

NAIROBI CLUSTER MOCK

ALL SUBJECTS

*Annual Joint Evaluation exam for Select National Schools in Nairobi for
KCSE Candidates in preparation for Final KCSE 2023 Examination.*

SUBJECTS EXAMINED;

*Mathematics, English, Kiswahili, Biology, Chemistry, Physics, CRE,
Geography, History, Business Studies, Agriculture, Home-science
& Computer Studies.*

SERIES 1

For Marking Schemes

Mr Isaboke 0746-222-000 / 0742-999-000

MWALIMU CONSULTANCY

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

231/1

BIOLOGY

THEORY**PAPER 1****TIME: 2 HOURS**

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

*Kenya Certificate of Secondary Education.***INSTRUCTIONS TO CANDIDATES**

- 1) Write your name and Index Number in the spaces provided above.
- 2) Sign and write date of examination in the spaces provided above.
- 3) Answer **ALL** questions in the spaces provided.
- 4) All workings **MUST** be clearly shown where necessary.

FOR EXAMINERS USE ONLY.

Question	Maximum Score	Candidates Score
1 – 25	80	

Answer ALL questions in the spaces provided.

1. Explain the **term** Binomial Nomenclature. (1mk)

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.....

2. Name **three** forces involved in transportation of water and mineral salts. (3mks)

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3. (a) Give **two** roles of DNA. (2mks)

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(b) State the difference between **DNA** and **RNA**. (1mk)

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4. Two strips A and B were cut from Tradescantia whose cell sap was 30% sugar. Strip A was placed in a solution of 10% sugar concentration while strip B was placed in 50% sugar concentration.

(a) What change was expected in strips **A** and **B**? (2mks)

Strip **A**:

.....

.....

Strip **B**:

.....

.....

- (b) Account for the results in strip A. (3mks)

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5. State the biological significance of each of the following:

- (a) Thick muscular walls and narrow lumen in arteries. (1mk)

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- (b) Narrow xylem vessels in flowering plants. (1mk)

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6. Suggest three reasons why green plants are included in a fish aquarium. (3mks)

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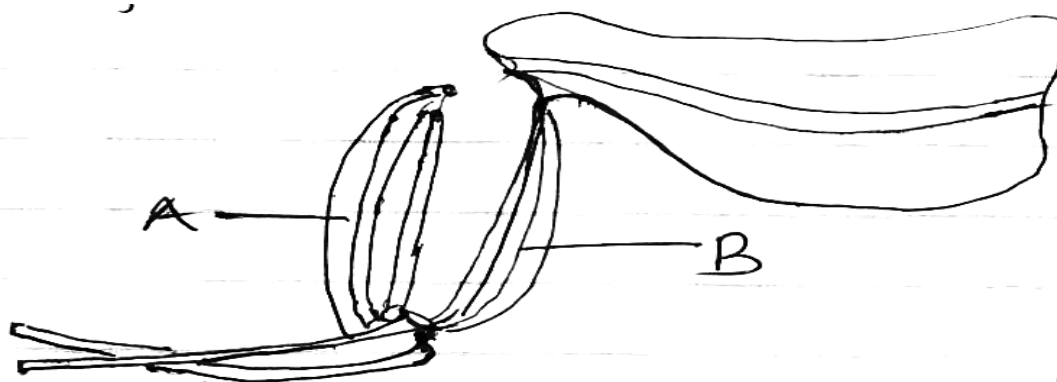
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7. (a) Study the diagram below and answer the questions that follow.



(i) Name the muscle labelled: (2mks)

A:.....

B:.....

(ii) What happens to each muscle as the arm is straightened? (2mks)

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.....
.....

8. The binomial name of housefly is MUSCA DOMESTICA.

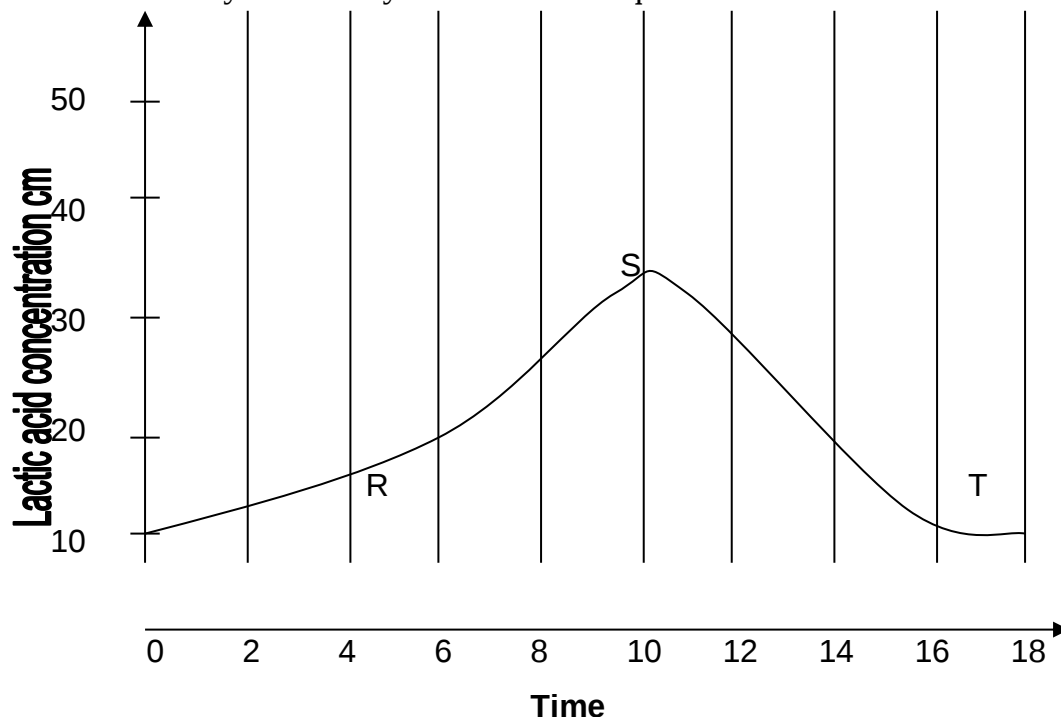
(i) State two mistakes in the way the scientific name is written. (2mks)

.....
.....

(ii) Re-write the name in correct manner following the rules of binomial nomenclature.(1mk)

.....

9. The diagram below shows the general appearance of lactic acid in the blood of an athlete after an exercise. Study it carefully and answer the questions that follow:



(a) Name the physiological process represented by the above diagram. (1mk)

.....

(b) Explain what happened in the body between points:

(i) R and S (1mk)

.....

.....

(ii) S and T (1mk)

.....

.....

10. State the use of each of the following apparatus:

(i) Bait trap (1mk)

.....

(ii) Specimen bottle (1mk)

.....

(iii) Pitfall trap (1mk)

.....

11. (a) Define the term organic evolution. (1mk)

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(b) Give two examples of vestigial structures. (2mks)

.....

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.....

12. (a) Distinguish between epigeal and hypogeal germination. (1mk)

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.....

- (b) Why is oxygen necessary in the germination of seeds? (2mks)

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13. (a) Digestion in the stomach involves the gastric juice, which contains mucus as one of its components. State the role of mucus in the digestion process. (1mk)

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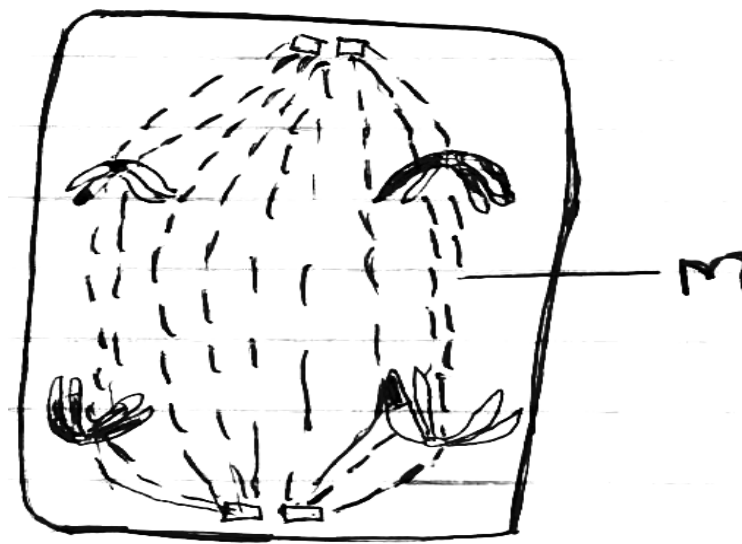
- (b) Give two adaptations of ileum to its functions. (2mks)

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14. The diagram below represents a stage during cell division.



(a) (i) Identify the stage of cell division. (1mk)

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(ii) Give two reasons for your answer to (a) (i) above. (2mks)

.....

.....

.....

(b) Name the structure labelled M. (1mk)

.....

15. Explain why amoeba cannot burst when placed in hypertonic solution. (2mks)

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(a) Name the organelle that is involved in each manufacture of Lipids. (1mk)

.....

(b) State three functions of Golgi apparatus. (3mks)

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16. Give the functions of the following parts of human eye:

(a) Lens (1mk)

.....

.....

(b) Ciliary body. (1mk)

.....

(c) Cornea (1mk)

.....

17. A shoot of seedling exposed to light on one side bends towards the source of light as it grows.

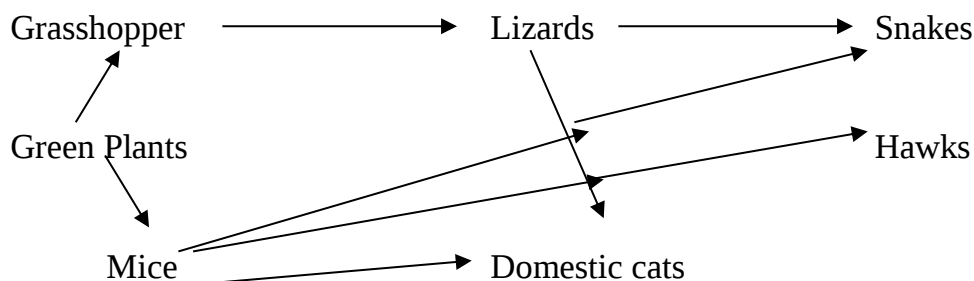
(a) Name the response exhibited by the shoot of the seedling. (1mk)

.....

(b) Explain how the bending towards the source of light occurs. (3mks)

.....

18. The chart below show s a feeding relationship in a certain eco-system.



(a) Construct two food chains ending with a tertiary consumer in each case. (2mks)

(b) Name one secondary consumers in the food web. (1mk)

.....

19. State the functions of the following parts of a nephron.

(i) Loop of henle (1mk)

.....

(ii) Distal convoluted tubule (1mk)

.....

20. A flower was found to have the following characteristics:

- Inconspicuous petals
- Long feathery stigma
- Small, light pollen grains

(a) What is the likely agent of pollination of the flower? (1mk)

.....

(b) What is the significance of the long feathery stigma in the flower? (1mk)

.....

.....

21. Explain how the following factors determine the daily energy requirement in humans.

(a) Age (1mk)

.....

.....

(b) Occupation (1mk)

.....

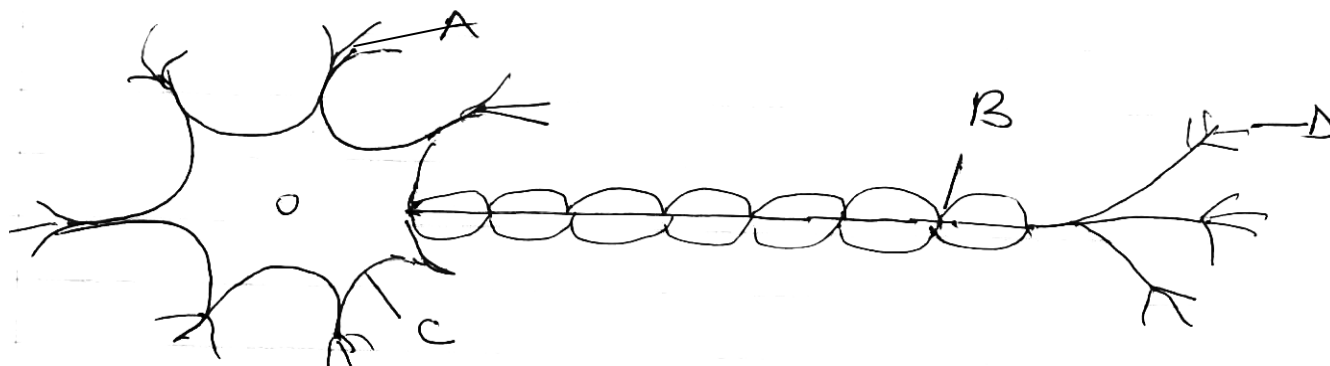
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(c) Sex (1mk)

.....

.....

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



(a) Name the parts labelled:- (3mks)

A:

C:

D:

(b) State the function of part labelled B. (1mk)

.....

.....

23. Most terrestrial plants do not grow well in water-logged soils. Give a reason for this.

(1mk)

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.....

.....

24. State the mode of a sexual reproduction exhibited by the following organisms:

(i) Yeast (1mk)

.....

(ii) Mushroom (1mk)

.....

.....

25. Give reasons for each of the following:

(a) Constant body temperature is maintained in mammals. (2mks)

.....

.....

.....

(b) Low blood sugar level is harmful to the body. (1mk)

.....

.....

26. (a) Explain what is meant by a test-cross as used in genetics. (1mk)

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.....

(b) Determine the probability of a couple with blood group AB getting a child with blood group B. (Show your working).

27. Name the end products of the light stage of photosynthesis. (2mks)

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.....

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

231/2

BIOLOGY

THEORY

PAPER 2

TIME: 2 HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- This paper consists of two sections A and B.
- Answer **ALL** questions in section A
- Answer question 6 (compulsory) and either question 7 or 8 in section B.

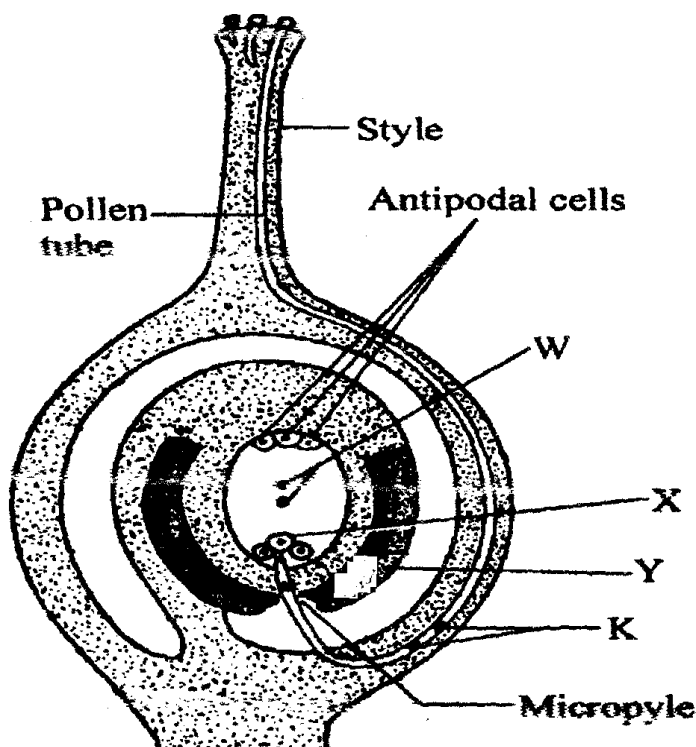
FOR EXAMINER'S USE ONLY

Section	Question	Maximum score	Candidate's score
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
Total Marks		80	

SECTION A (40 MARKS)

Answer all questions in this section.

1. The diagram below shows a cross section through the female part of a flower.



a) Name the structures labeled W,X, and Y. (3mks)

W

X

Y

b) State **two** functions of the pollen tube. (2mks)

.....

.....

c) What happens to antipodal cells after fertilization. (1mk)

.....

.....

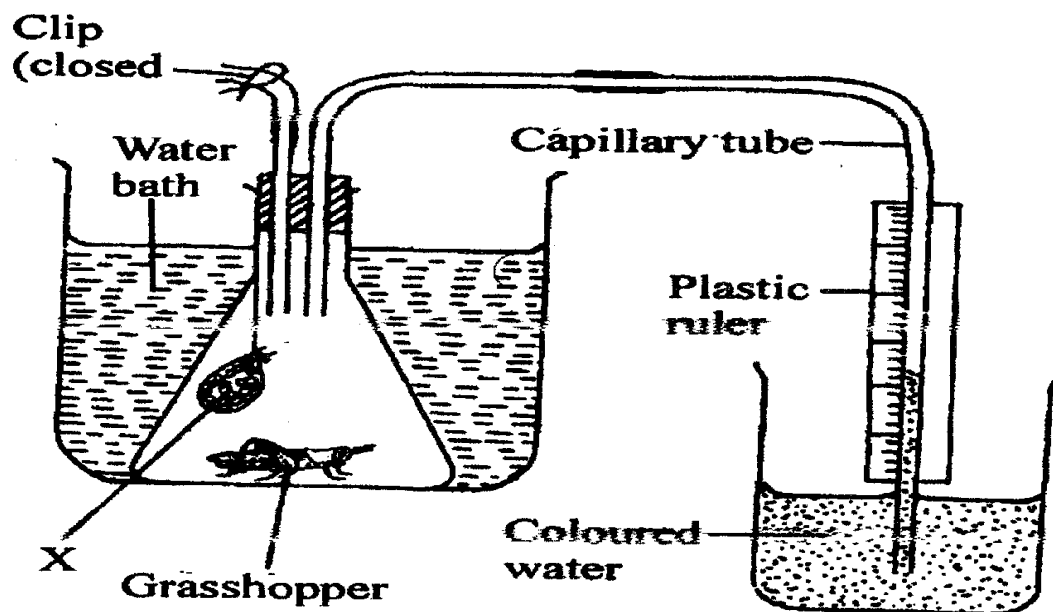
d) Name the structure labeled K and state their role. (2mks)

.....

.....

.....

2. The diagram below illustrates an experiment to determine the rate of respiration in a small insect.



- a) Name the chemical compound labeled X and state its function. (2mks)

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.....

- b) Why is it necessary to place the flask in a water bath. (3mks)

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- c) What changes would you expect to observe in the level of coloured water in the capillary tube after the experiment has run for five minutes. (1mk)

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d) Explain the changes you have started in (c) above. (3mks)

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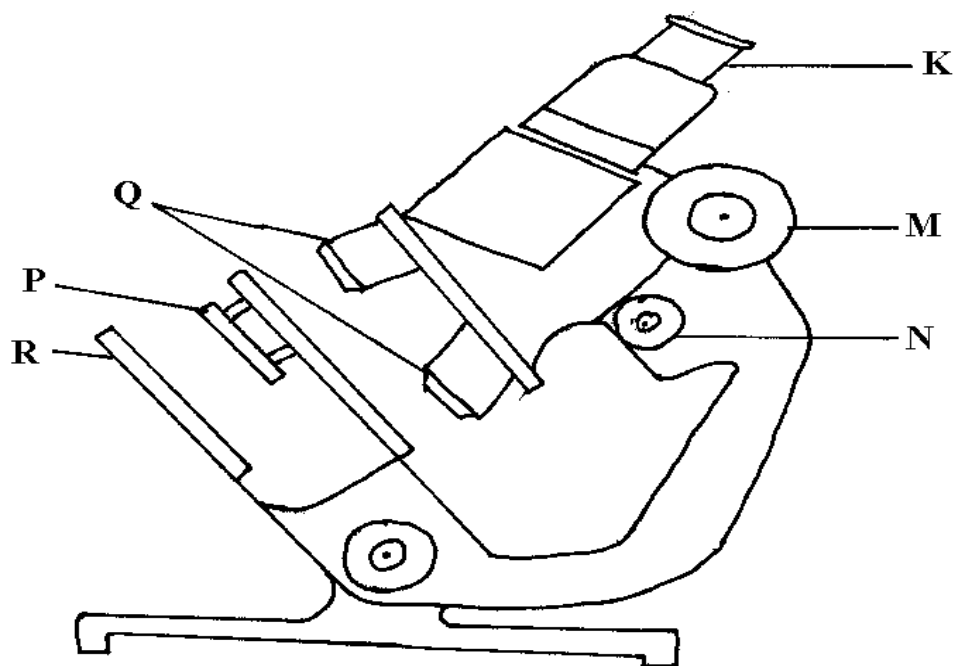
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e) State how you can set up a control experiment . (1mk)

.....

.....

3. The diagram below shows some components of a light microscope.



a) Name the parts labeled (2mrks)

K.....

M.....

b) State the functions of (2mrks)

P.....

Q.....

c) A student was viewing a prepared slide of a plant cell under high power microscope. The features of the cell were blurred. Which one of the labeled parts of the microscope would the student use to obtain:-

(i) a sharper outline of the features. (1mrk)

.....

(ii) Give the formula used to calculate magnification in a light microscope. (1mrk)

.....

.....

.....

d) A student was preparing a section of a plant cell to be viewed on a light microscope. Give a reason for each of the following steps:-

(i) Cutting a very thin section (1mrk)

.....

.....

(ii) Staining the section (1mrk)

.....

.....

(iii) Putting the section in water (1mrk)

.....

.....

4. In an experiment, a black mouse was mated with a brown mouse; all the off-springs were black. The off-springs grew and were allowed to mate with one another. The total number of (F2) generation off-springs was 96.

a) Using the letter symbols capital letter **B** for the gene of black colour and small **b** for brown colour, Work out the genotype of the F1 generation. (3mrks)

b) From the information above, work out the following for the F2 generation.

i) Genotypic ratio. (2mrks)

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.....

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ii) Phenotypic ratio. (1mrk)

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.....

iii) The total number of brown mice (2mrks)

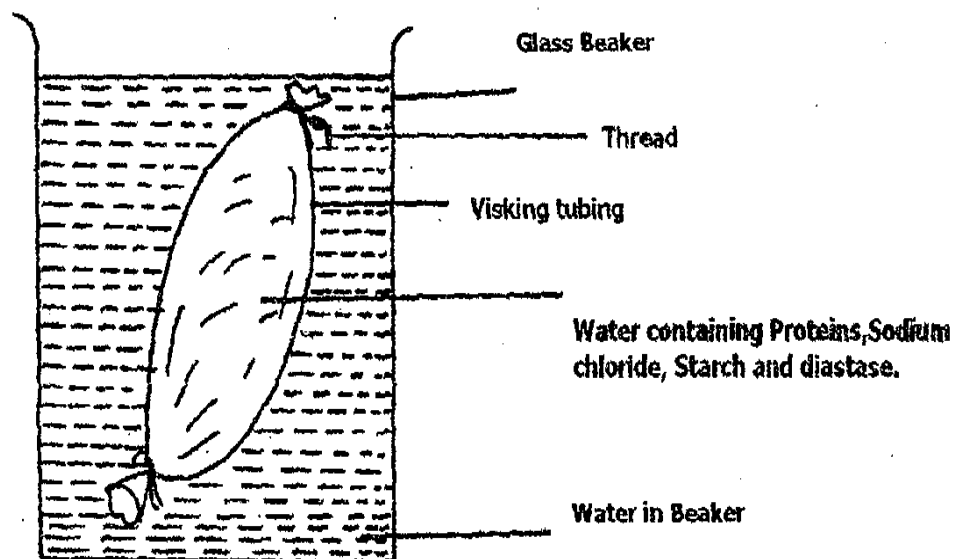
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5. In a physiological experiment, starch, protein, diastase and sodium chloride were added to water and put inside a visking tubing. The visking tubing was then placed in a water bath maintained at a temperature between 35 --- 40°C. The set up was as shown in the diagram below.



The following observations were made after the procedures indicated.

Contents in	At the start of experiment	After 1 hour
Visking tubing	i) Solution tastes salty	Solution tastes salty
	ii) Visking tubing is not firm	Visking tubing is firm
	iii) After boiling with Benedicts solution, solution remains blue	After boiling with Benedicts solution the solution turns brown
	iv) On addition of sodium hydroxide followed by copper sulphate solution to the solution, the colour changes to purple	On addition of sodium hydroxide followed by copper sulphate to the solution, the colour changes to purple
Beaker	i) Water is tasteless	Solution tastes sweet/salty
	ii) After boiling solution with Benedicts solution, Blue colour remains	After boiling solution with Benedicts solution, colour turns to brown
	iii) On addition to sodium hydroxide followed by copper sulphate solution, colour remains blue	On addition of sodium hydroxide followed by copper sulphate solution, colour remains blue

a) Name the process by which salt moved into the water in the beaker from the visking tubing.

(1mark)

.....

b) i) Name the food substance responsible for the brown colour observed after 1 hour both in the beaker and visking tubing when solutions are boiled with benedicts solution. (1 mk)

.....

ii) Account for the observation in (b i) above. (3 marks)

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c) i) Name the food substance tested with sodium hydroxide followed by copper sulphate solution(s) (1 mark)

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ii) Account for the absence of the food substance named in (c i) above in the beaker after 1 hour. (1 mark)

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e) After one hour the visking tubing was firm. State the term used to describe this state.

(1 mark)

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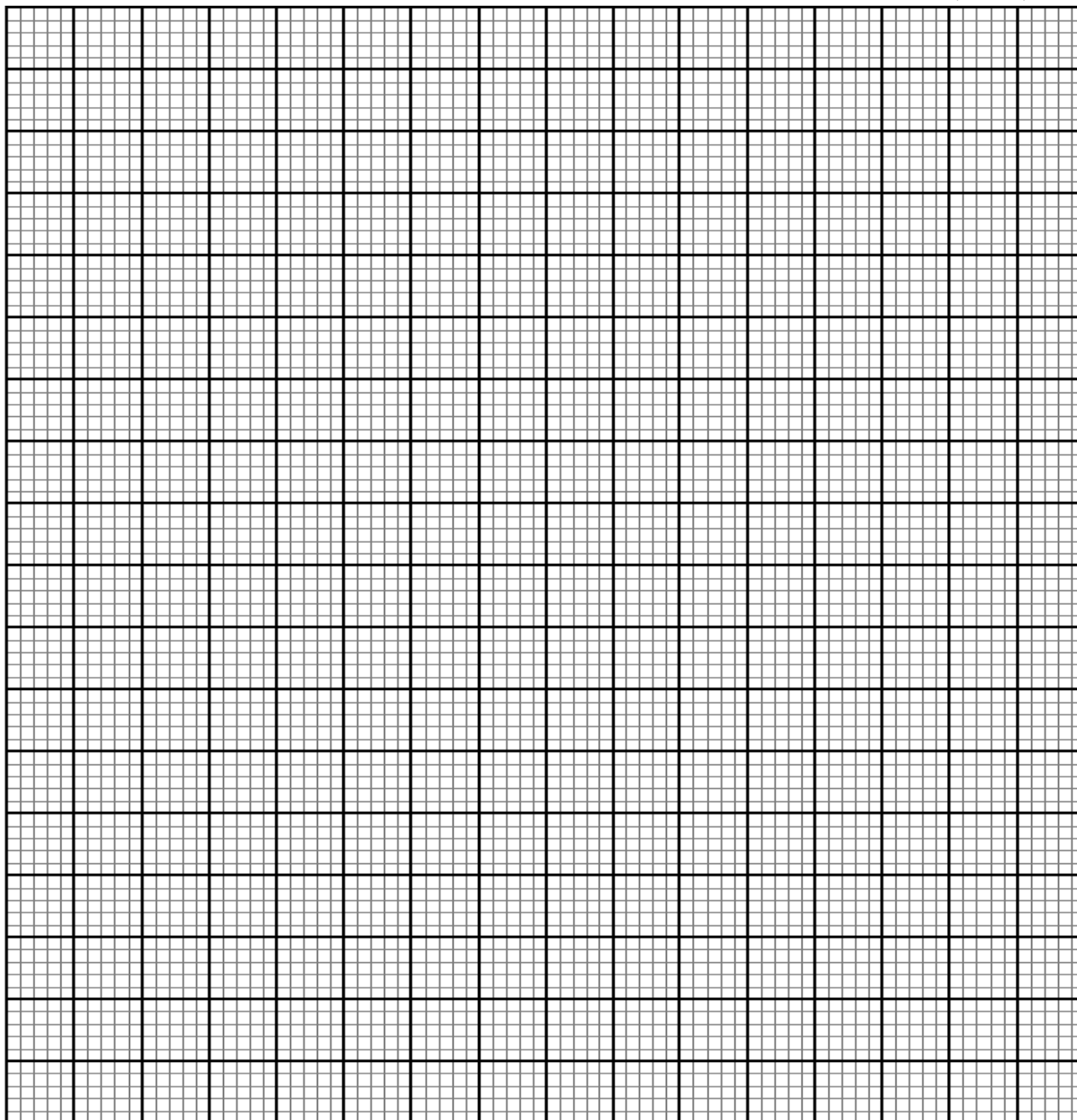
SECTION B(40 MARKS)

Answer questions 6 (compulsory) and either questions 7 or 8

6. An experiment was carried out whereby three healthy rats were fed on equal amounts of glucose. After half an hour, the glucose concentration per ml. of blood was measured at 15 minutes intervals for three hours. The following results were obtained.

Glucose conc. mg/ml	0 min	15 min	30 min	45 min	60 min	75 min	90 min
Rats							
A	0.800	0.774	0.715	0.680	0.650	0.595	0.555
B	0.745	0.695	0.695	0.660	0.635	0.600	0.545
C	0.795	0.695	0.665	0.635	0.590	0.550	0.495
Mean	0.780	0.720	0.691	-	0.625	-	0.532

- a) i) Calculate the mean concentration of glucose in mg per ml of blood at 45 and 75 minutes. Record your answer on the table. **(2mks)**
- ii) On the graph paper provided, plot a graph of the mean glucose concentration against time. **(6mks)**



iii) What was the mean glucose concentration in the blood after 37.5 minutes? (1mk)

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iv) Give a reason why it was necessary to use three rats in the experiment instead of one.(1mk)

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.....

v) Why was the initial concentration of glucose in the rats not the same? (2mks)

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vi) Account for the difference in mean glucose concentration during the period. (3mks)

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b) Give two reasons why glucose is the main respiratory substrate. (2mks)

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c) Give three ways in which glucose is assimilated in the body. (3mks)

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.....

(5mks)

(15mks)

(2mks)

(18mks)

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For Marking Schemes Contact 0746-222-000 / 0742-999-000

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

231/3

BIOLOGY

PRACTICAL

PAPER 3

TIME: 1¾ HOURS

SCHOOL.....

SIGN.....

Kenya Certificate of Secondary Education.

BIOLOGY

PAPER 3

231/3

PRACTICAL

CONFIDENTIAL

Each candidate should have:

1) One ripe banana

2) Scalpel/blade

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

231/3

BIOLOGY

PRACTICAL

PAPER 3

TIME: 1¾ HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

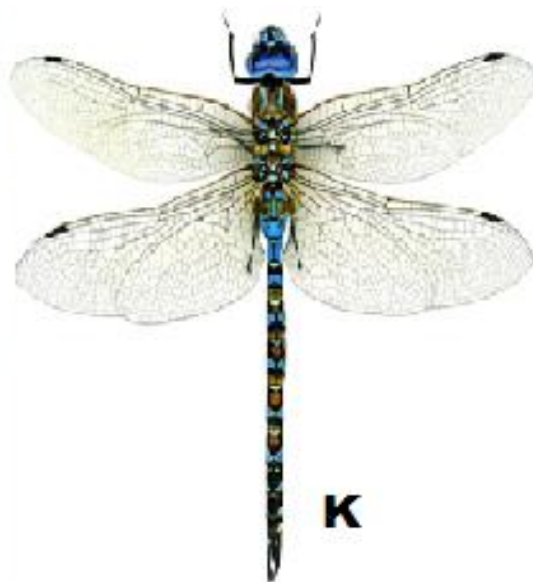
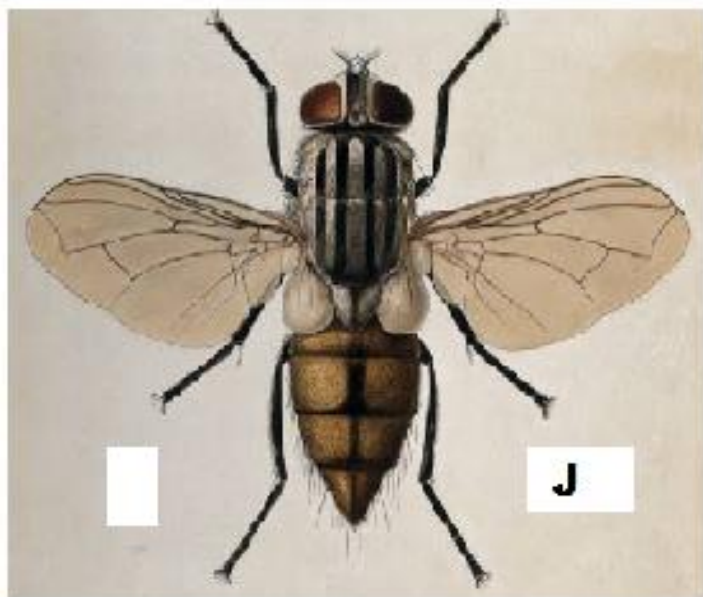
INSTRUCTIONS TO CANDIDATES

- 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) You are required to spend the first 15 minutes of the 1 ¾ hours allowed for this paper reading the whole paper carefully before commencing your work.
- 4) Answers must be written in the spaces provided in the question paper.

For Examiner's Use only

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

1. Below are photographs of two specimens, **J** and **K**. Both of them belong to the same phylum and class. Observe them carefully before you answer the questions that follow.



- a) Name the class to which **J** and **K** belong and support your answer with two reasons.

Class1mk

Reasons2mks

i)

ii)

- b) Suggest why the circulatory fluid in **J** and **K** has no haemoglobin. 2mks

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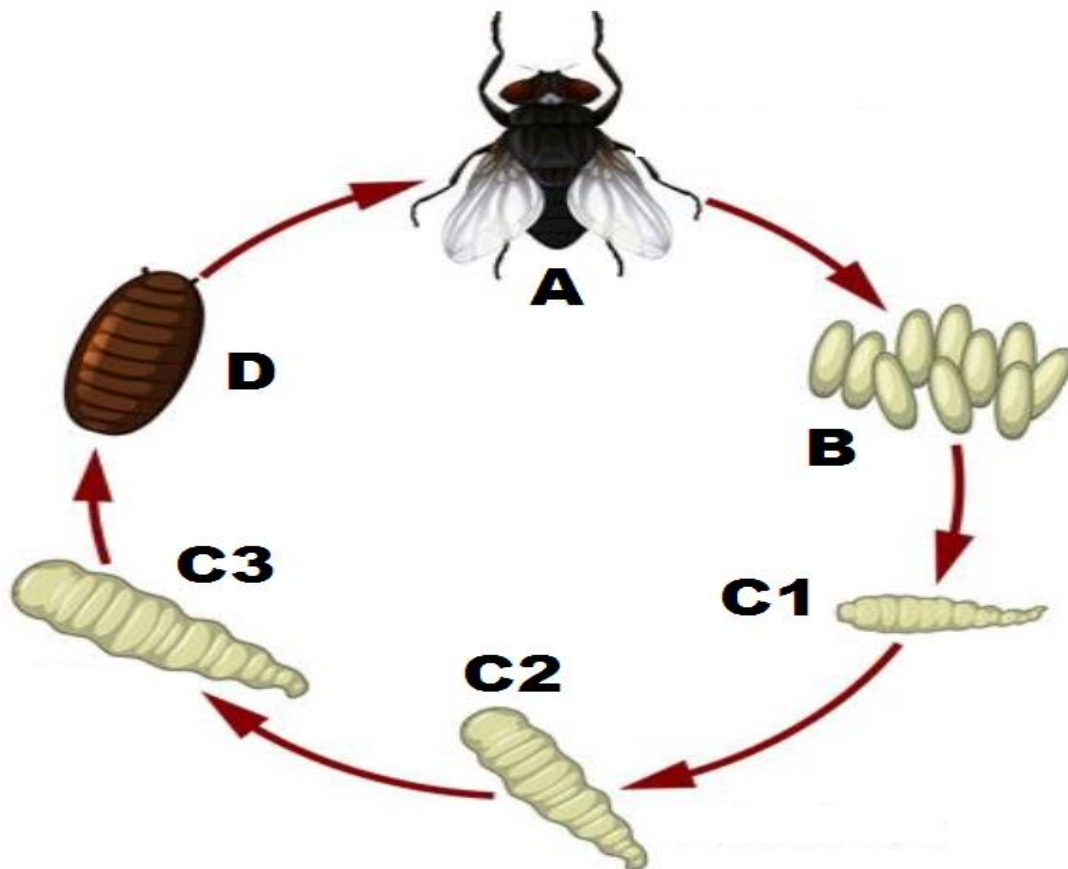
- c) Observe their wings and suggest the type of evolution that could have taken place to give rise to **J** and **K**, and then give a reason for your answer.

