chozi kikombe, uchungu wanisibabi
Hebu nambie
Kweli jaza ya kiumbe, ni madhila na mapigo ?
MAMA
(b) Nang'ona mwana nang'ona, sitafute angamiyo
Sinipe kuja sonona, kwa uchungu na kiliyo
Babayo mkali sana, kubwa pigo la babayo
Kwani kelele kunena, huyataki maishayo ?
Hilo nakwambia.
MWANA
(c) Sitasakamwa. Kauli, nikaumiza umiyo
Nikabeba idhilali, nikautweza na moyo
Siuvuwati ukweli, hazidisha gugumiyo
Baba hafanyi halali, huachi vumiliyo
Hebu nambie.
Kweli jaza ya kiumbe, ni madhila na mapigo ?

Nambie ipi sababu, ya pweke kwenda kondeni
Nini yako matulubu, kulima hadi jioni ?
Na jembe ukudhurubu, ukilitua guguni
Yu wapi wako muhibu, Baba kwani simuoni?
Hebu nambie.
Kweli jaza ya kiumbe, ni madhila na mapigo ?

Baba kwani simuoni, kuelekea shambani?
Kutwa akaa nyumbani, na gumzo mitaani.
Hajali hakudhamini, wala haoni huzuni.
Mwisho wa haya ni nini ? ewe mama wa imani ?
Hebu nambie.
Kweli jaza ya kiumbe, ni madhila na mapigo ?

Na kule kondeni kwako, ukate kuni kwa shoka

Ufunge mzigo wako, utosini kujitwika
Kwa haraka uje zako, chakula upate pika
Ukichelewa vituko, baba anakutandika
Hebu nambie.
Kweli jaza ya kiumbe, ni madhila na mapigo ?

Chakula kilicho ndani, ni jasho lako hakika
Kiishapo u mbioni, wapiti kupokapoka
Urudi nje mekoni, uanze kushughulika
Ukikosa kisirani, moto nyumbani wawaka
Hebu nambie.
Kweli jaza ya kiumbe, ni madhila na mapigo ?

MAMA
Wanitonesha kidonda, cha miaka na miaka
Usidhani nayapenda, madhila pia mashaka
Nakerwa na yake inda, na sasa nimeshachoka
Ninaanza kijipanga, kwa mapambano hakika
Hilo nakwambia

MASWALI

(i) Mtunzi wa shairi hili alikuwa na dhaimira gani katika kutunga shairi hili **(al. 2)**
(ii) Shairi hili ni la aina gani. Toa ithibati **(al. 2)**
(iii) Yataje mambo yoyote matano anayolalamikia mwana **(al. 5)**
(iv) Eleza kanuni zilizotumika kasarifu ubeti wa tatu **(al.5)**
(v) Andika ubeti wa saba kwa lugha tutumbi **(al. 4)**
(vi) Eleza maana haya yaliyotumika katika shairi hili
(a) Jaza **(al. 1)**
(b) Muhibu **(al. 1)**

7. SHAIRI B

Soma shairi hili kisaha ujibu maswali

i) Punda kalibebe gari, gari limebeba punda.
Mwalimu ana pakari, muashi vyuma adunda
Jaji gonga msumari, sonara osha vidonda
Kinyume mbele.

ii) Saramala ahubiti, muhunzi tiba apenda
Mganga anabiri, baharini anakwenda
Hata fundi wa magari, anatomea vibanda
Kinyume mbele

iii) Wakili anahiyari, biashara kuitenda
Mtazame askari, akazakaza kitanda,
Mkulima mashuhuri, jembe limemshinda

Kinyume mbele

iv) Apakasa daktari, ukili anaupinda
Seveya kawa jabari, mawe anafundafunda,
Hazini wa utajiri, mali yote aiponda,
Kinyume mbele

v) Msemi huwa hasemi, wa inda hafanyi inda
Fahali hawasimami, wanene walishakonda
Walojitia utemi, maisha yamewavunda
Kinyume mbele

vi) Kiwapi cha kukadiri, twavuna shinda kwa shinda
Tele haitakadiri, huvia tulivyopanda
Mipango nmehajiri, la kunyooka hupinda
Kinyume mbele

MASWALI

(a) Mtunzi aliuwa na malengo gani alipotunga shairi hili? **(al. 3)**
(b) Licha ya tarbia, eleza bahari nyingine zinazojitokeza katika shairi hili. **(al. 4)**
(c) Eleza namna mtunzi alivyotumia uhuru wake. **(al. 5)**
(d) Ni mbinu gani inayotawala shairi hili? **(al. 2)**
(e) Uandike ubeti wa nne katika lugha nathari **(al. 4)**
(f) Eleza toni ya shairi hili **(al. 2)**

SEHEMU E: FASIHI SIMULIZI

8. **Soma utungo ufuatao kisha ujibu maswali.**

Mimi ni morani

Nguli aliyekamilika

Nishatoka kumrarua simba dume

Kwa hii mikono miwili

Mimi ni shujaa asiyekanyanga kwa woga

Wala kubabaika

Simba mwenyewe ameungama

Mkuki wangu ni shahidi.

Mimi ni Jabali mtetemesha ardhi

Azma yangu hairudi nyuma

Nguvu zangu hazimithiliki

Sina mzaha wala dhihaka

Mimi ni jasiri

Ngao ndio hii hapa mkononi ni Fumo nilirithi

Kujikinga na kulinda hadhi yangu

Yu wapi mwingine shujaa?

Mawali.

(a) (i) Andika aina ya sifo hii. **(alama 1)**

(ii) Toa sababu **nne** kuthibitisha jibu lako la (i) hapo juu. **(alama 2)**

(iii) Tambua mbinu **mbili** la lugha zilizotumiwa katika utungo huu. (**alama 2)**

(b) (i) Eleza sifa **saba** za utungo huu. **(alama 7)**

(ii) Tungo za aina hii zinaendelea kufifia katika jamii nyingi. Fafanua kwa hoja **nane** sababu za hali hii. **(alama 8)**

NAME…….…….. CLASS…….……

ADM NO……SIGNATURE……

DATE……..

FORM 4 END TERM 2 SERIES 2 EXAMS

MATHEMATICS

PAPER 1

TIME: 2½ HOURS

INSTRUCTIONS TO CANDIDATES

a) *Write your name, index number and date in the spaces provided at the top of this page.*
b) *Write name, admission number and class in the spaces provided above.*
c) *This paper contains **TWO** sections: **section I** and **section II***
d) *Answer **ALL** the questions in **Section I** and only **five** questions from **section II.***
e) Show all the steps in your calculations, giving your answers at each stage in the spaces provided below each question.
f) *Marks may be given for correct working even if the answer is wrong.*
g) ***Non-programmable** silent electronic calculators and KNEC mathematical tables may be used except where stated otherwise.*
h) ***This paper consists of 15 printed pages.***
i) ***Candidates should check the question paper to ascertain that all pages are printed as indicated and that no questions are missing.***

FOR EXAMINER'S USE ONLY:

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

SECTION 1 (50 MARKS)

Answer all questions in this section in the spaces provided.

1. Without using a calculator or mathematical table evaluate

   $^1/_3$ of (2 ¾ - 5 ½) x 3 $^6/_7 \div {}^9/_4$ **(3mks)**

2. Solve for x in the equation. **(3mks)**

$$9^{(2x-1)} \times 3^{(2x+1)} = 243$$

3. A line P whose equation is y = $\frac{1}{3}x + 4$ is parallel to another line Q. Find the equation of line Q in the form $y = mx + c$ given that it passes through Point (3, 6) **(3mks)**

4. Using reciprocals, cubes and squire tables, evaluate correct to 4 significant figures**:**
(4mks)

$\sqrt[3]{\frac{1}{27.38}} + 1.897^{2}$

5. A point P (2, 3) is mapped onto P' (-7, 0) under an enlargement with scale factor of -2 without drawing find the centre of enlargement.
(3mks)

6. A businessman bought 100 textbooks and 80 pens for sh. 25,600. If she had bought twice as many textbooks and half as many pens she would have paid sh. 7,400 less. Find the cost of one textbook and one pen. **(3 mks)**

7. The table below shows the number of faulty balls from 40 samples.

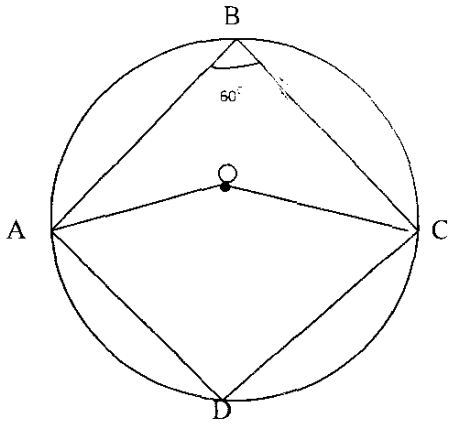
No. of faulty balls (χ)	0	1	2	3	4	5
Frequency	20	8	6	1	1	4

Calculate the mean. **(3mks)**

8. Draw a sketch and find the area in hectares of a coffee field whose measurements are entered in a field book as shown below. Take XY = 200m as the baseline. (4 marks)

	Y	
	180	40 to Q
To R 80	140	
To S 160	100	
	40	100 to P
	X	

9. In the following figure, 0 is the centre of the circle. Given that Angle ABC 60°, find the value of the angle ADC. **(2mks)**



10. From the top of a cliff the angle of depression of a ship when it is at A is 30°. When the ship moves 100m to point B, nearer the cliff, the angle of depression becomes 45°. Find the height of the cliff leaving your answer to 3.s.f**(4mks)**

11.During a football match, sh. 1,462,800was realized from stadium entrance fees. If the entrance fee was sh. 80 per person, calculate how many fans paid to watch match

(2 mks)

12.A Kenya Bank buys and sells foreign currencies as shown

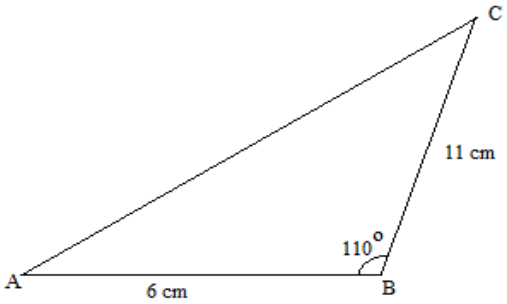
	Buying (Kshs)	Selling (Kshs)
1 Euro	84.15	84.26
100 Japanese Yen	65.37	65.45

A Japanese travelling from France to Kenya had 5000 Euros. He converted all the 5000 Euros to Kenya shillings at the bank. While in Kenya, he spent a total of Kshs. 289850 and then converted the remaining Kenya shillings to Japanese Yens at the Bank. Calculate the amount in Japanese Yen that he received**.(3mks)**

13. The width of a rectangular hall of Ruiri Girls Secondary School is 16m less than its length. Calculate the length of the hall if its area is $132m^2$. Hence calculate its perimeter**. (4 mks)**

14. The volume of a hemisphere is $41.2cm^3$.Calculate, correct to one decimal place, the radius of the hemisphere **(3mks)**

15. The figure below shows a triangle ABC in which AB = 6cm, BC = 11cm and angle ABC = 110^0. Calculate to the decimal places the length of AC. **(3mks)**



16. A regular polygon has internal angle of 150^0 and side of length 10cm.

Find the number of sides of the polygon. **(2mks)**

Find the perimeter of the polygon. **(2mks)**

SECTION 1I (50 MARKS)

Answer any five questions from this Section.