Type of evolution 1mk

Reason2mks

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

d) Below is a diagram showing the life cycle of specimen J.



i) Identify the stage labeled D. 1mk

ii) Name the hormone responsible for the change from D to A. 1mk

.....

iii) Explain the differences in the change from C2 to C3 and from C3 to D. 4mks

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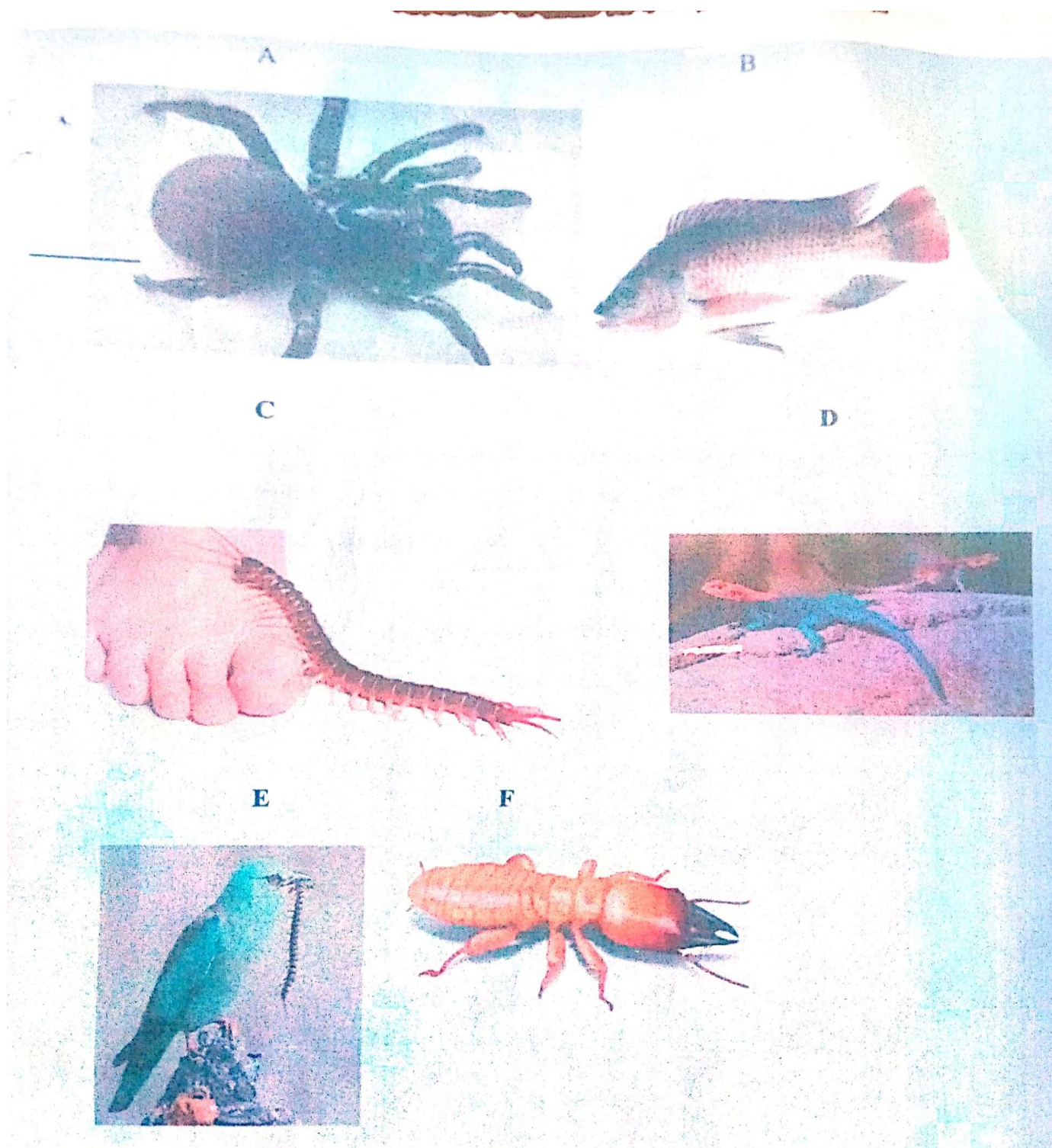
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Q2. Study the organisms below and answer questions in spaces provided .



a. Complete and use the key below to identify the organism. **2mks**

1a. Organism with endoskeleton go to 2

1b. _____ go to 3

2a. Has scales on the body..... go to 4

2b. Has no scales on the body..... mammalian.

3a. Has cephalothorax Arachnida.

3b. Has no cephalothorax.....go to 5

4a. _____ pisces

4b. Has no fins Go to 7

5a. Has three pairs of legs Insects.

5b. Has more than three pairs of legs go to 6

6a. Two pairs of legs per segmentDiplopoda

6b. One pair of legs per segment.....chilopoda.

7a. Has feathers Aves

7b. Has no feathersgo to 8

8a. Has a tail.....Reptilia

8b. Has no tail.....Amphibia.

b). Identify the organisms above using the completed key above.

6mks

Specimen	Steps followed	Identity
A		
B		
C		
D		
E		
F		

c). Name the phylum in which specimens C, E and F belong to

.....

1mk

d). Give three reasons for your answer in (c).

3mks

.....

.....

.....

.....

e).Name one feature that is common in organisms B, D and E.

1mk

.....

Q3. You are provided with a specimen labeled **T** which is a fruit. Use it to answer the questions that follow.

a) Make a **transverse** section of the specimen **T**. Draw and label at least 3 parts. **6mks**

b) With reasons, state the identity of fruit **T**.

Type of fruit.....**1mk**

Reason **1mk**

.....

c) Suggest the possible agent of dispersal and give **two** reasons

Agent**1mk**

Reason **2mk**

.....

.....

d) What is the placentation of **T**?**1mk**

e) Specimen **T** was green in colour before it was treated with a plant hormone.

Suggest the plant hormone.

.....**1mk**

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

311/1

HISTORY AND GOVERNMENT

PAPER 1

TIME: 2½ HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

1. Write your name and Index number in the spaces provided above
2. Answer **all** questions in section A
3. Answer **any three** questions in section B
4. Answer any **two** questions in section C

FOR EXAMINER'S USE ONLY

SECTION	QUESTION	MAXIMUM	CANDIDATE'S SCORE
A	1 – 17	25	
B	18 – 21	45	
C	22 - 24	30	
TOTAL SCORE			

SECTION A 25 MARKS

Answer all the questions in this section

1. Give **two** unwritten sources of information on history and government. (2mks)

.....
.....

2. Identify **one** community in Kenya which belongs to the Southern Cushitic group. (1mk)

.....

3. State **two** religious functions of the Orkoiyot among the Nandi. (2mks)

.....
.....

4. State the **main** factor that contributed to the growth of city states along the Kenyan coast before **1500 AD** (1mk)

.....
.....

5. Name some of the missionary groups which were involved in spreading of Christianity in Kenya in the **19th** and **20th** century (2mks)

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.....

6. Give **two** factors that enabled the early visitors to come to Kenyan coast by 1500 AD (2mks)

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.....

7. Give **one** reason why the government of Kenya may limit a person freedom of speech (1mk)

.....
.....

8. Identify **two** political causes of conflicts in Kenya (2mks)

.....

.....

9. State **two** factors that determine the constitution to be adopted by a country (2mks)

.....

.....

10. Give **one** reason why the constitution is important in Kenya (1mk)

.....

.....

11. Name **one** group that monitors human rights in Kenya (1mk)

.....

12. Give **one** reason why some Kenyan communities collaborated during the colonial period (1mk)

.....

.....

13. Give the **main** reason why the colonial government created African reserves in Kenya (1mk)

.....

14. Name the leader of the chartered company which administered the Kenyan colony (1mk)

.....

15. Give **one** challenge facing multiparty democracy in Kenya (1mk)

.....

.....

16. Identify **two** external sources of revenue for national government in Kenya (2mks)

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.....

17. Give **two** disadvantages of Kenya's reliance on foreign aid as a source of revenue (2mks)

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SECTION B 45 MARKS

Answer any three questions from this section

18a) Give **five** reasons which led to the migration of the Cushites from their original homeland into Kenya during the pre-colonial period. (5mks)

b) Explain **five** results of the interaction between Bantu and the Cushites in the pre-colonial period. (10mks)

19a) State **five** problems experienced by the imperial British East African Company in Kenya. (5mks)

b) Explain the effects of land alienation in Kenya during the colonial period. (10mks)

20a) Give **three** terms of the Devonshire white paper of 1923. (3mks)

b) Explain the role played by women in the struggle for independence in Kenya. (12mks)

21a) State **five** ways in which the government of Kenya has improved the health of its citizens since independence. (5mks)

b) Explain **five** challenges facing the agricultural sector in Kenya today. (10mks)

SECTION C 30MKS

Answer any two questions in the section

22a) Give **five** rights of a citizen in Kenya. (5mks)

b) Explain **five** values of a good citizen. (10mks)

23a) Give **three** reasons that can make the parliament in Kenya to be dissolved. (3mks)

b) Explain **six** functions of the National assembly in Kenya. (12mks)

24a) Give the composition of County Assembly in Kenya. (3mks)

b) Explain **six** functions of County government in Kenya. (12mks)

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

311/2

HISTORY AND GOVERNMENT

PAPER 2

TIME: 2½ HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

1. Write your name and Index number in the spaces provided above
2. Answer **all** questions in section A
3. Answer any **three** questions in section B
4. Answer any **two** questions in section C

FOR EXAMINER'S USE ONLY

SECTION	QUESTION	MAXIMUM	CANDIDATE'S SCORE
A	1 – 17	25	
B	18 – 21	45	
C	22 - 24	30	
TOTAL SCORE			

SECTION A 25 MARKS

Answer all questions in this section

1. List **two** methods used by elders to pass information to the young generation on history and government in traditional African communities (2mks)

.....

.....

.....

2. Name the **oldest** hominid in the stages of evolution of man (1mk)

.....

3. Outline **two** non-environmental reasons for the domestication of crops and animals by early man (2mks)

.....

.....

.....

4. Identify the **greatest** contribution of Michael Faraday in the field of science (1mk)

.....

.....

5. Outline **two** roles played by the middlemen during the Trans-Atlantic trade (2mks)

.....

.....

.....

6. Give the **main** use of steam power during industrial revolution in Europe (1mk)

.....

.....

7. Identify the **main** method of trade in Africa during the pre-colonial period (1mk)

.....

8. State **two** advantages of using fire and smoke signals to pass messages in traditional societies (2mks)

.....

.....

.....

9. State **one** way in which the city of Cairo was influenced by river Nile (1mk)

.....

.....

10. Identify **one** symbol of national unity in Shona Kingdom during the pre-colonial period (1mk)

.....

11. Identify **two** European activities in African during the 19th century (2mks)

.....

.....

12. Name **two** communities that took part in the Majimaji rebellion in Tanganyika (2mks)

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13. Identify **two** similar methods used to recruit African labour in the British and French colonies in Africa (2mks)

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.....

14. Name the political party that led Ghana to independence from Britain in 1957 (1mk)
.....
15. State the country that was blamed for the outbreak of the first world war (1mk)
.....
16. Identify **one** Germany colony in West Africa (1mk)
.....
17. Identify **two** permanent members of the security council of the united nations organization (2mks)
.....
.....

SECTION B 45 MARKS

Answer any three questions in this section

- 18a) State ways in which the development of the upright posture improved the early man's way of life (5mks)
- b) Describe the way of life of early human beings during the middle stone age period (10mks)
- 19a) Give **three** developments that have taken place in road transport system since 1950(3mk)
- b) Explain ways through which the invention of the railway speeded up industrialization in Europe (12mks)
- 20a) Give **three** functions of Lukiko in the kingdom of Buganda during the pre-colonial period (3mks)
- b) Explain **six** factors that led to the growth of the Asante empire by the 19th century (12mks)

- 21a) State **five** factors that led to the development of African nationalism in Ghana (5mks)
- b) Describe the problems which undermined the activities of nationalists in Mozambique (10mks)

SECTION C 30 MKS

Answer any two questions in this section

- 22a) Identify **five** main organs of the United Nations Organization (5mks)
- b) Explain **five** ways through which the United Nation promotes peace in the world (10mks)
- 23a) Give **three** political changes introduced by Mobutu Seseko which led to dictatorship in democratic republic of Congo (3mks)
- b) Describe **six** social developments that have taken place in Tanzania since independence (12mks)
- 24a) Give **three** categories of the members of parliament in Britain (3mks)
- b) Explain **six** functions of the cabinet in India (12mks)

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

313/1

CHRISTIAN RELIGIOUS EDUCATION

PAPER 1

TIME: 2½ HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

313/1

CHRISTIAN RELIGIOUS EDUCATION

PAPER 1

TIME: 2½ HOURS

INSTRUCTIONS TO CANDIDATES

1. Write your name, school and index number in the spaces provided above.
2. Write the date of examination and sign in the spaces provided above.
3. This paper consists of **six** questions.
4. Answer any **five** questions in the answer booklet provided.

FOR EXAMINER'S USE ONLY

Question	1	2	3	4	5	6	TOTAL SCORE
Candidates Score							

Answer any **five** questions in the answer booklet provided.

1. a).STATE **Six Similarities** in the Biblical stories of creation in Genesis 1 and 2. (6 marks)
b).Give **7 REASONS** why human beings are considered special to the rest of the creation.
(7marks)
c) State **SEVEN** ways in which Christians continue with the work of creation today. (7 mks)

2. a) **DESCRIBE** ways in which the covenant between God and the Israelites was sealed at Mount Sinai. (7marks)
b). Write **SIX** conditions that the Israelites were given during the renewal of the covenant
(7 marks)
c). State **SIX** ways in which the church worship is abused today. (6 marks)

3. a). From the story of Naboth's vineyard explain the commandments which King Ahab and Jezebel broke. (8 marks)
b). State the effects of idolatry during the time of prophet Elijah (7marks)
c) Give **FIVE** reasons why Christians build churches (5 marks)

- 4.a). **IDENTIFY** the importance of Old Testament prophets in Israel (6 marks)
b). State **SEVEN** forms of punishment that would befall the Israelites according to prophet Amos (7 marks)
c). Give **SEVEN** reasons why Christian find it difficult to help the needy in the Society today (7 marks)

- 5.a) **DISCUSS** Jeremiah's teaching at the temple gate (7 marks)
b). STATE ways in which Jeremiah encouraged the Israelites to live in hope during the Babylonian exile (7 marks)
c). Outline **SIX** ways through which Christians renew their faith in God (6 marks)

6. a) Identify **SEVEN** moral values taught to youth during initiation period in Traditional African communities (7marks)
- b). STATE the traditional African practices which demonstrated their belief in life after death (7marks)
- c) Give **SIX** changes, which have taken place in Land ownership today (6 marks)

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

313/2

CHRISTIAN RELIGIOUS EDUCATION

PAPER 2

TIME: 2½ HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

313/2

CHRISTIAN RELIGIOUS EDUCATION

PAPER 2

TIME: 2½ HOURS

INSTRUCTIONS TO CANDIDATES

1. Write your name, school and index number in the spaces provided above.
2. Write the date of examination and sign in the spaces provided above.
3. This paper consists of **six** questions.
4. Answer any **five** questions in the answer booklet provided.

FOR EXAMINER'S USE ONLY

Question	1	2	3	4	5	6	TOTAL SCORE
Candidates Score							

QUESTIONS

- 1(a) OUTLINE** Nathan prophecy concerning the Messiah (**2 Samuel 7:3-17**) (6mks)
- (b) STATE** the events that took place on the night Jesus was born (**Luke 2:6-22**) (7mks)
- c) Give SEVEN** ways through which church leaders prepare for the second coming of Christ (7mks)
- 2(a)** With reference to the Sermon on the plain state **SEVEN** teachings of Jesus on how human beings relate to one another (7mks)
- b) Describe** the incident in which Jesus Christ calmed the storm (**Lk 8: 22-25**) (8mks)
- c) State FIVE** Christian values that can be learnt from the Centurion whose servant Jesus healed in. (**Lk 7: 1-10**) (5mks)
- 3(a) DESCRIBE** the triumphant entry of Jesus into Jerusalem (**LK 19: 28-40**) (6mks)
- b) OUTLINE** the events that took place from the time Jesus was arrested up to the time he was Sentenced to die (7mks)
- c) State SEVEN** lessons Christians learn from the suffering and death of Jesus (7mks)
- 4(a) DESCRIBE** how Peters' life was transformed on the day of Pentecost (7mks)
- b) EXPLAIN** how the unity of believers is expressed in the church as the body of Christ (6mks)
- c) How** can Christians promote unity in the work place? (7mks)
- 5(a)** Outline the sources of Christian ethics (7mks)
- b) State** six similarities between the traditional African and Christian view on human sexuality. (6mks)
- c) How** is responsible parenthood demonstrated by Christians in Kenya today? (7mks)
- 6(a)** Outline seven Christian teaching on marriage (7mks)
- b) State SEVEN** reasons why some young people remain unmarried in Kenya (7mks)
- c) In** what six ways is the church helping to solve the problems of domestic violence today. (6mks)

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

443/1

AGRICULTURE

PAPER 1

TIME: 2 HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- Write your name and Index Number in the spaces provided above.
- Sign and write the date of examination in the space provided above
- This paper consists of *THREE* sections A, B and C.
- Answer *ALL* the questions in section in sections A and B.
- Answer any two questions from section C.
- All answers should be written in the spaces provided.

FOR EXAMINER'S USE ONLY

SECTION	QUESTION	MAXIMUM	CANDIDATES SCORE
A	1-15	30	
B	16-20	20	
C	21	20	
	22	20	
	23	20	

SECTION A (30 MRKS)

Answer ALL Questions in the Spaces Provided

1. Differentiate between olericulture and pomoculture. (2mks)

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2. Give **four** reasons why a well drained soil is suitable for crop production. (2mks)

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3. State **four** reasons for deep ploughing during land preparation. (2mks)

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4. Name **four** types of water pumps which can be used on the farm. (2mks)

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5. State **four** characteristics that make a crop suitable for green manuring. (2mks)

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6. List any four pieces of information which should be shown on Health record. (2mks)

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7. Give four reasons for seed selection in crop production. (2mks)

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8. List five management practices carried out on a kale nursery two weeks after its establishment. (2½mks)

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9. Differentiate between rogueing and thinning. (2mks)

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10. Name three diseases that attack cabbage. (1½mks)

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11. State four ecological requirements of tomatoes. (2mks)

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12. List four factors that will lower demand of a commodity. (2mks)

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13. State four routine practices of care and management of trees. (2mks)

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14. State four ways by which a farmer can make efficient use of a pasture crop. (2mks)

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15. List four pieces of information found on a title deed. (2mks)

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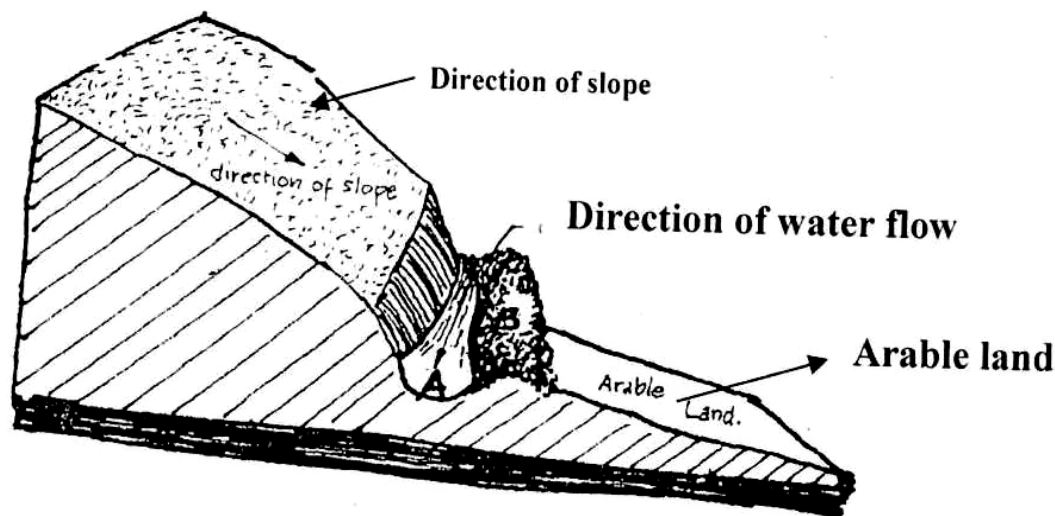
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SECTION B (20 MARKS)

Answer all questions in the spaces provided in this section

16. The illustration below shows a newly constructed cut-off drain. Study it and answer the questions that follow.



- (a) (i) How can part of the structure labeled B be stabilized after it has been constructed?

(1mk)

.....

.....

.....

- (ii) Identify the part of the cut-off drain labeled A.

(1mk)

.....

- (b) Describe the procedure of constructing a cut-off drain.

(2mks)

.....

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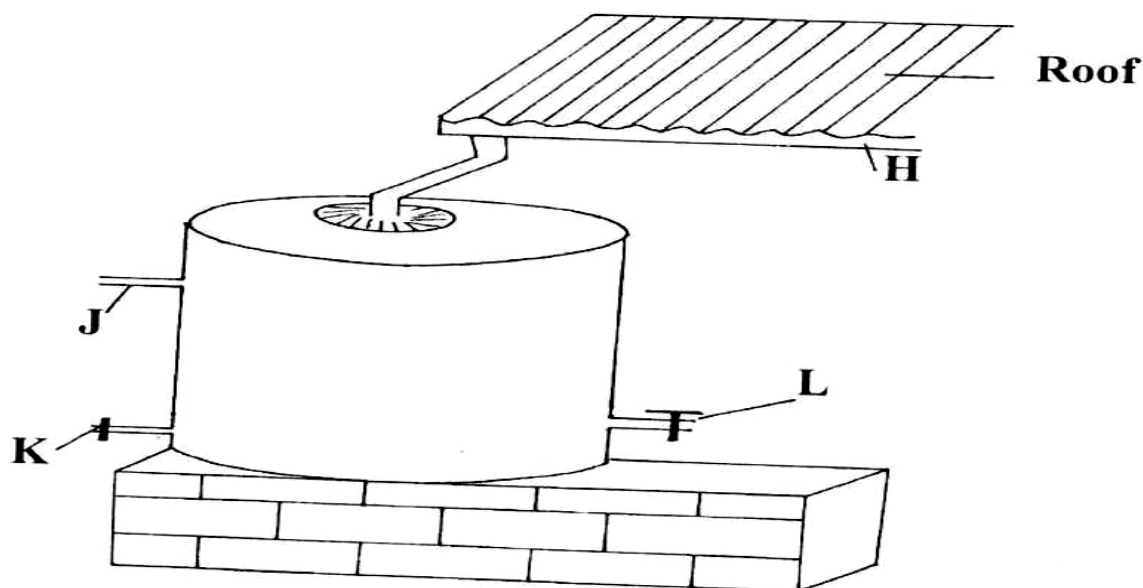
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17. The diagram below shows a house water storage tank. Study it and answer the questions that follow.



- (a) Identify the parts of the tank labeled:

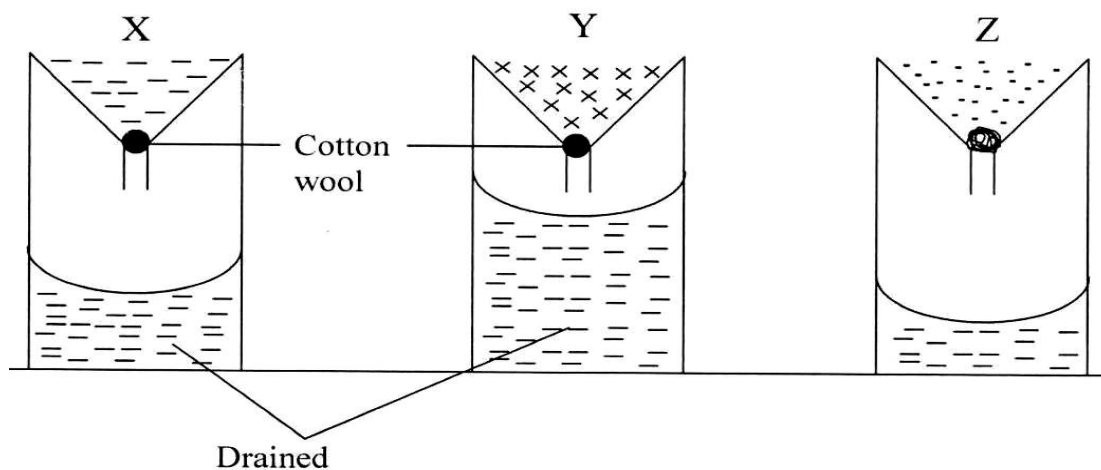
H:..... (1mk)

K:..... (1mk)

- (b) Give the function of the part labeled J.

(1mk)

18. The experiment below was set to compare the porosity and water holding capacity of three different types of soils.



(i) Identify the soils in each of the following funnels labeled. (1½mks)

X:.....

Y:.....

Z:.....

(ii) Which of the types of soil can be said to have the highest porosity rate? (½mk)

.....

(iii) Give reasons for your answers in (ii) above. (2mks)

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(iii) Which type of soil would be suitable for planting paddy rice? (1mk)

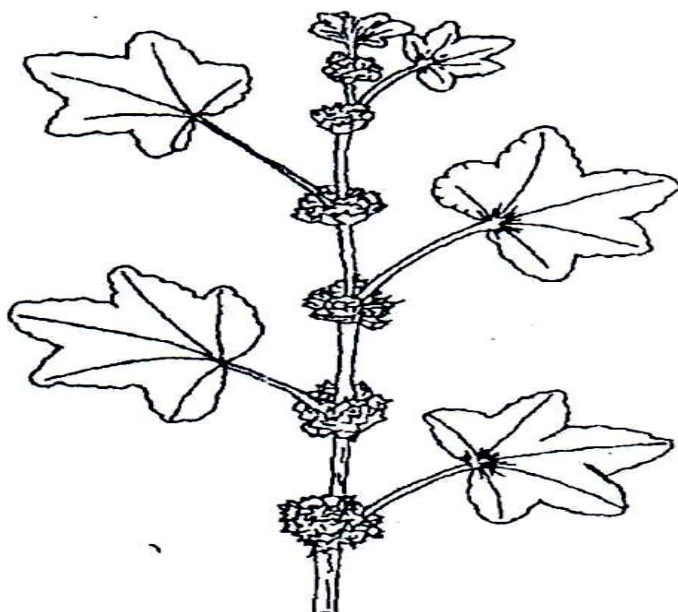
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(iv) Explain your answer in (iv) above. (1mk)

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19. Below is a diagram of a Common East African Weed.



(i) Identify the weed illustrated above. (1mk)

.....

(ii) Give one harmful effect of the weed illustrated above to livestock. (1mk)

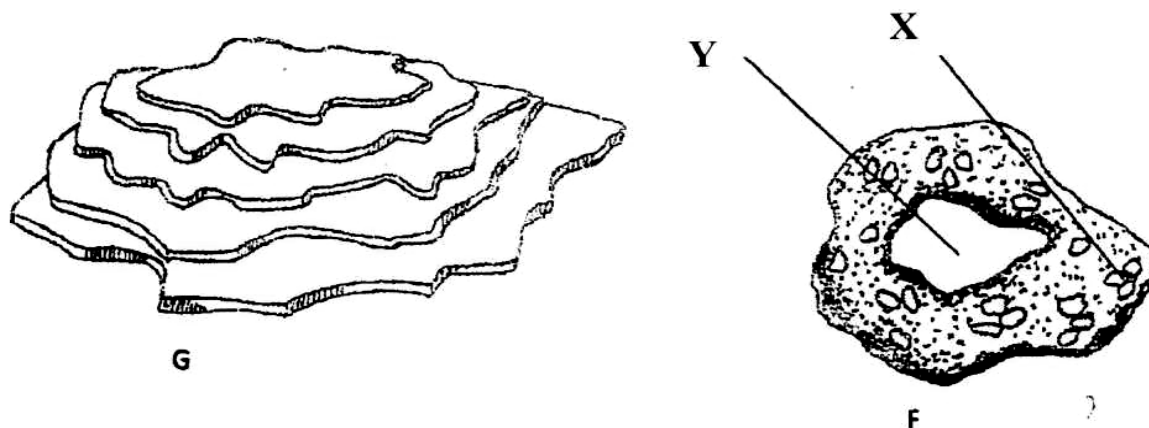
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(iii) State two methods of controlling the weed illustrated above. (1mk)

.....

.....

20. The diagrams below illustrate some soil structures. Study them and answer the questions that follow.



(a) Identify the soil structures F and G. (1mk)

F:.....

G:.....

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

X:.....

Y:.....

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

.....

.....

.....

SECTION C (40 MARKS)

Answer any two questions from this section in the spaces provided

21. (i) Describe the field production of irrigated rice under the following sub-headings:

(a) Field preparation. **(6mks)**

(b) Water control **(3mks)**

(c) Field management **(5mks)**

(ii) Describe the precautions taken while harvesting:

(a) Pyrethrum **(3mks)**

(b) Tea **(3mks)**

22. (a) Name two types of inventory records in the farm. **(1mk)**

(b) Explain six importance of farm budgeting. **(6mks)**

(c) The inventory for Kipsinende farm as at 01.06.2011

Kshs.

Cash at hand	5,000
Broilers	30,000
Maize in store	7,000
Calves	15,000
Dairy cattle	120,000
Buildings	75,000
Machinery	95,000
Land	200,000

On the same day, the following information was obtained from the farmers records

Kshs.

Interest payable	2,000
Cash in the bank	20,000
Taxes payable	750
Wages payable	5,600
Bank loan	213,000
Egg sales on credit	10,000
Milk sales on credit	13,000
Farm inputs purchased on credit	19,800
Vegetable sales on credit	5,000

Required: Prepare a balance sheet for the farm. **(13mks)**

23. (a) Outline the process of treating water for domestic use using chemical treatment system. **(12mks)**

(b) Explain five physical factors that increases the rate of soil erosion in a farm. **(5mks)**

(c) Explain how monoculture leads to loss of soil nutrients. **(3mks)**

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

443/2

AGRICULTURE

PAPER 2

TIME: 2 HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- a) Write your name, school and index number in the spaces provided above
- b) Sign and write the date of examination in the spaces provided above.
- c) This paper consists of **three** sections **A, B** and **C**
- d) Answer **All** the question in section **A** and **B**
- e) Answer **ANY TWO** questions in section **C**
- f) **All** answers should be written in the space provided in the question paper.

FOR EXAMINER'S USE ONLY

Section	Question	Maximum	Candidate's score
A	1-18	30	
B	19-22	20	
C		20	
		20	
	TOTAL SCORE	90	

SECTION A

Answer All the Questions In This Section In The Spaces Provided

1. Name **two** dairy goat breeds found in Kenya. (1 Mk)

.....

.....

.....

2. Outline **four** reasons for maintaining farm tools and equipment in good condition. (2 Mks)

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3. Outline **two** predisposing factors of foot rot. (1 Mk)

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4. Name **two** rules that should be observed when milking. (1 Mks)

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.....

5. Outline **two** duties of a worker bee in a colony of bees. (1 Mks)

.....

.....

.....

6. Study the table below fill in the blanks to show the term used to refer to parturition and young ones of the following animals. (2 Mks)

Type of animal	Act of parturition	Term to refer to the young one
Cattle	Calving	Calf
Goats		
pig		

7. State **four** harmful effects of ticks. (2 Mks)

.....

.....

.....

.....

8. State **four** desirable factors to consider when siting a fish pond. (2 Mks)

.....

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.....

.....

9. Name the most appropriate tools used in the following operations

- a) Removing metal chippings in file (1mrk)

.....

- b) Cutting wood along grains (1mrk)

.....

- c) Branding (1mrks)

.....

10. State **four** characteristic of Boran cattle (2mrks)

.....

.....

.....

.....

11. Name **three** methods of out breeding in livestock production (1 ½ marks)

.....

.....

.....

12 .What do you understand by the following terms as used I animal production .

a) Caponisation (1mrk)

.....

.....

b) Bullock (1mrk)

.....

.....

c. Epistasis (1mrk)

.....

.....

13.State **four** control measures of a liver fluke in livestock. (2 marks)

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.....

.....

14.What is “dry cow therapy” in dairy cattle management? (1/2 mark)

.....

.....

15.State **four** causes of stress in poultry.

(2 marks)

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16.Distinguish between mothering ability and prolificacy as used in livestock breeding.(1mks)

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17. Name **two** sources of protein for livestock nutrition.

(2 marks)

.....

.....

18.State **four** signs of parturition shown by a in calf cow.

(2 marks)

.....

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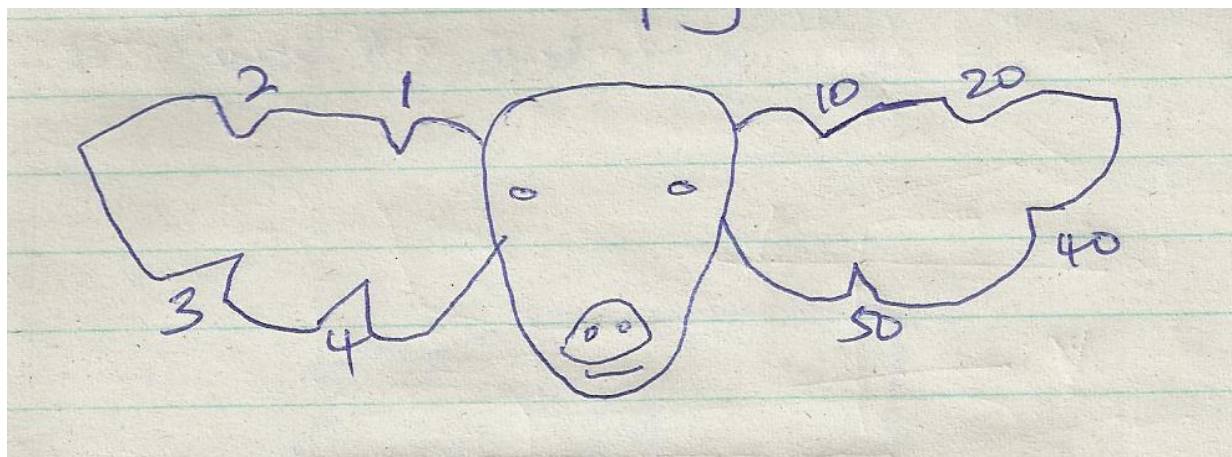
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SECTION B (20 mks)

Answer All The Questions In This Section

19.The diagram below shows a certain practice carried out on pig



a) Identify the practice illustrated above

(1mrk)

.....

b) Draw another illustration depicting pig number 37

(1mrk)

c) Name the tool used to carry out the practice illustrated above

(1mrk)

.....

d) State two other method of identifying piglet

(2mrks)

i).....

ii).....

20. The diagrams below show some farm tools. study them and answer the question that follow.



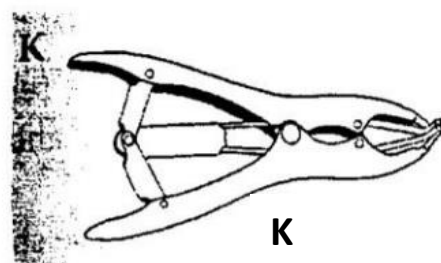
A



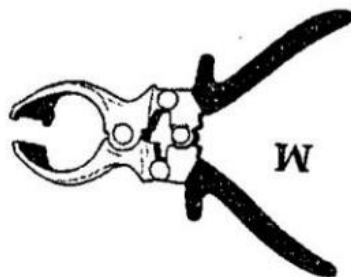
B



C



K



W

tools : (2mrks)

a) Name the tools. (2 marks)

A.....
B.....
C.....
W.....

b) State the functional differences between tools K and W. (1 mark)

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

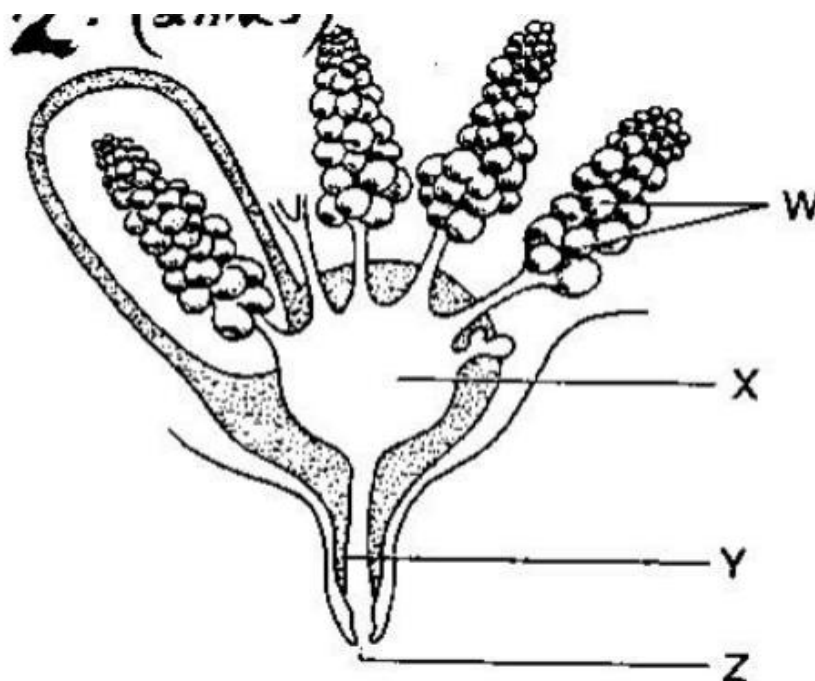
c) What advantage does C have over A and B? (1 mark)

.....
.....

d) State **one** common maintenance practice carried out in tool C and W. (1 mark)

.....
.....

21a) The diagram below shows a structure of the udder of a cow. Name the part labeled W, X, Y and Z. (2 marks)



W.....
X.....
Y.....
Z

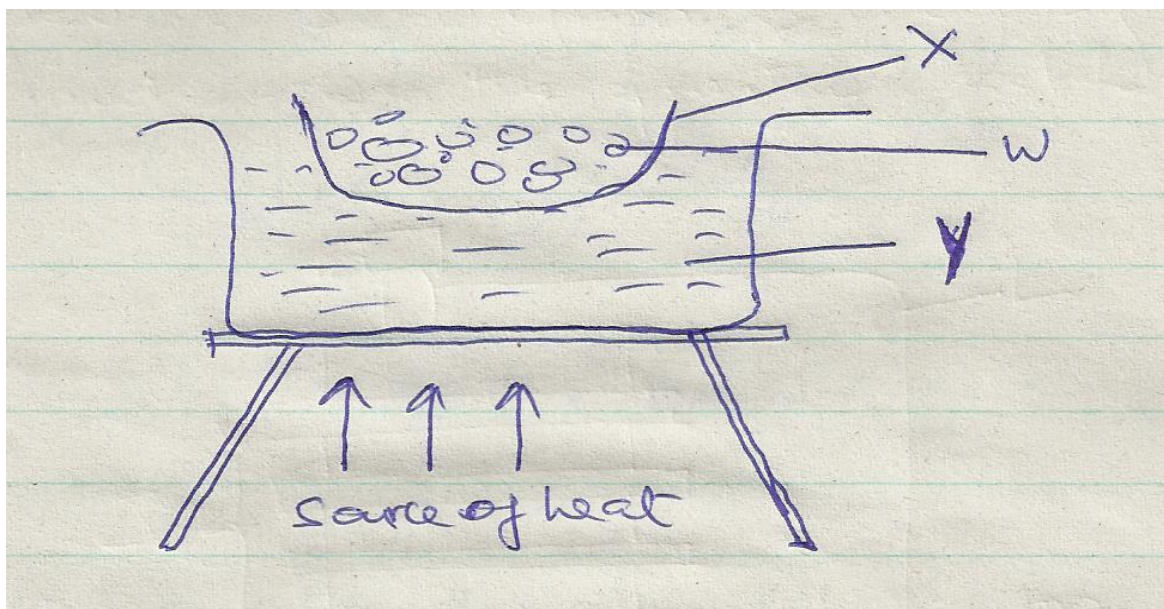
b) What is milk let down (1 mrk)

.....
.....

c) Name **two** hormones that control milk let down in dairy cow. (2 mrk)

.....
.....

22. Below is an illustration of a method of extracting honey from combs .Study the diagram and answer the question that follow.



a) Identify the above method of extracting honey (1mrk)

.....

b) Give a reason why container x should not be heated directly (1mrk)

.....
.....

c) Name the parts labeled w and y (2mrks)

W.....

Y.....

d) Besides the above method ,State one other method of extracting honey (1mrk)

.....

SECTION C (40 MKS)

Answer Any Two Questions In This Section

23(a) State **five** reasons why bees swarm. (5 marks)

b) Describe **five** maintenance practices carried out on a tractor battery. (5 marks)

c) Explain **five** factors considered when culling livestock. (5 Mks)

d. Explain **five** mechanical methods of controlling ticks. (5 mks)

24a) Describe the process of egg formation in chicken up to the point of laying. (10 Mks)

b) State the differences between four stroke cycle and two stroke cycle engine. (5 Mks)

c) Describe the process of digestion in rumen. (5 Mks)

25. a) Describe trypanosomiasis disease under the following sub-headings.

i) Causal organism (1 Mk)

ii) Animal attacked (1 Mk)

iii) **Five** symptoms of attacked animals (5 Mks)

iv) **Three** control measures (3 Mks)

b) Control **five** control measures for cannibalism (5 Mks)

(c) Explain **five** parts of a piggery unit (10mrks)

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

565/1

BUSINESS STUDIES

PAPER 1**TIME: 2 HOURS**

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

INSTRUCITONS TO CANDIDATES

- a) Write your name and index number in the spaces provided above.
- b) Sign and write the date of examination in spaces above.
- c) Answer ALL the questions in the spaces provided.
- d) 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															

Question	16	17	18	19	20	21	22	23	24	25	Total
Marks											

Answer ALL the questions in the spaces provided.

1. State the unit of carriage for each of the following modes of transport (4mks)

Mode of transport	unit of carriage
Porterage	
Cartage	
Sea	
Air	

2. Outline four elements of demographic environment that may influence the operation of a business. (4 marks)

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3. State four reasons why consumers have to make choices between competing wants. (4marks)

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4. In the spaces provided below, indicate the type of utility created by each of the following business activities

<u>Business activity</u>	<u>Type of utility</u>	(4marks)
Selling face masks to customers –		
Transporting onions-		
Storing onions in a granary-		
Making a camera-		

5. Outline four circumstances under which differed payment may be used (4marks)

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6.State four advantages of transacting business through the internet. (4marks)

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7. The following information relates to Mumbua traders for the year ended 31st April 2015.

Shs.

Cash at bank	30,000
Cash in hand	40,000
Current liability	500,000
Sales	920,000
Opening stock	150,000
Closing stock	230,000
Margin	25%
Expenses	15% of sales

Determine

i) Gross profit (1mark)

ii) cost of sales (1mark)

iii) Purchase for the year (1mark)

iv) Net profit (1mark)

8 For each of the following transactions indicate the account to be debited and credited. 4 marks

Transaction	A/c debited	A/c credited
a) Received discount from Top Suppliers		
b) Allowed discount to Shujaa Traders		
c) Sold furniture to Owuor in cash		
d) Took stock worth sh.200 for personal use		

9. Identify four benefits of international trade to a country (4marks)

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10. Alice a retailer had a capital balance of sh.160,000 as at 30th June 2022. During the year ended June 30th 2023, the business made a profit of 130,000. Alice the proprietor made drawings of 1500 each month for her personal use. Compute the business capital as at 30th June 2023 (3marks)

11. Highlight four reasons that would make an organization use cell phones for communication within and outside the organization. (4marks)

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12. State four benefits of “pooling of risks” to insurance company. (4marks)

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13. Outline four circumstances under which a firm may locate its operations near the source of raw materials. (4 marks)

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14. Highlight four measures that the government can take to reduce mortality rate in the country. (4marks)

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15. Many countries in Africa, Latin America and Asia are considered as under developed. Outline four characteristics underdeveloped countries have in common. (4marks)

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16. State four ways of improving service delivery in parastatals and state corporation. (4marks)

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17.State four locations in a country where bonded warehouse are likely to be found. (4marks)

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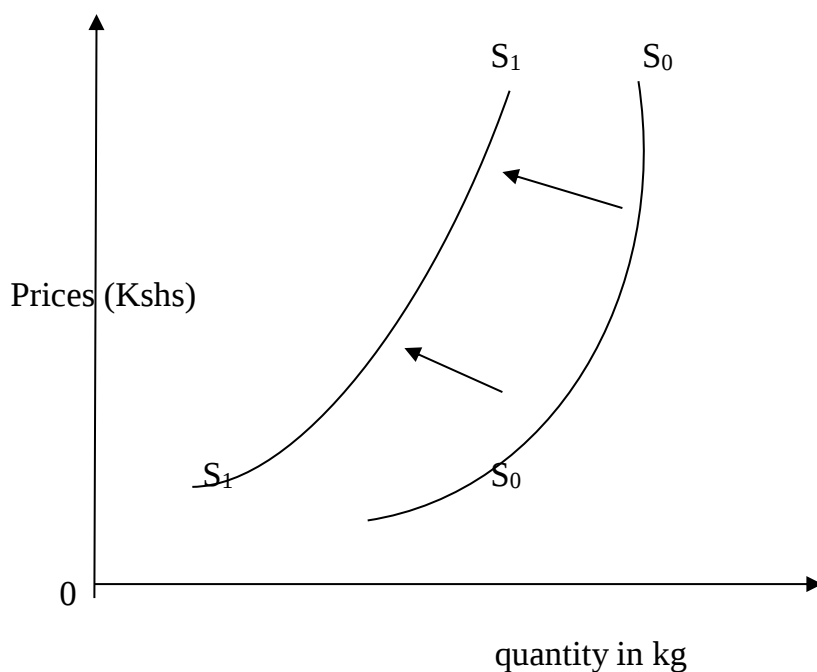
18. The following information was extracted from the books of Amani traders on 31st Dec 2010

Commission received	22,000
Sales	763,000
Loan interest	52,500
Purchases	474,000
General expenses	30,000
Drawings	96,000
Rent	120,000
Salaries owing	72,000
Electricity pre paid	85,000

Prepare Amani traders trial balance for the month ended 31st Dec 2010.

(5 marks)

19. The diagram below shows a shift in supply curve from S_0S_0 to S_1S_1 .



State four factors that may account for the above shift.

(4marks).

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20. Outline four contributions of the households to the national income of a country. (4marks)

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21. State four circumstances under which a customer would prefer to be paid by a banker's cheque. (4 marks)

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22. Outline four benefits of becoming a member of a savings and credit cooperative society. (SACCO). (4marks)

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23 Highlight four methods used by a monopolistic firm to differentiate products. (4marks)

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24.State four circumstances under which a business firm may use photocopying as a means of reproducing documents. (4 marks)

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25. Apart from government borrowing, outline four other sources of government revenue.(4mks)

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NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

565/2

BUSINESS STUDIES

PAPER 2

TIME: 2½ HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

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

FOR EXAMINER'S USE ONLY

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

Answer any **five** questions

1 a) Describe five features of economic resources **(10marks)**

b) Explain five internal economies of scale that a firm can enjoy as its scale of production increases. **(10marks)**

2a) Explain five important of filing documents in an organization **(10marks)**

b) Explain five factors that determine the size of a firm **(10marks)**

3a) The following trial balance was prepared from the books of Muranga traders as at 31st Dec 2018

Muranga traders

Trial balance

As at 31st Dec 2022

	Dr (shs)	Cr (shs)
Sales		900,000
Purchases	500,000	
Returns	60,000	20,000
Carriage inwards	30,000	
Carriage outwards	3,000	
Stock (jan 2022)	100 ,000	
Rent	12,000	60,000
Delivery van	300,000	
Bank	60,000	
Creditors		50,000
Debtors	100 000	
Interest	18,000	
General expenses	7,000	
Capital		178,000
	1,190,000	1,190,000

Stock on 31st Dec 2022 was at sh.130,000 required,

Prepare a trading profit and loss account for the year ended 31st Dec 2022. **(10marks)**

3b) Explain any five limitations of advertising goods in newspapers **(10marks)**

- 4a)** Explain 5 ways of correcting balance of payment deficit. **(10marks)**
- b)** Explain five factors that are likely to lead to high birth rate in Kenya. **(10 marks)**
- 5a)** Explain five challenges that may be faced by a producer who sells goods directly to consumers. **(10 marks)**

b) On March 1 2017, Lyon had cash in hand sh.87,000 and cash at bank sh.250,000. During the month, the following transactions took place:

2017

March 2: Cash sales sh.60,000

3: Paid salaries sh.101,500 by cheque

7: Received a cheque of sh.76,000 from Henry after allowing him a cash discount of 5%

13: Bought office furniture by cheque sh.86,000

17: Settled Marita's account for sh.34,200 in cash, having deducted sh.800 cash discount.

20: Received a cheque for sh.165,000 in respect of cash sales.

22: Paid wages sh.25,000 in cash.

24: Withdrew sh.32,000 from the bank for office use.

25: Withdrew sh.4000 cash for personal use

29: received sh.17,000 cash from Alvin in settlement of his account less sh.1000 cash discount.

31: Deposited all the money into the bank except sh.24,000.

Required:

Prepare a three column cash book duly balanced. **(10 marks)**

6a) Differentiate between life assurance and property insurance **(10marks)**

b) Explain five circumstances under which personal selling may be most appropriate.

(10 marks)

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

233/1

CHEMISTRY

THEORY**PAPER 1****TIME: 2 HOURS**

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

1. Answer ALL questions in the spaces provided
2. Mathematical tables and electronic calculators may be used.
3. All working MUST be shown clearly where necessary.

FOR EXAMINERS USE ONLY

MAXIMUM SCORE	CANDIDATE'S SCORE
80	

Answer ALL questions in the spaces provided

1. Study the information given below and use it to answer the questions that follow;

Red dye is more soluble than green dye, green is more soluble than yellow whereas blue dye is the least soluble.

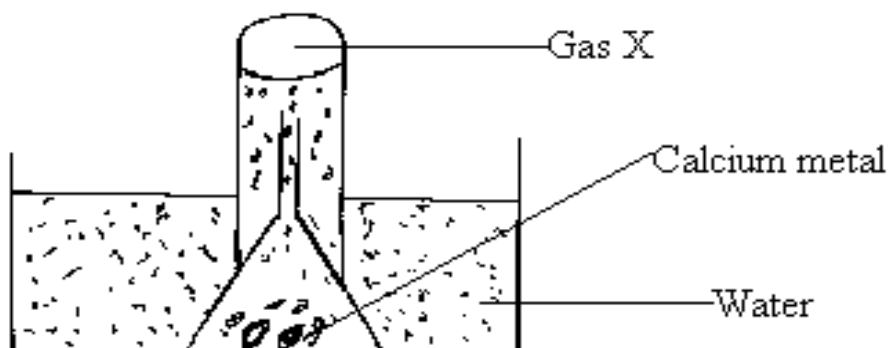
i) Represent the three dyes on a round paper chromatography. (2marks)

ii) Name one industrial application of chromatography. (1mark)

2. a) What is a fuel? (1mark)

b) Calculate the heat value of ethanol if its molar enthalpy of combustion is $-1360 \text{ kJ mol}^{-1}$
(C=12.0, O=16.0, H=1.0) (2marks)

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



a) What physical property of calcium metal is demonstrated in the diagram above?(1mark)

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b)What would be observed if water was replaced with dilute Sulphuric (VI) acid?(2marks)

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4. A hydrocarbon decolorizes chlorine gas in presence of ultra violet light but does not decolorize acidified potassium manganate (VII) solution.

i) Name the homologous series to which the hydrocarbon belongs. (1mark)

.....

ii) Draw the structural formula and name the fourth member of the homologous series to which the hydrocarbon belongs? (2marks)

5. Explain why a solution of hydrogen chloride in water turns blue litmus paper red but a solution of hydrogen chloride in methylbenzene has no effect on litmus papers. (2marks)

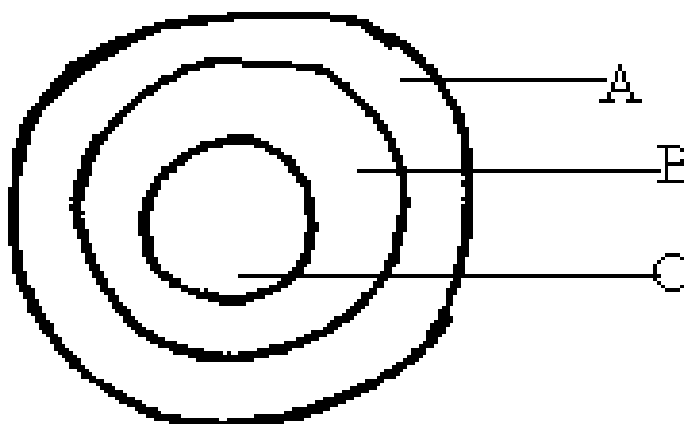
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6. The diagram below represents a cross section of the apparatus used to extract sulphur from its deposits. Study it and answer the questions that follow.



- a) State the role of the substance that is passed through;

i)A

.....
.....(1mark)

ii)C.....
.....(1mark)

- b)Give one reason why the method shown in the diagram is suitable for extraction of sulphur.
(1mark)

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7. Explain how you would obtain magnesium carbonate from a mixture of magnesium carbonate and sodium carbonate.
(2mark)

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8. 20g of potassium carbonate were dissolved in 50cm³ of water in a conical flask. Lemon juice was then added drop wise while shaking until there was no further observable change.

a) Explain the observation that was made in the conical flask when the reaction was in progress. (1mark)

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b) What observation would be made if lemon juice had been added to copper turnings in a conical flask? Give a reason. (2marks)

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9. Explain why a burning magnesium continues to burn in a gas jar full of carbon (IV) oxide while a burning candle would be extinguished. (2marks)

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10. 8.4g of carbon (IV) oxide and 3.42g of water are formed when a hydrocarbon is burnt completely in oxygen. Determine the empirical formula of the hydrocarbon. (H=1.0; C=12.0; O=16.0) (3marks)

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11. The melting point of nitrogen is -196°C while that of sodium is 98°C , in terms of structure and bonding explain the differences in the melting points of nitrogen and sodium. **(2marks)**

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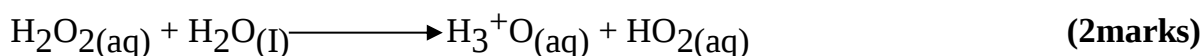
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- 12.a) What is an amphoteric substance? **(1mark)**

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- b) Identify the reagent that acts as a base in the equation below. Give a reason for your answer.



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13. In the industrial manufacture of ammonia gas by Harber process, Nitrogen and hydrogen gases are reacted together.

- a) State any two conditions necessary for ammonia to be formed in the Harber process. **(1mk)**

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- b) Nitrogen and hydrogen must be purified before they are reacted. Give a reason. **(1mark)**

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- c) Other than manufacture of fertilizers state one use of ammonia. **(1mark)**

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14. Describe how you would prepare crystals of potassium sulphate starting with 100cm³ of 0.5M potassium hydroxide. (3marks)

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15. Distinguish between atomic mass and relative atomic mass. (2marks)

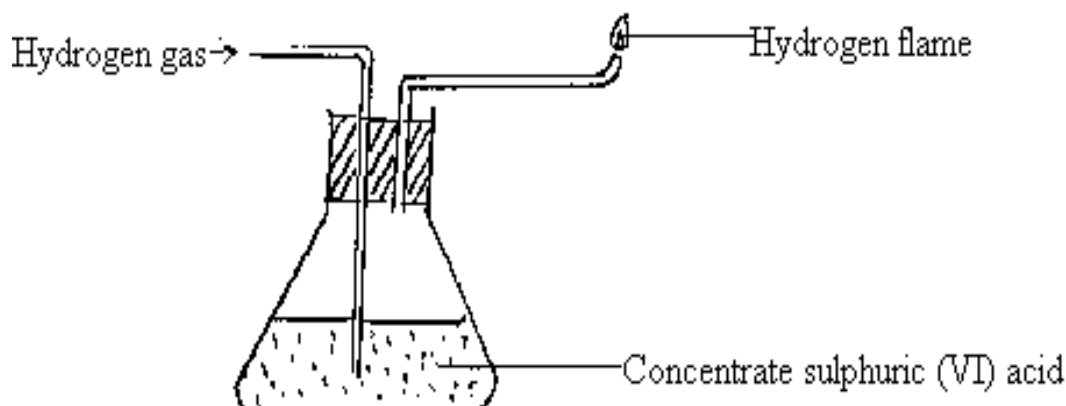
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16. Study the diagram below and answer the questions that follow:



- a) Name one chemical property of hydrogen being demonstrated in the set-up above.

i) Chemical property. (1mark)

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- ii) Write a chemical equation for the reaction taking place. (1mark)

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b) Name any other substance that can be used in place of concentrated sulphuric (VI) acid.

(1mark)

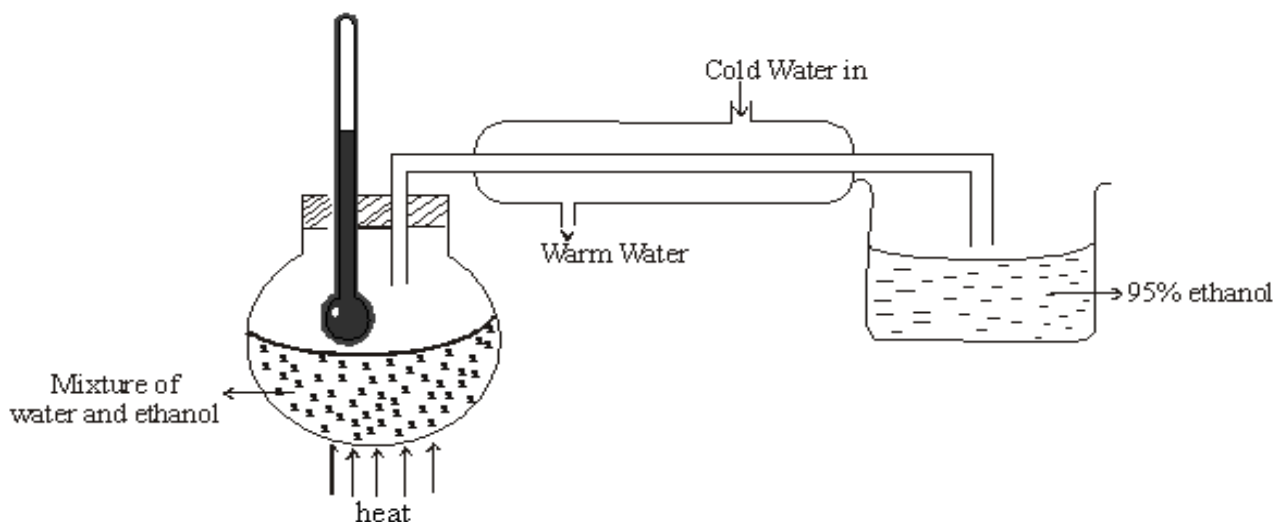
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c) Give a reason why it is necessary to burn the hydrogen gas as shown in the set-up.(1mark)

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17.The diagram below shows a simple distillation to separate water and ethanol.



a) State one of the conditions for the above process to take place.

(1mark)

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b) Ethanol collected is 95% pure. Secondary distillation is carried out in which calcium metal is placed in ethanol to react with water. Give a reason why the following cannot be used.

(2marks)

i. Sodium

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ii. Copper

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18. A solution of potassium chloride was added to a solution containing a lot of lead (II) nitrate. A precipitate that weighed 5.56g was formed. Find the amount of potassium chloride in the solution (3marks)

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18. 1.9g of Magnesium chloride was dissolved in water. Silver nitrate solution was added till excess. Calculate the mass of silver nitrate that was added for complete reaction.

(MgCl₂ = 95, N=14, O=16, Ag = 108) (3marks)

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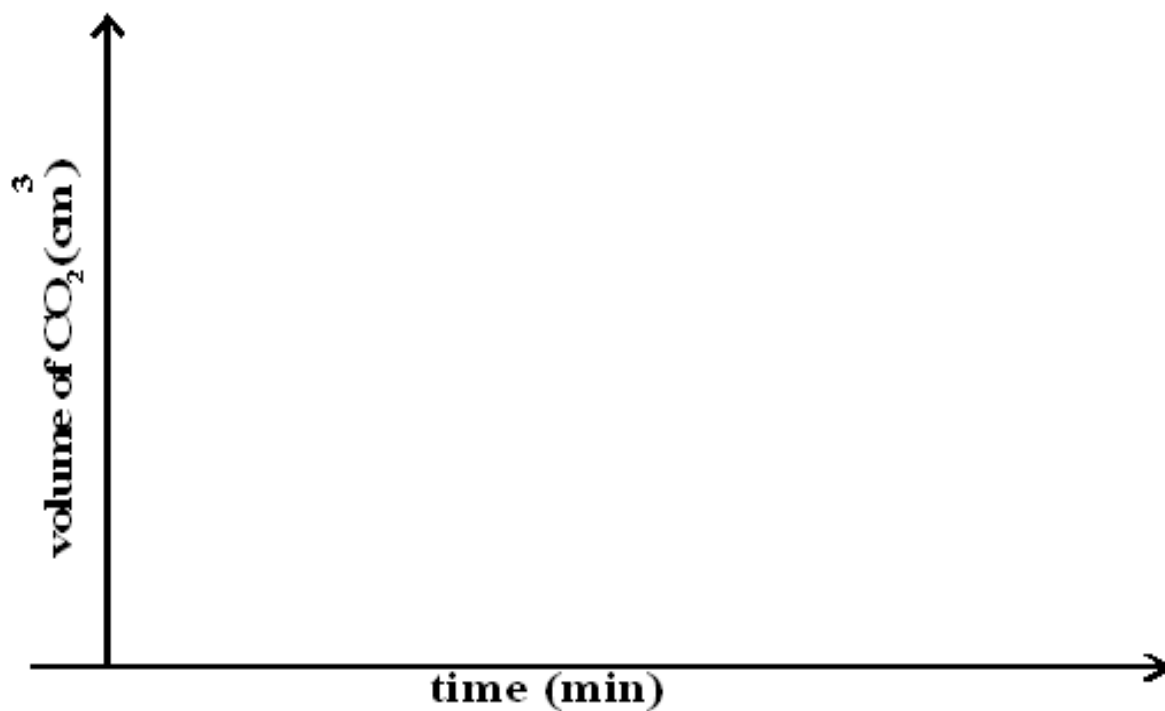
20. In an experiment 40cm³ of 0.5M nitric acid was reacted with excess Sodium Carbonate and the volume of Carbon (IV) Oxide produced recorded with time. In another experiment, the same volume and concentration of ethanoic acid was reacted with excess Sodium Carbonate and the volume of Carbon (IV) Oxide produced recorded with time.

a) Why was Sodium Carbonate used in excess? (1marks)

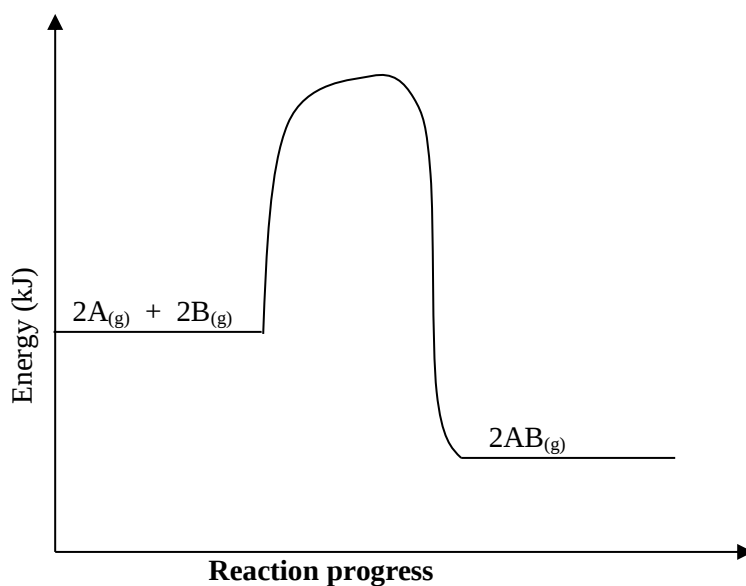
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- b) On the graph below sketch and label the curves of the volumes of Carbon (IV) Oxide produced against time. (2marks)



21. The figure below is an energy level diagram for the reaction.



Explain how the following conditions would affect the yield of AB.

(i) Increase in pressure.

(2marks)

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(ii) Decrease in temperature.

(2marks)

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22. 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 even after cooling.

a) Identify gases **A** and **B**.

(2marks)

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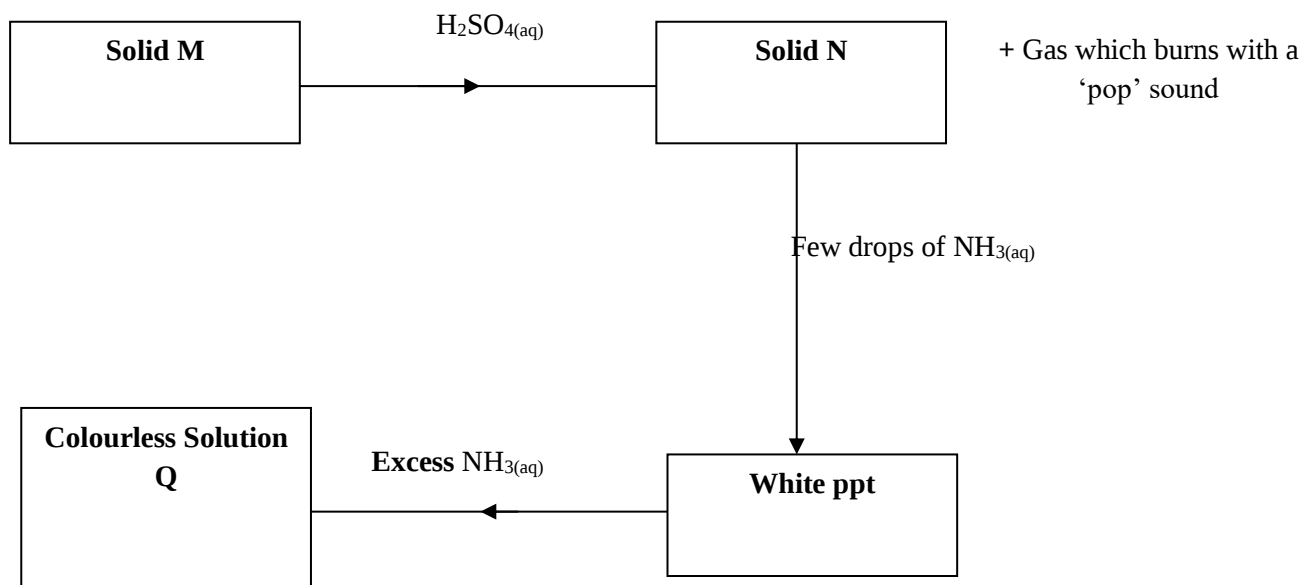
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b) Write a balanced chemical equation for the decomposition of solid K.

(1mark)

.....

23. The scheme below shows some reaction sequence starting with solid M.



a) Name solid M. (1mark)

.....

b) Write the formula of a complex ion present in solution Q. (1mark)

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c) Write an ionic equation of the reaction between barium nitrate and solution N. (1mark)

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24. (a) What is meant by a saturated solution? (1mark)

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(b) In an experiment to determine the solubility of solid Y in water at 30°C the following results were obtained.

Mass of evaporating dish = 26.2g

Mass of evaporating + saturated solution = 42.4g

Mass of evaporating dish + dry solid Y = 30.4g

Using the information, determine the solubility of solid Y at 30°C. (2marks)

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25. Compare the electrical conductivity of dilute Sulphuric (VI) acid and concentrated Sulphuric (VI) acid. Explain your answer. (2marks)

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26. Draw a well labelled diagram of a setup used to prepare and collect dry Sulphur IV oxide. (3marks)

27. The molar heat of formation of carbon (II) oxide is -105kJmol^{-1} , molar heat of combustion of carbon is -393kJmol^{-1} . By using an energy cycle diagram, determine the molar heat of combustion of carbon (II) oxide (3marks)

28. In an experiment, a small amount of charcoal was added into a test tube and 5cm³ of concentrated nitric (V) acid added, then warmed.

(i) State the observation that was made. (1mark)

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(ii) Explain the observation made in (i) above. (1mark)

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(iii) Write an equation for the reaction that took place. (1mark)

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NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

233/2

CHEMISTRY

THEORY

PAPER 2

TIME: 2 HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

1. Write your name and admission number in the spaces provided above.
2. Sign and write the date of the examination in space provided.
3. Answer ALL the questions in the spaces provided in the question paper.
4. All working MUST be clearly shown where necessary.
5. Mathematical tables and silent electronic calculators may be used.

FOR EXAMINER'S USE ONLY

QUESTION	CANDIDATE'S SCORE
1	
2	
3	
4	
5	
6	
7	
TOTAL SCORE	

Answer ALL the questions in the spaces provided

1. (a) Define the following terms:

i) Strong bases (1mk)

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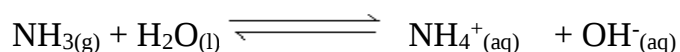
ii) Amphoterism (1mk)

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iii) Solubility (1mk)

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b) Using the equation below, identify the species that acts as the base in the forward reaction. Give a reason. (2mks)



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c) A solution of ammonia gas in water causes a greater deflection of the ammeter while a solution of ammonia gas in methylbenzene does not cause deflection. Explain this observation. (1mk)

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d) Write a well-balanced chemical equation for the reaction between sodium hydroxide solution and zinc oxide. (1mk)

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e) Explain how hard water is softened by ion exchange method. (2mks)

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f) The table below gives the solubilities of sodium chloride and sodium sulphate at 0°C and 40 °C.

Substance	Solubility in g/100g of water	
	0 °C	40 °C
Sodium chloride	55	75
Sodium sulphate	10	12

When an aqueous mixture containing 60g of sodium chloride and 7g of sodium sulphate in 100g of water at 80 °C was cooled to 0 °C, some crystals were observed.

i) Identify the crystals and determine the mass of the crystals formed. (2mks)

ii) Name the method used to obtain the crystals. (1mk)

2. a) Define

i) Molar heat of combustion. (1mk)

.....

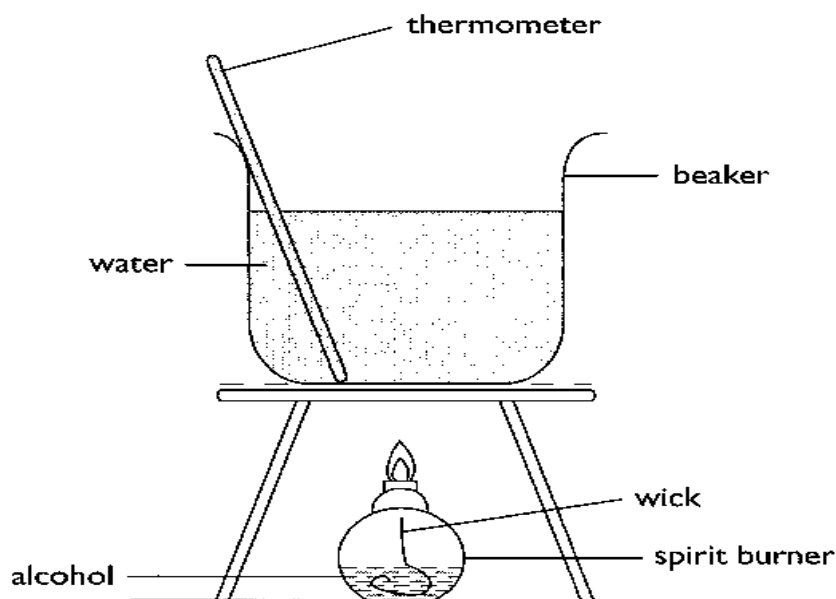
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ii) Heating value of a fuel. (1mk)

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.....

- b) In an experiment to determine the heat of combustion of ethanol, $\text{CH}_3\text{CH}_2\text{OH}$, a student set up apparatus as shown in the diagram below. Study the set up and the data and answer the questions that follow.



Volume of water	=	100cm ³
Final temperature of water	=	36.0 ⁰ c
Initial temperature of water	=	22.0 ⁰ c
Final mass of lamp an ethanol	=	84.75g
Initial mass of lamp and ethanol	=	85.10g
Density of water	=	1 g/cm ³
(Specific heat capacity of water = 4.2kJKg ⁻¹ K ⁻¹)		

i) Calculate:

- I) Number of moles of ethanol used in this experiment. (C=12, O=16, H=1) (1 mk)

- II) The amount of heat given outin this experiment. (2mks)

III) The heat of combustion per mole of ethanol. (1 mk)

ii) Write a thermochemical equation for the combustion of ethanol. (1 mk)

iii) Explain how the molar heat of combustion for ethanol obtained above differs with the theoretical value. (2mks)

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iv) State one precaution that should be adhered to when carrying out this experiment. (1mk)

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.....

v) In this experiment an assumption that links ethanol and water is made. State the assumption. (1 mk)

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vi) Draw an energy level diagram for the combustion of ethanol. (2mks)

3. The figure below represents a section of the periodic table. Study it and answer the questions that follow. Note that the letters do not represent the actual symbols of the elements.

A							D	
B				G	J		F	H
C								I

- (a) Consider elements H and I.

(i) Explain why the atomic radius of element H is smaller than its ionic

(1mk)

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- (ii) When element H was dissolved in water and blue litmus papers dipped, the colour of the litmus paper changed from blue to red to white. Explain.

(2mks)

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- (iii) Explain what is likely to be observed when element H is bubbled through a solution containing the ions of element I.

(2mks)

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- (b) Compare the atomic radius of elements G and J. Explain the difference.

(2mks)

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(c) Use dot and cross diagram to show bonding in a compound of B and H. (1mk)

(d) G chloride has an unexpected bond type and structure. State the type of bond and the structure.

Bond type (1mk)

Structure (1mk)

(e) A piece of blue litmus paper is placed in a solution of B chloride and a solution of G chloride. Explain what would be observed in each case.

(i) B chloride solution (1mk)

(ii) G chloride solution (1mk)

4. In an experiment to study the rate of reaction, 2.5g of copper (II) sulphate crystals were added to a given mass of zinc granules and 100cm³ dilute hydrochloric acid at 27°C. The volume of hydrogen released was measured at 10 second intervals. The results obtained are tabulated below.

Time (seconds)	0	10	20	30	40	50	60	70	80	90
Volume (cm ³)	0	60	85	105	114	116	118	122	122	122

a) Why were the following not used in the reaction?