17.A matatu left town K at 7.00a.m and travelled towards town M at an average speed of 60km/hr.A car left town M at 9.00a.m and travelled towards K at an average speed of 80km/hr. The distance between the two towns is 324km.Find:-

(a)The time each vehicle arrived at their destination

(I) Matatu **(2mks)**

(ii) Car **(2mks)**

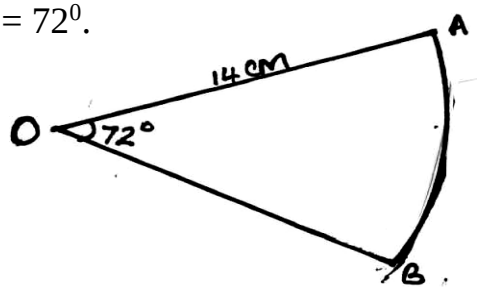
b. (i) the distance the matatuhad covered before the car started to move from town M to town K

(1mk)

(ii) The time the two vehicles met on the way **(3mks)**

(ii) How far the car was from town K when they met **(2mks)**

18. The figure below shows a sector of a circle. If the radius OA = 14cm and the angle AOB = 72^0.



(a) Calculate the area of the sector. **(2mks)**

(b) The sector is folded to form a cone. Calculate:-

(i) The radius of the cone formed. **(2mks)**

(ii) The volume of the solid formed. **(3mks)**

(c)A solid cone of same size as the one in (b) above is melted down and casted into circular washers. Each washer has an external diameter of 4cm, internal diameter of 1½ cm and 0.3cm thick. Calculate number of washers made. **(3mks)**

19.a) Find the inverse ofmatrix A = $\begin{vmatrix} 5 & 6 \\ 7 & 9 \end{vmatrix}$ **(2mks)**

b) Okelo bought 5 physics book and six mathematics book for a total of Ksh.2440.Ali bought 7 physics book and 9 mathematics books for a total cost of ksh.3560.

i) Form a matrix equation to represent the a book information **(1mk)**

ii) Use matrix method to find the price of a physics book and that of a mathematic

(3mks)

c) A school bought 36physics books and 50mathematics books. Adiscount of 5% wasallowed oneach Physics book whereas adiscount of 8 % was allowed on each Mathematics book. Calculate the percentagediscount onthe cost of all the books bought. **(4mks)**

20). Forty students in a form 2 class were weighed and their masses recorded to the nearest kilogram as shown below.

45 48 56 39 47 36 45 37 46 35 43 51
42 47 47 40 46 41 45 43 46 54 42 51 39
42 45 44 49 50 46 39 42 48 50 45 35
52 46 38

a) Starting with the class 35-39 tabulate this data in a frequency table **(3mks)**

b) Find the modal class **(1mk)**

c) Calculate the mean mass of the students **(3mks)**

d) Estimate the median mass **(3mks)**

21. In triangle OAB, OA = a and OB = b. Points P and T divide OB and AB in the ratio 2:3 and 1:3 respectively. Lines OT and AP intersect at Q.

(a) Draw the diagram to represent the above information. **(1mk)**

(b)Express $\underset{\sim}{OP}$ and $\underset{\sim}{AP}$ in term of $\underset{\sim}{a}$ and $\underset{\sim}{b}$. **(2mks)**

(c) Express $\underset{\sim}{OT}$ in terms of $\underset{\sim}{a}$ and $\underset{\sim}{b}$. **(1mk)**

(d) Given further that $\underset{\sim}{OQ} = t\underset{\sim}{OT}$ and $\underset{\sim}{AQ} = s\underset{\sim}{AP}$, express OQ in two ways and hence find the values of s and t. **(6mks)**

22. A metal R is an alloy of two metals X and Y. Metal X has a mass of 70g and a density of 16g/cm^3. Metal Y has a mass of 19g and a density of 4g/cm^3.

(a) Calculate the density of the metal R. **(4mks)**

(b) If metal R is divided into two equal parts and each half reinforced by adding metal X to get to initial volume. Find the density of the new alloy.**(4mks)**

(c) The two metals are mixed in a ratio of 4:1 respectively. What is the density of the alloy?

(2mks)

23. Meshach and Kelvin contributed shs. 60,000 and sh. 90,000 respectively in order to start business. They employed a manager and agreed to pay him sh. 4,500 per month from the profit made each year. They also agreed that 20% of the profit made each year would be put back into the business while the rest would be shared between them in the ratio of their initial contribution. During the first year they made a profit of sh. 365,000.
Calculate:-

(a) The manager's annual salary for that year **(1mk)**

(b) The money put back into business that year. **(2mks)**

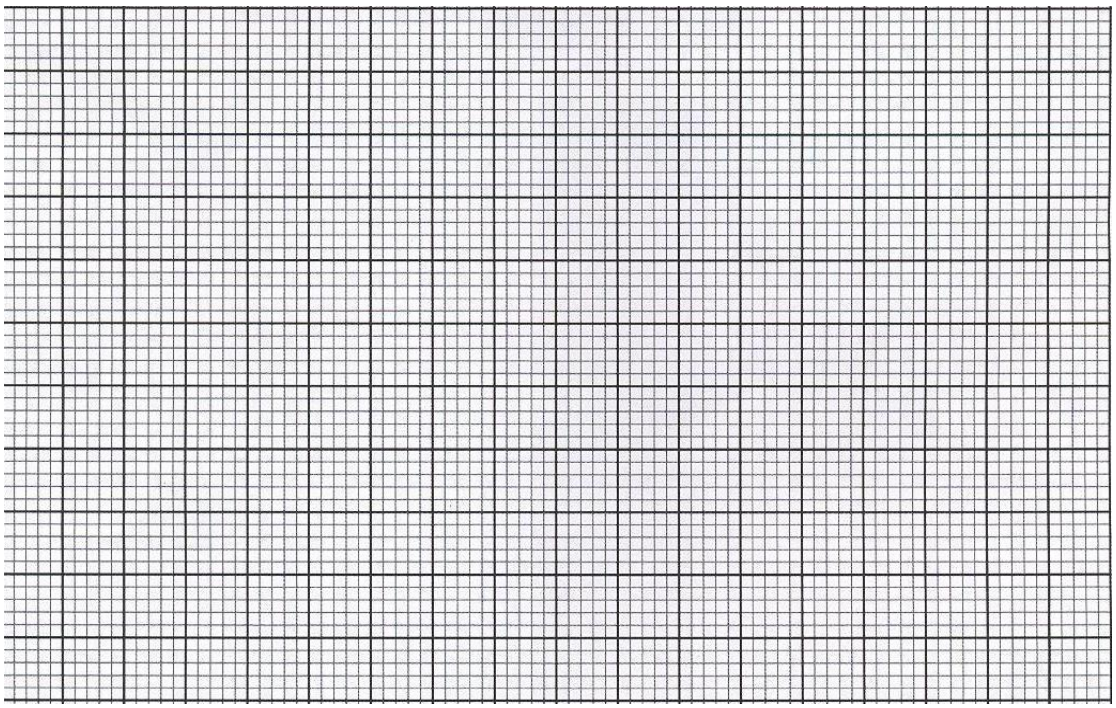
(c) The business net profit for that year. **(2mks)**

(d) How much each partner received that year. **(3mks)**

(e) The capital for the following year. **(2mks)**

24. A car starts from rest and builds up a speed of 40m/s in 1 min 40 seconds. It then travels at this speed for 5 minutes. Brakes are then applied and the car is brought to a halt in 2 minutes.

(**a)** Draw a velocity-time graph to represent the information above.
(3mks)



(b) Use your graph to find

(i) The initial acceleration. **(2mks)**

(ii) The deceleration when the car is brought to a halt. **(2mks)**

(iii) Thedistance traveled in km. **(3mks)**

NAME…….…….. CLASS…….……

ADM NO……SIGNATURE……

DATE……..

FORM 4 END TERM 2 SERIES 2 EXAMS

MATHEMATICS

PAPER 2

TIME: 2½ HOURS

INSTRUCTIONS TO CANDIDATES

a) *Write your name, index number and date in the spaces provided at the top of this page.*
b) *Write name, admission number and class in the spaces provided above.*
c) *This paper contains **TWO** sections: **section I** and **section II***
d) *Answer **ALL**the questions in **Section I** and only**five**questions from **section II.***
e) Show all the steps in your calculations, giving your answers at each stage in the spaces provided below each question.
f) *Marks may be given for correct working even if the answer is wrong.*
g) ***Non-programmable** silent electronic calculators and KNEC mathematical tables may be used except where stated otherwise.*
h) ***This paper consists of 16 printed pages.***
i) ***Candidates should check the question paper to ascertain that all pages are printed as indicated and that no questions are missing.***

FOR EXAMINER'S USE ONLY:

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**

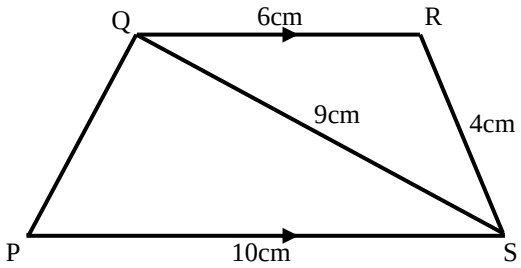
GRAND TOTAL

SECTION 1 (50 MARKS)

Answer all questions in this section in the spaces provided.

1. A positive two digit number is such that the product of the digits is 24. When the digits are reversed, the number formed is **greater** than the original number by 18. Find the number. **(2mks)**

2. In the figure below PQRS is a trapezium with QR parallel to PS. QR = 6cm, RS = 4cm, QS = 9cm and PS = 10cm.



Calculate to two decimal places

(a) The size of angle **SQR** **(2Marks)**

(b) The area of triangle **PQS** **(2Marks)**

3. The height and radius of a cone are measured as 21 cm and 14.0 cm respectively. Taking π= 3.142, find the **percentage error** in the volume of the cone**.**
(4mks)

4. Express the following in **surd form** and simplify by rationalizing the denominator without using a calculator and leave your answer in the form a + $b\sqrt{c}$
(3mks)

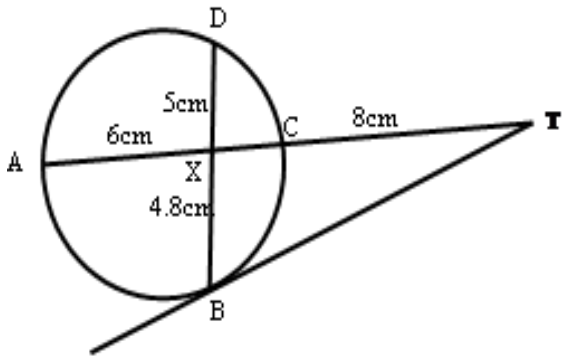
$$\frac{1 + Cos\ 30^0}{1 - Sin\ 60^0}$$

5. Solve for **x** in:$Log_2(x + 7) - Log_2(x - 7) = 3$**(3mks)**

6. A businessman obtained a loan of Ksh 450,000 from a bank to buy a Matatu that was valued at the same amount. The bank charges interest at 24% per annum compounded quarterly per year. Calculate the **total amount** of money the businessman paid to clear the loan in $4\frac{1}{2}$ years to the nearest shilling.

(2mks)

7. In the diagram below, BT is a tangent to the circle at B. AXCT and BXD are straight lines. AX = 6cm, CT = 8cm, BX = 4.8cm and XD = 5cm.



Find the length of **BT**. **(3Marks)**

8. Find the possible values of x given that $\begin{pmatrix} x+8 & 8 \\ 6 & x \end{pmatrix}$ is a **singular** matrix. **(3mks)**

9. The cost C of operating an electronic business is partly constant and partly varies as the square of labour input L. If **C=25,000** when **L=20** and **C=45,000** when **L=30**. Find **C** when **L=8.** **(3Mks)**

10. The **2^{nd}, 4^{th}** and **7^{th}** terms of an A.P. are the first 3 consecutive terms of a G.P. Find the **common ratio** of the G.P if the common difference of the A.P. is 2. **(3mks)**

11. P and Q are two points such that OP=i + 2j + 3k and OQ = 4i + 5j – 3k. M is a point that divides PQ externally in the ratio 3:2. Find the co-ordinates of M, given that O is the origin. **(2mks)**

12. Two bags labeled A and B are on the table. Bag A contains 5 red balls and 3 white balls, while bag B contains 2 red balls and 6 white balls. A bag is chosen at random and two balls are drawn from it, one after the other **without replacement**. Find the probability that the two balls chosen are of different colours. **(4mks)**

13. Tap A can fill an empty tank in 3 hours, while tap B can fill the same tank in 2 hours. When the tank is full, tap C can empty the tank in 5 hours. Tap A and C are opened for 4 hours and then closed.

a) Determine the fraction of the tank that is still empty**.(2mks)**

b) Find how long it would take to fill the remaining fraction of the tank if all the three taps are opened**.(2mks)**

14. Determine the interquartile range for the following set of numbers**.(3mks)**

4, 9, 5, 4, 7, 6, 2, 1, 6, 7, 8.