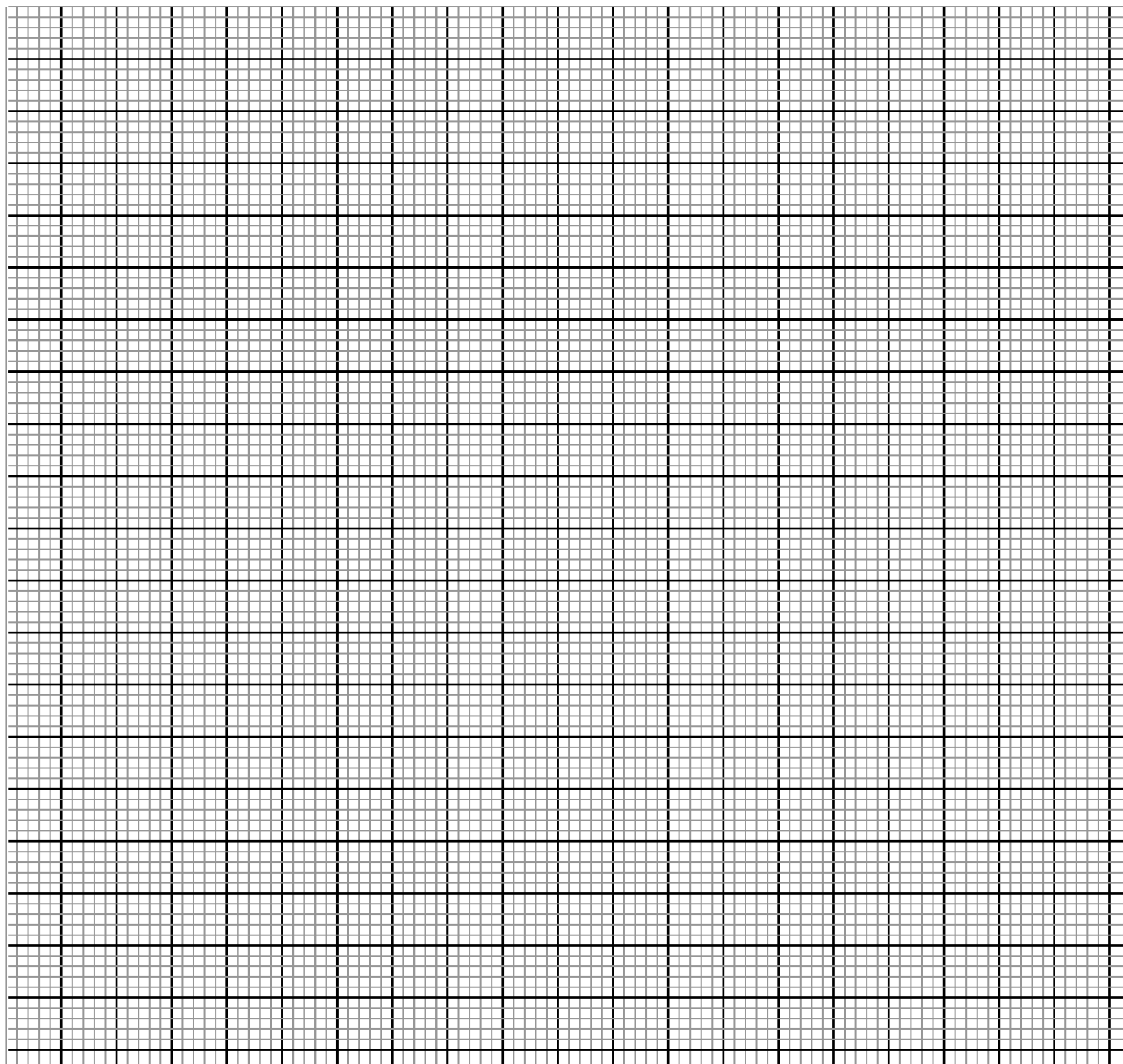
i) Nitric (V) acid (1mk)

.....

ii) Iron powder (1mk)

.....

b) On the grid below plot a graph of volume of gas against time and label it X (3mks)



i) Use the graph to calculate the rate of reaction at $t=25$ seconds (2mks)

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ii) Explain why the volume of gas produced does not exceed 122cm^3 (1mk)

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.....

iii) Sketch graph Y on the same grid to show the results if the experiment is repeated at 20°C . (1mk)

iv) How does the catalyst used (copper (II) sulphate) speed up the reaction? (1mk)

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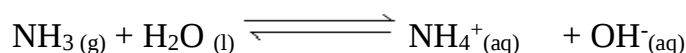
c) i) State Le'Chatelier's principle. (1mk)

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ii) What is the effect on the position of equilibrium when dilute hydrochloric acid is added to the closed system of the reaction below (1mk)

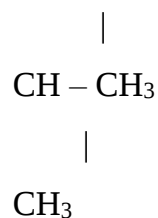
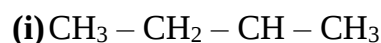


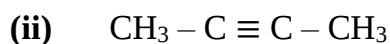
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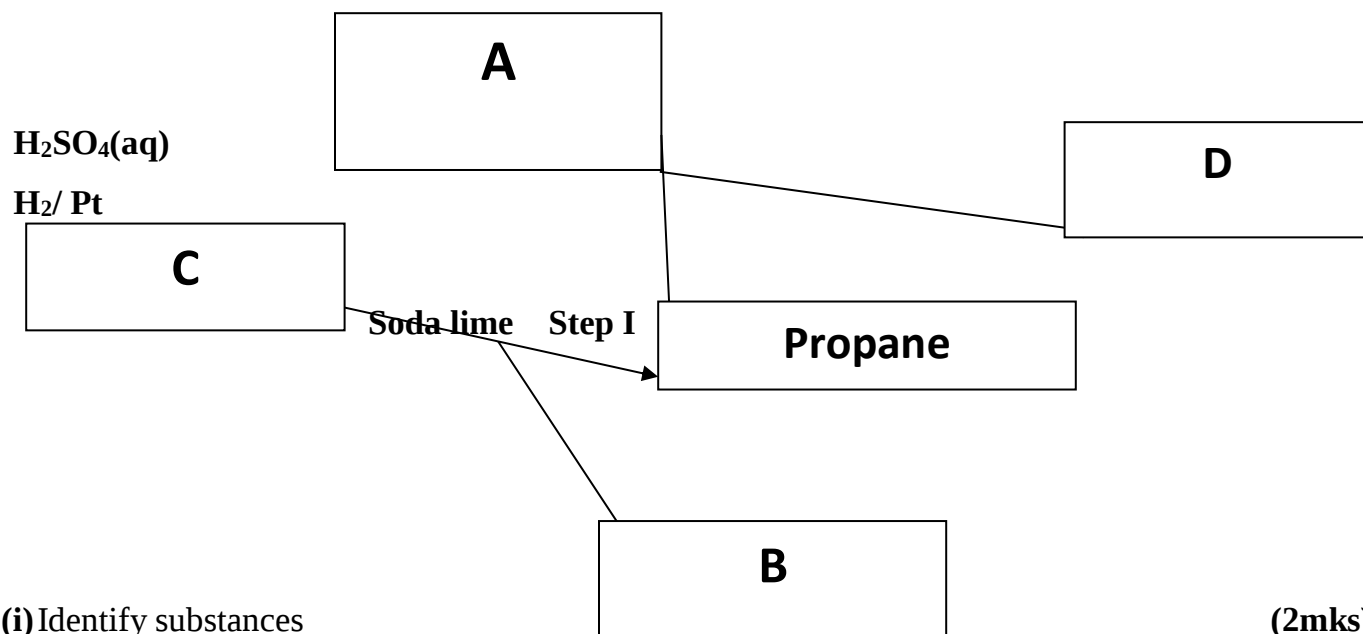
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5. (a) Give the IUPAC names of the following organic compounds. (2 mks)





(b) Study the flow chart below and answer the questions that follow:



(i) Identify substances

(2mks)

A

B

C

D

(ii) State how substance A and propane could be distinguished chemically.

(1 mk)

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.....

(iii) Give the components of soda lime in step I

(2mks)

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(iv) What is the industrial application of the process that converts substance A to propane?

(1mk)

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(c) In the laboratory propene can be prepared using propanol, broken porcelain and sodium hydroxide. State the use of broken porcelain and sodium hydroxide solution

Broken porcelain (1mk)

Sodium hydroxide solution (1mk)

6. a) Draw a fully labeled diagram of the apparatus you would use to electrolyse an electrolyte in the aqueous state. (3mks)

b) Explain why crystals of sodium chloride are non-conductors of electricity but when melted they conduct electric current more readily. (2mk)

.....

c) Answer the following questions in relation to the electrolysis of molten lead (II) iodide.

i) State what happens to molten lead (II) iodide when an electric current is passed through it. (1mk)

.....

ii) At what electrode is a metal formed? Write an equation to show how the metal is formed.

(2mks)

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iii) Why is it necessary to carry out this experiment in a fume chamber?

(1mk)

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iv) What is a binary electrolyte?

(1mk)

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c) Give the application of electrolysis in

i) Chemical manufacturing industry

(1mk)

.....

.....

ii) Metal extraction industries

(1mk)

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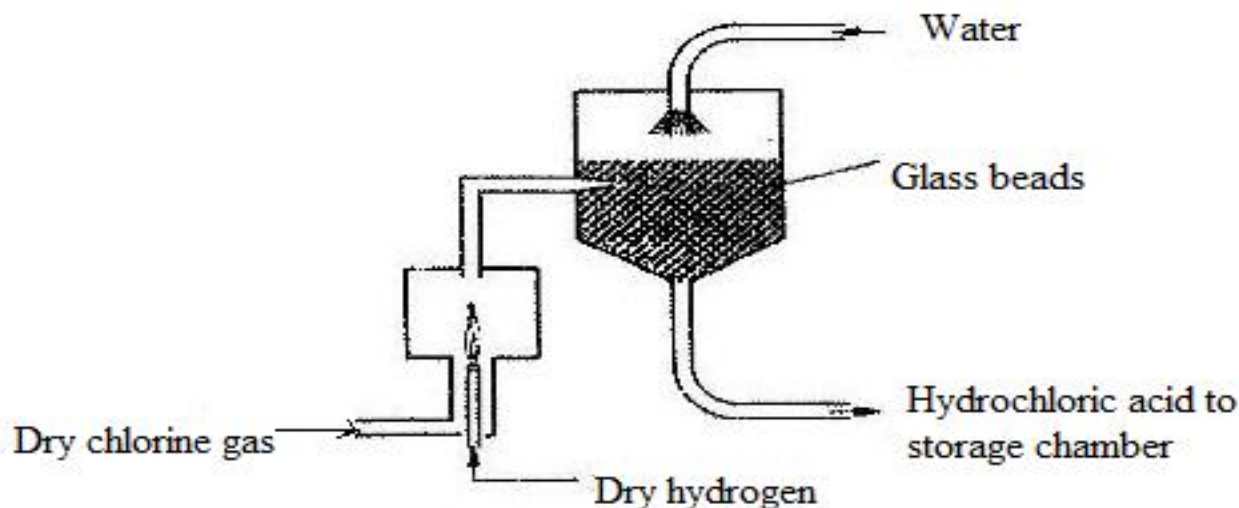
iii) Jewellery e.g. necklaces manufacturing industries

(1mk)

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7. The diagram below represents the industrial manufacture of hydrochloric acid. Study it and answer the questions that follow.



a) Name the main source of hydrogen in this process. (1mk)

.....

b) The reaction between chlorine and hydrogen can be very explosive. How can this be avoided? (1mk)

.....

c) What is the role of glass beads in the absorption chamber? (1mk)

.....

d) Explain why the storage chamber for hydrochloric acid is made up of steel lined with rubber. (1mk)

.....

- e) The acid obtained is 35% pure. Calculate its molarity, given that at 25°C, the density of the acid is 1.08g/cm³ (H=1, Cl=35.5) (3mks)

- f) Explain why hydrochloric acid is not used to acidify potassium manganate (VII) solution.

(1mk)

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NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

233/3

CHEMISTRY

PRACTICAL

PAPER 3

TIME: 2½ HOURS

SCHOOL.....

SIGN.....

Kenya Certificate of Secondary Education.

CONFIDENTIAL

Each candidate requires

- 1) Solution A, 60cm³ of 2mHcl.
- 2) Solution B, 100cm³ of 0.05MNaOH
- 3) Solid C, 10cm magnesium ribbon.
- 4) 10ml measuring cylinder
- 5) 25ml pipette
- 6) 50ml Burette
- 7) Complete stand
- 8) Stopwatch
- 9) 2 labels
- 10) Distilled water
- 11) 6 test tubes.
- 12) 0.5g sodium hydrogen carbonate.
- 13) 5cm³ ethanol.
- 14) 1 – 14 PH chart.
- 15) Solid R, 1g Oxalic acid.
- 16) Solid Q, Mixture of (NH₄)₂SO₄ and Al(SO₄)₃ (ration 1:1)
- 17) Pipette filler
- 18) Phenolphthalein indicator

- 19) 250ml conical flask (2)
- 20) 250ml volumetric flask
- 21) 1 boiling tube
- 22) 1 spatula

ACCESS TO:

- 1) Universal indicator solution
- 2) Acidified potassium manganite (VII) solution
- 3) Bromine water
- 4) Conc. Sulphuric (VII) acid with a dropper.
- 5) Means of heating.
- 6) 2M Lead (II) nitrate solution.
- 7) 2M dilute nitric (V) acid solution
- 8) 0.5m Barium nitrate solution
- 9) 2M sodium hydroxide solution.
- 10) 2M Aqueous ammonia.
- 11) 2M Hydrochloric acid.

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

233/3

CHEMISTRY

PRACTICAL

PAPER 3

TIME: 2½ HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- a) Write your name, index number and school in the spaces provided above.
- b) Sign and write the date of examination in the spaces provided above.
- c) Answer **ALL** the questions in section in the spaces provided.
- d) **ALL** working **MUST** be clearly shown.

FOR EXAMINERS USE ONLY

QUESTION	MAXIMUM SCORE	CANDIDATE SCORE
1	18	
2	12 ½	
3	9 ½	
TOTAL	40	

1) You are provided with:

i) Solution A, Dilute hydrochloric acid

ii) Solution B, made by dissolving 0.5g of sodium hydroxide in water and made to 250cm³ of solution

iii) Solid C, Magnesium ribbon

iv) Phenolphthalein indicator

You are required to:

a) Standardize solution A

b) Determine the rate of reaction between solution A and magnesium

PROCEDURE

a) Measure exactly 10cm³ of solution A using a burette and transfer into a 250ml volumetric flask.

Top up to the mark using distilled water. Label this solution D.

b) Drain the remaining solution A in the burette, rinse the burette thoroughly and fill the burette with solution D.

c) Pipette 25cm³ of solution B into a conical flask. Add three drops of phenolphthalein indicator

d) Titrate solution D with solution B. Record your results in the table below. Repeat procedure (i) to (iv) to complete the table. **(3 marks)**

	1	2	3
Final burette reading (cm³)			
Initial burette reading (cm³)			
Volume of solution D used (cm³)			

1. Calculate the average volume of solution D used

(1 mark)

2. Calculate:

e) Number of moles of solution B used (1½ marks)

f) Number of moles of solution D in 250cm³ of solution (1½ marks)

g) Morality of solution A (1 mark)

PROCEDURE II

a) Cut solid C into equal pieces, each 2cm long.

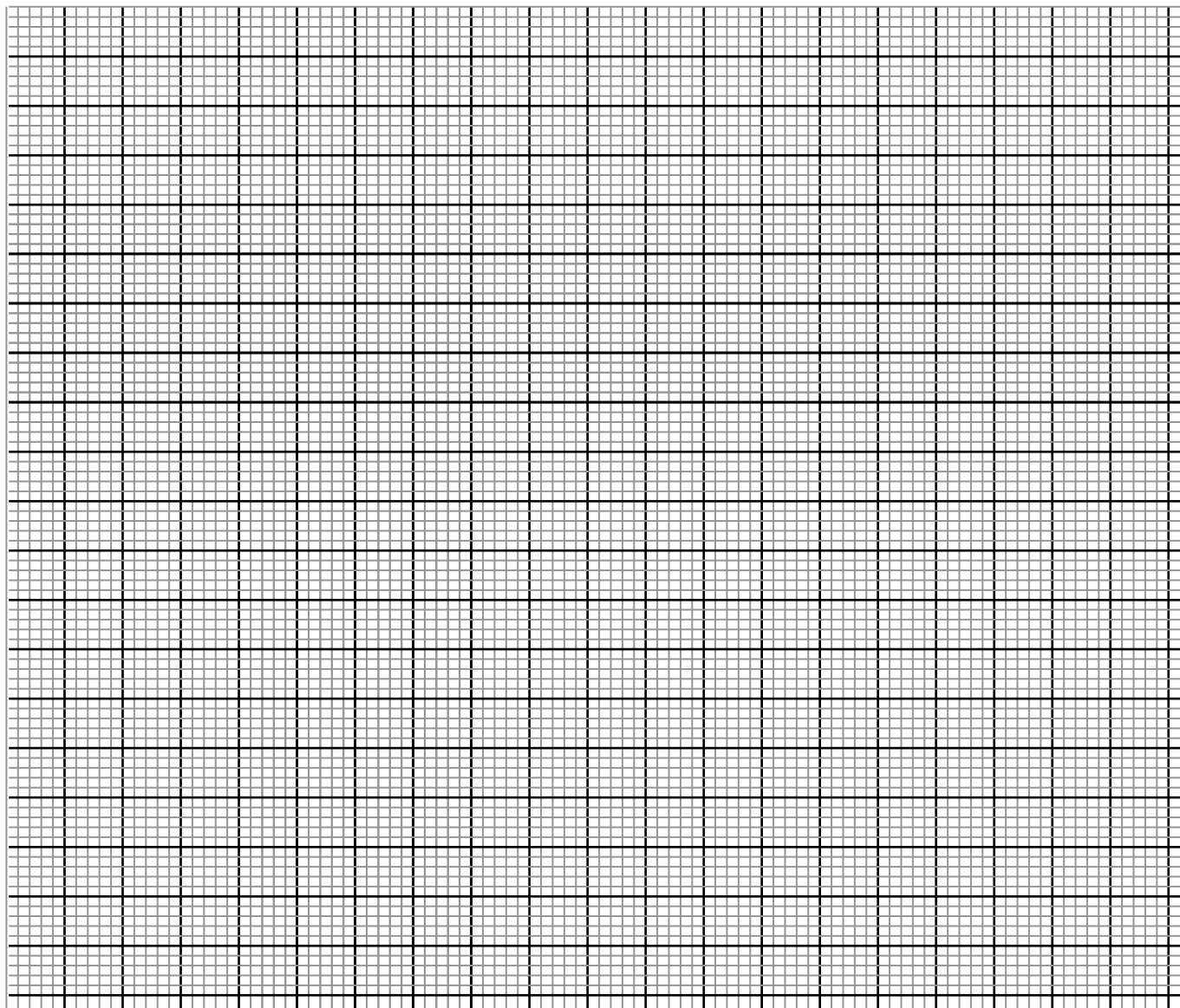
b) Using a burette, measure 12cm³ of solution A, into a clean boiling tube.

c) Drop one piece of solid C into the boiling tube containing solution A and start stopwatch immediately. Stop the stopwatch when all solid C has just reacted. Record your results in the table below.

d) Repeat steps (ii) and (iii) above using 10cm³, 8cm³, 6cm³ and 4cm³ of solution A. Top up each with distilled water to make 12cm³ of solution and complete the table below. (4 marks)

Volume of solution A (cm ³)	Volume of distilled water (cm ³)	Concentration of solution a (moles/l	Time(s)	$\frac{I}{t} (s^{-1})$
12	0			
10	2			
8	4			
6	6			
4	8			

- a) Plot a graph of $\frac{I}{t}$ (y – axis) against the concentration of solution A (3 marks)



- b) From the graph, determine the time taken for the reaction to reach completion when 1.5 moles of solution A are used (2 marks)

- c) Comment on the shape of the graph (1 mark)

2) You are provided with solid Q. Carry out the tests below and record your observations and inferences in the spaces provided.

b) Strongly heat a spatula-end full of solid Q in a dry test tube (1 mark)

Observation	Inference

c) (i) Place the remaining solid Q in a boiling tube. Add 10cm³ of distilled water. Divide the solution into five portions. (2 marks)

Observation	Inference

(ii) To the first portion, add aqueous lead (II) nitrate solution (1 mark)

Observation	Inference

c) To the second portion add dilute nitric (V) acid, followed by barium nitrate solution (2marks)

Observation	inference

d) To the third portion add a few drops of sodium hydroxide until excess observation (2marks)

Observation	Inference

e) To the fourth portion, add a few drops of aqueous ammonia until is excess. (2 marks)

Observation	Inference

f) To the fifth portion, add a few drops of hydrochloric acid (1½ marks)

Warm the contents.

Observation	Inference

3) You are provided with solid R. carry out the tests below and record your observations and inferences.

a) Place a spatula-end full of solid R in a dry boiling tube and add about 10cm³ of distilled water. Shake thoroughly and heat to boil. Divide the solution into five portions.

(1½ marks)

Observation	inference

b) (i) Test the first portion with the universal indicator solution provided. (1½ marks)

Observation	Inference

(ii) To the second portion, add a few drops of acidified potassium manganite (VII) solution

(2 marks)

Observation	Inference

- (iii) To the third portion, add a few drops of bromine water (2 marks)

Observation	Inference

- (iv) To the fourth portion, add half spatula of sodium hydrogen carbonate (1 mark)

Observation	Inference

- e) To the fifth portion in a boiling tube, add 5cm³ of ethanol followed by a few drops of concentrated sulphuric (VI) acid. Warm the mixture. (1 ½ Marks)

Observation	Inference

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

451/1

COMPUTER STUDIES

PAPER 1

THEORY

TIME: 2½ HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- 1) This paper consists of **TWO** sections **A** and **B**
- 2) Answer **ALL** the questions in section A.
- 3) Answer questions **16** and any other **THREE** questions from section B

FOR OFFICIAL USE ONLY

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

SECTION A(40 Marks)

Answer all the questions in this section

1. Explain disk formatting (2mks)

.....

.....

.....

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

(i) Data Back- ups

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.....

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(ii) Password

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.....

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

.....

.....

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

.....

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.....

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

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

.....

.....

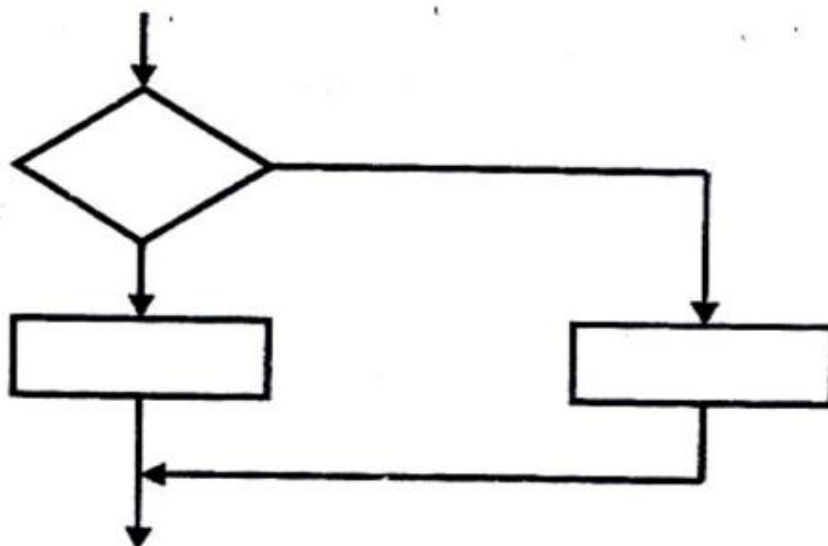
6. Give Three advantages of using GUI based operating system over a command line interface (3mks)

.....

.....

.....

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



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

(i) parallel running

.....

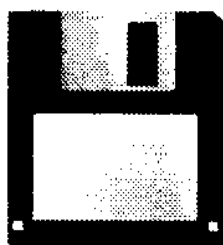
ii) Direct change over

.....

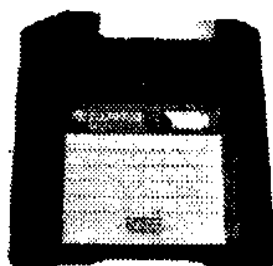
8. (a) Name **two** methods of representing **signed** numbers in computers (2 mks)

.....

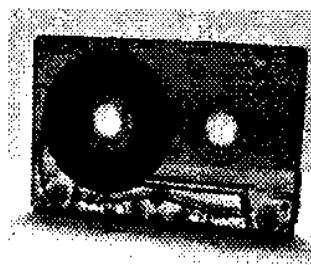
(b) Identify the **four** types of storage media shown below. (2 marks)



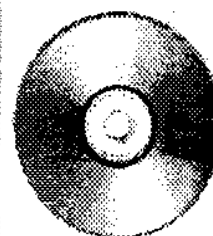
i



ii



iii



iv

c) Compare the storage device (i) and (iii) above. (1 mark)

.....

9. Differentiate between **Random** and **indexed-sequential** file organization methods (2mks)

.....

10. Name two types of relationships that can be applied in database design. (2mks)

.....

.....

11. Explain the following terms as used in word processing: (3 mks)

a) Indenting

.....

.....

b) Alignment

.....

.....

c) Word wrap

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.....

12. Outline **two** ways in which computers can be applied in hotels. (2mks)

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13. a) Explain binary coded decimal code of data representation. (1mk)

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.....

b) Define the term firewall. (1 mark)

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.....

14. Arrange the following data units in ascending order of size.

BYTE, FILE, BIT, NIBBLE (2mks)

.....

15. State two health issues that may result from prolonged use of computers. (2mks)

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.....

.....

.....

SECTION B (60 MKS)

ANSWER QUESTION 16 AND ANY OTHER THREE QUESTIONS FROM THIS SECTION

16. a)State the stage of program development in which: (4mks)

i)A flowchart would be drawn

.....

.....

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

.....

.....

iii)The user guide would be written

.....

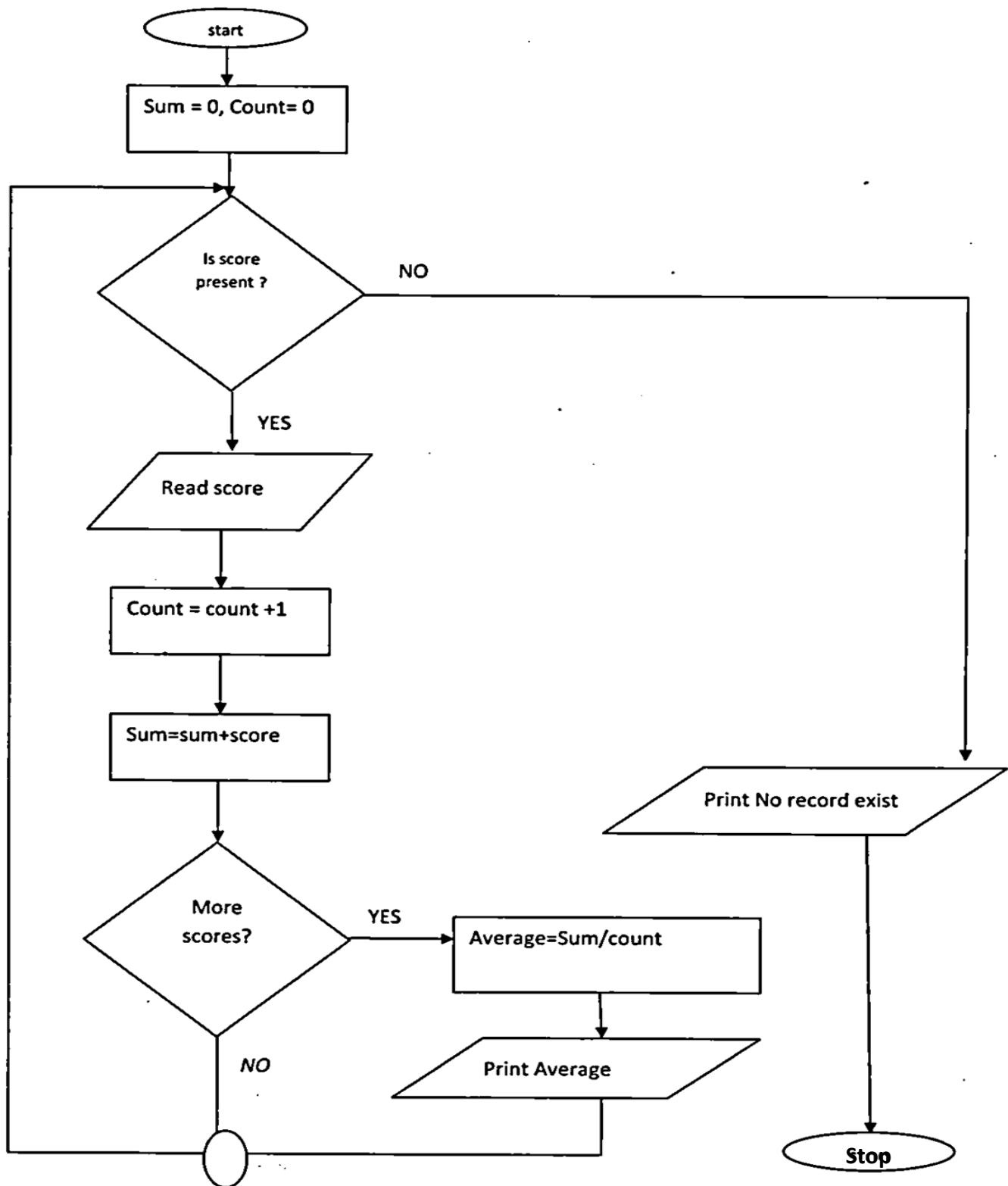
.....

iv)The user guide would be written

.....

.....

Study the flowchart below and answer the questions that follow.



(8 marks)

[illegible]

(3 marks)

.....

.....

.....

.....

17. a) Convert each of the following binary numbers to decimal equivalent given that the left most digit is a sign bit. (4 marks)
- i) 00101101₂
- ii) 11001001₂
- b) Convert the decimal number 0.42 to 6 bit binary notation. (4 marks)
- c) Using two's complement, subtract 11₁₀ from 8₁₀, leaving your answer in binary notation. (3 marks)
- d) Perform the following binary operation. (2 marks)
- 11001₂ + 1101₂ + 101₂
- e) Using place value method, convert 45₁₀ to its binary equivalent. (2 marks)
18. a) What is virtual reality? (1 mark)
- b) Explain the following interactive sensory equipment used in virtual reality. (2 marks)
- i) Head gear
- ii) Body suit
- c) What is Artificial intelligence? (1 mark)
- d) State and explain **three** components of an expert system. (6 marks)
- e) Explain method of information gathering in system development. (3 marks)
- f) List **two** application area of virtual reality. (2 marks)
19. a) The following is an extract of a select query (QBE) in Microsoft Access about hospital database

Field:	Patient_No	Last_Name	First Name	Gender	Date of Birth	Date Admitted	
Table:	patient	patient	patient	patient	patient	Ward	
Sort:							
Show:	☒	☒	☒	☒	☒	☒	☐
Criteria:							
or:							

- i) Other than select queries name **two** other queries used in databases. (2 marks)
- ii) Write an expression that will return only those patients who are 20 years' old. (3 marks)
- b) Differentiate between bold and unbold controls as used in database forms. (2 marks)
- c) Give **two** reasons why input screens are better data entry designs than entering data directly into a table. (2 marks)
- d) The figure below is an extract of a worksheet containing information on household items. Use it to answer the following questions:

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

- i) Write a formula to calculate the total cost of sugar. (1 mark)
- ii) The prices of all items increased by 10% and the value 10% is placed in cell B8. Using cell addresses with absolute referencing only, write a formula to calculate the new unit of the salt. (2 marks)
3. Write a function to display the number of cells in which the cost per unit is equal to 25. (2 marks)
- iv) Write a function to display the least total cost for all items. (1 mark)

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

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

Pentium IV 2.8GHz processor

40GB HDD

3½ FDD

256MB RAM

56 x CD ROM

17"SVGA TFT monitor

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

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

- i) FDD
 - ii) HDD
 - iii) SVGA
 - iv) TFT
- b) The computer is to be networked, name **one** extra device that should be fitted on every computer to enable this to happen. (1 mark)
- c) The computer is to receive internet facilities through the server on a dial; up system. Name and describe the function of a special device that needs to be connected to the server to complete the connection. (1 mark)
- d) i) The school has to apply star topology to link up the computer. List **two** advantages of this type of topology. (1 mark)
- ii) Name the central device used to connect the computers in this topology. (1 mark)
- e) List **two** other types of topologies that the school could have opted for. (1 mark)
- f) List **four** advantages of using a network. (2 marks)
- g) i) Data transmission via the internet is done using a mode known as packet switching. Describe this data transmission mode. (1 mark)
- ii) Name **two** other modes of transmission. (1 mark)
- h) i) The school's LAN is done using UTP cable. List **two** advantages of using this type of cable. (1 mark)
- ii) List **two** advantages of using fibre cable in networking. (1 mark)
- i) Data flows in the school's LAN in a duplex manner. Discuss **two** other types of data transmission in network giving examples. (2 marks)

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

451/2

COMPUTER STUDIES

PAPER 2

PRACTICAL

TIME: 2½ HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- 1) Indicate your name and index number at the right hand corner of each printout
- 2) Write your name and index number on the **CD/removable** storage medium provided
- 3) Write the name and version of the software used for each question attempted in the answer sheet provided
- 4) Answer all the questions
- 5) All questions carry equal marks
- 6) Passwords should not be used while saving in the **CD/removable** storage Medium
- 7) Marked printout of the answers on the sheet
- 8) Arrange your printouts and staple them together
- 9) Hand in all the printouts and the **CD/removable** storage medium used
- 10) All the work should be saved at the desktop of your computer in a folder named with our name and index number. All the work in your folder should be burned to the **CD/WR** provided

1. The following table contains details of Baharini Girls school (50MARKS)

ADM NO	Stud name	DOB	KCPE MARKS	RECEIPT NO	Fees Paid(kshs)	Fees Bal(kshs)	House No	House Name	House Capacity
1001	Alice K	7/4/1999	380	101	20000	5000	H20	simba	200
1050	Lilly O	2/3/2002	350	894	18000	7000	S08	chui	150
1202	Mary	8/10/2000	400	500	23000	2000	P30	Kifaru	180
1025	Juliet	4/4/2000	358	258	25000	0	H20	Simba	200
1200	Joan	5/1/2001	398	259	15000	10000	S08	chui	150
1278	Milly	3/4/1998	402	200	15000	10000	H20	simba	200
1201	Linet	2/7/1998	356	205	20000	5000	P30	kifaru	180
1203	Lisper	9/5/2001	403	209	25000	0	S08	chui	150

REQUIRED

- Create a database file that can be used to store the above data. Name the file Baharini school database. (2mks)
- Create Three tables, one for **student details**, **Accounts table** and **dormitory table** (11 mks)
- Create a relationship between the three tables (3mks)
- Using appropriate forms, Enter the information given into the three tables (15mks)
- Create a query for “ **all students housed in Chui**” (3mks)
- Design a “**current age query**” to display current ages of all the students (5mks)
- Create a report “**Hefty Balances**” showing students with fees balances of more than 10000kshs (3mks)
- Create a report to show all students admitted in the school (3mks)
- Print, The **three tables**, **Hefty balances report** and **all students housed in Chui report** (5mks)

2. QUESTION 2 (50MARKS)

Use a spreadsheet to manipulate data in the table below.

Adm No	Name	Stream	Comp	Art	Bus	Eng	Mat	Student mean	Rank
C001	Barasa	H	56	45	36	56	26		
C002	Wangila	K	58	57	90	54	23		
C003	Wafula	H	48	56	54	45	25		
C004	Wanjala	K	78	95	78	46	24		
C005	Kerubo	H	49	86	68	35	52		
C006	Akinyi	K	56	45	25	63	54		
C007	Odhiambo	H	75	78	45	65	56		
C008	Okunyuku	K	89	69	65	53	51		
C009	Nekesa	H	69	58	45	54	52		
C010	Simiyu	H	85	46	78	52	53		
	TOTAL								
	TOTAL	FOR H							
	TOTAL	FOR K							

a) Enter the data in all bordered worksheet and auto fit all column. Save the workbook as

mark 1

(15mks)

b) Find the total marks for each subject

(3mks)

c) Find total for each subject per stream using a function

(5mks)

d) Find mean mark for each student using a function

(5mks)

e) Rank mean student in descending order using the mean

(5mks)

- f) Create a well labeled column chart on a different sheet to show the mean mark of every student. Save the workbook as **mark 2**. (7mks)
- g) Using **mark1**, use subtotals to find the average mark for each subject per stream. Save the workbook as **mark 3** (7mks)
- h) Print **mark 1,mark 2** and the **chart** (3mks)

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

101/1

ENGLISH

PAPER 1

Functional Skills

TIME: 2 HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

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) Answer all the questions in this paper.
- 4) All your answers must be written in the spaces provided in the question paper.

For Examiner's Use Only

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

Imagine you are the secretary of the wildlife club in your school. Your club is meeting for the second time this term. Six members attended but two could not and gave apologies. The patron is invited and is attending as well. Agenda include: registration of new members, club elections and club prefects for 2021. AOB include invitation of guest speakers and end of the year party. Write minutes of the proceedings of the meeting.

[illegible]

For Marking Schemes Contact 0746-222-000 / 0742-999-000

Q2. CLOZE TEST – 10MKS

Read the following passage and fill in the blank spaces with the most suitable word.