15. Solve the equation $\text{Sin}(3x - 10)^0 = 0.4337$ for $0^0 \leq \Theta \leq 180^0$ **(3mks)**

16. (a) Expand and simplify $(3x - y)^4$ **(2mks)**

(b) Use the first three term of the expansion to approximate the value of $(6 - 0.2)^4$ **(2mks)**

SECTION 1I (50 MARKS)

Answer any five questions from this Section.

17.(a) Taking the radius of the earth, R= 6370km and $\pi = {}^{22}/_{7}$, calculate the shortest distance between the two cities P (24°N, 29°48'W) and Q(24°N, 30°12'E) along the parallel of latitude.

(i) In nautical miles. **(3mks)**

(ii) In Km. **(2mks)**

(iii) If it is 1200hrs at **P**, what is the local time at**Q**.(**2mks)**

(b) An airplane flew due south from a point A (60°N, 45°E) to a point B. The distance covered by the airplane was 8000km. Determine the position of B. **(3mks)**

18. A particle moves along a straight line such that its displacement S metres from a given point is $S= t^3-5t^2 + 3t + 4$.

a) The displacement of the particle at t=5 **(2mks)**

b) The velocity of the particle when t=**5** **(3mks)**

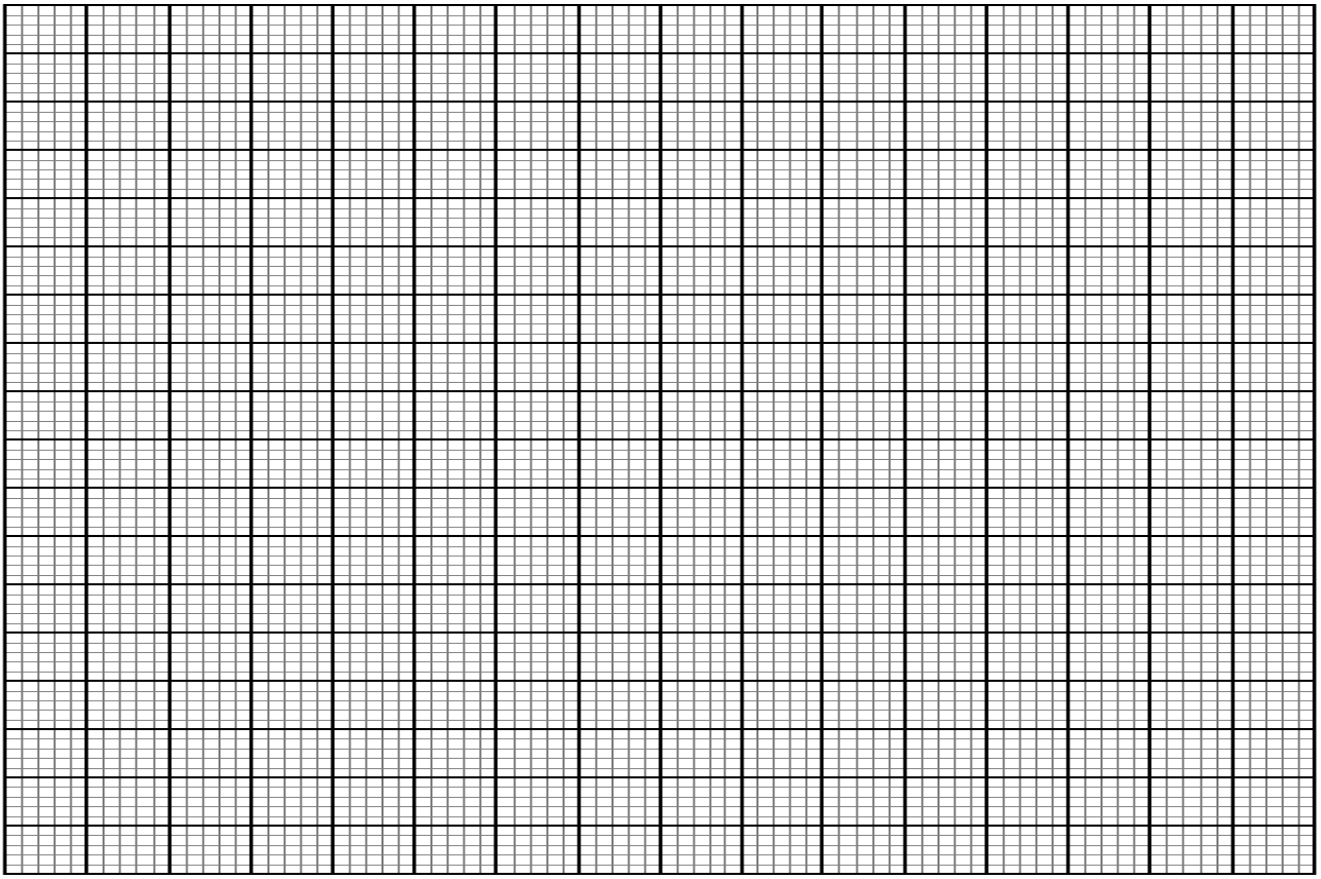
c) The value of t when the particle is momentarily at rest. **(3mks)**

d) The acceleration of the particle when t=2. **(2mks)**

19.(i) A solution was gently heated, its temperature readings taken at intervals of 1 minute and recorded as shown in the table below.

Time (min)	0	1	2	3	4	5
Temperature(^{0}C)	4	5.2	8.4	14.3	16.8	17.5

a) Draw the time-temperature graph on the grid provided (3mks)



b) Use the graph to find the average rate of change in temperature between t = 1.8 and t = 3.4 **(2mks)**

(ii) The points with coordinates (5,5) and (-3, -1) are the ends of a diameter of a circle center A. Determine

(a) The coordinates of A. **(2mks)**

(b) The equation of the circle, expressing it in form of $x^2 + y^2 + ax + by + c = 0$ **(3mks)**

20. Mrs.Mutua earns a basic salary of K£ 12,000 p.a. and is housed by the employer at a nominal rent of Shs 1,200 per month. She is entitled to a personal relief of K£ 1,320 p.a. and a premium relief of 10% on her insurance premium of K£ 800 p.a. The housing benefit when you are housed by the employer is 15% of the basic salary. The table of tax rate is as below.

Taxable income (K£ p.a.)	Rate (%)
1 – 2100	10
2101 – 4200	15
4201 – 6300	20
6301 – 8400	25
Over 8400	30

Calculate;

a) Calculate the net tax per annum. **(7mks)**

b) Other deductions includes W.C.P.S Shs 600 per month, NHIF Shs. 500 per month. Calculate her net pay per month**. (3mks)**

21. Using a ruler and a compass only, construct a triangle ABC such that AB = 6.8 cm, BC = 5.6 cm and angle ABC = 37 ½ ^{o} **(3mks)**

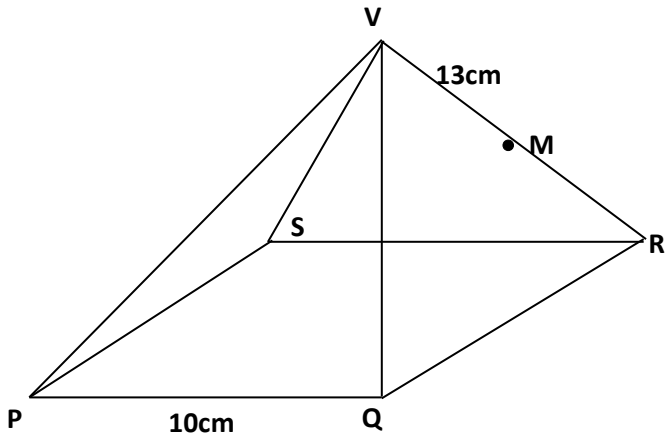
(b) Locate the :

(i) Locus P such that angle APB = angle ACB **(3mks)**

(ii) Locus Q such that Q is equidistant to points A and B **(2mks)**

(iii) Locus **R** such that **R** is equidistant to lines **AB** and **AC** **(2mks)**

22. The diagram below shows a square based pyramid **V** vertically above the middle of the base. **PQ** = 10cm and **VR** = 13cm. **M** is the midpoint of **VR**.



Find to 2 decimal places

(a) **(i)** the length **PR**. **(2mks)**

(ii) The height of the pyramid. **(2mks)**

(b) **(i)** the angle between **VR** and the base **PQRS**. **(2mks)**

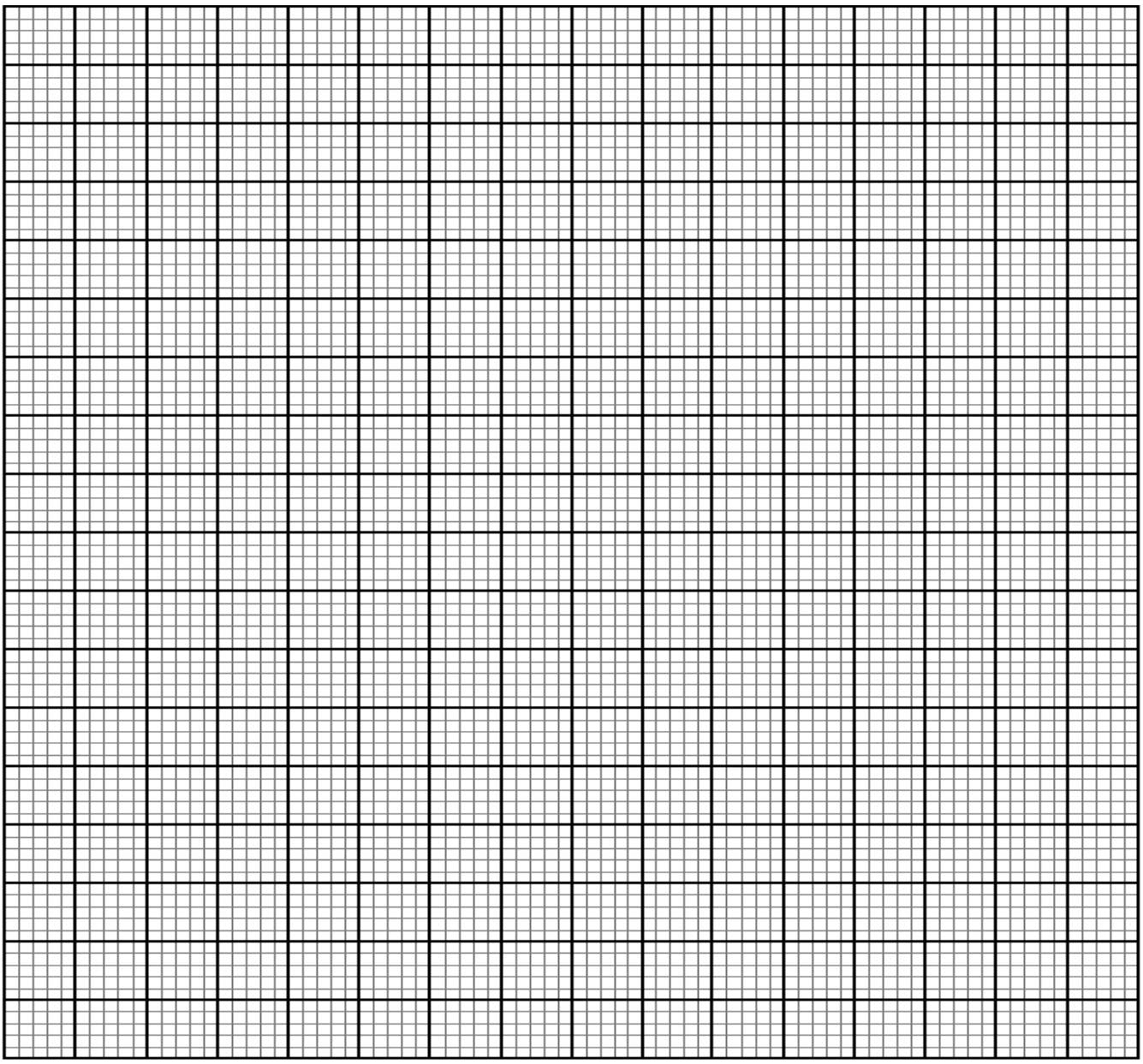
(ii) The angle between **MR** and the base **PQRS**. **(2mks)**