Precis writing is a very fine exercise in reading. Most people (i)carelessly and retain only a vague idea of what they have read. You can easily test the (ii).....of your reading. Read in your usual way a chapter or even a page of a book and (iii).....having closed your book, try to put down briefly the (iv).....of what you have read. You will probably find that your memory of it is (v).....and muddled. Is this because your memory is (vi).....? No, it is because your attention was not fully (vii) on the passage while you were reading. The memory cannot (viii).....what was never given to hold; you did not remember the passage properly because you did not properly (ix).....it as you read it. Now précis writing forces you (x).....pay attention to what your read; for one cannot write a summary of any page unless he has clearly grasped its meaning.

Q3. ORAL SKILL – 30MKS)

a) Read the oral narrative and the answer the questions that follow. (9mks)

The Chameleon and The Hare

Chameleon and the hare had always misunderstandings. They always quarrelled over who between them could run faster than the other.

“Chameleon, you are the slowest animal on earth,” laughed the hare. “you cannot compete in any race, even among the slowest animals,, including the snail.”

“My friend hare, please avoid blowing your own trumpet. I am certain you cannot defeat me in a race. I will finish the race and have enough time to take a meal and a nap before you arrive.

And the great competition was set. Then the day came.

“On your marks, set, goo!”The elephant started off the race.

No sooner had the race started than the chameleon jumped on the hare’s tail. The hare ran like he had never run before. At the finishing line, he started celebrating but when he attempted to sit down and wait for the chameleon, the chameleon shouted, “woooii! Please do not sit on me! I arrived long enough to have a meal and a nap. You can never defeat me in a race! Shame on you!”

Questions

- i. State two ways in which you would capture the attention of the audience before starting the performance of this narrative. (2mk)

.....

.....

.....

- ii. If you were the narrator of the story, explain three ways in which you would know that you had captured and retained the attention of the audience. (3mks)

.....

.....

.....

.....

.....

- iii. Identify two possible cues that the audience was not listening to you keenly. (2mks)

.....

.....

.....

- iv. “Wooi!...” comment on the narrative style of this statement. (2mks)

.....

.....

.....

- b) *Identify the silent letters in the following words.* (6 marks)

- i. Practically
- ii. Ballet
- iii. Bristle
- iv. Guilt
- v. Baguette
- vi. Psychotic

c) *Pick out the word in which the underlined part is pronounced differently* (3mks)

i) Leisure, measure, pressure, pleasure

ii) Arch, March, search, monarch

iii) Trough, dough, tough cough

d) *Underline the stressed syllables in the following words.* (3 marks)

i. Palatial

ii. Rejuvenation

iii. Police

e) *You have arrived late for work and you are talking to your boss. Fill up the blanks.* (9mks)

You:.....(1mk)

Boss: Good morning Albert. Why have you come late?

You:(1mk)

Boss: It must been really a huge traffic jam. You are two hours late.

You:(1mk)

Boss: But on often come late, it's your habit.

You:.....

.....(2mks)

Boss: (Interrupting) I think you should resign and look for another job.

You:.....

.....(2mks)

Boss: You have already got many chances. How will this office run if the staff come late?

You:.....(1mk)

Boss: I will give you the last chance. Now, get up and go to your work.

You:(1mk)

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

101/2

ENGLISH

PAPER 2

(Comprehension, Literary appreciation, Grammar)

TIME: 2½ HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO STUDENTS

1. Write your Name, Admission Number and Class in the spaces provided above.
2. Answer **all** the questions in this question paper.
3. All your answers **must** be written in the spaces provided in this question paper.

For Examiner's Use Only

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

Question 1: Reading Comprehension**Read the following passage and then attempt the questions that follow**

As the biometric registration for the National Integrated Identity Management System prominently referred to as HudumaNamba is being rolled out, there is, justifiably, growing whimpers of scepticism among Kenyans. There has been a lot of speculation, rightfully so, because in this day and age of data piracy, people need assurances that the data collected under the HudumaNamba will not be used for **nefarious** activities.

These doubts have created room for the spread of misinformation and extensively contributed to the **registration apathy** witnessed since its commencement. It is therefore incumbent to clearly explain to Kenyans what, precisely, HudumaNamba is and what it is not.

According to the UN's Sustainable Development Goal (SDG 16.9), everyone should obtain legal identity by 2030. The World Bank estimates that today, one in six people are unable to prove their identity because there is a dearth of information about their background. In this era of globalisation, integrated information is critical to identification. With that in mind, a snippet of information from the Swedish replica of HudumaNamba gives hope for what the government must do to boost public confidence about the overriding unique value proposition of NIIMS.

A Swedish friend was carrying around an electronic card with a personal number and I got inquisitive. He first mentioned to me that the personal number is called *Personnummer* in Swedish. He expounded that some of the details contained in the chip include family members, spouses, employment status, employer's name, health insurance number, residential area and his exact location of his home.

With such information, the Swedish government, being a welfare state, is able to plan and provide social services easily. Unemployed adults can be mapped out for their monthly **stipend**; governments can know where more schools, hospitals, colleges and industries are needed; number of vulnerable people in need of social support and it can track down suspected criminals thus enhancing security.

Furthermore, the security of the data is strong. The first few *Personnummer* digits are accessed by anyone (they are merely the person's birthdate) while the remaining digits are only accessible by a specific legally mandated government department.

Clearly, NIIMS is quite similar, from face value and intention, to the Swedish one. What is now needed is strategic dissemination of information to reach out to a majority of Kenyans to enhance public knowledge about HudumaNamba and its attendant benefits.

For efficient public service delivery, integration of data is imperative in planning, resource allocation and reducing unnecessary red tape. For instance, it is easy for the government to know the number of employed and unemployed people in order to develop a strategy for placement and absorbing them.

Again, centralised data provides a neatly weaved base of facts and figures that can be easily harnessed to provide information about the public sector, its performances and project/services prioritization. This will further inform rational budgetary allocation and logical channeling of resources to productive but needful public sectors.

Another advantage of HudumaNamba is that it will cure the skewed issuance of Identity Cards, especially during the electioneering periods where devious politicians can sometimes disenfranchise voters by withholding of IDs. This is made possible because any Kenyan above the age of six years is entitled to HudumaNamba. When they get to 18, the ball will be on their court to either register as a voter or not thus enhancing their civic rights. The HudumaNamba comes in handy in sealing the loophole of intentional voter disenfranchisement.

Kenya has been on the receiving end of organised terror attacks. This has posed an existential threat to our peace and security. But with HudumaNamba, pieces of information about individuals can be put together. Hence, it will be quite easy to compare the biometric data given vis-a-vis suspects of organised crimes.

Ultimately, the reservations Kenyans have should be fully addressed owing to the history of our country that has been characterised by unlawful profiling. HudumaNamba will streamline service delivery and reduce the number of documents one needs to access government services.

(Daily Nation, 30th April, 2019)

QUESTIONS

a) Why has there been growing whimpers and skepticism among Kenyans on registration of HudumaNamba.? (2mks)

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

b) What in the opinion of the writer can stop HudumaNamba registration apathy? 2mks.

.....
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c) In note form, outline the benefits of the Swedish *personnummer*. 4mks

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d) What step should the government take to enhance knowledge about the HudumaNamba and its benefits? 2mks

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i. How according to the writer is the HudumaNamba going to solve voter disenfranchisement? 2mks

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e) What is the attitude of the writer towards HudumaNamba registration? 2mks

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f) Huduma Namba will streamline service delivery. Add a question tag. 1mk

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g) Comment on the tone the passage ends in. 2mks

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h) Explain the meaning of the following words and phrases as used in the passage. **3mks**

i. registration apathy.....

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ii. nefarious.....

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iii. stipend.....

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Question 2:

Read the following passage carefully and answer the questions that follow.

Mrs. Linde: No, indeed; I only feel my life unspeakably empty. No one to live for anymore. (Gets up restlessly) That is why I could not stand the life in my little **backwater** any longer. I hope it may be easier here to find something which will busy me and occupy my thoughts. If only I could have the good luck to get some regular work – office work of some kind –

Nora: But Christine, that is so frightfully tiring, and you look tired out now. You had far better go away to some watering-place.

Mrs. Linde: (walking to the window) I have no father to give me money for a journey, Nora.

Nora: (rising) Oh, don't be angry with me!

Mrs. Linde: It is you that must not be angry with me, dear. The worst of a position like mine is that it makes one so bitter. No one to work for, and yet obliged to be always on the lookout for chances. One must live, and so one becomes selfish. When you told me of the happy turn your fortunes have taken – you will hardly believe it – I was delighted not so much on your account as on my own.

Nora: How do you mean? – Oh, I understand. You mean that perhaps Torvald could get you something to do.

Mrs. Linde: Yes, that was what I was thinking of.

Nora: He must, Christine. Just leave it to me; I will broach the subject very cleverly – will think of something that will please him very much. It will make me so happy to be of some use to you.

Mrs. Linde: How kind you are, Nora, to be so anxious to help me! It is doubly kind of you, for you know so little of the burdens and troubles of life.

Nora: I --? I know so little of them?

Mrs. Linde: (smiling) My dear! small household cares and that sort of thing! You are a child, Nora.

Nora: (tosses her head and crosses the stage) You ought not to be so superior.

Mrs. Linde: No?

Nora: You are just like the others. They all think that I am incapable of anything serious.

Mrs. Linde: Come, come –

Nora: That I have gone through nothing in this world of cares.

Mrs. Linde: But my dear Nora, you have just told me all your troubles.

Nora: Pooh! – those were **trifles**. (lowering her voice) I have not told you the important thing.

QUESTIONS

1. Mrs. Linde says, “I only feel my life unspeakably empty,” Briefly explain what happens to her before this excerpt regarding this statement. 4mks

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2. Identify and explain any major theme brought out in this excerpt. 2mks

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3. Identity and illustrate any character trait brought out in this excerpt regarding. 4mks

a. Nora

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b. Helmer

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4. Identify and illustrate any two forms of style in the extract.

4mks

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5. Nora says that she has not told Mrs. Linde ‘the important thing’. Briefly explain what this is.

3 mks

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6. From this excerpt, Nora promises to get Mrs. Linde a job. From elsewhere in the text, how does this decision affect Nora?

3mks

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7. You are just like the others. (Add a question tag)

1mk

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8. “I have no father to give me money for a journey, Nora.”

2mks

What is ironical about this statement?

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9. Explain the meaning of the following words as used in the extract.

2mks

a. backwaters

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b. trifles

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.....

QUESTION 3:

Read the following poem and then answer the questions that follow.

IF

If you can keep your head when all about you
 Are losing theirs and blaming it on you,
If you can trust yourself when all men doubt you,
 But can make allowance for their doubting too;
If you can wait and not be tired of waiting,
 Or be lied about, don't deal in lies,
Or being hated don't give way to hating,
 And yet don't look too good, nor talk too wise.

If you can dream and not make dreams your master;
 If you can think and not make thoughts your aim
If you can meet with Triumph and Disaster
 And treat those two imposters just the same;
If you can bear to hear the truth you've spoken
 Twisted by knaves to make a trap for fools,
Or watch the things you gave your life to, broken,
And stoop and build 'em up with worn out tools:

If you can make one heap of all your winnings
 And risk it on one turn of pitch- and -toss,
And lose and start again at your beginnings
 And never breath a word about your loss;
If you can force your heart and nerve and sinew
 To serve your turn after they are gone,
And so hold on when there is nothing in you
Except the will which says to them: "Hold on!"

If you can talk with crowds and keep your virtue,
Or walk with kings – nor lose the common touch,
If neither foes nor loving friends can hurt you,
If all men count with you, but none too much;
If you can fill the unforgiving minute
With sixty seconds' worth of distance run
Yours is the earth and everything that's in it,
And- which is more-you'll be a Man, my son!

Rudyard Kipling

QUESTIONS

(i) Identify the persona of the poem.

2mks

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(ii) How does the persona suppose our view of life should be?

2mks

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(iii) In stanza two, the words 'Triumphant and Disaster 'are capitalized. Give a reason for the capitalization.

2mks

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(iv) With illustrations, identify two features of style used in the poem.

4mks

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(v) What is the dominant tone of the poem?

2mks

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(vi) With close reference to stanza three line 1-4, comment on the attitude of the persona towards losing.

2mks

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(vii) Explain the meaning of the following lines.

3mks

(a) And stoop and build ‘em up

.....

.....

(b) And never breath a word

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.....

(c) Walk with kings

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(viii) What 4 things according to the persona does it take for one to be a ‘Man’?

4mks

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QUESTION 4: GRAMMAR

(a) Rewrite the following sentences according to the instructions given. (3mks)

(i) If Ochieng had asked, I would have been able to assist. (Begin: Had.....)

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.....

(ii) If I were the minister for National Security, I would ensure tighter security checks at the borders. (Begin: Were I...)

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.....

(iii) The games teacher found out how fast Onesmus was when he started the race. (Begin: It was not...)

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.....

(b) Fill the blanks with the correct form of the words in brackets. 2mks

(i) Their bodies had suffered as a result of malnutrition. (Contort)

(ii) The manager made severalon the original invoice. (delete)

(c) Use the correct form of adverb from the words in brackets to complete the sentence. 2mks

(i) The excitement went, their neighbours filed a complaint. (board)

(ii) The remark that came from angered the adjudicators. (stage)

(d) Complete these sentences using the correct order of the words in the brackets. 2mks

(i) He gave his wife an expensive ring in a
box.(metal, square, jewelry, small)

(ii) The Kenyan (military, combined, powerful) forces soon overwhelmed the Somali terrorists.

(e) *Fill the blanks with the correct preposition.*

4mks

(i) All his colleagues condoled..... him..... his bereavement.

(ii) Could we meetchurch exactly nine tonight.

(f) *Explain the difference in meaning in the following pairs of sentences.*

2mks

(i) I am sorry for disturbing you.

(ii) I am sorry to disturb you.

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NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

101/3

ENGLISH

PAPER 3

(Creative composition and essays based on set texts)

TIME: 2½ HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- 1) . write your name, index number and the name of your school in the spaces provided
- 2) . Answer any 3 questions
- 3) . Question one and two are compulsory
- 4) . Choose one question in question 3
- 5) . Each essay must not exceed 450 words

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1	20	
2	20	
3	20	
TOTAL SCORE	60	

Imaginative composition

1 (a) write a composition to illustrate the proverb: **(20 MARKS)**

“As you make your bed, so you must lie on it.”

OR

(c) “Education is the surest way to achieve the much needed national integration in Kenya today. “Write a composition supporting or opposing this statement.

2. THE COMPULSORY SET TEXT: **(20 MARKS)**

The novel; Blossoms of the Savannah by Henry ole kulet.

Bad decisions can adversely affect our lives. Using Blossoms of the Savannah, write an essay in support of the statement with illustrations from the novel.

3. OPTIONAL SET TEXT **(20 marks)**

Answer any of the following questions

(a) A Silent Songs and other stories.

Action speaks louder than words. Discuss the truth of this saying using illustrations from Leonard Kibera's A Silent Song.

(b) The novel: Artist of the Floating World

Flashback as a style provides crucial information to the main plot of events in the Novel -Artist of floating world. Discuss.

(c) The play: inheritance by David Mulwa.

‘Lacuna is an epitome of evil.’ Drawing examples from David Mulwa’s inheritance, write an essay illustrating the truth of the statement

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

312/1

GEOGRAPHY

PAPER 1

TIME: 2¾ HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

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 two sections; **A** and **B**.
- (d) Answer all the questions in section A and question 6 and any other two questions in section **B**.
- (e) Answer all the questions in English.

SECTION	QUESTIONS	MAXIMUM SCORE	SCORE
A	1-5	25	
B	6	25	
		25	
		25	
	TOTAL SCORE		

SECTION A.

Answer all questions in this section.

1. (a) Name **two** forces responsible for the shape of the earth (2mks)

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(b) Mention **three** effects of the rotation of the earth (3mks)

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2. (a) State **two** types of igneous rocks (2mks)

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(b) Give **three** characteristics of sedimentary rocks (3mks)

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3. (a) Differentiate between weathering and mass wasting (2mks)

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(b) State **three** causes of landslides (3mks)

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4. a) Give three reasons why it is necessary to study the plate tectonic theory. (3 marks)

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b) Name two types of plate tectonic boundaries. (2 marks)

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5. (a) Name two features that are formed on emerged highland coast (2mks)

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(b) State three conditions necessary for the formation of a spit (3mks)

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SECTION B

Answer question 6 compulsory and only other two from the remaining questions.

6. Study the map of Nyeri 1:50,000 (sheet 120/4) provided and answer the following questions.

(a)(i) Give the **six figure** grid reference of the forest Guard Post in Nyeri forest. (2 marks)

(ii) Name the adjoining sheet to the south East of the map (1 marks)

(iii) What is the general direction of the flow of river Chanya? (1 mark)

(b) (i) Using a vertical scale of **1cm** to represents **50m**; draw a cross section along Northing 64 from Easting 68 to Easting 78. On it mark and label the following.

- All weather road
- A hill.
- River Amboni (Honi).

(8 marks)

- (ii) Calculate the vertical exaggeration of the cross section. **(2 marks)**
- (iii) Determine the intervisibility of the cross section. **(1 mark)**
- (c) Describe the distribution of natural vegetation in the area covered by the map. **(6 marks)**
- (d) Explain **two** ways relief has influenced the distribution of settlement in the area covered by the map. **(4 marks)**

7.(a) (i) Define continental drift

(ii) Give two significance of plate tectonic boundaries **(2mks)**

b (i) Apart from tension forces, explain two other process that may cause faulting **(4mks)**

(ii) With the aid of well-labelled diagrams, describe the formation of Rift valley through tension forces **(6mks)**

iii) Mention four positive effect of faulting **(4mks)**

c) You are planning to carry out a field study on the area affected by faulting

i) State two objectives for your study

ii) State three reasons why it is important to have a reconnaissance survey/pre-visit of the area **(3mks)**

iii) Give three follow-up activities you are likely to engage in **(3mks)**

8. a i) Define the term glaciation. **(2 marks)**

ii) Name three types of glaciers. **(3 marks)**

b) Describe how the following features found in upland glaciated landscape are formed.

i) U-shaped valley **(5 marks)**

ii) Pyramidal peak **(5 marks)**

c) Explain three significances of upland glaciated features to human activities. **(6 marks)**

d) Suppose you were to carry out a field study of glaciated lowland.

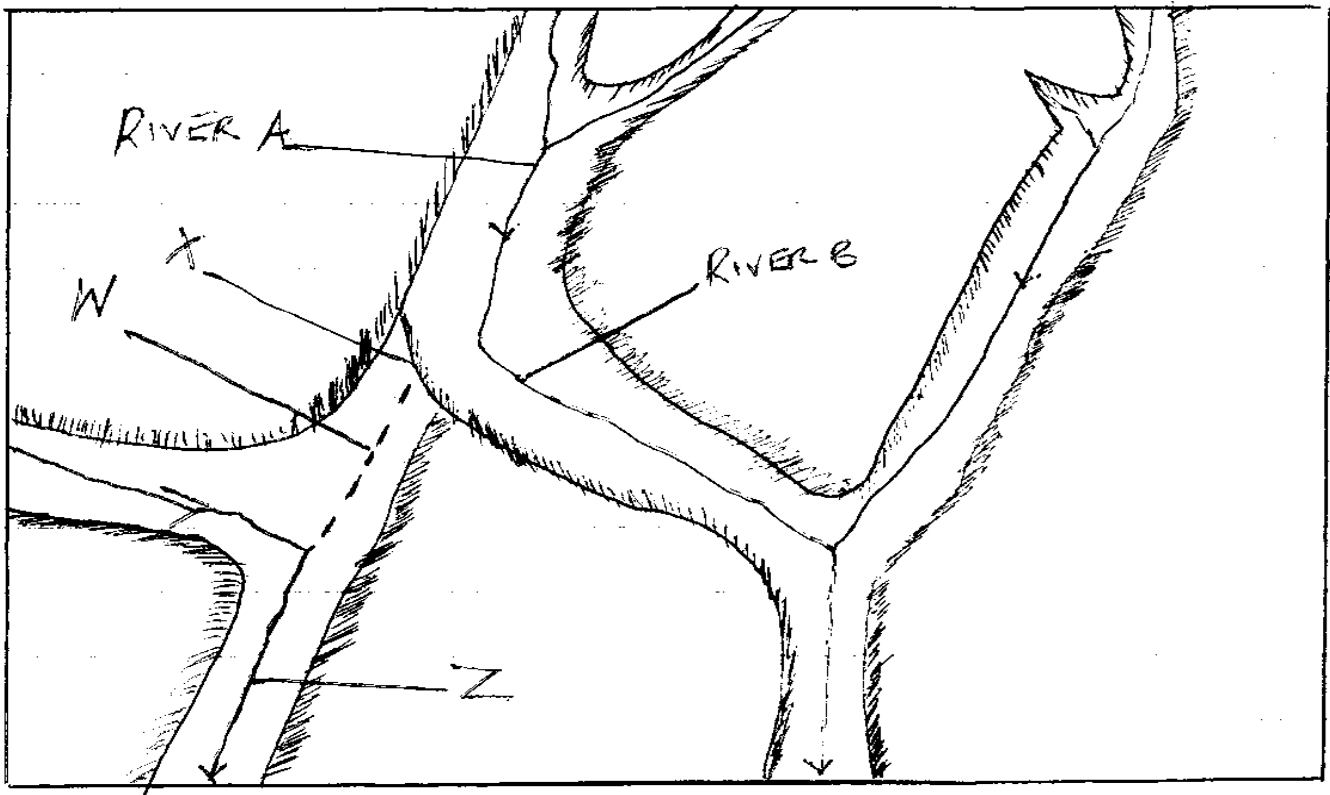
i) State two advantages of using oral interview to collect information during the field study **(2 mks)**

ii) Name two features found in glaciated lowland that you are likely to study. **(2 marks)**

9.(a) (i) Differentiate between watershed and catchment area **(2mks)**

(ii) Explain three ways by which a river transports its load **(6mks)**

(b) Study the diagram given below and answer questions that follow



- i) Name the features marked X, W and Z (3mks)
- ii) Explain the process of river capture (3mks)
- c) Give three characteristics of a river in its youthful stage (3mks)
- d) Explain four economic importance of a river to human activities (8mks)

10 a. Define aridity

- i. With an aid of a well labeled diagram describe how a rock pedestal is formed (5mks)

b,

- i. Give two process through which wind erodes the earth surface (2mks)
- ii. Give two wind depositional features found in the desert (2mks)
- iii. explain two ways through which plants causes weathering in arid and semi-arid areas 4mks
- c. i. Explain the causes of aridity and desertification (6mks)
- ii. State four measures that can control aridity and desertification (4mks)

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

312/2

GEOGRAPHY

PAPER 2

TIME: 2¾ HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES.

- (a) *White 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 two sections; A and B.*
- (d) *Answer all the questions in section A and question 6 and any other two questions in section B.*
- (e) *Answer all the questions in English.*

SECTION	QUESTIONS	MAXIMUM SCORE	SCORE
A	1-5	25	
B	6	25	
		25	
		25	
	TOTAL SCORE		

SECTION A.

Answer all the questions.

1. a) Give any two ways in which minerals occur. **(2 marks)**

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b) State three problems facing soda ash exploitation in Magadi. **(3 marks)**

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2. a) Define the term agroforestry. **(2 marks)**

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b) State three reasons why agroforestry is being encouraged in Kenya. **(3 marks)**

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3.a) Apart from land pollution name **two** other types of environmental hazards **(2mks)**

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b) State **three ways through which land pollution can be controlled. (3mks)**

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4.(a) Apart from a telephone, state **two other forms of communication (2mks)**

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(b) Mention three problems facing railway transport in Africa (3mks)

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5. a) Apart from the common market for Eastern and southern Africa (COMESA) identify two other trading blocks in Africa. (2mks)

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b) Give three benefits of COMESA to member states. (3mks)

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SECTION B.

Answer question 6 compulsory and only other two questions from the remaining questions.

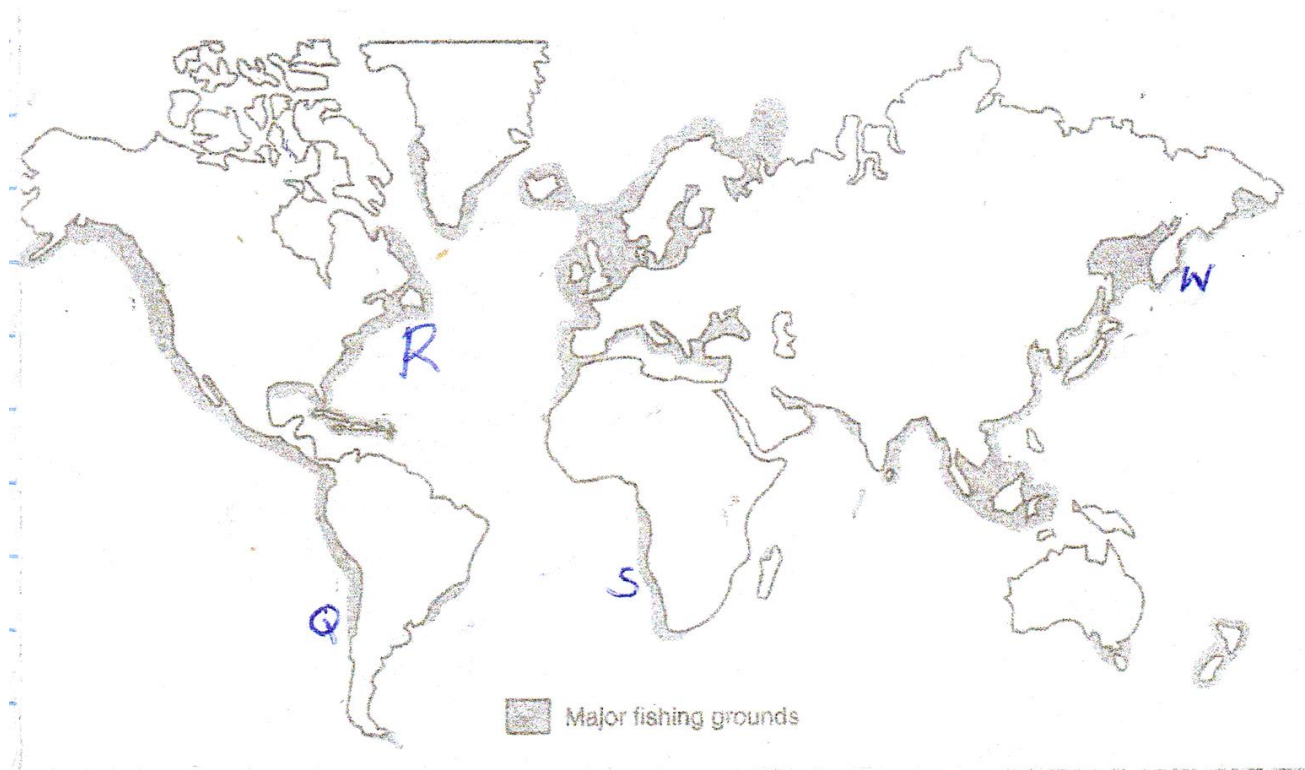
6. Study the photograph below and answer questions that follow



- a) (i) Identify the type of photograph shown above (1mk)
- (ii) Draw a rectangle measuring 15cm by 10cm to represent the area covered by the photograph
- (i) Identify the type of photograph shown above (1mk)
- (ii) Draw a rectangle measuring 15cm by 10cm to represent the area covered by the photograph (1mk)
- (iii) On the rectangle, sketch and label four main features (4mks)
- a) (i) Which type of farming is shown on the photograph (1mk)
- (ii) Give three physical conditions favouring tea farming in Kenya (3mks)
- (iii) Describe the stages of tea processing (5mks)
- b) (i) State two areas in Kenya where maize is grown on large – scale (2mks)
- (ii) Explain four problems facing maize farmers in Kenya (8mks)

- 7.a) i)** Identify two types of open cast mining . (2mks)
- ii)** Describe the stages involved in deep- shaft mining (6mks)
- b)** State three negative effects of mining on the environment (3mks)
- c)** Give two reasons why Kenya import her oil in crude form (2mks)
- d)** Explain four ways in which mining contribute to the to the economy of Kenya (8mks)
- e)** Explain how the following factors influence exploitations of minerals (2mks)
- i))** Technology
- ii)** Quality of the one
- 8. a)** Define the term global warming. (2 marks)
- b)** Distinguish between environmental conservation and environment management. (2 marks)
- c)** State four reasons why Kenya should conserve her environment. (4 marks)
- d)** Explain four effects of land pollution to the environment. (8 marks)
- e)** Briefly explain the main reasons for the following environmental acts in the law of Kenya.
- i)** The factories act (2 marks)
- ii)** The water act (2 marks)
- f)** Your class intends to carry out a field study on environmental water pollution in the locality.
- i)** State one possible objective for the study. (1 mark)
- ii)** Give two reasons why you need to conduct a reconnaissance. (2 marks)
- iii)** Suggest any two ways to control the environmental problem under study. (2 marks)
- 9.**
- a) i)** Differentiate between population and demography (2mks)
- ii)** State two types of migration (2mks)
- iii)** State three causes of rural- rural migration (3mks)
- b)** Explain how the following factors led to the population increase in Kenya
- i)** Migration (2mks)
- ii)** Improved medical care (2mks)
- iii)** Cultural beliefs and traditions (2mks)
- c)** Explain three problems which result from high population growth rate in Kenya (6mks)
- d)** Explain three ways in which the population of Kenya differs from that of Sweden (6mks)

10. Study the world map shown below and answer questions that follow.



- (a) (i) Identify the fishing grounds marked Q, S and W (3mks)
- (a) (i) Identify the fishing grounds marked Q, S and W (3mks)
- (ii) Explain three physical conditions favouring fishing activities in the area marked R (6mks)
- (b) (i) Give two methods of fish preservation (2mks)
- (ii) Describe trawling fishing methods (5mks)
- (c) (i) Give three reasons why the government of Kenya encourages fish farming (3mks)
- (ii) Explain three human factors that make Japan to be a leading fishing nation in the world (6mks)

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

102/1

KISWAHILI

PAPER 1

INSHA

TIME: 1¾ HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

MAAGIZO

1. Andika insha **mbili**. Insha ya kwanza ni ya **lazima**.
2. Kisha chagua insha moja nyingine kutoka kwa hizo tatu zilizobakia.
3. Kila insha isipungue **maneno 400**
4. Kila insha ina **alama 20**
5. Kila insha **lazima** iandikwe kwa lugha ya Kiswahili.

KWA MATUMIZI YA MTAHINI PEKEE

SWALI	1	2	3	4	JUMLA

MASWALI

1. Umepata tangazo la nafasi ya kazi ya uhariri katika shirika la uchapishaji vitabu vya fasihi andishi kwenye gazeti la ***Taifa Leo***.

Andika barua ya kuomba nafasi hii na uiambatanishe na wasifu kazi wako kwa maelezo zaidi.

2. *Jukumu la kuzuia msambao wa **virusi vya korona** ni la mtu binafsi.* Jadili.

3. Andika insha itakyothibitisha ukweli wa methali

Mchelea mwana kulia, hulia mwenyewe.

4. Anza kwa.

Mwanangu, dunia imebadilika pakubwa lakini chungu mabadiliko hayo yasikuzuzue....

NAIROBI CLUSTER MOCK**JOINT EXAMINATION EXAM**

102/2

KISWAHILI**PAPER 2****TIME: 2½ HOURS**

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

102/2

KISWAHILI**KARATASI YA PILI****MUDA SAA 2 ½***Jibu maswali yote, majibu yako yaandikwe katika nafasi zilizoachwa katika kijitabu hiki cha maswali.*

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

Soma makala yafuatayo kisha ujibu maswali.**1. UFAHAMU (Alama 15)**

Huku ulimwengu unapoinjia ya katika teknolojia ya tarakilishi na sera ya utandaridhi, ukweli wa mambo ni kuwa akina mama wamezinduka. Suala la usawa wa kijinsia limeanza kushamiri kote duniani na ole wake mwanamume yeyote ambaye hajawa tayari kutembea na majira. Lakini hebu tuchunguze jambo hili kwa makini zaidi.

Usawa wa jinsia ni nini? Usawa wa kijinsia ni usawa wa binadamu wote; wawe wake au waume. Usawa huu unapaswa kudhihirika katika kugawa nafasi za kazi, utoaji wa elimu, nafasi za uongozi na Nyanja zinginezo zozote za maisha.

Ubaguzi wa aina yoyote ile hasa dhidi ya mwanamke ni jambo linalokabiliwa na vita vikali sana ulimwenguni kote.

Dahari na dahari, hasa katika jamii za kiasia kumekuwa na imani isiyotingizika kuwa mwanamke ni kiumbe duni akilinganishwa na mwanaume. Kwa hivyo mwanamke amekuwa akifanyiwa kila aina ya dhuluma ikiwepo kupigwa, kutukanwa, kudharauliwa, kunyimwa haki zake, kunyimwa heshima na mambo kama hayo, lakini je, ni kweli kuwa mwanamke ni kiumbe duni asiyefaa kutendewa haki?

Tukichunguza jamii kwa makini tunaweza kuona mara moja kuwa hivyo ni imani potovu isiyo na mashiko yoyote. Ukimulika familia yoyote ile iliyopiga hatua kimaendeleo, uwezekano mkubwa ni kuwa mume na mke wa familia inayohusika wana ushirikiano mkubwa. Mume anamthamini mke wake na hadiriki kufanya maamuzi muhimu yanayoweza kuathiri maendeleo ya familia bila kumhusisha mke. Mume kama huyo huketi na mkewe, wakishauriana na kufikia uamuzi bora.

Tukitoka katika muktadha wa kifamilia na kumulika ulimwengu wa kazi iwe ni katika afisi za serikali au kwenye makampuni binafsi, ukwerli ni kwamba kiongozi yeyote yule aliyefaulu katika usimamizi wake mara nyingi huwa na mke nyumbani ambaye wanashauriana kila uchao kuhusu kazi anayofanya hata kama mke hafanyi kazi mahali pale. Hisia na mawaidha anayotoa mke kwa mume wake ni tunu na huenda asiypate kwingineko kokote hata katika vitabu vya kupigiwa mifano. Hii ni mojawapo ya sababu ambayo huwafanya viongozi wa nchi mbalimbali kupenda sana kuwatambulisha wake na familia zao waziwazi kwa vile wanajua kuwa jamii inathamini sana msingi wa jamii. Kiongozi ambaye hana mke au familia au yule ambaye hana mke wake hatambuliki, hutiwa mashaka na jamii hata kama ni kiongozi aliye na azma ya kushikilia kazi ngumu ya kuongoza umma. Tukirudi nyuma kidogo na kupiga darubini mataifa ya mbali, tunaweza kuwaona wanawake mashuhuri walio uongozini ambao hadi waleo unapigiwa mfano. Wanawake mashuhuri waliotoa uongozini ambao hadi wa leo unapigiwa mfano. Wanawake hao walisimamia mojawapo ya mataifa yenye uwezo na ushawishi mkubwa Zaidi duniani. Ingawa wengi wao sasa wameng'atuka, uongozi wao bado unakumbukwa hata baada ya miaka mingi ya wao kuamua kupumzika, mfano ni kama :Bi Bandranaike wa Sri Lanka, Golda Meir wa Israel na wengine wengi katika mataifa kama Indonesia, Ufilipino, Bangladesh, Pakistani na kwingineko. Katika kufikia tamati, tunapozungumza kuhusu jinsia, hatuna budi kugusia

kitafsili masuala nyeti. Kwanza, imani ya kushikilia kikiki tamaduni zisizofaa, ni jambo linalofaa kuchunguzwa kwa makini. Kwa mfano, kuna badhi ya jamii ambazo humlazimu mke kurithiwa baada ya kifo cha mumewe. Vile vile baadhi ya jamiii za kiafrika zinashikilia kuwa mwanamke hana haki ya kurithi. Kutokana na Imani hii, wanawake wengi huishi maisha ya taabu baada ya kutengana na waume zao kwa vile hawana haki ya kurithi chochote kutoka kwa wazazi wao hata kama wazazi hao wana mali nyingi kupindukia. Mali ya wazazi ni haki ya watoto wa kiume wala si watoto wa kike! Hili ni jambo la kusikitisha mno.

Isitoshe, wanawake hukumbukwa na kizingiti kingine wanapojaribu kumiliki mali ya waumezao baada ya waume hao kukata kamba. Sababu ni kuwa, baada ya hao wenda zao kuwekwa kaburini, vita vya umiliki wa mali huanza mara moja na mwishowe yule mke maskini hujikuta hana hata mahali pa kulala sembuse mali waliyochuma na mali yake yote kunyakuliwa na aila ya mumewe. Jambo hili linaonyesha namna tulivyoachwa nyuma na uhalisia wa mambo. Ni lazima jamii izuinduke na itoke kwenye kiza hiki chenye maki nzito.

MASWALI

a. Ina maana gani kusema kuwa wanaume hawana budi “kutembea na majira” (alama 2)

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b. Kabla ya uzinduzi huu kuhusu usawa wa jinsia, wanawake wamekuwa wakitendewa dhuluma za kila aina. Taja tatu. (alama 3)

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c. Je, ni kwa nini viongozi wengi hupenda kujitambulisha na familia zao? (alama 2)

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d. Je, unaamini kuwa hisi na mawaidha anayatoa mke wa mume wake ni tunu na huenda yasipatikane kwingineko? Fafanua (alama 2)

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e. Je, licha ya kunyimwa haki yake ya kujiamulia, ni matatizi yapi mengine yanayoweza kumkumba mke anayelazimishwa kurithiwa? (alama 3)

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f. Eleza maana ya maneno yafuatayo jinsi yalivyotumiwa katika hali muktadha. (alama 3)

Kushamiri

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Hulka

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Azma

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2. MUHTASARI

Soma kifungu hiki kisha ujibu maswali yafuatayo.