(iii) The angle between the planes **QVR** and **PQRS.(2mks)**

23. A farmer has at least 50 acres of land on which he plans to plant potatoes and cabbages. Each acre of potatoes requires 6 men and each acre of cabbages require 2 men. The farmer has 240 men available and he must plant at least 10 acres of potatoes. The profit in potatoes is Ksh 1,000 per acre and on cabbages ksh. 1,200 per acre. If he plants x acres of potatoes and y acres of cabbages:

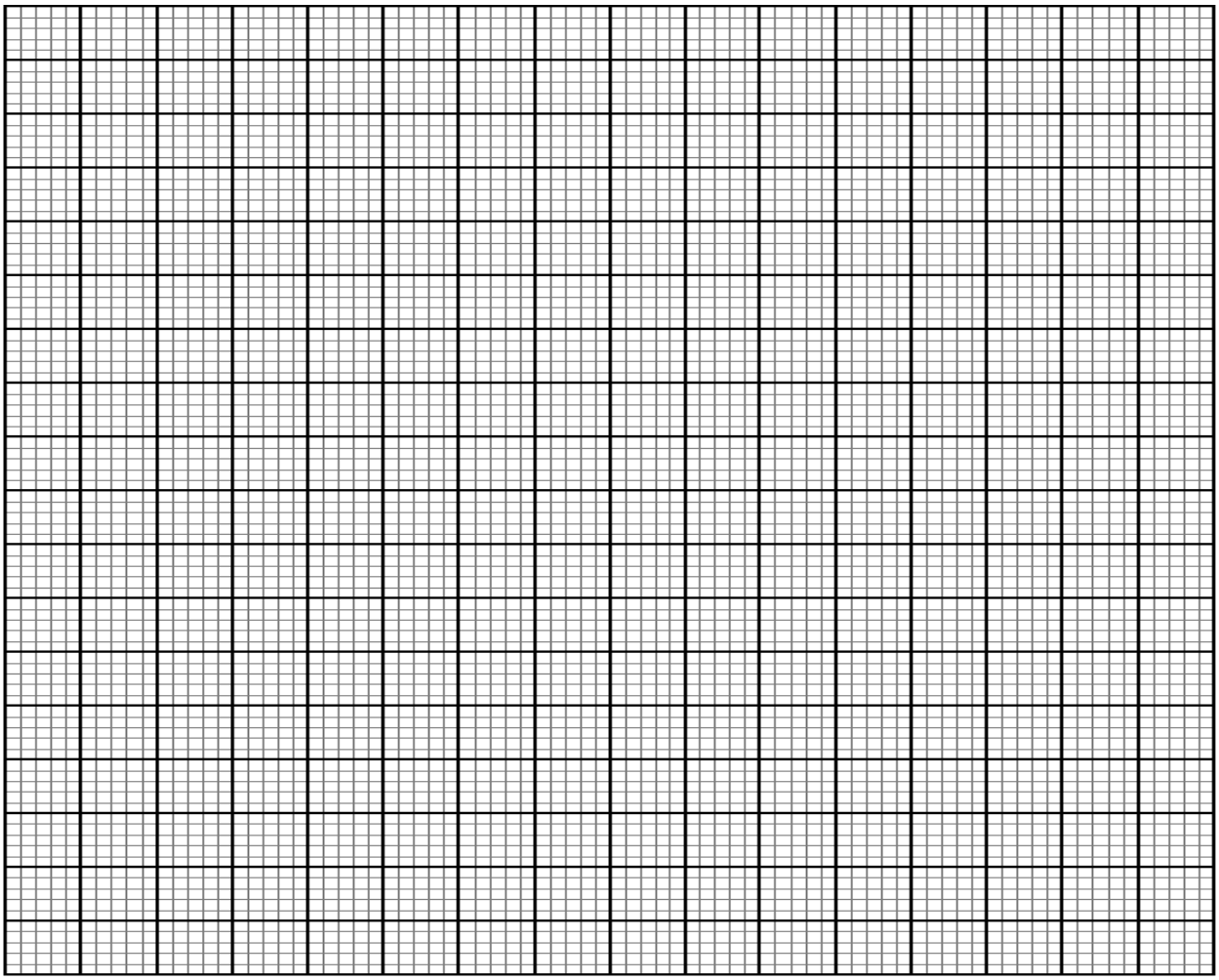
(a) Write down three inequalities in x and y to describe this information**. (3mks)**

(b) Represent the above inequalities on the graph below**.(5mks)**



(c) Use your graph to find the number of acres of each crop that the farmer should plough to get maximum profit. Calculate the maximum profit**.(2mks)**

24.a) On the grid provided, draw a graph of the function $y=\frac{1}{2}x^2 - x + 3$ for $0 \leq x \leq 6$**.(3mks)**



b) Determine the midordinates for 5 strips between x=1 and x=6, and hence use the mid-ordinate rule to approximate the area under the curve between x=1 and x=6 and and the x-axis.**(3mks)**

c) Assuming that the area determined by integration to be the actual area, calculate the percentage error in using the mid-ordinate rule**.(4mks)**

NAME…….…….. CLASS…….……

ADM NO……SIGNATURE……

DATE……

FORM 4 END TERM 2 SERIES 2 EXAMS

PHYCICS

PAPER 1

TIME: 2HRS

Instructions:

- *This paper consists of **TWO** Sections: **A** and **B**.*
- *Answer **ALL** the questions in sections **A** and **B** in the spaces provided.*
- ***ALL** **workings** **MUST** be clearly shown.*
- *Mathematical tables and electronic calculators may be used.*

For Examiner's Use Only

Section	Question	Maximum Score	Candidate's Score
A	1 – 11	25	
B	12	9	
	13	9	
	14	7	
	15	8	
	16	8	
	17	9	
TOTAL SCORE		**80**	

SECTION A (25 marks)

Answer ALL the questions in the spaces provided.

1. A rectangular container measures 2cm by 3cm by 5cm. What is the weight of mercury that will fill the container to the brim. (Take g = 10N/kg and density of mercury = 13600 kg/m^3). **(3 marks)**

2. A vernier calliper has a zero error of -0.02cm. Draw the section of the calliper scale when used to take an actual measurement of 4.85cm. **(2 marks)**

3. Figure one below shows a beaker placed on a bench. A block of ice is placed in a beaker as shown below.

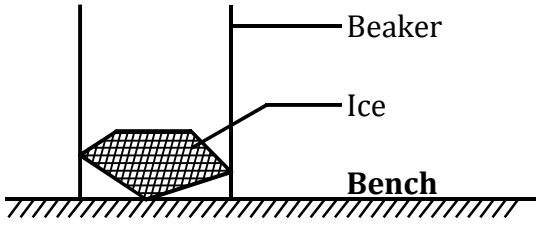


Fig 1

State and explain the change in the stability of a beaker when ice melts. **(2 marks)**

……

……

4. Figure 2 below shows horizontal copper wire tightly fixed on two stands. A mass P is suspended from the wire using a string that can freely slide.

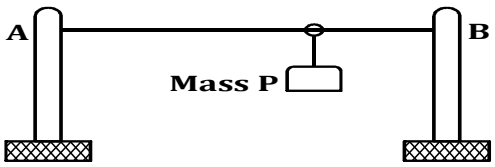


Fig 2

The copper wire is then heated for sometime. State and explain what happens to mass P.**(2 marks)**

……
……

5. Water flows through a pipe with different cross-section areas at a rate of 7.7×10^{-2} m^3 / s. If the pipe has a diameter of 7mm, determine the velocity of water through the pipe at that particular section. **(3 marks)**

6. Apart from friction, name another factor that reduces efficiency in machine.
(1 mark)

……
……

7. Two forces act on a trolley as shown below;

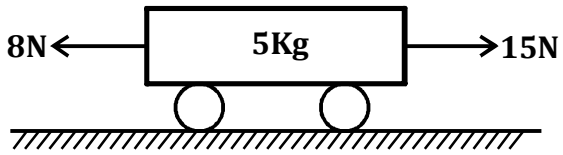


Fig 3

Find: the acceleration of the trolley. **(3 marks)**

7. State the factors that affect the rate of flow of heat through a metal conductor.
(2 marks)

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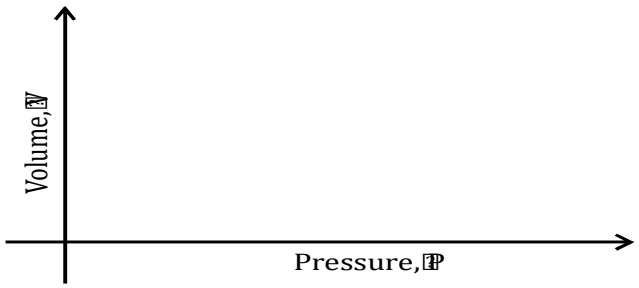
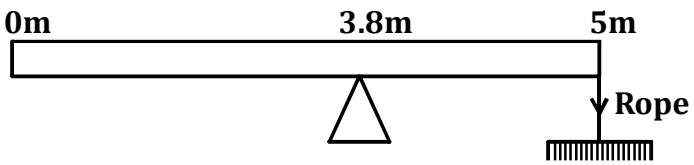
9. Sketch a graph of volume of a fixed mass of a gas against pressure on the axes below.
(1 mark)



10. A form three student heats 5kg of water to a temperature of 80°C. When he added X kg of water at 15°C, the mixture attains a temperature of 40°C. Determine the value of X. **(3marks)**

11. A uniform rod of length of 5m and a mass of 6kg is pivoted at 3.8m mark. The rod is held horizontally by a vertical rope at 5m mark as shown in figure 3 below.



Calculate tension on the rope. **(3 marks)**

SECTION B: 55 marks)

12. a) **i)**State the law of conservation of energy. **(1 mark)**

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ii) Explain why it is easier to use a thick screw driver than a thin one. **(1 mark)**

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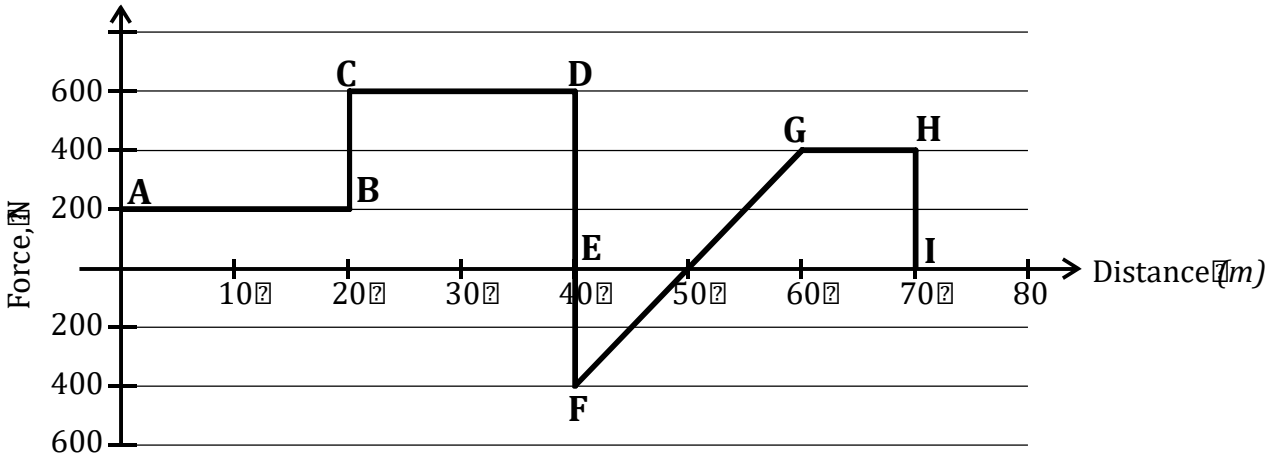
b)The figure below shows a force-distance graph for a car being towed on a horizontal ground.



i) Calculate the total work done. **(3 marks)**

ii) If the velocity just before reaching point D is 0.6m/s, calculate the power developed by the source providing the force at this point**.** **(1 mark)**

c) An electric pump can raise water from a low level reservoir to a high level reservoir at a rate of 3.6×10^5 kg/h. The vertical height that water is raised is 400m. If the rate of energy loss in form of heat is 200kw, calculate the efficiency of the pump. **(3 marks)**