Idadi kubwa ya wanafunzi huingiwa na wasiwasi wakaribiapo kufanya mtihani kwa sababu mbalimbali, kubwa likiwa ni hofu kwa jinsi ambavyo watafanya katika mtihani huo. Asilani mambo hayafai kuwa hivyo. Wataalamu wa masuala ya saikolojia na wale wa elimu wanashauri kuwa mtahiniwa anafaa kupata muda mwingi wa mapumziko wakati anapokaribia kufanya mtihani ili aweze kuituliza akili asije akapatwa na mzongo wa akili.

Moja katika mashauri ni kuwa mtahiniwa anafaa kupata usingizi wa kutosha wakati akijiandaa na pia wakati akifanya mtihani. Hii ni kwa sababu mtihani wa mwisho si tofauti na mitihani mingine ambayo mtahiniwa amekuwa akifanya, pamoja na kuwa ni maswali ya jumla tu kutoka viwango vyote vya masomo. Hivyo basi, mtihani unapokaribia, mtahiniwa anafaa kudurusu na kufanya majaribio mbalimbali ya mtihani pamoja na kujikumbusha yale aliyofunzwa na mwalimu wake. Wale asimdunishe au kumdharau mwalimu hata kama stadi zake za kufundisha kazikumsisimua – alikupa kito cha thamani kitakachokufaa kama silaha wakati wa mtihani.

Mtihani unapokaribia, mtahiniwa anafaa kuwa amekwisha kutambua udhaifu wake na kutia bidii kuudhibiti kupitia udurusu, mijadala na mashauriano. Kumbuka kuwa bidii haiui ila hulipa. Hivyo basi, kila unaposhirikisha bidii na ujasiri wa wako na kuimarisha uelewe wako wa somo, na hatimaye ukaboresha matokeo katika somo hilo. Vilevile, kujadili au kufafanua mada unayoielewa vyema kwa m wenzio aiyeielewa kutakuwezesha kuielewa hata Zaidi na hivyo kuimarisha uwezo wako wa kuzoa alama nyingi katika mtihani endapo swali litatoka katika mada hiyo.

Pamoja na hayo, mtahiniwa anafaa kujihadhari na majuto ya kufanya kile ambacho hakupaswa kufanya. Anaweza kuhakikisha hili kwa kuyapitia maswali kwa makini Zaidi, na kuyatafakaria, kuyapangia na kuaandikia majibu sawasawa kasha kuyasoma tena majibu yake ili kuwa na uhakika kwamba hajapotoka.

Ikiwezekana (kwa sababu ya tofauti za kimapato na uwezo wa wazazi au walezi) mtahiniwa anafaa kula visuri kabla kuenda kufanya mtihani. Vilevile, anapaswa kufika katika chumba cha mtihani kwa wakati unaofaa – mapema kabla ya muda wa kuanza kwa mtihani – na ahakikishe amebeba kila kifaa atakachokihitaji katika mtihani huo.

Ikiwa utashindwa kujibu swali Fulani, usipotezee muda mwingi. Baadala yake, enelea na swali linalofuatia kasha ulirejeele swali lile lililokutatiza baadaye ukishamaliza maswali yale mengine. Usipoteze muda kutafuta jibu ambalo huna kwa wakati huo. Juu ya yote, usidhubutu kuifanya hila katika mtihani kwa kuwa kitendo kama hicho kitasababisha matokeo yako kufutiliwa mbali, nayo bidii yako ya miaka mine itakuwa imeishia gizani, ukasalia kujuta.

Maswali.

a) Tumia maneno 60 kueleza ujumbe ulio katika aya mbili za mwanzo.

(alama 6)

Nakala chafu

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Jibu

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b) Mwandishi anatoa ushauri gani kwa mtahiniwa katika aya ya tatu hadi ya mwisho? Eleza kwa maneno 100

(alama 9)

Nakala chafu

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SEHEMU C - MATUMIZI YA LUGHA.

(a) Eleza ufauti ya kimsingi iliyopo kati ya irabu na konsonanti. **(ala2)**

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(b) Taja sifa tatu bainifu za irabu /O/ **(ala 3)**

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(c) Andika maneno yenye muundo ufuatao **(ala2)**

i) KKKIKI

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ii) KKKIKI

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(d) Andika tungo ya neno moja yenye viambishi vifuatavyo.

i) Nafsi

ii) Njeo

iii) Kirejeshi

iv) Shamirisho

v) Mzizi

vi) Kauli ya kufanyiza

vii) Kiishio

(ala3)

(e) Andika vitenzi vifuatavyo katika hali ya kutendana.

(ala2)

i) –la

ii) – nywa

(f) Andika sentensi ifuayo kulingana na maagizo.

(ala2)

Maagizo

Mhalifu alisamehewa kwa sababu alinyenyekea.

Geuza maneno yaliyopigiwa mstari kuwa nomino.

(g) Andika kwa wingi

Kelele ya amchaye Mungu ni baraka.

(ala1)

(h) Tambua aina ya vishazi katika sentensi hii

Utazawadiwa ukicheza vizuri.

(ala2)

(i) Tofautisha matumizi yapo katika sentensi hizi.

(ala2)

1. Alipomwona alimhoji.

2. Amwonapo humhoji

(j) Bainisha aina za virai vilivyopigiwa mistari. (ala2)

Ubaguzi wa kijinsia umekashifiwa mno na viongozi wenye msimamo thabiti mno.

(k) Unda nomino kutokana na vitenzi (ala2)

1. Jaribu

2. Chuma

(l) Eleza matumizi ya 'na' katika sentensi

Wageni na wenyeji walikimbiliana

(ala 2)

(m) Andika katika msembo wa taarifa. (ala3)

“Nitakuarifu nikimwona” Maria alisema

(n) Eleza maana mbili za sentensi (ala2)

Tuliitwa na Juma

(o) Tumia “0” rejeshi katika sentensi ifuatayo

Mtu ambaye hutupa tope hujichafua mwenyewe.

(ala 2)

(p) Tumia visawe vya maneno yaliyopigiwa mistari kuandika tena sentensi ifuatayo.

Ukuta umemwuumiza mvulana alipokuwa akiuparaga.

(ala3)

(q) Changanua sentensi kwa njia ya jedwali.

Ouma alianguka mtihani ila Kamau alifuzu vizuri.

(ala4)

ISIMU JAMII

Mtu 1: Wewe njoo hapa (kwa sauti kubwa) fanya upesi.

Mtu II : (anakimbia mbio) Naja Sir

Mtu I : (anamtazama) unajifanya mwelevu?

Mtu II : Hapana Sir.....eh.....afande

Mtu I : Jina

Mtu II : Samwel Kioko

Mtu I : (Huku akiandika) Lete kitambulisho

Mtu II : Sina hapa sir

Mtu I : Huna kitambulisho? Utafanyiwa booking vipi?

Mtu II : Naomba

Mtu I : Naomba ! naomba! Unaomba nini? Wazururaji kama nyinyi tunawajua. Mnajifanya hamjui kuna curfew. Mnajiponza, “zerikali saidia”. Usiniharibie muda wangu (akiashiria) ingia ndani!

Utakuwa mgeni wetu leo. Tutakukarimu chakula cha chumba.(anamsukuma ndani)

a) Bainisha sajili ya makala haya.

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(ala2)

b) Eleza sifa nne za sajili kwa kurejelea makala haya.

(ala 8)

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NAIROBI CLUSTER MOCK**JOINT EXAMINATION EXAM**

102/3

KISWAHILI**PAPER 3****FASIHI****TIME: 2½ HOURS**

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

*Kenya Certificate of Secondary Education.***MAAGIZO KWA WATAHINIWA**

- a) Andika jina lako, shule, nambari ya mihani kisha utie sahihi katika nafasi ulizoachiwa hapo juu
- b) Jibu maswali manne pekee
- c) Swali la kwanza ni la lazima
- d) Maswali hayo mengine matatu yachaguliwe kutoka sehemu nne zilizobaki yaani Riwaya, Tamthilia, Hadithi fupi na Ushairi
- e) Usijibu maswali mawili kutoka sehemu moja.

KWA MATUMIZI YA MTAHINI PEKEE

SWALI	UPEO	ALAMA
1.	20	
	20	
	20	
	20	
	JUMLA	

1. FASIHI SIMULIZI: SWALI LA LAZIMA

- a) *Miviga ni nini?* **Al.2**
- b) *Eleza sifa tano za miviga.* **Al.5**
- c) *Fafanua hasara tatu za miviga.* **Al.3**
- d) *Eleza changamoto tano ambazo mtafiti hukabiliana nazo anapokusanya data ya fasihi simulizi.* **Al.5**
- e) *Eleza majukumu ya wimbo katika hadithi.* **Al.5**

TAMTHILIA: BEMBEA YA MAISHA

2. Jadili matumizi ya mbinu zifuatazo katika tamthilia. **(alama20)**

Tashbihi

Istiara

3. Eleza nafasi ya mbinu ya kuchanganya ndimi katika ujenzi wa tamthilia ya **bembea ya maisha** **(alama20)**

4. RIWAYA: CHOZI LA HERI

“Alikumbuka jinsi rafiki yake.....alivyofishwa kwa njia hii. Akili yake ilimtambia kisa chenyewe kana kwamba inataka kumwonya (uk.120)

- a) Fafanua muktadha wa dondoo hili. **Al.4**
- b) Bainisha tamathali mbili za usemi zinazojitokeza katika dondoo hili. **Al.4**
- c) Tathmini nafasi ya anayelengwa na kauli hii katika kuijenga riwaya hii. **Al.12**

5. a) Fafanua namna mbinu ya majazi ilivyotumiwa katika riwaya. **Al.10**

- b) Jadili maudhui ya nafasi ya vijana katika jamii ukirejelea riwaya ya Choji la Heri.

Al.10

HADITHI FUPI: MAPAMBAZUKO YA MACHWEO

6. Umaskini ni donda sugu katika hadithi kifo cha suluhu, huku ukitoa hoja ishirini jadili

alama 20

7. Eleza jinsi ubabedume umejitokeza katika hadithi ya nipe nafasi

alama 20

8. USHAIRI

Soma shairi lifuatalo kasha ujibu maswali

Alikwamba wako mama, kajifanya hupliiki,

Kakuasa kila jema, ukawa ng'oo!Hutaki

Sasa yamekusakama, popote hapashikiki,

Uliyataka mwenyewe!

Babayo lipokuonya, ukamwona ana chuki,
Mambo ukaboronganya, kujifanya hushindiki,
Sasa yamekunganya, kwa yeyote hupendeki,
Uliyataka mwenyewe!

Mazuri uliodhania, yamekuletea dhiki,
Mishikeli miania, kwako ona haitoki
Mwanzo ungekumbukia, ngekuwa huaziriki,
Uliyataka mwenyewe!

Dunia nayo h adaa, kwa fukara na maliki,
Ulimwenguni shujaa, hilo kama hukumbuki,
Ya nini kuyashangaa? Elewa hayafutiki,
Uliyataka mwenyewe!

Mwenyewe umelichimba, la kukuzika handaki,
Ulijidhania samba, hutishiki na fataki,
Manchangu yamekukumba, hata neno hutamki,
Uliyataka mwenyewe!

Kwa mno ulijivuna, kwa mambo ukadiriki,
Na tena ukajiona, kwamba we mstahiki,
Ndugu umepatikana, mikanganyo huepuki,
Uliyataka mwenyewe!

MASWALI

- a) Eleza dhamira ya shairi hili. **AI.2**
- b) Tambua njia mbili anazotumia mtunzi wa shairi hili kusesitiza ujumbe wake . **AI.2**
- c) Taja na utoe mifano ya aina zozote mbili za tamathali za usemi zilizotumika katika shairi. **AI.4**
- d) Andika ubeti wa tatu katika lugha tutumbi. **AI.4**
- Bainisha toni ya shairi hili. **AI.2**
- e) Kwa kutoa mfano mmoja mmoja, onyesha aina mbili za idhini ya kishairi katika shairi hili. **AI.4**
- f) Eleza maana ya maneno haya kama yalivyotumiwa katika shairi. **AI.2**
- Mstahiki
- i) Hupuliki

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

121/1

MATHEMATICS

PAPER 1

TIME: 2½ HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

INSTRUCTION

- Write your name and index number in the spaces provided above.
- Sign and write the date of the examination in the spaces provided above.
- This paper consist of **TWO** sections: **section I** and **Section II**.
- Answer **ALL** the questions in **Section I** and only **five** questions from **section II**.
- Show all the steps in your calculations, giving your answers at each stage in the stage in the spaces below each question.
- Marks may be given for correct working even if the answer is wrong.
- Non-programmable** silent electronic calculators **and** KNEC mathematical tables may be used, except where stated otherwise.

Section I

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

Section II

17	18	19	20	21	22	23	24	Total

Grand
Total

SECTION 1: 50 MARKS.Answer All the Questions

1. Evaluate:

(3marks)

$$\frac{3}{5} - 1\frac{2}{5} \div 1\frac{3}{4} \text{ of } 2\frac{1}{3}$$

$$\frac{12}{17} \text{ of } (1\frac{3}{7} - \frac{5}{8} \times \frac{2}{3})$$

2. A Kenyan businessman bought goods from Japan worthy 2,950,000 Japanese yen. On arrival in Kenya, custom duty of 20% was charged on the value of the goods. If the exchange rate were as follows:-

1 US dollar = 118 Japanese Yen

1US dollar = 76 Kenyan shillings Calculate the duty paid in Kenyan shillings. (3Mks)

3. A rally car travelled for 2 hours 40 minutes at an average speed of 120km/h. the car consumes an average of 1 litre of fuel for every 4 kilometers. A litre of fuel costs Ksh.59. Calculate the amount of money spent on fuel. (3mks)

4. The curved surface area of a cylindrical container is 1980cm^2 . If the radius of the container is 21cm, calculate to one decimal place the capacity of the container in litres **(4 mks)**

(Take $\pi = \frac{22}{7}$).

5. Given that $\sin\theta = \frac{5}{13}$, find $\tan(90-\theta)$ in its simplest form. **(2mks)**

6. The equation of line L_1 is $2x - 5y - 10 = 0$. Find the equation of line L_2 perpendicular to L_1 and passing through (5, -2) express your equation in the form $y=mx + c$ **(3mks)**

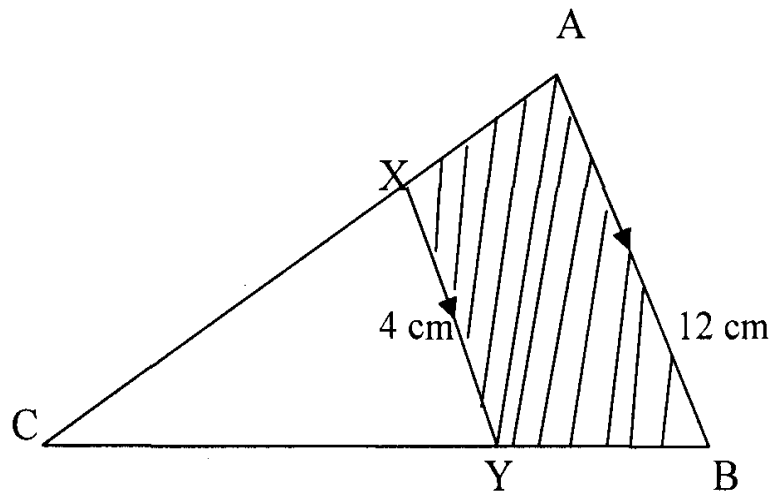
7. One interior angle of a polygon is equal to 80° and each of the other interior angles are 128° .
Find the number of sides of the polygon. (3 mks)

- 8 . The length of a rectangle is $(3x + 1)$ cm, its width is 3 cm shorter than its length. Given that the area of the rectangle is 28cm^2 , find its length, (3 marks)

9. Simplify the expression. (3mks)

$$\frac{4x^2 - y^2}{3y^2 - 7xy + 2x^2}$$

10. In the figure below, lines AB and XY are parallel.



If the area of the shaded region is 36 cm^2 , find the area of triangle CXY.

(3 marks)

11. Using a pair of compasses and a ruler only construct a triangle ABC and such that $AB = 4 \text{ cm}$, $BC = 6 \text{ cm}$ and $\angle ABC = 135^\circ$.

(2mks)

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

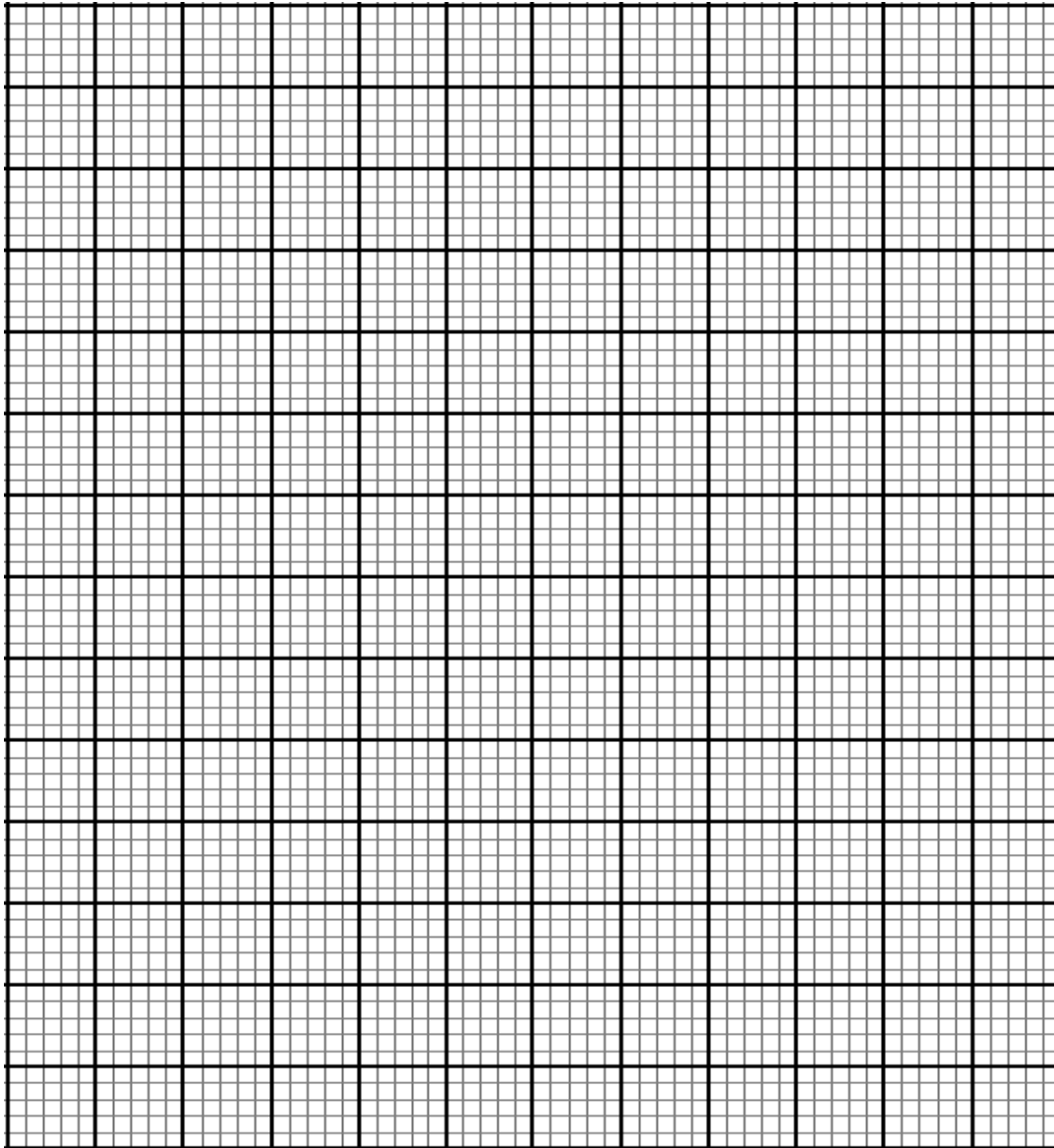
Calculate the area of triangle ABC.

(2 mks)

12. The external length width and height of an open rectangular container are 41cm, 21cm and 15.5cm respectively. The thickness of the materials making the container is 5mm. If the container has 8 litres of water. Calculate the internal height above the water level. **(3mks)**

13. A triangle P with vertices $x(2,4)$, $Y(6,2)$ and $z(4,8)$ is mapped onto triangle P^1 with vertices $X^1(10,0)$, $Y^1(8, -4)$ and $Z^1(14, -2)$ by a rotation.

a) On the grid provided, draw triangle P and its image (2mks)

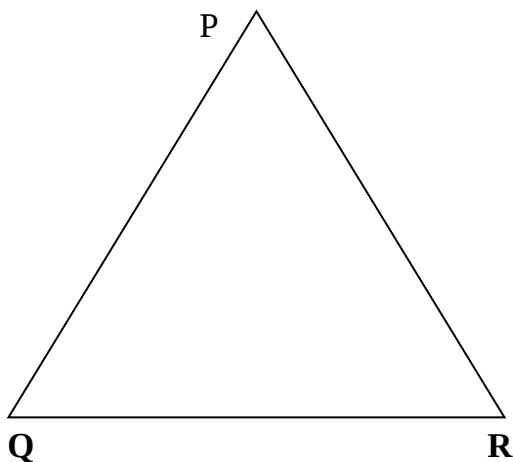


b) Determine the centre and angle of rotation that maps P onto P^1 (2mks)

14. Solve the following inequalities and state the integral values (3mks)

$$2x - 2 \leq 3x + 1 < x + 11$$

15. In the triangle PQR below, $PQ = 12\text{cm}$, $\angle PQR = 80^\circ$ and $\angle PRQ = 30^\circ$



Calculate, to 4 s.f, the area of the triangle PQR (3mks)

16. A two digit number is such that the sum of digits is 13. When the digits are interchanged, the original number is increased by 9. Find the original number. (3mks)

SECTION II (50 MARKS)

Answer only five questions in this section

17. A straight line L_1 has a gradient $-\frac{1}{2}$ and passes through point P (-1, 3). Another line L_2 passes through the points Q (1, -3) and R (3, 5). Find.

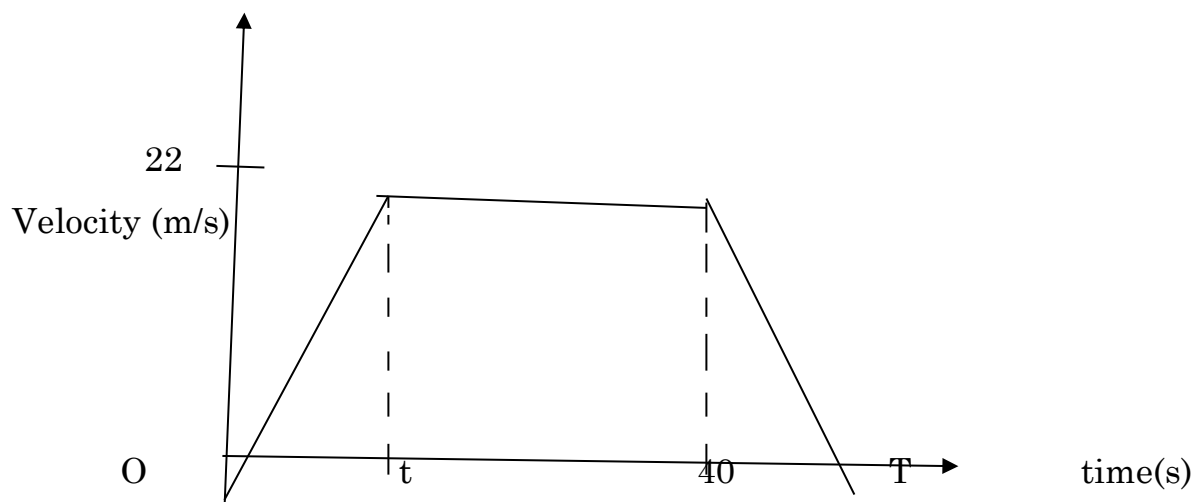
(a) The equation of L_1 . (2mks)

(b) The equation of L_2 in the form $ax+by+c=0$ (2mks)

(c) The equation of a line passing through a point S (0, 1.5) and is perpendicular to L_2 . (3mks)

d) The point of intersection of a line passing through S and L_2 3mks

18. The figure below shows a velocity – time graph of a car journey.



The car starts from rest and accelerates at 2.75m/s^2 for t seconds until its speed is 22m/s . It then travels at this velocity until 40 seconds after starting. Its breaks bring it uniformly to rest. The total journey is 847m long and takes T seconds.

Calculate the

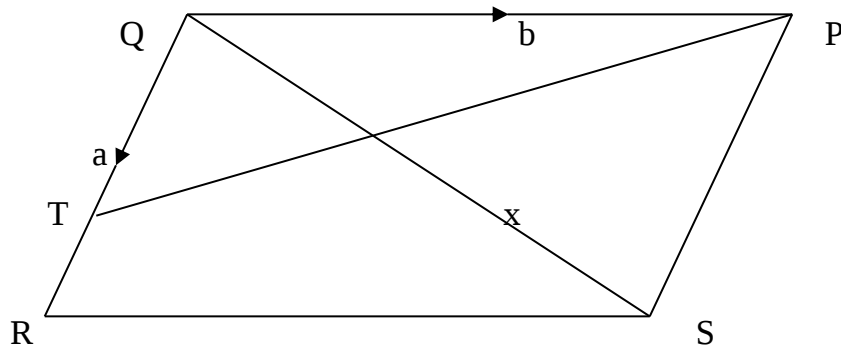
i) Value of t (3mks)

ii) Distance travelled during the first t seconds (2mks)

iii) Value of T (3mks)

iv) Final deceleration (2mks)

19. In the figure below, $QT = a$ and $QP = b$.

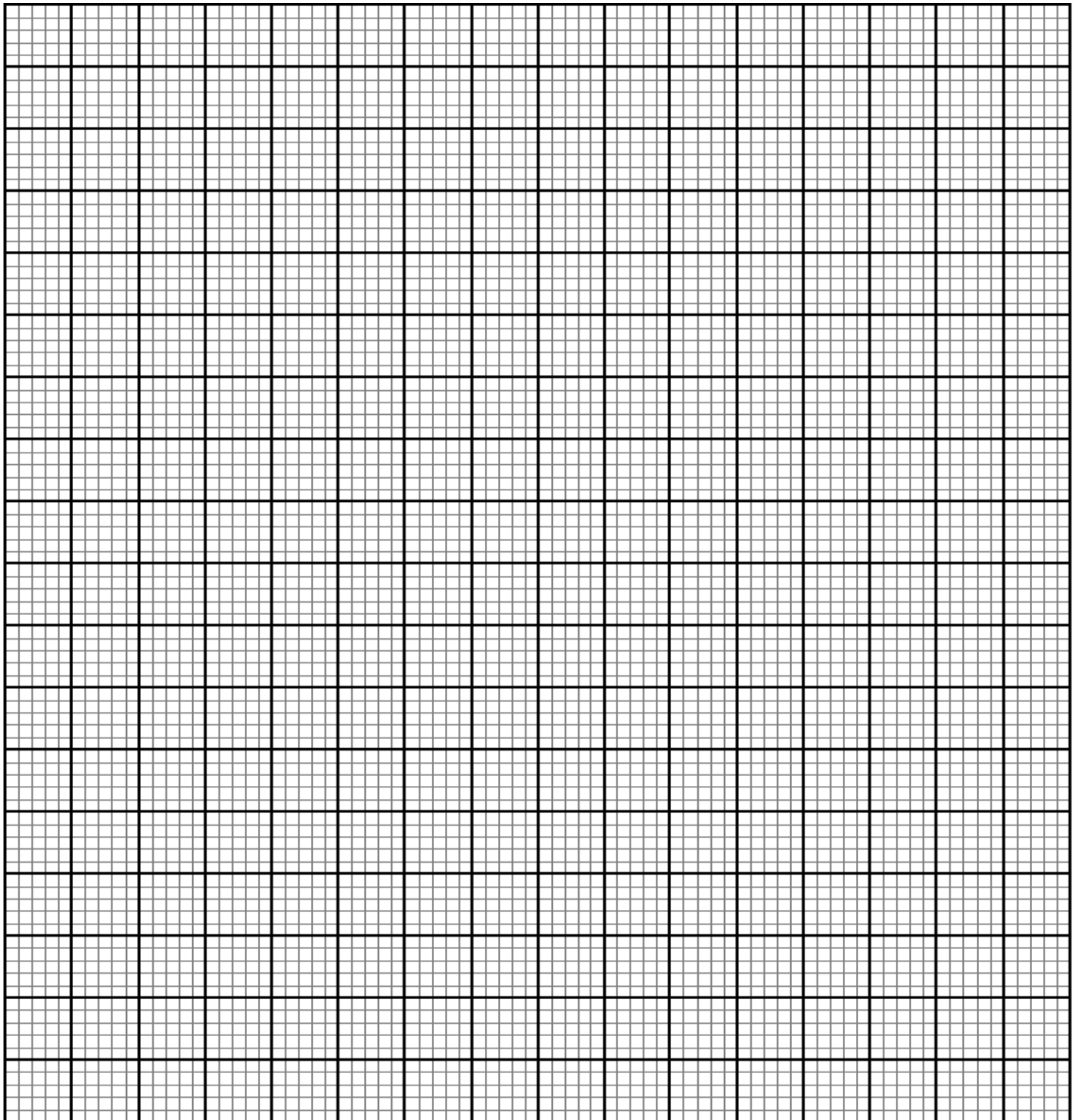


- a) Express the vector PT in terms of a and b . (1mk)
- b) If $PX = kPT$, express QX in terms of a , b and k , where k is a scalar. (3mks)
- c) If $QR = 3a$ and $RS = 2b$, write down an expression for QS in terms of a and b . (1mk)
- d) If $QX = tQS$, use your result in (b) and (c) to find the value of k and t . (4mks)
- e) Find the ratio $PX : XT$. (1mk)

20. A triangle with A(-4, 2), B(-6, 6) and C(-6, 2) is enlarged by a scale factor -1 and centre (-2, 6) to produce triangle $A^1B^1C^1$.

a) Draw triangle ABC and $A^1B^1C^1$.and state its coordinates

4mks



- b) Triangle $A^1B^1C^1$ is then reflected in the line $y = x$ to give triangle $A^{11}B^{11}C^{11}$. draw $A^{11}B^{11}C^{11}$. and state its coordinates **3mks**

- c) If triangle $A^{11}B^{11}C^{11}$ is mapped onto $A^{111}B^{111}C^{111}$ whose co-ordinates are $A^{111}(0, -2)$, $B^{111}(4, -4)$ and $C^{111}(0, -4)$ by a rotation. Find the centre and angle of rotation. **(3mks)**

21. Four towns P, R, T and S are such that R is 80km directly to the north of P and T is on a bearing of 290° from P at a distance of 65km. S is on a bearing of 330° from T and a distance of 30 km. Using a scale of 1cm to represent 10km, make an accurate scale drawing to show the relative position of the towns. (4mks)

Find:

- (a) The distance and the bearing of R from T (3mks)

(b) The distance and the bearing of S from R **(2mks)**

(c) The bearing of P from S **(1mk)**

22. Four towns A, B, C and D are such that B is 80km directly North of A and C is on a bearing of 300° from A at a distance of 50km. D is on a bearing of 345° from C at a distance of 30km.

a) Using a scale of 1cm rep 10km, draw the relative positions of the towns **(4mks)**

b) Find:

(i) The distance and bearing of B from C **(2mks)**

(ii) The distance and bearing of B from D **(2mks)**

(iii) Calculate the distance of ABCD **(2mks)**

23. A school in Meru Central decided to buy x calculators for its students for a total cost of ksh. 16,200. The supplier agreed to offer a discount of ksh. 60 per calculator. The school was then able to get three extra calculators for the same amount of money.

(a) Write an expression in terms of x , for the

(i) Original price of each calculator (1mk)

(ii) Price of each calculator after the discount (1mk)

b) Form an equation in x and hence determine the number of calculators the school bought (5mks)

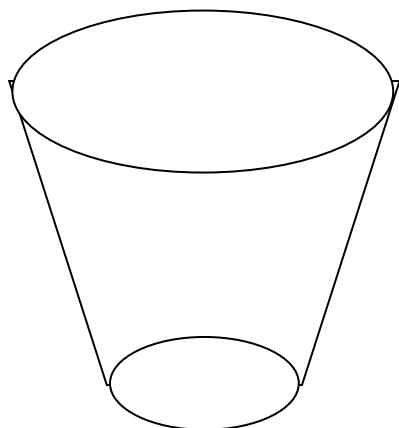
c) Calculate the discount offered to the school as a percentage (3mks)

24. A solid is made up of a conical frustum and a hemispherical top. The slant height of the frustum is 8cm and its base radius is 3.5cm. If the radius of the hemispherical top is 4.2cm.

a) Find the area of:

(i) The circular base.

(2 Marks)



(ii) The curved surface of the frustum

(3 Marks)

(iii) The hemispherical surface

(3 Marks)

b) A similar solid has a total surface area of 81.51cm^2 . Determine the radius of its base. (2 Marks)

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

121/2

MATHEMATICS

PAPER 2

TIME: 2½ HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES:

- (a) Write your name and index number in the spaces provided above
- (b) Sign and write the date of examination in the spaces provided above.
- (c) This paper consists of **TWO** sections: **Section I** and **Section II**.
- (d) Answer **ALL** the questions in **section I** and only five from **Section II**
- (e) All answers and working must be written on the question paper in the spaces provided below each question.
- (f) **Show all the steps in your calculations, giving your answers at each stage in the spaces below each question.**
- (g) Marks may be given for correct working even if the answer is wrong.
- (h) **Non-programmable** silent electronic calculators and KNEC Mathematical tables may be used except where stated otherwise.

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 THE QUESTIONS**

1. Evaluate without using Mathematical tables or a calculator. (3mks)

$$2\log 5 - \frac{1}{2}\log 16 + 2\log 40$$

2. The sum of K terms of sequence 3,9,15,21.....is 7500. Determine the value of K. (3mks)

3. Use matrix method to solve (3mks)

$$5x + 3y = 35$$

$$3x - 4y = -8$$

4. Calculate the percentage error in the volume of a cone whose radius is 9.0cm and slant length 15.0cm. (3mks)

5. Make y the subject the subject of the formula

(3mks)

$$\frac{p}{w} = \frac{my-2}{ny+4}$$

6. Solve for x: $\tan^2 x - 2 \tan x = 3$ for the interval $0 \leq x \leq 180^\circ$

(3 marks)

7. The table below shows income tax rates in the year 2013.

Monthly Income in Ksh	Tax rate in each shilling
Up to 9680	10%
9681-18800	15%
18801 – 27920	20%
27921 – 37040	25%
Over 37040	30%

In that year, a monthly personal tax relief of ksh 1056 was allowed. Calculate the monthly income tax by a constable who earned a monthly salary of ksh. 42500 (3mks)

8. Simplify $\frac{2\sqrt{2}}{1+\sqrt{2}} - \frac{\sqrt{2}}{1-\sqrt{2}} = a + b\sqrt{c}$ leaving your answer in the form $a + b\sqrt{c}$, where a, b and c are rational numbers. (3mks)

9 a) Expand $(1-n)^5$

(2mks)

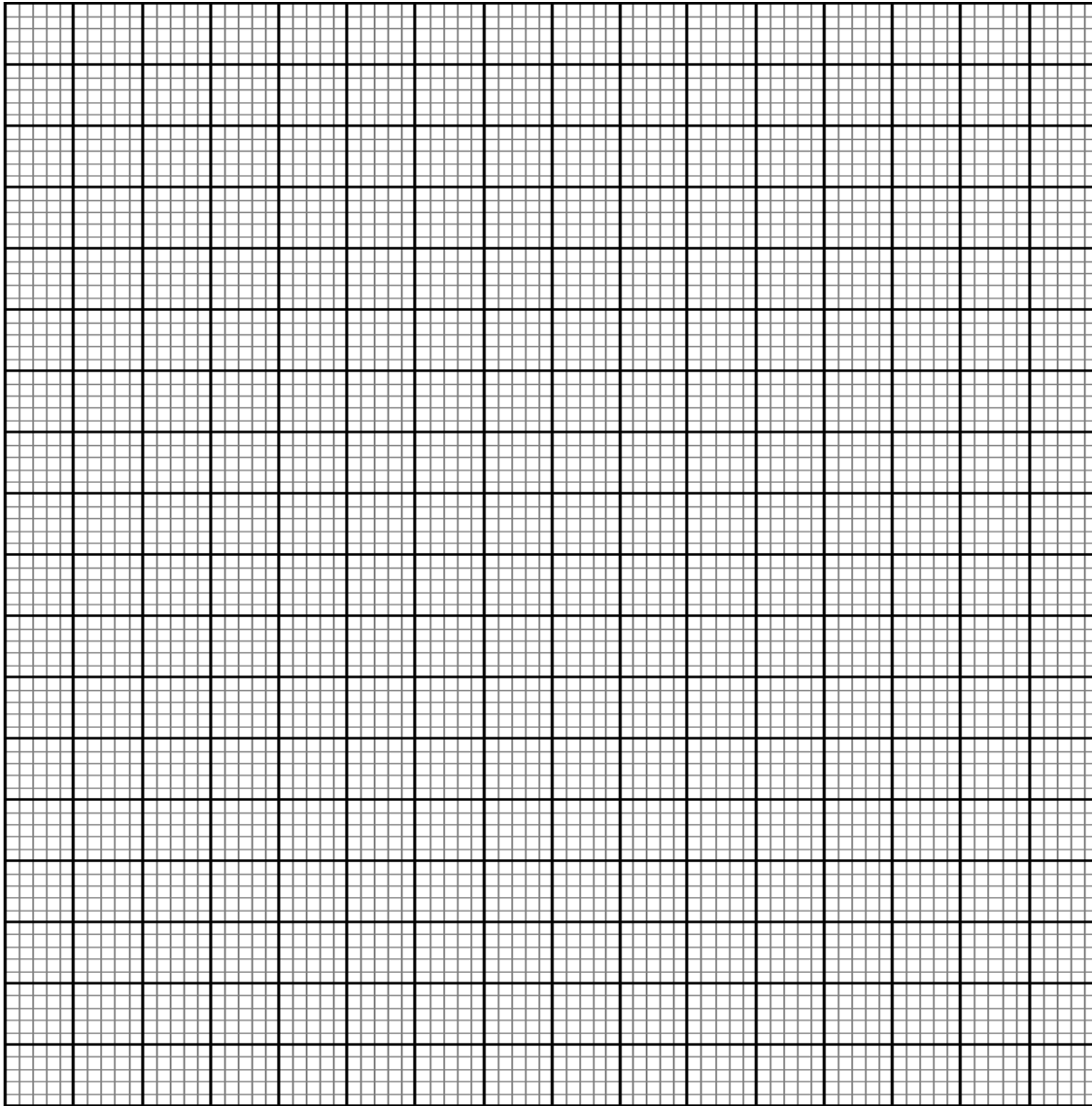
b) Use the expansion in (a) up to the term in n^3 to approximate the value of $(0.98)^5$

(2mks)

10 The probability that three candidates; Anthony, Beatrice and Caleb will pass an examination are $\frac{3}{4}$, $\frac{2}{3}$ and $\frac{4}{5}$ respectively. Find the probability that:-all the three candidates will not pass.