13. a) State Newton's second law of motion. **(1 mark)**

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b)Why is it easier to stop a saloon car than a bus moving at the same velocity.**(2 marks)**

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c) A bullet of mass 20g moving at 200ms^{-1} hits and gets embedded in a wooden block of mass 450g that is suspended freely on a light inextensible string at a height of 5m above the ground. If the string breaks on impact, calculate:

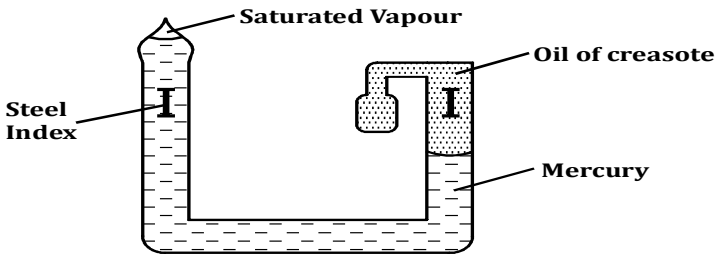
i) the velocity of the block immediately after impact. **(2marks)**

ii) the time taken by the block to strike the ground. **(2 marks)**

iii) the horizontal range of the block. **(2 marks)**

14. a) State two properties of mercury that makes it a suitable thermometric liquid. **(2 marks)**

b) Figure below shows a six's maximum and minimum thermometer.



i) What is the thermometric liquid in the thermometer **(1 mark)**

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ii) Give a reason why vapour in bulb **B** is saturated. **(1 mark)**

B……
……

iii) Describe how the thermometer above works. **(3 marks)**

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iv) At what points is reading of temperature taken from the thermometer**(1 mark)**

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15. a) State one factor that affects freezing point of distilled water**.** **(1 mark)**

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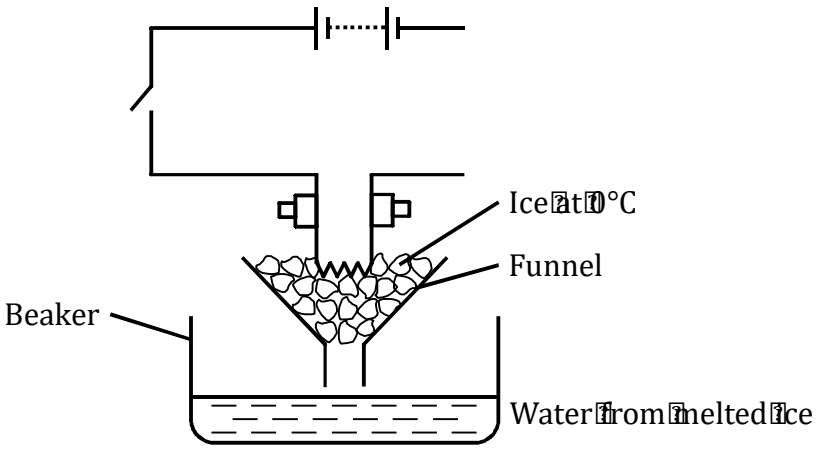
b) Figure below illustrates an experiment in which electrical energy is used to determine specific latent heat of fusion of ice.



i) Complete the circuit to show connection of essential circuit components.**(3 marks)**

ii) In the above experiment the following readings were obtained when heater was switched on for 10 minutes.

Voltage - 8.0V

Current - 2.25A

Temperature rise - 10°C

At the end of the experiment 400g of water at 0°C was collected in the beaker. Determine latent heat of fusing of ice. **(3 marks)**

iii) State any assumption made in (ii) above. **(1 mark)**

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16. a)i) What is the importance of banking a road in corners? **(1 mark)**

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ii) Explain why wet clothes put in a drum which has holes at the bottom get dried faster when the drum of drying machine is rotated at high speed. **(2 marks)**

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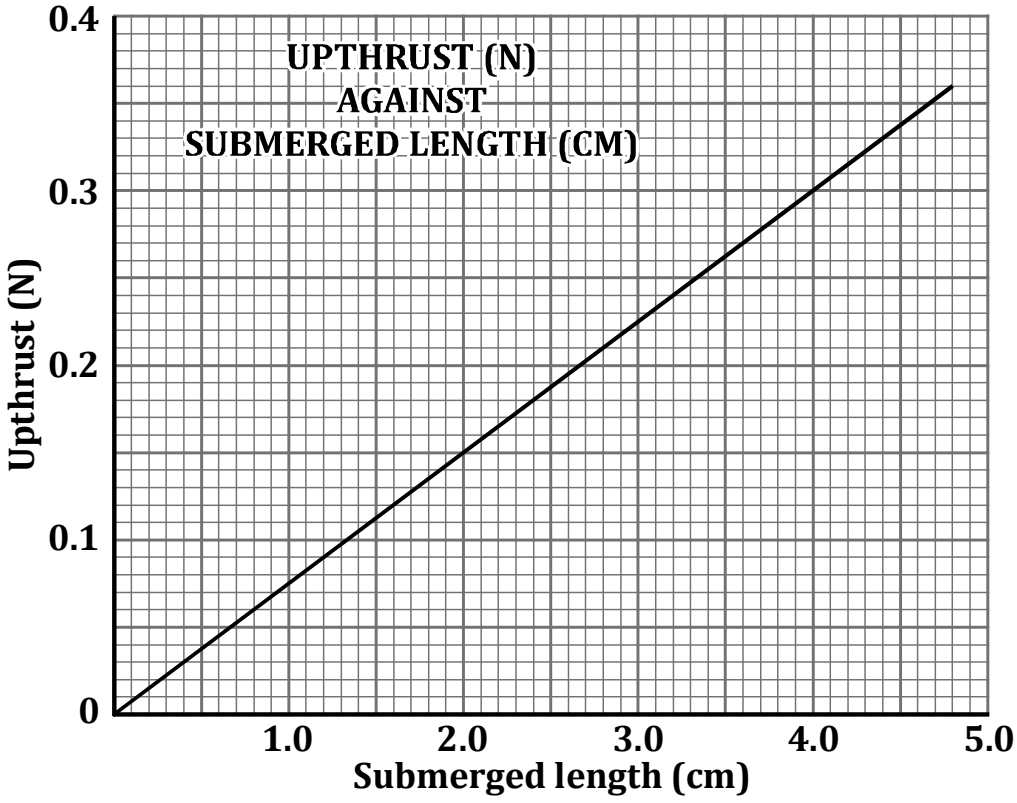
b) A turntable of a record player makes 60 revolutions per minute. Calculate.

i) Angular velocity in rads/second. **(2 marks)**

ii) The linear acceleration at a point 0.18M from the centre. **(3 marks)**

17.a) In an experiment to determine the density of a liquid, uniform metal cylinder of cross-section area 6.0cm² and length of 4.2cm was hang from a spring balance and lowered gradually into liquid. The graph below shows upthrust plotted against, lengths submerged.



From the graph, determine:

i) Value of upthrust when the cylinder is fully submerged. **(1 mark)**

ii) The density of the liquid in SI units. **(5 marks)**

b) A solid displaces 5.0cm^3 of paraffin when floating and 20cm^3 when fully immersed in it. Given that the density of paraffin is 0.8g/cm^3, calculate the density of the solid. **(3 marks)**

NAME……..…….... **CLASS**…….……

ADM NO……**SIGNATURE**……

DATE……

FORM 4 END TERM 2 SERIES 2 EXAMS

232/2

PHYSICS

PAPER 2

2 HOURS

INSTRUCTIONS TO CANDIDATES

- *Write your name and index number in the spaces provided above*
- *Sign and write the date of the examination in the spaces provided*
- *Mathematical tables and electronic calculators may be used.*

For Examiner's Use Only

Section	Question	Maximum Score	Candidates' Score
A	Q1 – Q12	25	
B	Q13	11	
	Q14	12	
	Q15	11	
	Q16	10	
	Q17	11	
		80	

This paper consists of 14 printed pages.Candidates should check the question paper to ensure that all thePages are printed as indicated and no questions are missing.

SECTION A (25 MARKS)

1. a) A plane mirror suspended on a vertical wall makes an angle of 60^0 with the wall. Determine the angle of reflection for a ray incident on the mirror and parallel to the horizontal.

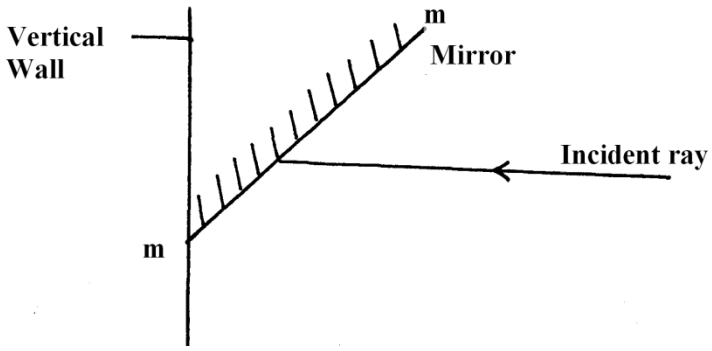


Fig. 1

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b) During total eclipse of the sun, both light and heat are observed to disappear simultaneously. Explain **(1 mark)**

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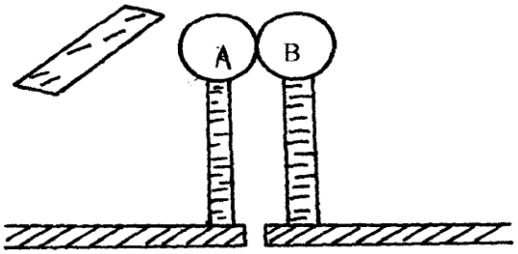
2. Two identical sphere A and B each standing on an insulated base are in contact .A negatively charged rod is brought near sphere A as shown below.



In what way will **A** differ from **B** if separated while the rod is held close to A ? **(2mks)**

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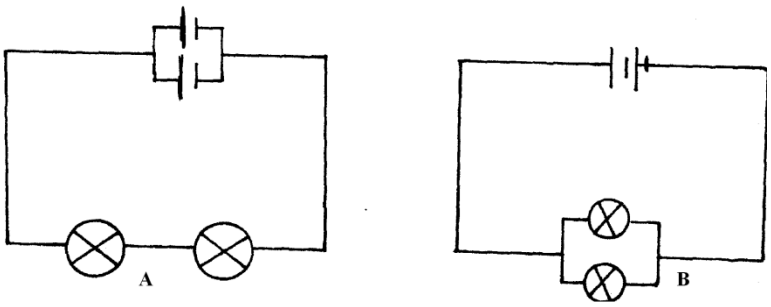
3. A student was investigating the brightness of bulbs when set up in circuits. He used identical bulbs and cells. He set up circuit A and B consisting of two bulbs and two cells as shown below.



State and explain which set – up had the bulbs brighter **(2mks)**

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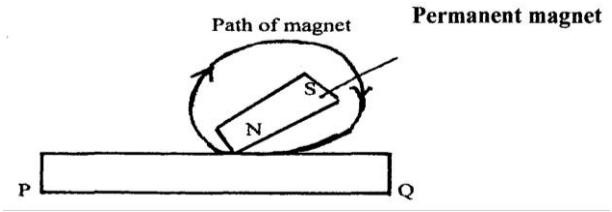
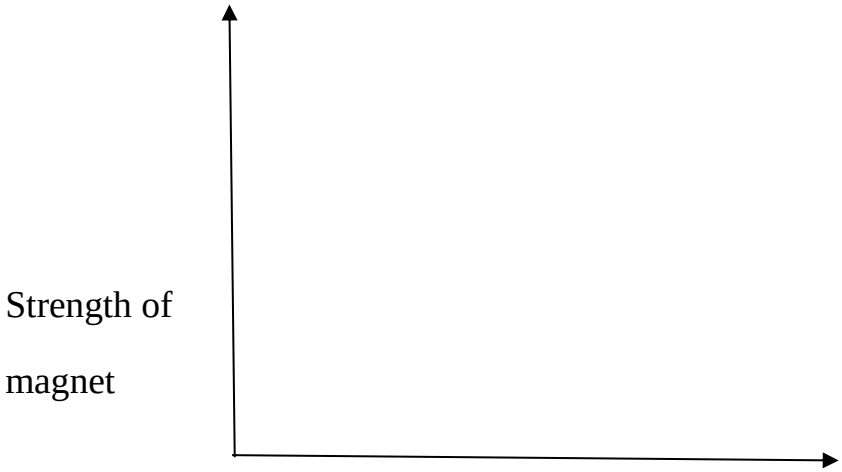
4. **(i)** The diagram below show a ferromagnetic material being magnetized by the method shown.