(2mks)

11. The equation of a circle is $X^2 + Y^2 - 4x + 6y + 4 = 0$. On the graph provided draw the circle (4mks)

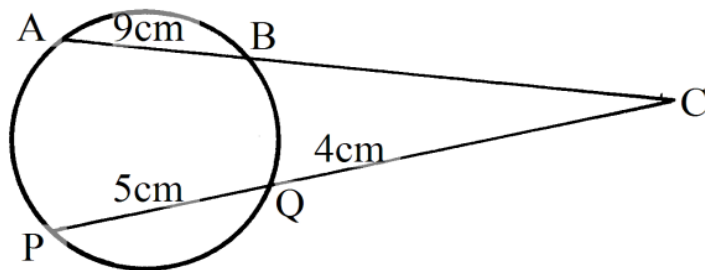


12. Find the shortest distance between points A($50^\circ\text{S}, 25^\circ\text{E}$) and B($50^\circ\text{S}, 140^\circ\text{E}$) in KM (Take $R=6370$ Km) (3mks)

13. The mid-point of AB is (1,-1.5, 2) and the position vector of a point A is $-1\hat{i} + \hat{j}$. Find the magnitude of $\vec{AB}$ correct to 1dp. (3mks)

14. Without using a calculator or mathematical tables. Express $\frac{3}{1-\cos 30^\circ}$ in surd form and simplify (3mks)

15. The figure below shows a circle centre O. AB and PQ are chords intersecting externally at a point C. AB = 9cm, PQ = 5cm and QC = 4cm. Find the length of BC. (3mks)



16. Evaluate without using tables (4mks)

$$\log(3x+8) - 3\log 2 = \log(x-4)$$

SECTION II (50 MARKS)

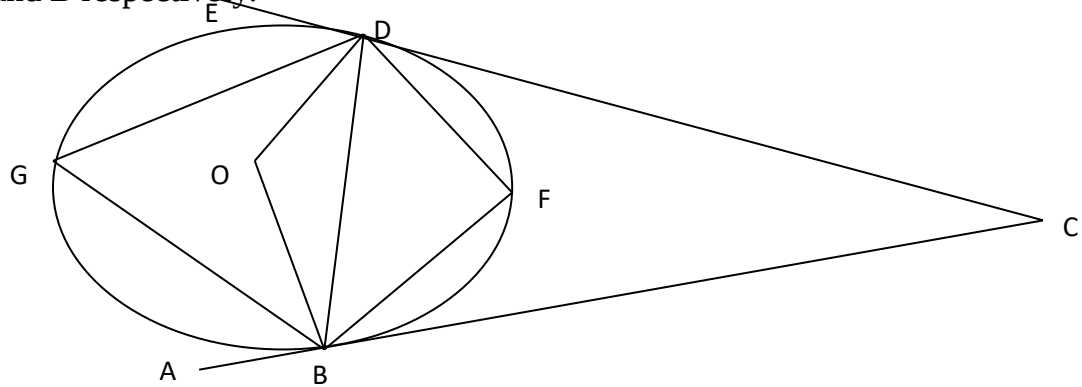
Answer ONLY FIVE questions in this section

17. a) Use the trapezium rule with six trapezia to estimate the areas bounded by the curve $Y=2x^2+3x+1$, the axis and the ordinate $x=0$ and $x=3$. (5mks)

- b) Calculate the exact area in (a) above by integration. (3mks)

- c) Assuming they are calculated in (a) above is an estimate, calculate the percentage error made when the trapezium rule is used leaving your answer to 2 decimal places. (2mks)

18. In the diagram below $\angle EDG = 36^\circ$ and $\angle ABG = 42^\circ$ Line EDC and ABC are tangents to the circle at D and B respectively.



Calculate by giving reason

- $\angle DGB$ (2mks)
- Obtuse $\angle DOB$ (2mks)
- $\angle GDB$ (2mks)
- $\angle DCB$ (2mks)
- $\angle DFB$ (2mks)

19. The table below shows the rate at which income tax is charged for all income earned in a month in 2015.

Taxable Income p.m (Kenya pound)		Rate in % per Kenya pound
1 -236	10%	
237 -472		15%
473 -708		20%
709 – 944		25%
945 and over		30%

Mrs.mumanyi earns a basic salary of 18000.She is entitled to a house allowance of Ksh. 6,000 a person relief of Ksh. 1064 month

. Every month she pays the following.

v) Electricity bill shs.580

vi) Water bill shs. 360

vii) Co-operative shares shs. 800

viii) Loan repayment Ksh. 3000

(a) Calculate her taxable income in k£ p.m

(2Marks)

(b)Calculate her P.A.Y.E

(6Marks)

(c) Calculate her net salary

(2Marks)

20. A flower garden is in the shape of a triangle ABC such that $AB = 9\text{M}$, $AC = 7.5\text{M}$ and angle $ACB = 75^\circ$. Using a rule and a pair of compass only.

a) Construct triangle ABC (3mks)

b) Construct a locus of P such that $AP = PC$ (2mks)

c) Construct locus of Q such that it is equal distance from AB and BC and locus of R which is 2M from AC. (2mks)

d) Flowers are to be planted such that they are nearer AC than AB and less than 5m from a shade the portion with flowers. (3mks)

- 21.** A tank has two water taps P and Q and another tap R. When empty the tank be filled by tap P alone in 5 hours or by tap Q in 3 hours .When full the tank can be emptied in 8 hours by tap R
- a)** The tank is initially empty . Find how long it would take to fill up the tank
- i)** If tap R is closed and taps P and Q are opened at the same time **(2mks)**

- ii)** If all the three taps are opened at the same time .Giving your answer to the nearest minute **(2mk)**

- b)** Assume the tank initially empty and the three taps are opened as follows

P at 8:00 am

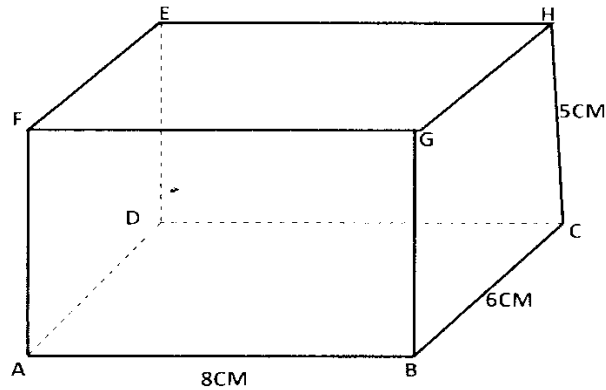
Q at 9:00 am

R at 9:00 am

- i)** Find the fraction of the time that would be filled by 10:00 am **(3mks)**

- ii)** Find the time the tank would be fully filled up. Give your answer to the nearest minute **(3mks)**

22. The figure below shows a cuboid.



Calculate

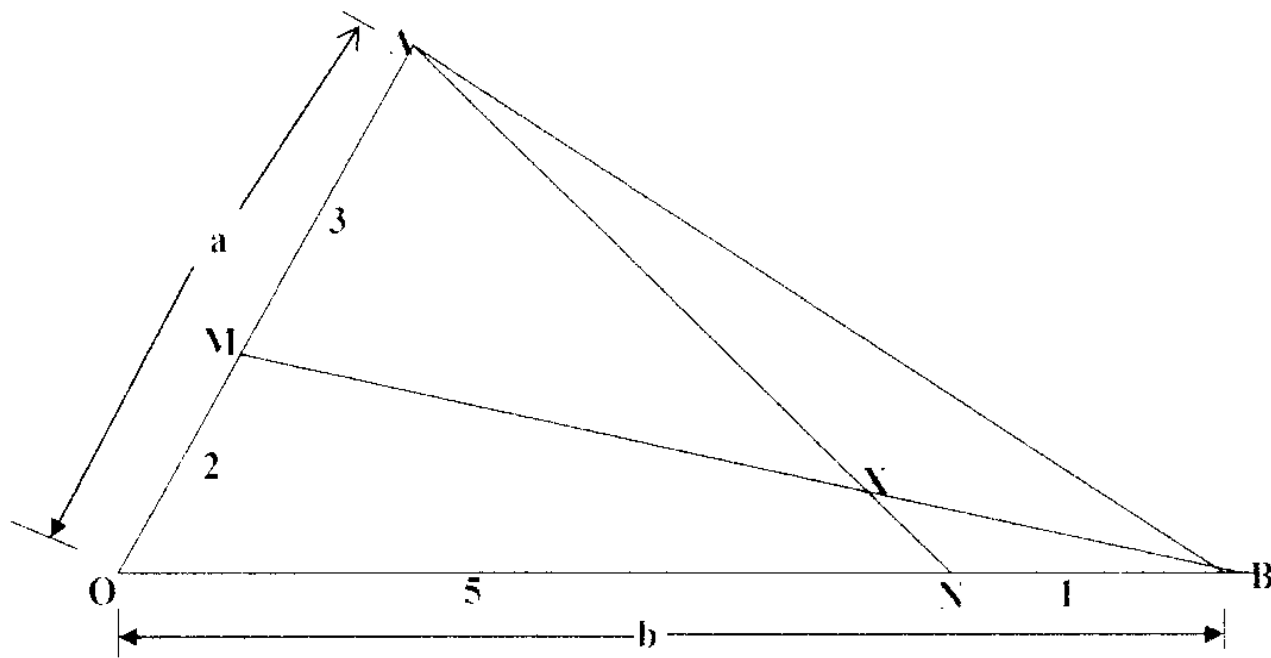
a) The length BE (2Mks)

b) The angle between BE and plane ABCD (3Mks)

c) The angle between FH and BC. (2Mks)

d) The angle between plane AGHD and plane ABCD. (3Mks)

23. In triangle OAB below $OA = a$, $OB = b$ point M lies on ON such that $OM : MA = 2:3$ and point N lies on OB such that $ON : NB = 5:1$ line AN intersect line MB at X.



(a) Express in terms of a and b

(i) $\vec{AN}$ (1mk)

(ii) $\vec{BM}$ (1mk)

b) Given that $\vec{AX} = k\vec{AN}$ and $\vec{BX} = r\vec{BM}$ where k and r are scalars.

i. write down two different expression for $\vec{OX}$ in terms of a , b , k and r .

(2mks)

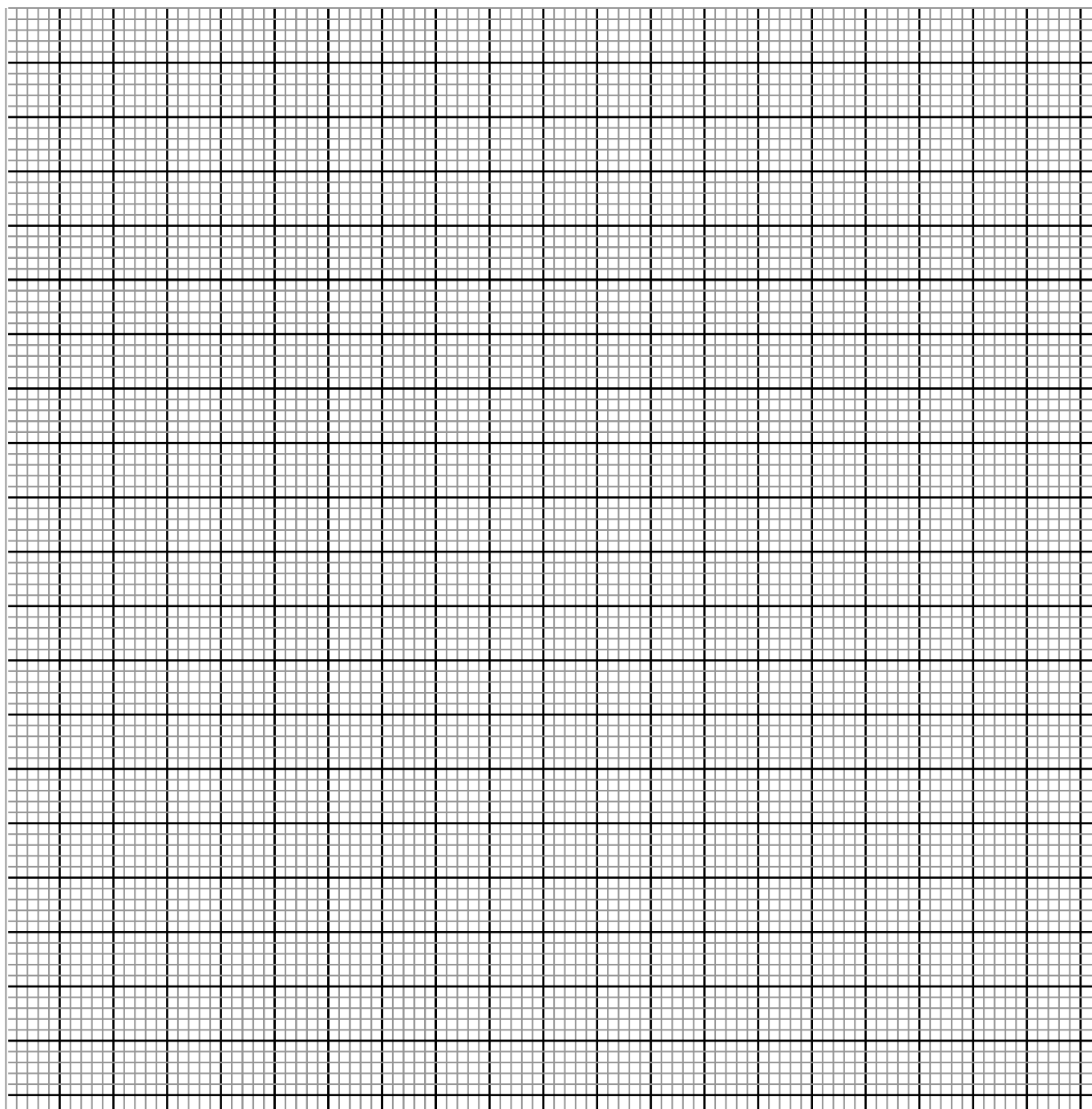
ii. Find the value of k and r . **(4 mks)**

iii. Determine the ratio in which x divides line MB . **(2 mks)**

24. (a) Complete the table below for the function $y=n^3-3n^2-n+2$ for $-2 \leq n \leq 4$. (2mks)

X	-2	-1	0	1	3	4
Y	-6		2			14

b) On the grid provided, draw the graph of $y = n^3 - 3n^2 - n + 2$. (3mks)



a) (i) Use the graph to solve the equation

$$n^3 - 3n^2 - x + 2 = 0$$

(2mk)

(ii) By drawing a suitable line on the graph, solve the equation

$$n^3 - 3n^3 - 3n + 3 = 0$$

(3mks)

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

232/1

PHYSICS

PAPER 1

TIME: 2 HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

Instructions to candidates

1. Write your name, index number and school in the spaces provided above.
2. Sign and write the date of examination in the spaces provided above.
3. This paper consist of **TWO** sections; **A** and **B**.
4. Answer **ALL** the questions in section **A** and **B** in the spaces provided.
5. **ALL** working **MUST** be clearly shown.

FOR EXAMINERS USE ONLY

MAXIMUM SCORE	80 MARKS
CANDIDATE'S SCORE	

SECTION A: 25marks

1. A stopwatch is used to time a runner in a race. Figure below show the stopwatch at the start and at the end of a lap of the race.



start of lap



end of lap

State how long(in SI unit) did the runner took to finish the lap of the race (1mark)

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2. The front views of two cars are shown in figure below, drawn to the same scale.



family car

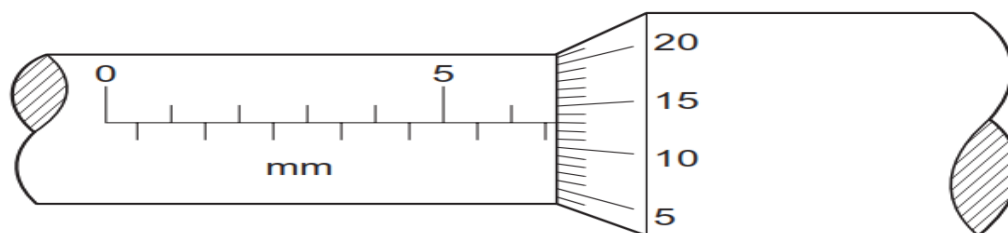


racing car

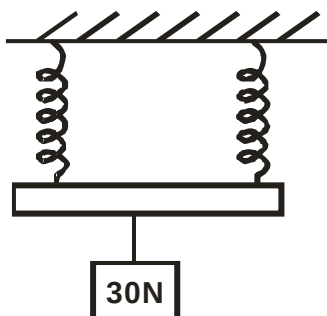
Suggest which car has the greater stability, and give a reason. (2marks)

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3. Figure below shows a micrometer screw gauge. State the reading indicated (2marks)

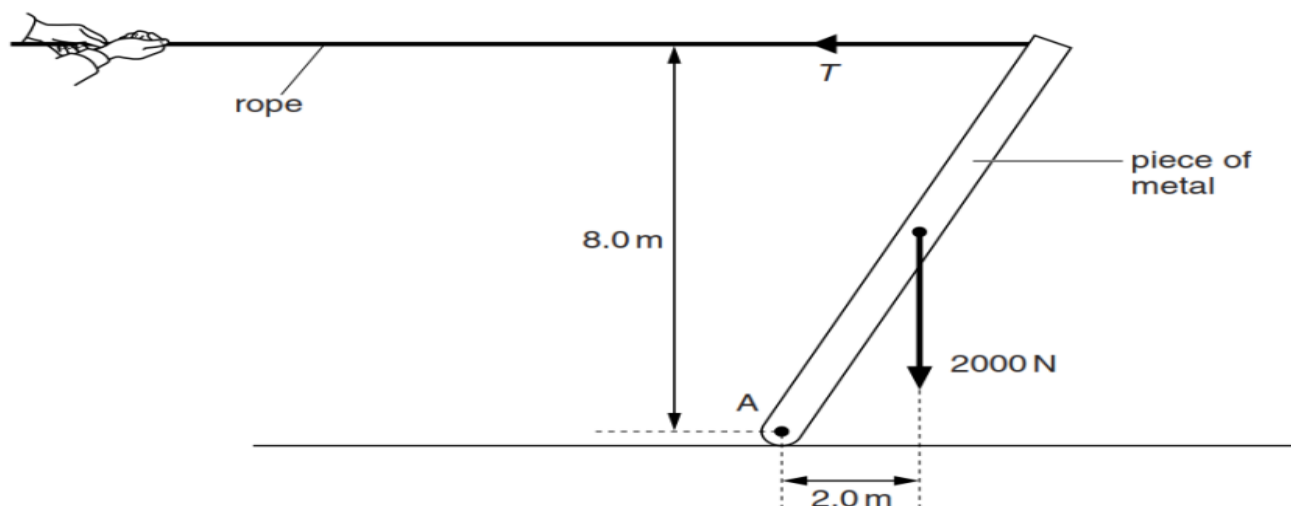


4. Figure 4 shows two identical springs of spring constant 3N/cm supporting a load of 30N .



Determine the extension of each spring. (2 marks)

- 5..Figure below shows a system for raising a heavy piece of metal into a vertical position.



A man pulls on the rope with a horizontal force T . The piece of metal has a weight of 2000 N and is freely pivoted at A. The system is in equilibrium. By taking moments about A, calculate T . (3marks)

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6. Explain why an aeroplane is likely to take off much earlier than expected when the speed of the wind blowing in the opposite direction to its motion on the runway suddenly increases (2 mks)

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7. An aircraft 300m from the ground traveling horizontally at 400m/s releases a parcel. Calculate the horizontal distance covered by the parcel from the point of release. (Ignore air resistance) (3 marks).

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8. A body of mass 4.0kg held at a vertical height of 500cm is released to travel along a frictionless curved path as shown below.



The 4.0kg mass strikes another body of mass 6.0kg at rest immediately it reaches the horizontal the bodies stick together and move in the same direction. Determine the velocity of the bodies immediately after collision. (3marks)

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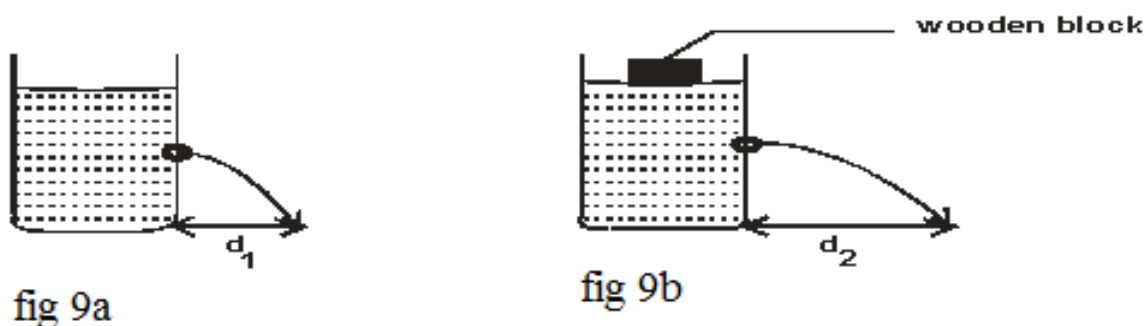
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9. A tin with a hole is filled with water to a certain height. Water jets out as shown in figure 9(a) below. A second identical tin is filled with water to the same height and a block of wood floated as shown in figure 9(b).

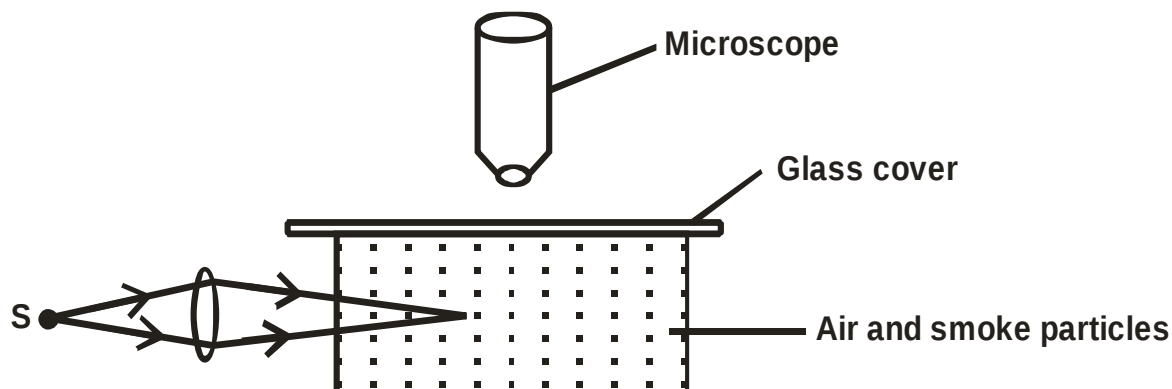


State the reason why the maximum distance of jet d_2 is greater than d_1 . (1 mark)

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10. The figure 2 below shows the apparatus used to observe Brownian motion using a smoke cell.



i) State the observation made in the smoke cell.

(1 mark)

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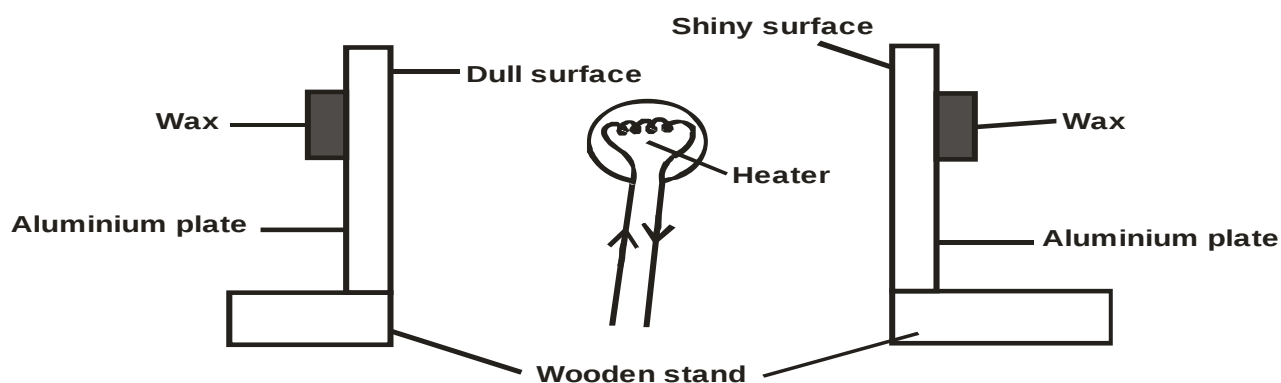
ii) Explain the observation made when the temperature in the smoke cell is increased. (1 mark)

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11. When a mercury in a glass thermometer is used to measure the temperature of hot water, it is observed that the mercury level first drops before beginning to rise. Explain. (2 marks)

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12. Figure 3 shows an arrangement of apparatus to study properties of different surfaces.



The heater is placed equidistance from the two plates. State what happens when the heater is switched on for some time. (1 mark)

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13. Explain your answer in question 12 above

(1mark)

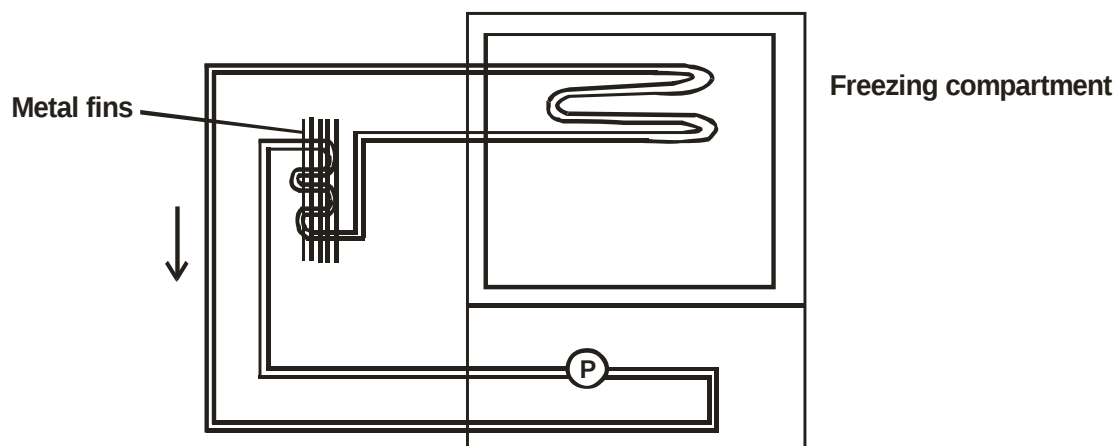
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SECTION B: 55marks

14. a) The figure below shows the features of a refrigerator.



i) What is the function of the pump?

(1 mark)

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ii) What is the function of the copper fins at the back of the refrigerator?

(1 mark)

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iii) Explain briefly how cooling takes place in the refrigerator.

(3 marks)

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iv) What is the purpose of the double wall in a refrigerator?

(1 mark)

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b) i) Define the term latent heat of fusion of a substance.

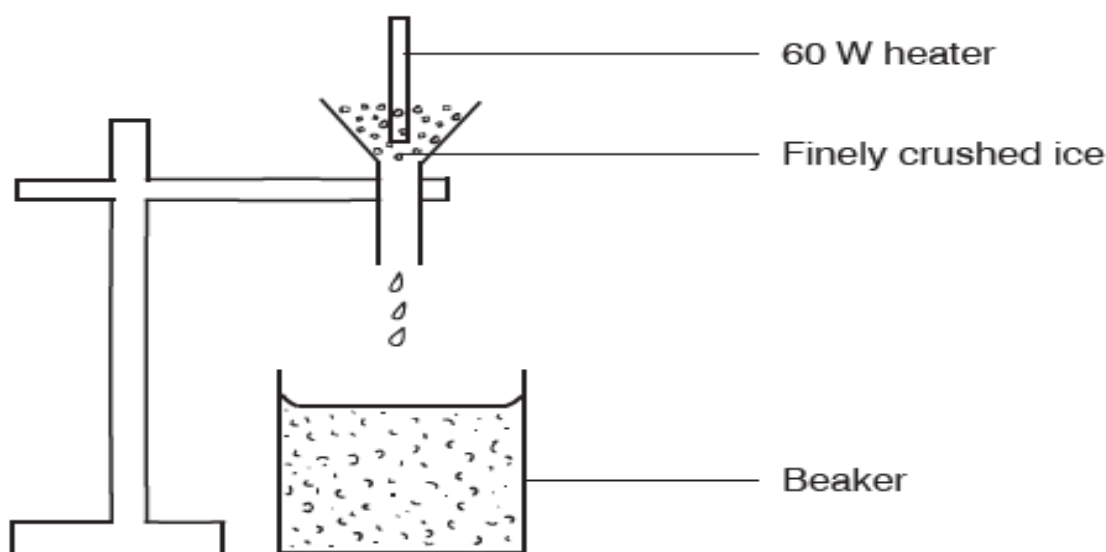
(1 mark)

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ii) The figure below shows an apparatus that could be used to determine the specific latent heat of fusion of ice.



In order to obtain results that are as accurate as possible, state why it is important to:

I. wait until water is dripping into the beaker at constant rate before taking readings. (1 mark)

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II. Use finely crushed ice rather than larger ones.

(1 mark)

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15. (a) State the law of flotation.

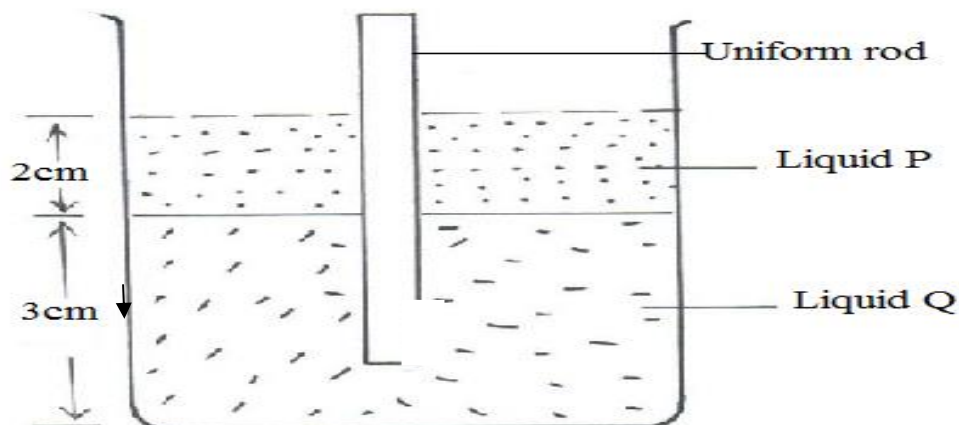
(1 mark)

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- (b) Figure below shows a uniform rod of height 8cm floating vertically in a beaker containing two immiscible liquids P and Q. The densities of the liquids are 800kg/m^3 and 1200kg/m^3 respectively the cross-sectional area of the rod is 2cm^2 .



Determine

- (i).the weight of liquid P displaced by the rod. (3 marks)

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- (ii) The weight of liquid Q displaced by the rod. (2 marks)

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- (iii) The mass of the rod. (1 mark)

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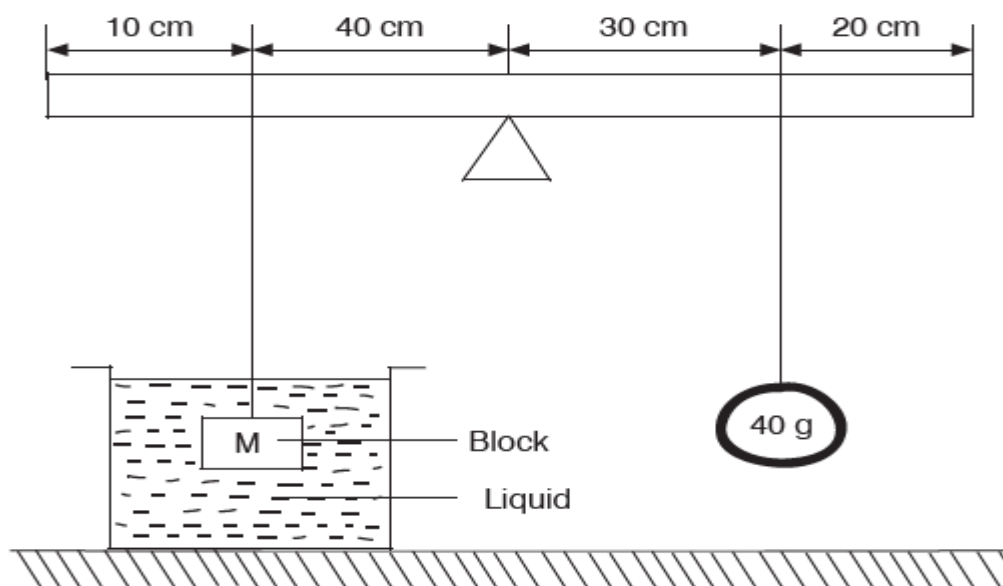
(iv) The density of the rod. (2 marks)

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(c). Figure below shows a block of volume 50 cm^3 and density 2000 kg/m^3 submerged in a liquid and suspended from a uniform horizontal beam by means of a thread. The beam is balanced by a spherical mass of 40 g , which is suspended from it on the other side of the pivot as shown



Determine the upthrust force acting on the block. (3 marks)

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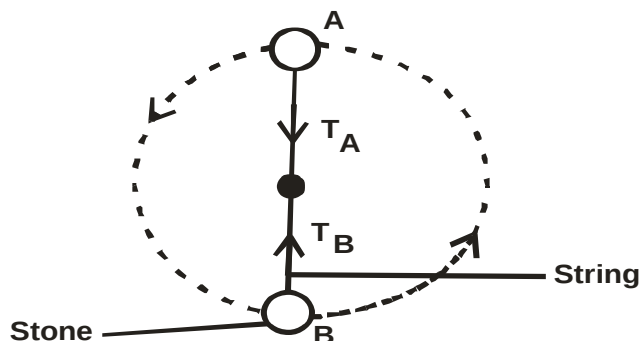
16. a) State two condition necessary for a driver to negotiate a bend on a banked bend at a relatively high speed (2 marks)

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- (b).The figure shows stone of mass 100g whirled in a vertical circle using a thread of length 56cm.
(Take $g = 10 \text{ N/Kg}$)



If the stone is whirled at a speed of 8 m/s . Calculate;

- i) The centripetal force experienced by the stone. (3 marks)

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- ii) Tension force on the string:

- I) T_A (2 marks)

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- II) T_B (2 marks)

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- iii) calculate the angular velocity of the stone. (1mark)

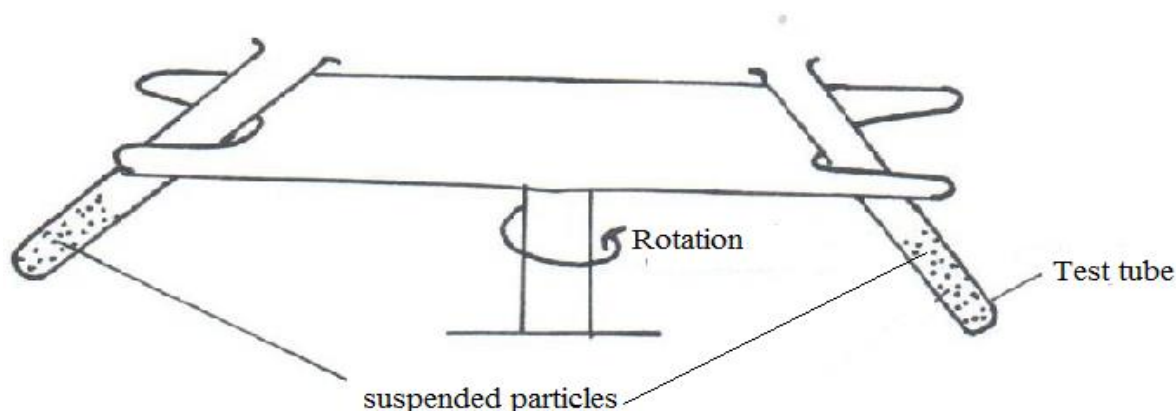
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(d) Figure shows a centrifuge that is used to separate particles suspended in a liquid.