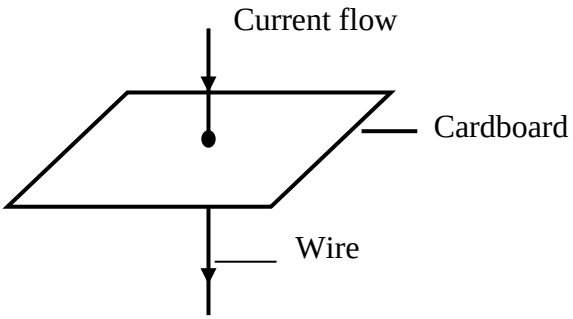


Identify the polarity of P **(1mk)**

(ii) On the axes given below , sketch a graph to show how the strength of the magnet being created varies with the number of strokes. **(1mk)**



5. Figure below shows a current carrying vertically right wire at right angle to a cardboard. Iron fillings are sprinkled on the card and card slightly tapped.



Draw and indicate the direction of the magnetic field pattern displayed on the card.

(2 mks)

6. When a germanium crystal is doped with arsenic, it becomes an N-type semiconductor. Explain how this change occurs. **(2 mks)**

(Number of electrons in the outermost shell for germanium = 4, Arsenic = 5)

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7. The following is a part of a radio – active series.

$^{210}_{83}X \xrightarrow{r} {}^{210}_{84}Y \xrightarrow{\alpha} {}^{c}_{d}Z$

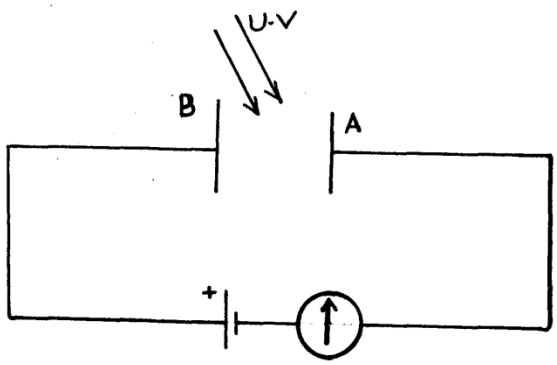
Identify the radiation r , find the values of C and d

r……(1mk)

c……...(1/2mk)

d……..(1/2mk)

8. The figure below shows a set up to demonstrate photoelectric effect. Use it to answer Questions 8(a) and (b).



a) What observation will be made when UV light shines on plate A. Explain.

(2mks)

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b) What is the effect of introducing a barrier between plates **A** and **B.(1mk)**

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9. A house has a lighting circuit operated from a **240V** mains supply. Four bulbs rated **40W 240V** and six bulbs rated **100W 240V** are switched on for **5** hours a day. Determine the monthly bill for the consumer given that the cost of electricity is at shs. 5.50 per unit.
(Take 1 month = 30 days and the standing charge is sh. 150) **(3 mks)**

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10. The chart below shows an arrangement of different parts of the electromagnetic spectrum.

P	Q	R	Ultra violet	S	Gamma rays

Name the radiation represented by letter Q and state one use of the radiation.

(2 mks)

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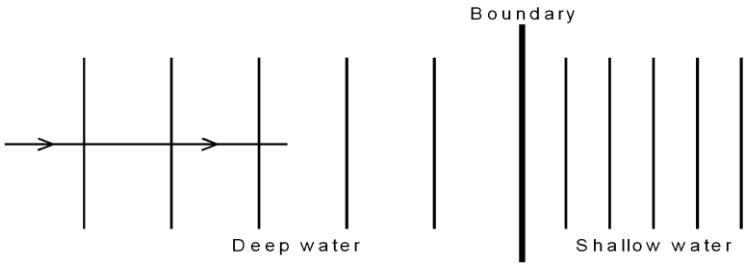
11. Plane water waves produced in a ripple tank are passed from a region of deep water into a region of shallow water. The figure below shows the top view of the tank.



a) State what happens at the boundary to the frequency of the waves**.(1 mk)**

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b) The waves have a speed of 24cm/s in the deep water. Consecutive waves crests are 0.08m apart in the deep water. Calculate the frequency of the source producing the wave.

(2 mks)

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12. State one advantage and one disadvantage of a convex mirror when used as a driving mirror **(1mk)**

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SECTION B (55 MARKS)

13. The image formed by a convex lens is erect. On Figure 10 below, draw the object and using ray diagram, locate and draw the erect image. **(3mks)**

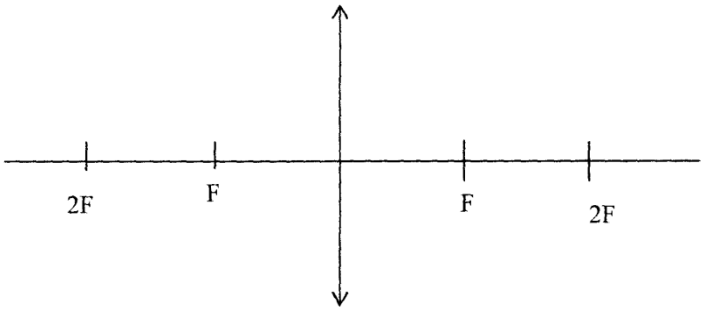

Figure 10

(a) Apart from being erect, state two other characteristics of the image. **(2mks)**

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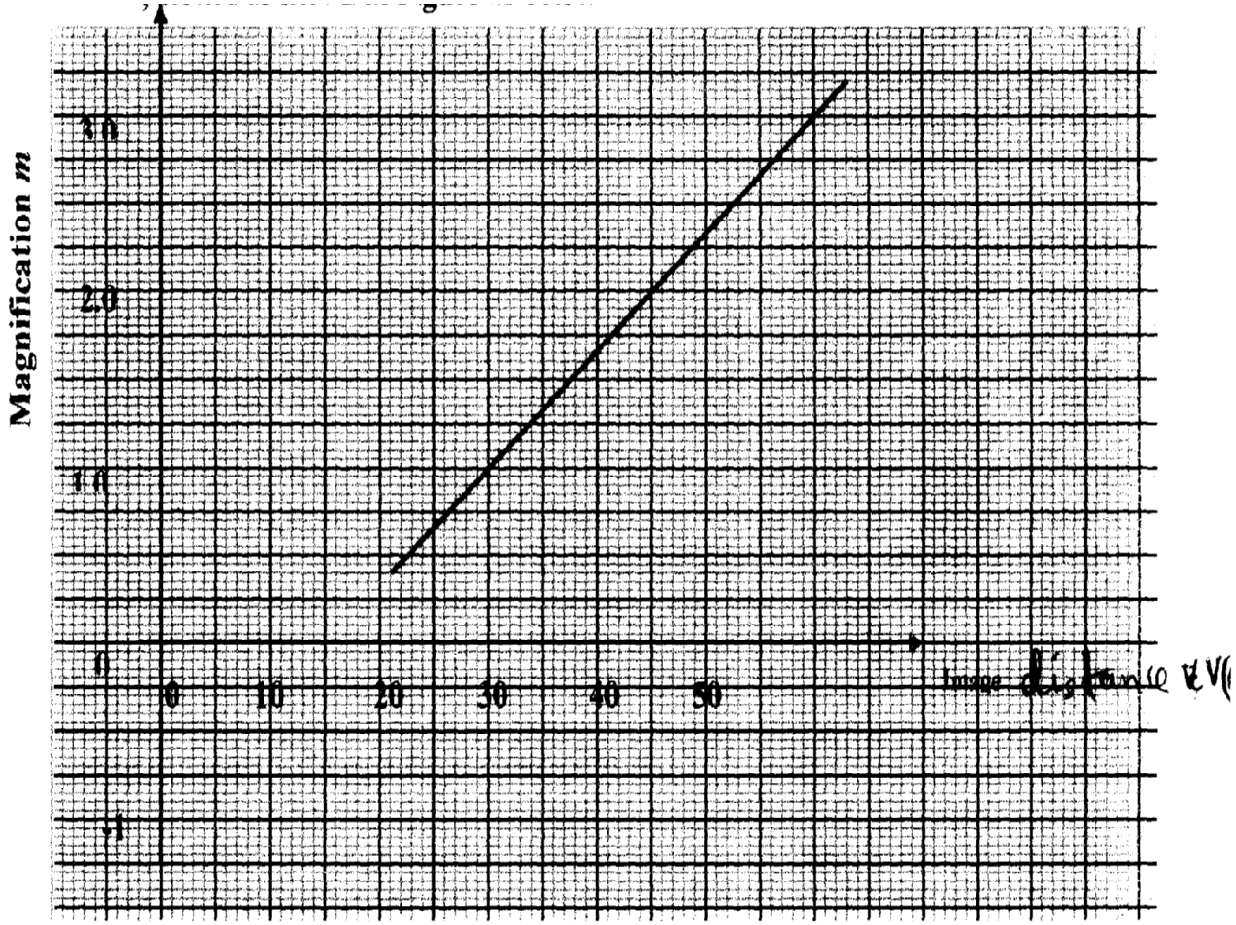
(b) In an experiment to determine the focal length of a converging lens using the lens formula, several values of image distance corresponding to value of object

distance U were determined and a graph of magnification m against image distance

v,plotted as shown in **Figure 11** below



The equation of the graph can be represented by the equation

$$m = \frac{V}{f} - 1$$

(i) What does the gradient of the graph represent? **(1mk)**

(ii) Determine the focal length of the lens. **(2mks)**

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(iii) Find the value of object distance for which the image is not magnified. **(1mk)**

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c) An object of height 10.5cm stands before a diverging lens of focal length 20cm and a distance of 10cm from the lens. Determine the image distance. **(2 mks)**

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14.(a) The refractive index of glass is $^{3}/_{2}$ and that of water is $^{4}/_{3}$. Calculate the refractive index of glass with respect to water. **(2 mks)**

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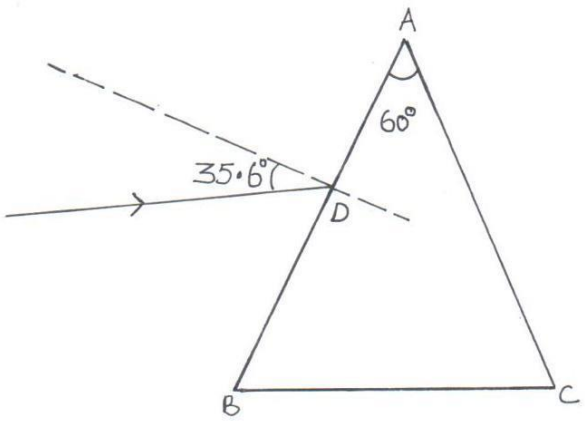
(b) The figure below shows a ray of light incident at an angle of 35.6° at point D on the first face of a glass prism ABC. The refractive index of the prism is 1.6.



(i) Determine the angle of refraction at point D. **(2 mks)**

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(ii) Find the angle of incidence of the refracted ray on the face AC to 1 decimal point. **(2 mks)**

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(iii) Complete the ray diagram to show the emergent ray from the face AC. **(2 mks)**

(iv) State **two** conditions necessary for total internal reflection to occur. **(2 mks)**

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(c) A girl standing at a distance claps her hands and hears an echo from a tall building 2 seconds later. If the speed of sound in air is 340m/s, determine how far the building is. **(2 mks)**

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15.a) State one application of a capacitor. **(1 mk)**

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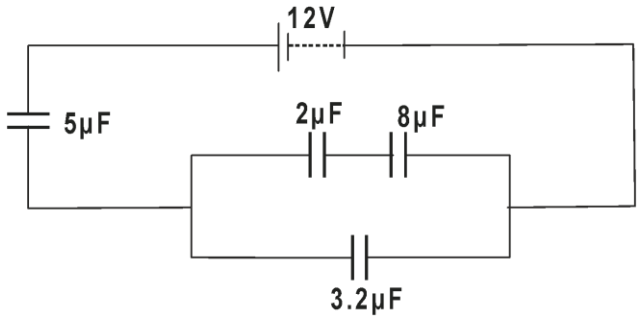
b) Figure 7 shows four capacitors connected to a battery of 12 volts.



Calculate:

i) Effective capacitance. **(2 mks)**

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ii) Charge on 3.2 μF **(2 mks)**

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iii) Potential Difference across 5 μF **(2 mks)**

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iv) The energy stored by 2 μF **(2 mks)**

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(c) What are effects on capacitance of a parallel plate capacitor when :

(i) Increasing the area overlap of the plates ? **(1mk)**

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……

(ii) Increasing the distance of separation between plates ? **(1mk)**

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16.a) State Lenz's law of electromagnetic induction. **(1mk)**

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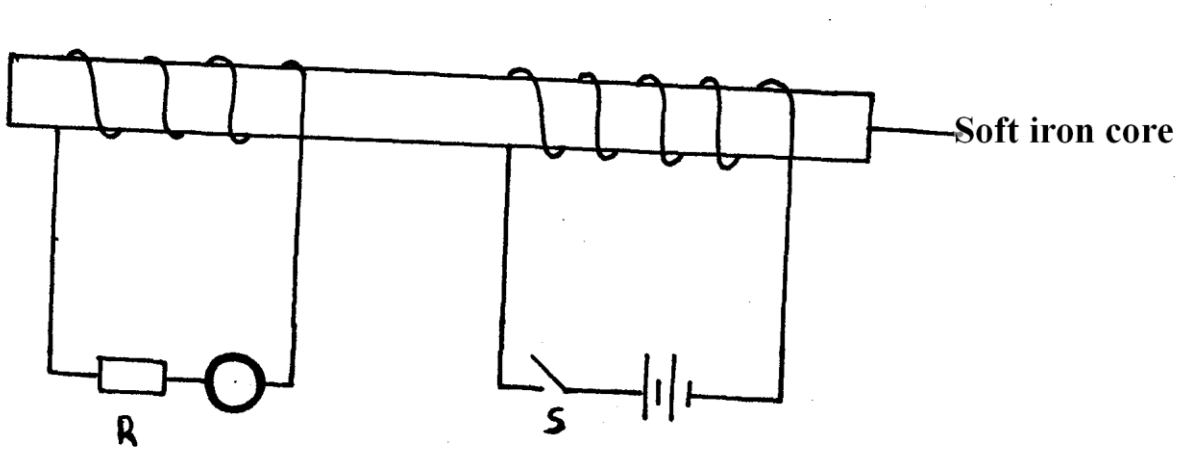
b)The figure shows two coils of insulated copper wires wound on a single soft iron core. One coil is connected to a battery through a switch and the other is connected to a resister through a galvanometer.



It is observed that as the switch is closed, the pointer of the galvanometer deflects momentarily. The same as when the switch is opened.

i) Explain why the pointer deflects momentarily. **(2mks)**

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ii) State one way in which the current through R can be increased. **(1mk)**

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c)i) State one way in which power is lost in a transformer. **(1mk)**

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ii)A transformer uses 240V ac supply to deliver 9A at 80V to a heating coil.

If 10% of the energy taken from the supply is lost in the transformer itself,

What is the current in the primary winding? **(2mks)**

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d) Figure 8 , shows the voltage – current relating for a certain battery used in the electrical circuit in a above

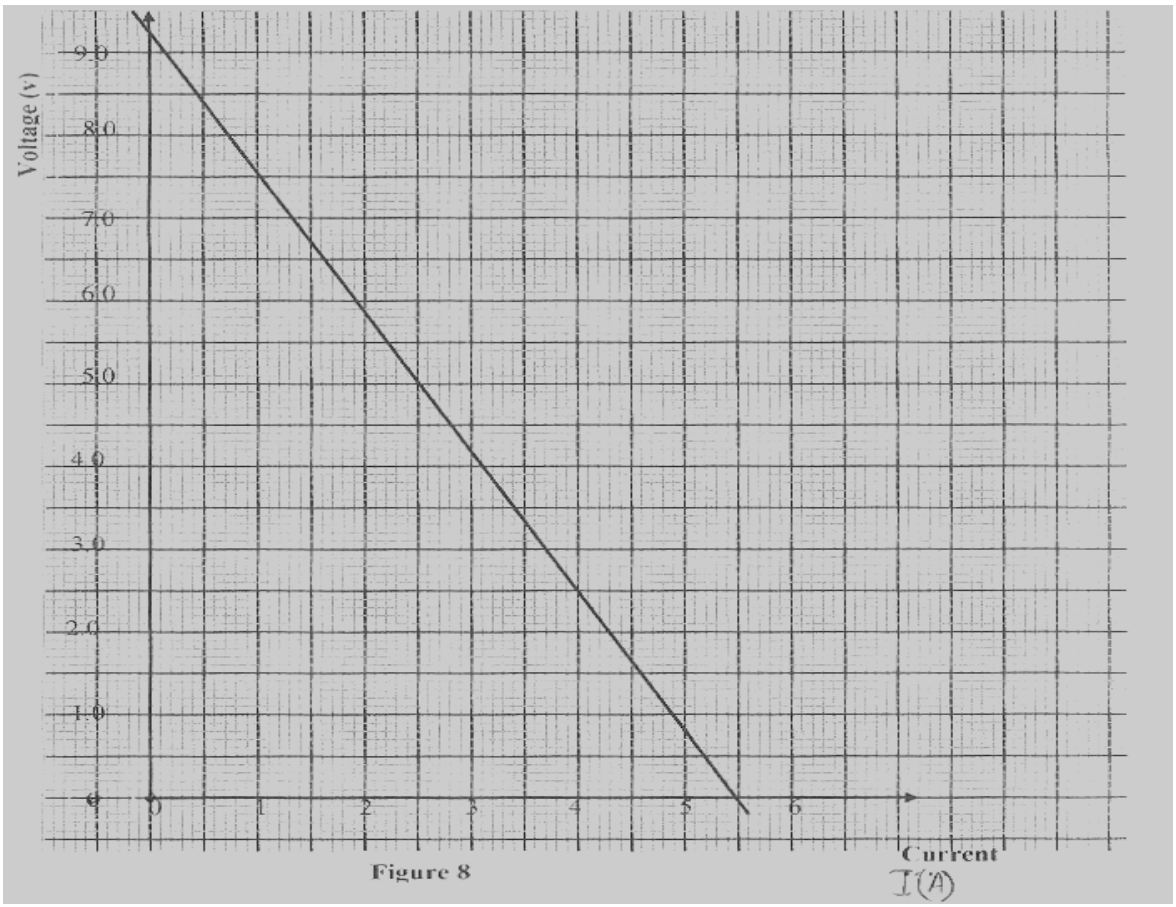

Figure 8

Given that the equation of the graph is V = E – Ir , from the graph , determine

(i) The e.m. fof the battery. **(1mk)**

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(ii) The internal resistance of the battery used. **(2mks)**

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17.a) During the operation of an X-Ray tube, the target becomes very hot. Explain how this heat is caused. **(1mk)**

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(b) What property of lead makes it suitable for use as a shielding material in an X-Ray t **(1 mk)**

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c) In a certain X- ray tube electrons are accelerated by p.d of 12 kV. Assuming all energy goes to produce X-rays, determine the frequency of the X-rays produced (Planck's constant $=6.63\times10^{-34}$ Js. Charge of an electron$=1.6\times10^{-19}$C) **(2 mks)**

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d) X-Rays are used in detecting cracks inside metal beams. State the type of X-rays used for this purpose and state the reason. \ **(2 mks)**

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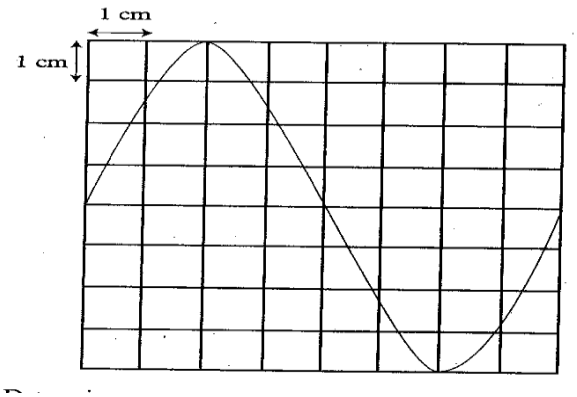
e) The figure below shows the waveform of a voltage displayed on the screen of a C.R.O.

The Y-gain was 5V/cm and time base control was 10ms/cm.



Determine the:

i) Peak to peak voltage of the Y- input **(1 mk)**

ii) Period of the signal **(2 mks)**

iii) Frequency of the signal. **(2mks)**

NAME…….. CLASS…….……..

ADM NO……SIGNATURE……

DATE…….

FORM 4 END TERM 2 SERIES 2 EXAMS

PHYSICS

PRACTICAL

PAPER 3

TIME: $2\frac{1}{2}$ HRS

INSTRUCTIONS TO CANDIDATES

(a) Write your name and index number in the spaces provided.
(b) Mathematical tables and non-programmable calculators may be used.
(c) This paper consists of section A and section B.
(d) Attempt all the questions in the spaces provided.
(e) ALL working MUST be clearly shown.

For Examiners Use

QUESTIONS	MAXIMUM SCORE	CANDIDATE'S SCORE
1	20	
2	20	
TOTAL	40	

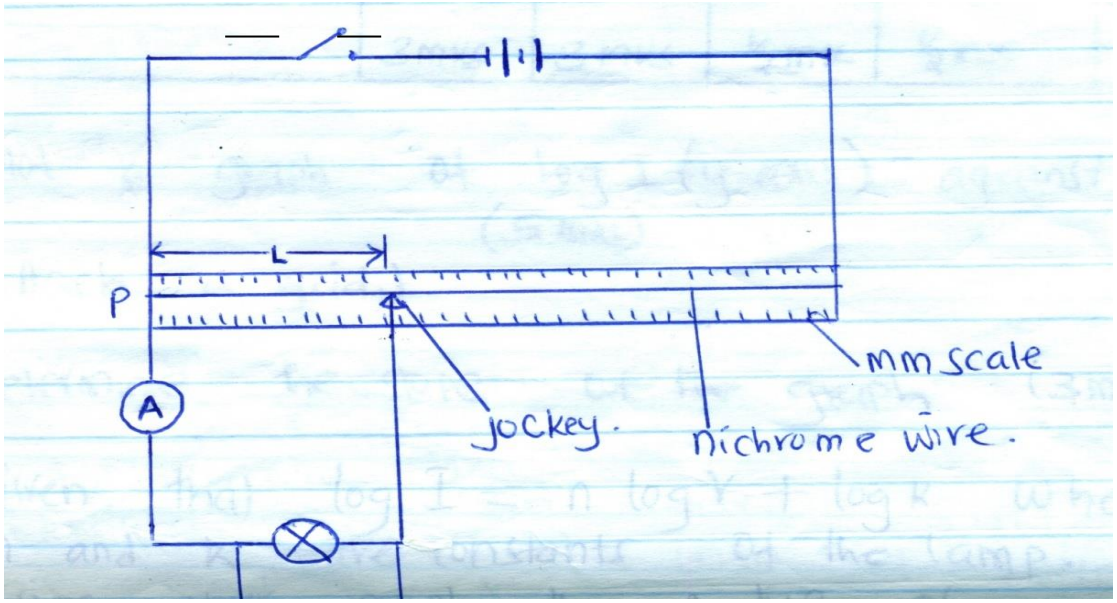
This paper consists of 9printed pages. Candidates should check to ascertain that all pages are printed as indicated and that no questions are missing

Question 1

1. You are provided with the following apparatus:

- 2 size D dry cells
- 100cm nichrome wire on a mm scale, labelled P at one end.
- A bulb (2.5V) and a bulb holder.
- 8 connecting wires (at least 4 with crocodile clips)
- Cell holder
- A voltmeter (0-5V)
- An ammeter (0-1A)
- A jockey

a) Connect the apparatus provided as shown in the diagram.

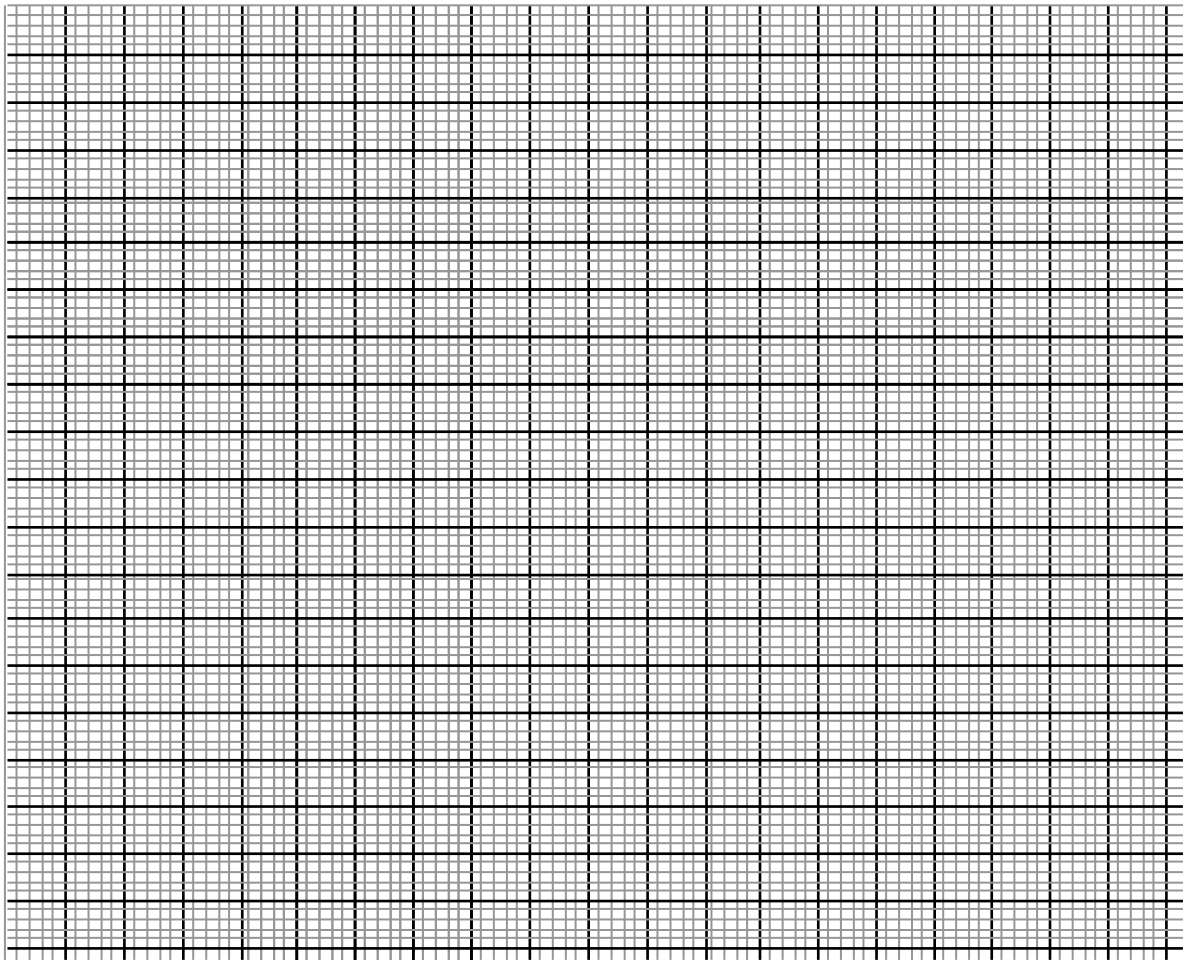


b) Place the jockey at L = 20cm from P, then close the switch.
Record the ammeter reading and the voltmeter reading in the table below.

c)Repeat the experiment by placing the jockey at L = 30, 40, 50, 60 and 80cm from P.Record your readings and complete the table below.

Length *l* (cm)	I (A)	Pd, V(V)	I(mA)	Pd, v(MV)	log I	log V
20						
30						
40						
50						
60						
80						
	3mks	3mks	-½ mk	-½ mk	-½ mk	-½ mk

d) Plot a graph of log I (y-axis) against log V **(5mks)**



e)Determine the slope of the graph. **(3mks)**

f) Give that log I = nlog V + log K where n and k are constants of the lamp. Determine using your graph the value of:

i) K **(2mks)**

ii) N **(2mks)**

Question 2

Part A

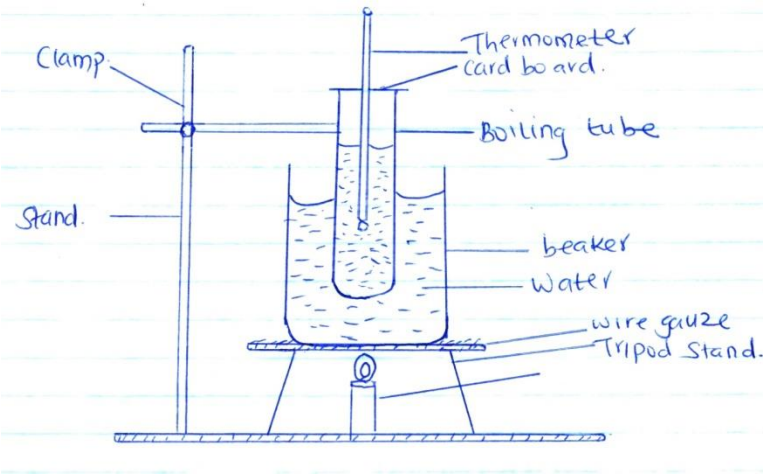
You are provided with the following:

- A retort stand, boss and clamp.
- 2 boiling tubes
- A thermometer
- Some distilled water in a beaker labelled W
- Some liquid in a beaker, labelled L
- A 250ml beaker containing some water.
- A measuring cylinder
- A stop watch
- A tripod stand and wire gauze
- A card board with a hole in the middle
- A burner.

Proceed as follows

a) Clamp one boiling tube on the retort stand. Measure and pour 45ml, of the distilled water, W

into a boiling tube. Set up the apparatus as shown in the figure below.



b) Heat the water in the large beaker (250ml) until the temperature of the distilled water reached 85^0C. Remove the boiling tube from the hot water by lifting up the retort stand and placing it away from the burner.

c) Stir the water in the boiling tube using the thermometer. Record in the table below the temperature of the distilled water at intervals of 30 seconds starting at 80^0C until it drops to 60^0C (stir the distilled water before taking any reading).

Time in minutes	0	0.5	1.0	1.5	2.0	2.5	3.0	3.5	4.0	4.5
Temperature of W(^{0}C)										
Temperature of L(^{0}C)										

Time in minutes	5.0	5.5	6.0	6.5	7.0	7.5	8.0	8.5	9.0	9.5
Temperature of W(^{0}C)										
Temperature of L(^{0}C)										

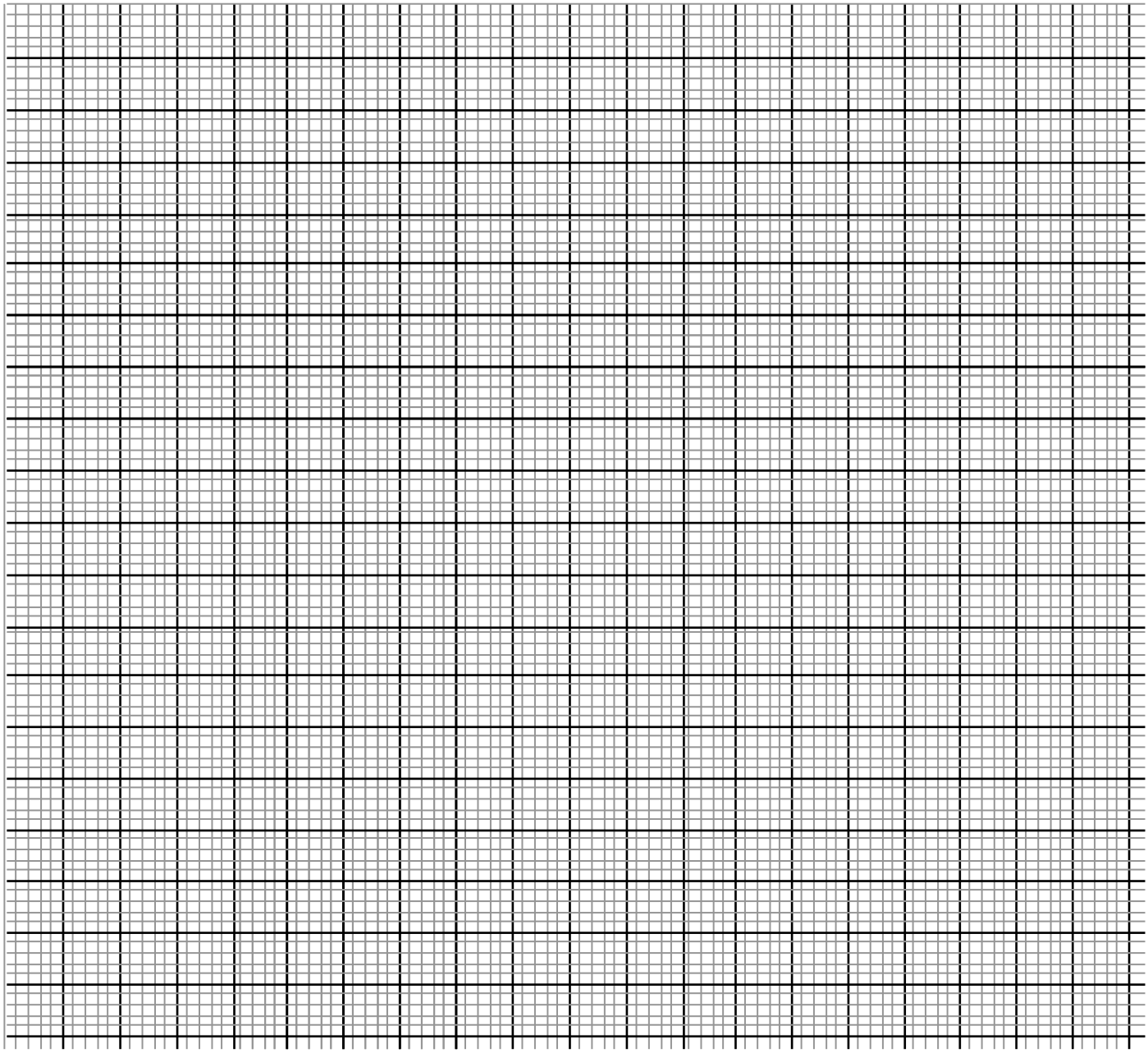
(4mks)

d) Using the second boiling tube, repeat the procedure in b and c using 45ml of liquid **L** instead of distilled water. Record your results in the same table.

e) Using the same axis on the grid provided, plot a graph of temperature (y-axis) against time for

i) Distilled water, **W**

ii) Liquid **L**



(Label the graphs of **L** and **W.** **(7mks)**

f) From the graph, determine:

i) the time, t taken for the distilled water to cool from 75^0C to 65^0C.

t_w = _____ minutes **(1mk)**

ii) the time, t taken for liquid **L,** to cool from 75^0C to 65^0C

t_L= _____ minutes **(1mk)**

g) Determine the constant r given that $r = \frac{4.2t_l}{dt_w}$ where d, density of liquid, L = 0.8g/cm^3. **(2mks)**

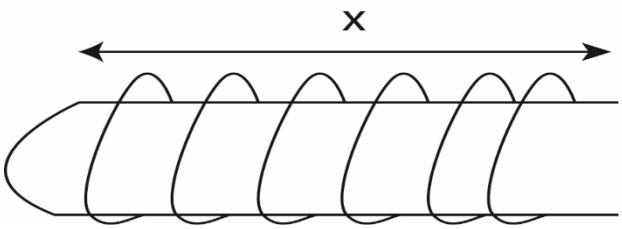
PART B

You are provided with the following:

- Copper wire of length 130cm.
- Test tube of diameter 1.5cm (ordinary)
- Metre rule.

Procedure

By using the wire provided, make 20 closely packed turns around the said ordinary test tube as shown.



h) Measure the length x = _____ cm **(1mk)**

j) Use the result "X" to determine the thickness of the wire, d = _____ cm. **(1mk)**

k) Given that the volume of the wire $V = \frac{1}{4}\pi d^2 L$, determine the volume, V of the wire if L = 120cm. **(3mks)**

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