Particle of different mass M_1 , M_2 and M_3 are suspended in a liquid which they do not dissolve.

The system is then rotated in the direction shown.

(i). Explain why the particles of different masses will acquire different radii as the system is rotated. (1 mark)

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(ii). If $M_3 > M_2 > M_1$, arrange the particle in increasing radii when the centrifuge is rotated for some time. (1 mark)

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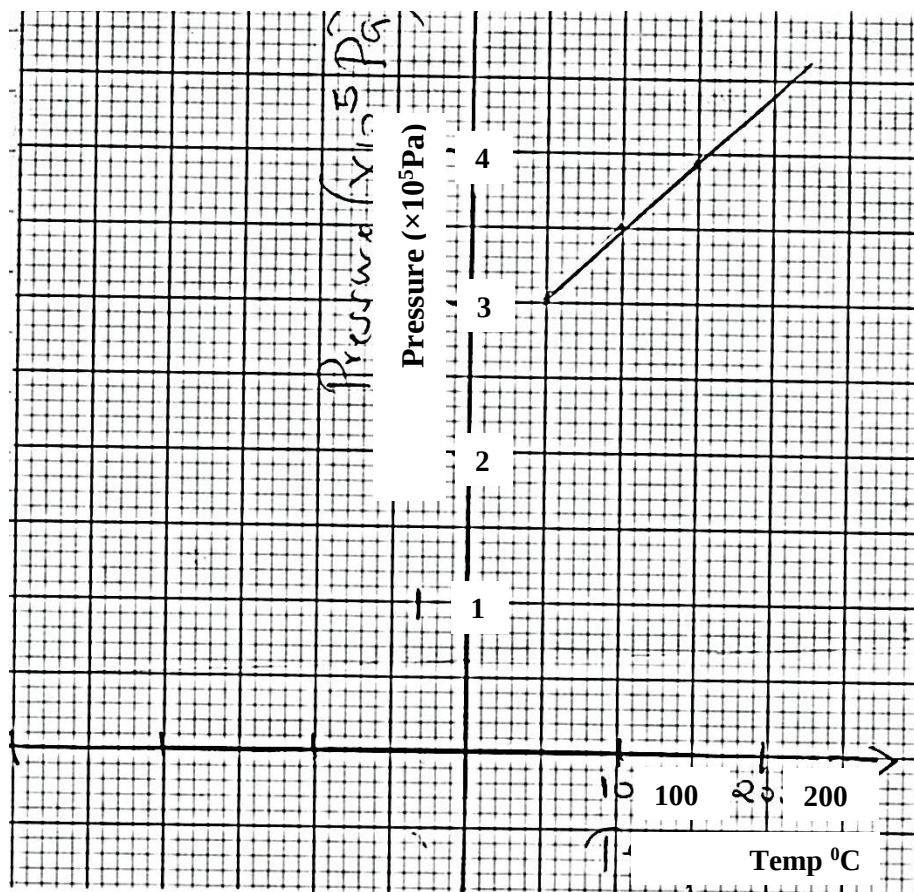
17.a) State the one condition necessary for pressure law to hold. (1 mark)

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b) A bubble at the bottom of a pond expands as it rises to the top of the liquid. Explain. (1 mark)

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c) The graph below represents a graph of pressure against temperature, °C.



From the graph, determine;

i) The absolute temperature.

(1 mark)

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.....

ii) The pressure at 373K

(1 mark)

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Explain why temperature in (i) above can not be achieved

(2 marks)

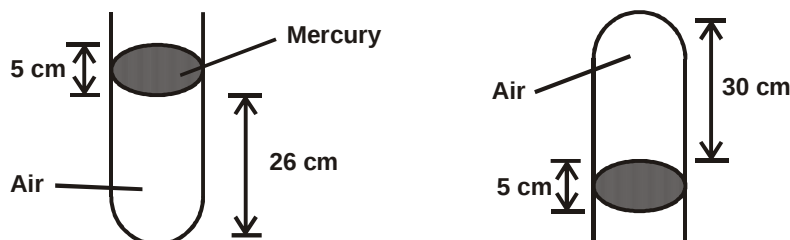
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- d) A column of air 26cm long is trapped by mercury thread 5cm long. When the tube is inverted, the air column becomes 30cm long. What is the value of atmospheric pressure? (3 marks)

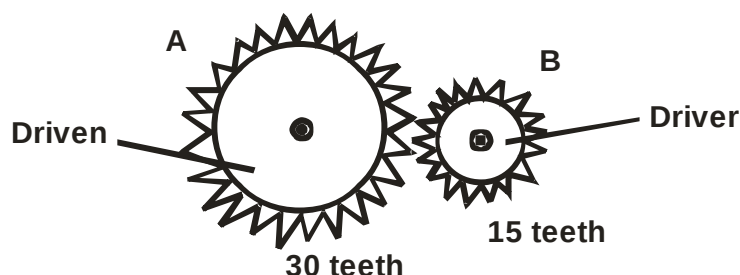


Explain using kinetic theory of gases why pressure of gases increases as temperature of the gas is increased. (3 marks)

18. a) Differentiate between work and energy. (2 marks)

- b) Describe the energy transformation that takes place when a car battery is used to light a bulb. (1 mark)

c) The figure shows a machine.



Gear wheel A with 30 teeth is driven by gear wheel B with 15 teeth.

i) Determine the velocity ratio of the machine. (2 marks)

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ii) If the machine has a mechanical advantage of 0.375, determine the efficiency of the machine. (2 marks)

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d) A cart of mass 30kg is pushed along horizontal path by a horizontal force of 8N and moves with a constant velocity. The force is then increased to 14N.

Determine;;

i) The resistance to the motion of the cart. (1 mark)

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ii) The acceleration of the cart. (2 marks)

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NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

232/2

PHYSICS

PAPER 2

TIME: 2 HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

Instructions to candidates

- (a) Write your name, index number in the spaces provided above.
- (b) Sign and write the date of the examination in the spaces provided
- (c) This paper consists of **TWO** Sections: **A** and **B**.
- (d) Answer **ALL** the questions in section **A** and **B** in the spaces provided.
- (f) KNEC mathematical tables and silent non-programmable electronic calculators may be used.

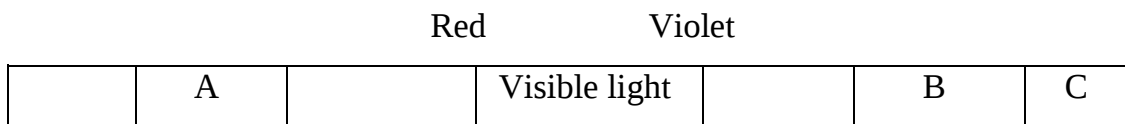
For examiners use only

Section	Question	Maximum score	Candidates score
A	1-13	25	
B	14	13	
	15	11	
	16	11	
	17	10	
	18	10	
	TOTAL SCORE	80	

SECTION A: 25marks

Answer **ALL** the questions in this section in the spaces provided

1. The figure below shows region of the complete electromagnetic spectrum. (2 marks)



- i) Name the region marked A and B. (2 marks)

A

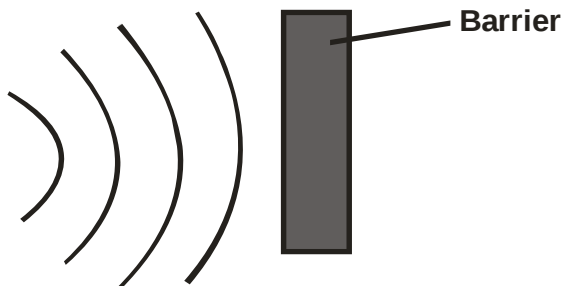
B

- ii) State **one** use of electromagnetic radiation marked C. (1 mark)

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2. The figure shows circular waves approaching a place barrier in uniform medium.



- On the diagram draw the reflected waves. (1 mark)

3. A student standing between two cliffs and 500m from the nearest cliff clapped his hand and heard the first echo after 3 seconds and the second echo 2 seconds later. Calculate the distance between the cliffs. (3 marks)

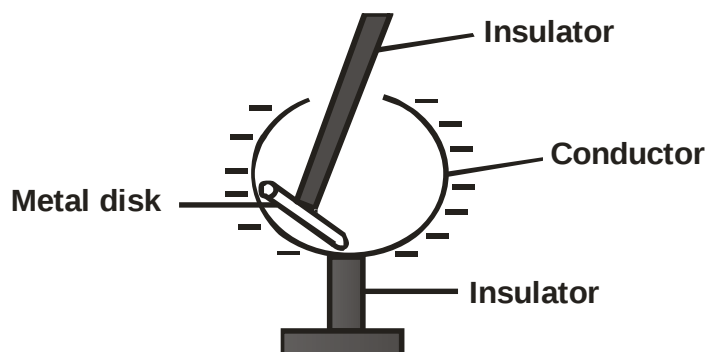
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4. The figure below shows a hollow negatively charged sphere with a metallic disc attached to an insulator placed inside.



- State and explain what would happen to the leaf of uncharged electroscope if the metallic disc was brought near the cap of the electroscope. (2 marks)

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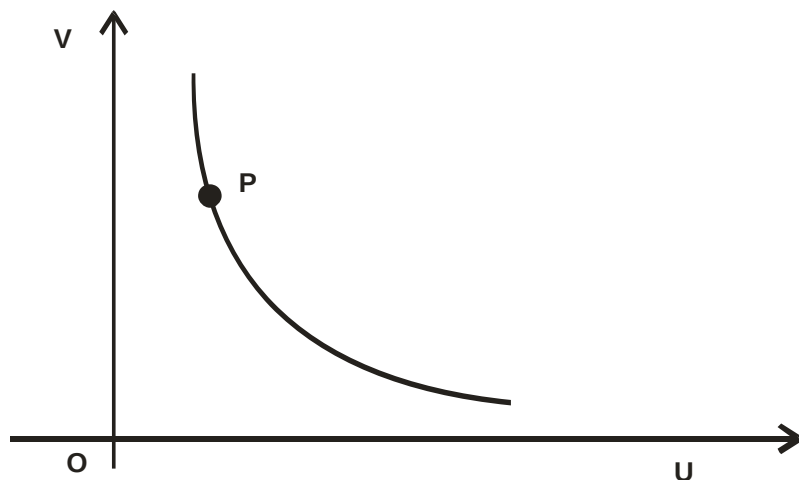
5. Explain how local action is reduced in a simple cell. (1 mark)

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6. Figure shows the graph of image distance v against the object distance u for a curved mirror.



- a) Explain why the coordinate P is for a magnified image. (1 mark)

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- b) Identify the type of mirror used. (1 mark)

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7. Radio waves travel with a speed of 3.0×10^8 m/s in air. If a broad casting station broad casts at a wavelength of 225m, calculate the period of the radio waves. (2 marks)

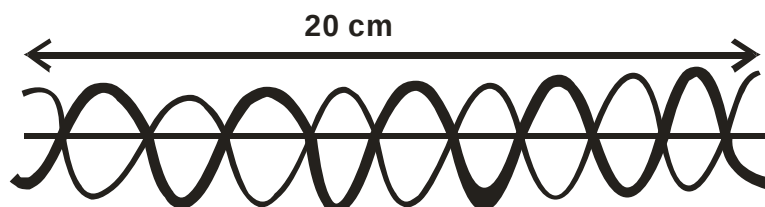
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8. Two parallel current carrying conductors are placed close to each other as shown in figure below.



- On the same diagram, draw the magnetic field pattern and indicate the directions of the forces experienced by each conductor. (2 marks)

9. Figure shows a stationary wave.

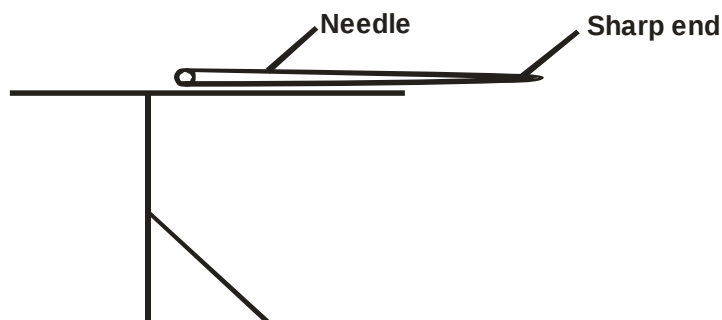


- a) Identify an antinode in the diagram. (1 mark)

b) What is the wavelength of the stationary wave? (1 mark)

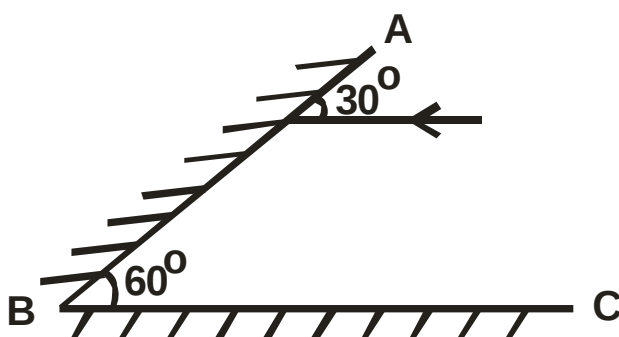
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10. Figure shows a needle fixed on a cap of a leaf electroscope. The electroscope is highly charged and then left for some time.



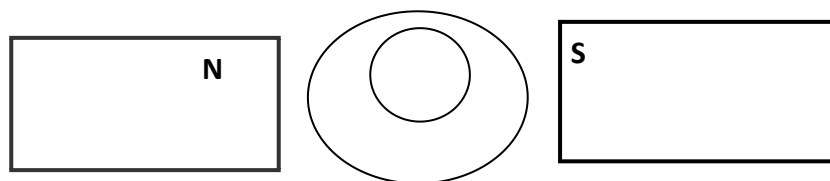
Explain why the leaf collapses. (2 marks)

11. The diagram below shows two mirrors inclined at 60° to each other. (Not drawn to scale)



Sketch on the diagram the path of the ray after striking mirror AB (2 marks)

12. A soft iron ring is placed between two poles of permanent magnets as shown below. Draw the magnetic field pattern set up between the two poles. (1 mark)



13. Explain how hammering in the E-W direction demagnetizes a magnet (1 mark)

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SECTION B: 55marks

Answer ALL the questions in this section in the spaces provided

- 14.a) A lens forms a clear image on a screen when the distance between the screen and the object is 100. If the image is 4 times the height of the object. Determine;

- i) The distance of the image from the lens. (3 marks)

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- ii) The focal length of the lens. (2 marks)

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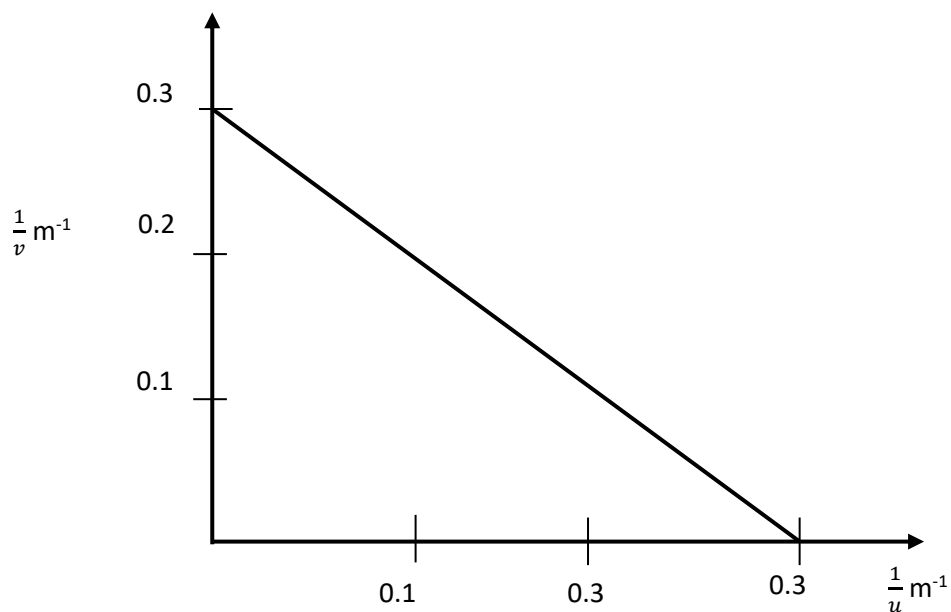
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- b) The graph below shows the variation of $1/v$ and $1/u$ in an experiment to determine the focal length of a lens.



- (i) Use the graph to determine the focal length (2 marks)

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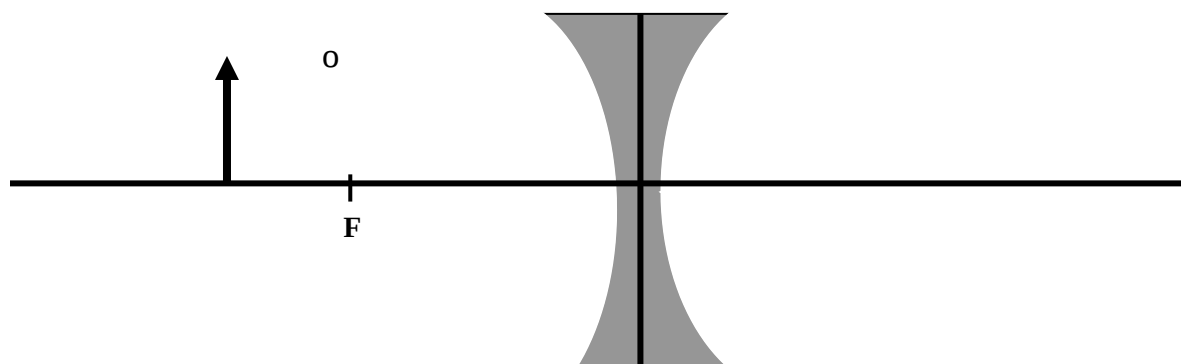
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- (ii) What is the power of the lens used? (1mark)

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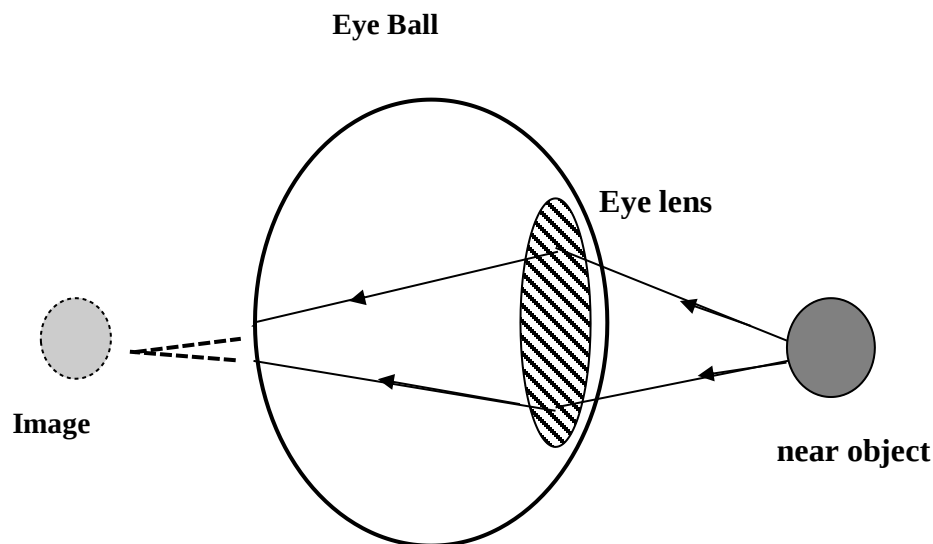
- c) The diagram below shows an upright object O placed in front of a concave lens.



By use of rays, locate the position of the image formed.

(2 marks)

(e) The figure below shows a human eye with a defect.



(i) Name the defect (1mark)

(ii) State one possible cause of the defect

(1mark)

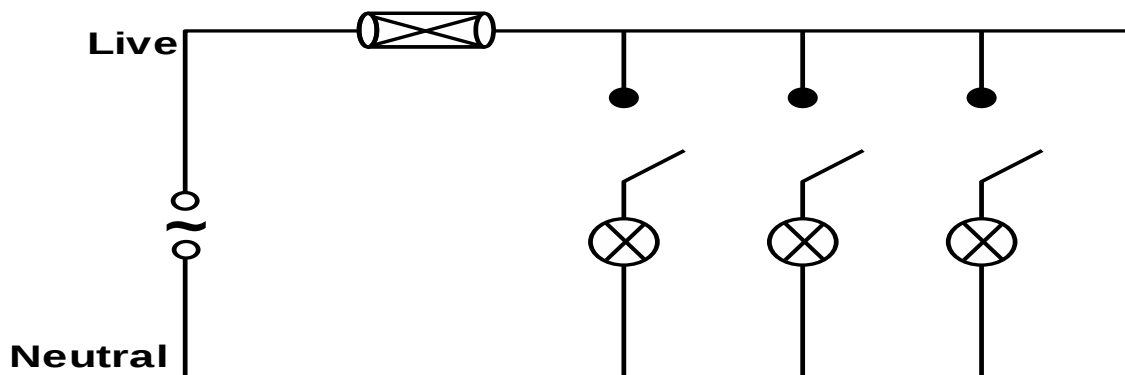
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(iii) Name an appropriate lens that can be used to correct this defect.

(1mark)

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15. (a) The figure below shows part of the lighting circuit of a house.



i) Explain why a fuse is included in the circuit.

(1 mark)

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ii) Explain why the fuse is placed in the live wire rather than in the neutral wire.

(1 mark)

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b) A house has five rooms each with 240V, 60W bulbs. If the bulbs are switched on from 7:00pm to 11:00pm,

i) Calculate the power consumed per day in kilowatt-hour.

(3 marks)

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ii) Find the cost of power per week for lighting these rooms at Ksh. 6.70 Per unit. (2 marks)

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iii) Each lamp has a power of 60W. Calculate the current through one lamp when it is switched on.

(2 marks)

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c) Explain why long distance power transmission is done at a very high voltage (2 marks)

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16(a) State Faraday's law of electromagnetic induction. (1mark)

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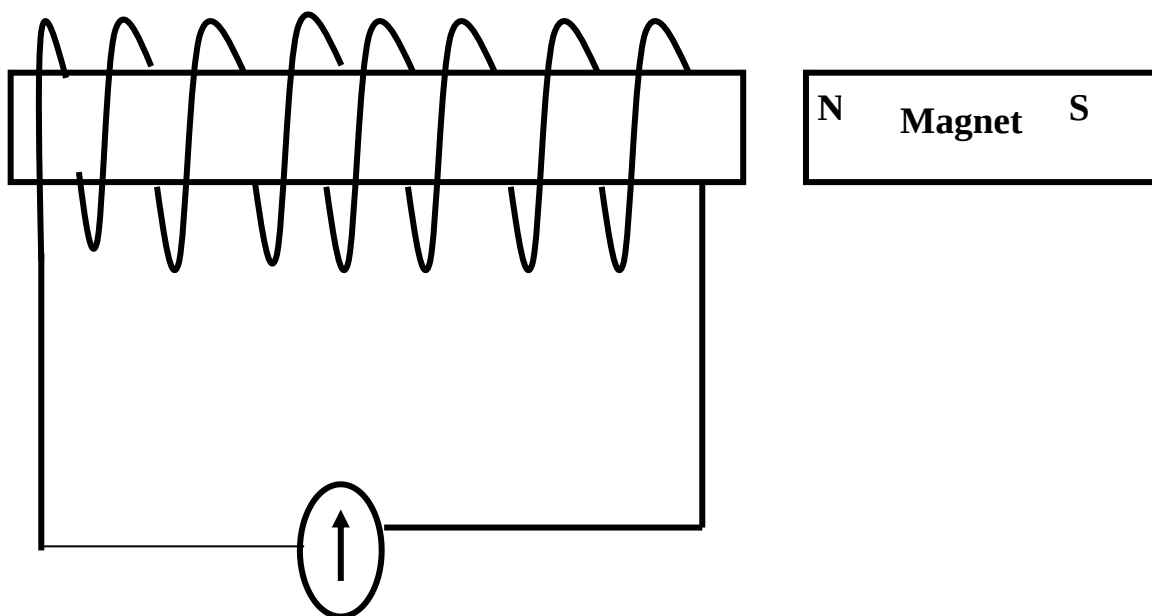
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(b) Figure below shows an experiment to illustrate electromagnetic induction using a coil and a magnet.



State the observation on the galvanometer when:

i) The magnet is stationary (1 mark)

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ii) The magnet is plunged into the coil at constant velocity (1 mark)

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iii) Explain how the current is produced. (2 marks)

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iv) Show on the diagram the direction of the current in the coil when the magnet is moved towards the coil (1 mark)

(c) A transformer is designed to supply a current of 12A at a P.d. of 80V. The inlet cable is to be connected to an a.c. mains of 240V. The efficiency of this transformer is 80%.

Calculate:

(i) Current in the primary coil of the transformer (2marks)

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(ii) The power supplied to the transformer (2marks)

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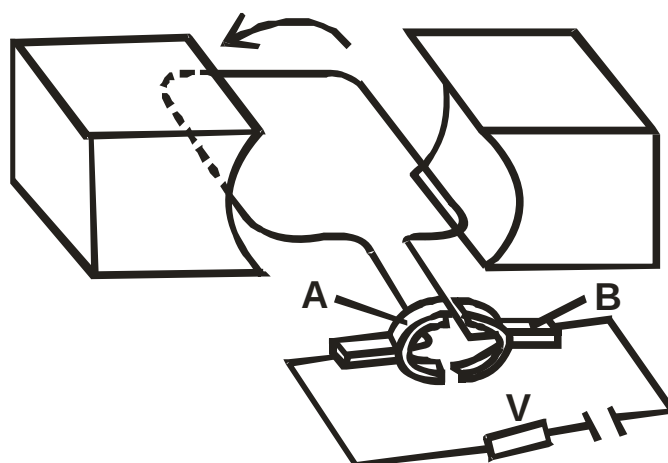
(iii) Explain how energy losses in a transformer are reduced by having a soft iron core.(1mark)

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17. (a) The figure below shows a simple electric motor running on battery.



(i) Label parts; A and B

(2marks)

A.....

B.....

(ii) Indicate the poles of the magnet on the diagram so that the coil rotates in the direction indicated.

(1 mark)

(ii) Suggest **two** improvements that could be made on the motor to improve its efficiency.

(2 marks)

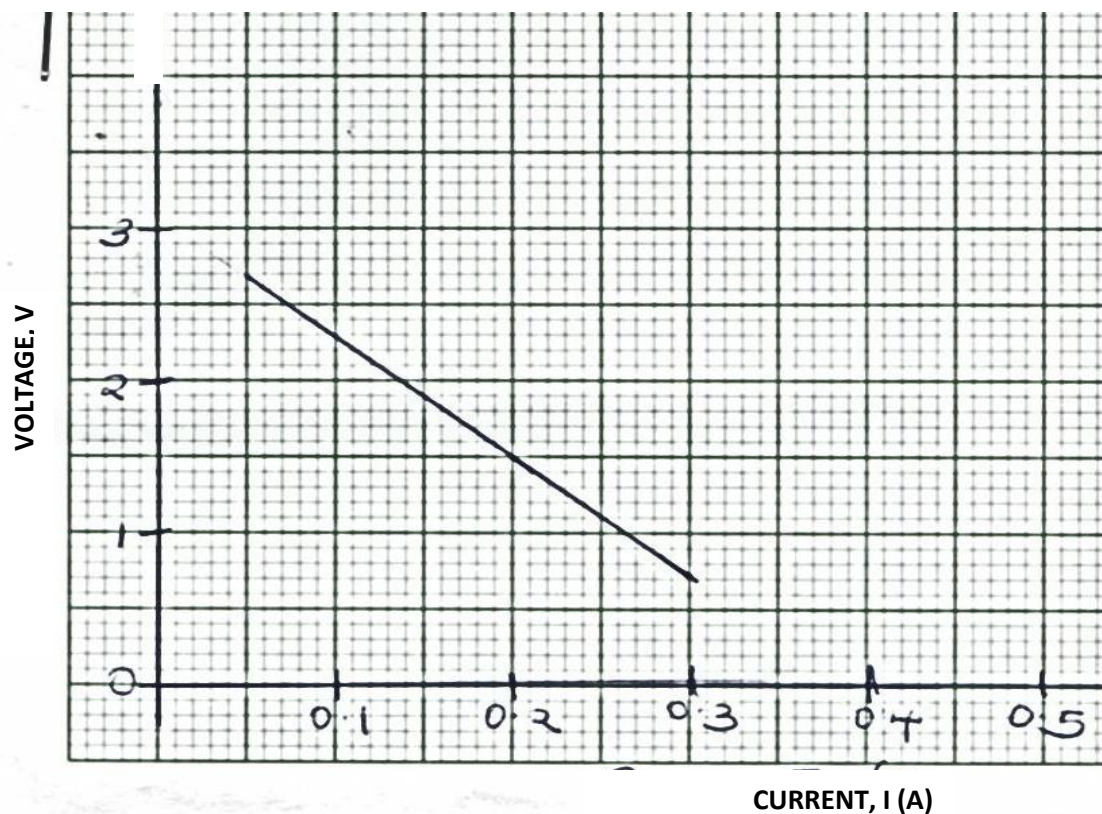
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b) i) State one condition for Ohm's law to hold

(1mark)

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ii) The graph below shows a voltage-current graph for a cell.



Determine;

i) The e.m.f of the cell.

(1 mark)

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ii) The internal resistance of the cell given that $E = V + Ir$

(3 marks)

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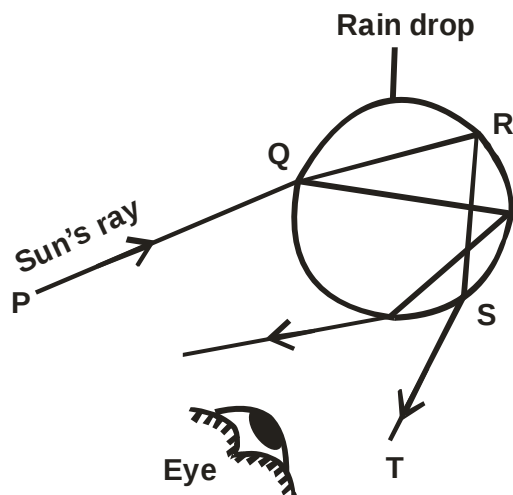
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18.a) Figure shows how light is dispersed to produce a rainbow when it passes through a raindrop.



State with reasons, what is happening to the ray of light at points.

i) Q

(2 marks)

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ii) R

(2 marks)

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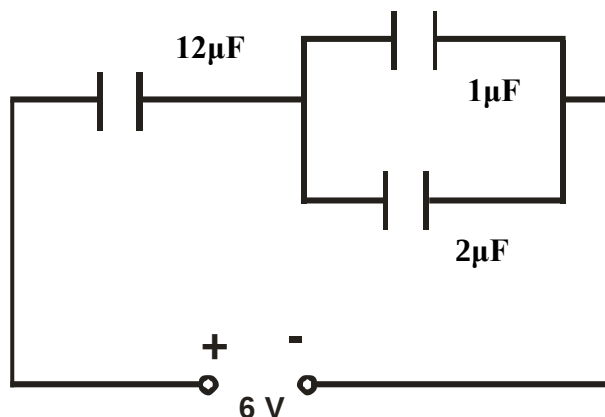
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- b) Three capacitors are connected as shown in figure 9 below with a battery of e.m.f 6V and zero internal resistance.



Calculate the;

- i) Effective capacitance. (2 marks)

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- ii) Charge on the $12\mu\text{F}$ capacitor. (2 marks)

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- iii) State **two** factors that increases capacitance of parallel plate capacitor. (2 marks)

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NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

232/3

PHYSICS

PRACTICAL

PAPER 3

TIME: 2½ HOURS

SCHOOL.....

SIGN.....

Kenya Certificate of Secondary Education.

232 / 3

PHYSICS

CONFIDENTIAL

CONFIDENTIAL TO ALL NATIONAL SCHOOLS FOR PHYSICS TEACHERS

INSTRUCTIONS TO SCHOOLS

The information contained in this paper is to enable the **Head of the school** and the **teacher in charge of Physics** to make adequate preparations for this year's physics practical mock examination. **NO ONE ELSE** should have access to this paper or acquire knowledge of its contents for **"KCSE REVEALED Exams"**. Great care **must** be taken to ensure that the information herein does not reach the candidates either directly or indirectly. Physics teachers **SHOULD NOT** perform any of the experiments in the same room as the candidates or make the results of the experiments available to the candidates or give any other information related to the experiments. Doing so will constitute an examination irregularity which is punishable.

- 1) The apparatus required by each candidate for the Physics practical examination are set out on page 2 of this paper. It is expected that ordinary apparatus of a Physics laboratory will be available

- 2) The Physics teacher should note that it is his/her responsibility to ensure that each apparatus acquired for this examination agrees with the specification on page 2 of this paper
- 3) Teachers are reminded that electronic calculators may be allowed in this examination room.
- 4) The question paper will **not** be opened in advance

NB:- ANY USE OF APPARATUS OTHER THAN THE ONES SPECIFIED MAY LEAD TO CANDIDATES BEING PENALIZED

Each student will require the following :-

1. 2 new dry cells (size D)
2. A cell holder
3. A switch
4. An ammeter (0-2.5A)
5. A voltmeter (0 – 5v)
6. 6 connecting wires
7. 2 crocodile clips
8. A nichrome wire 1.0m long mounted on a scale (SWG 32) labeled X
9. A candle
10. A lens ($f = 20 \text{ cm}$) and a lens holder
11. A screen
12. A metre rule
13. Rubber bung (hard).
14. Vernier calipers (shared).
15. Electronic beam balance (shared).(which records to 1 d.p.)
16. a retort stand, one boss, one clamp
17. One 500ml beaker $\frac{3}{4}$ full of water
18. One 100g mass
19. One 50g mass
20. 3 pieces of thread approximately 30cm long

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

232/3

PHYSICS

PRACTICAL

PAPER 3

TIME: 2½ HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

232 / 3

PHYSICS

PAPER 3

TIME: 2 HRS 30 MIN

INSTRUCTIONS

Answer all the questions in the spaces provided

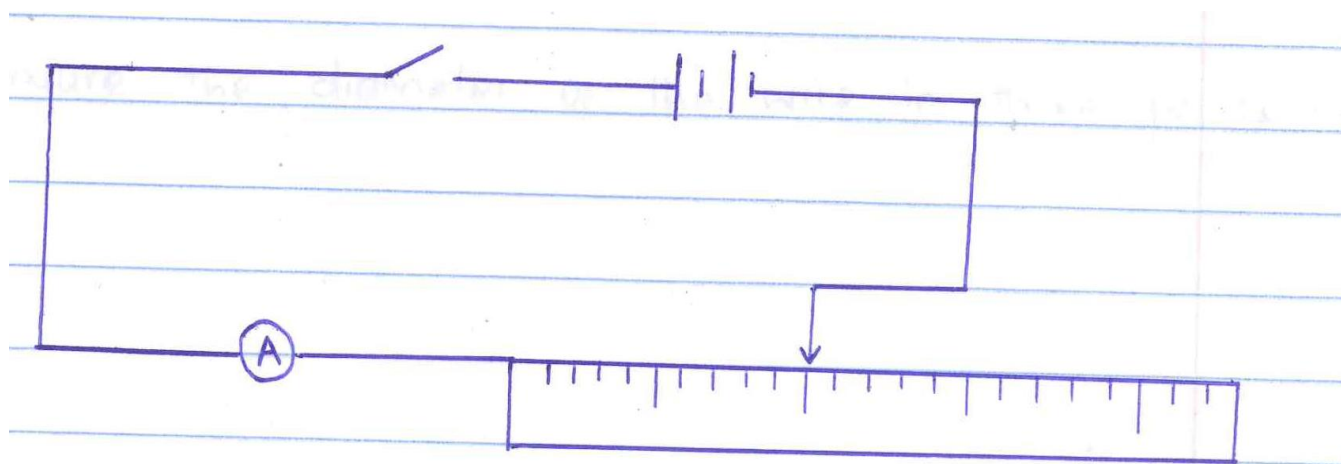
Question 1:

Each student will require the following

- 2 new dry cells (size D)
- A cell holder
- A switch
- An ammeter (0-2.5A)
- A voltmeter (0 – 5v)
- 6 connecting wires
- 2 crocodile clips
- A nichrome wire 1.0m long mounted on a scale (SWG 32) labeled X
- A micrometer screw gauge (can be shared)

Proceed as follows

a) Connect the circuit as shown in the figure below



b) Measure the voltage, E (across the cells) before closing the switch

$E = \dots\dots\dots$

(1mk)

c) Adjust the length L of the wire 0.2, close the switch S and read the value of current and record the table below

Length L (m)	0.2	0.3	0.4	0.5	0.6	0.7
Current I (A)						
$\frac{1}{I}$ (A^{-1})						

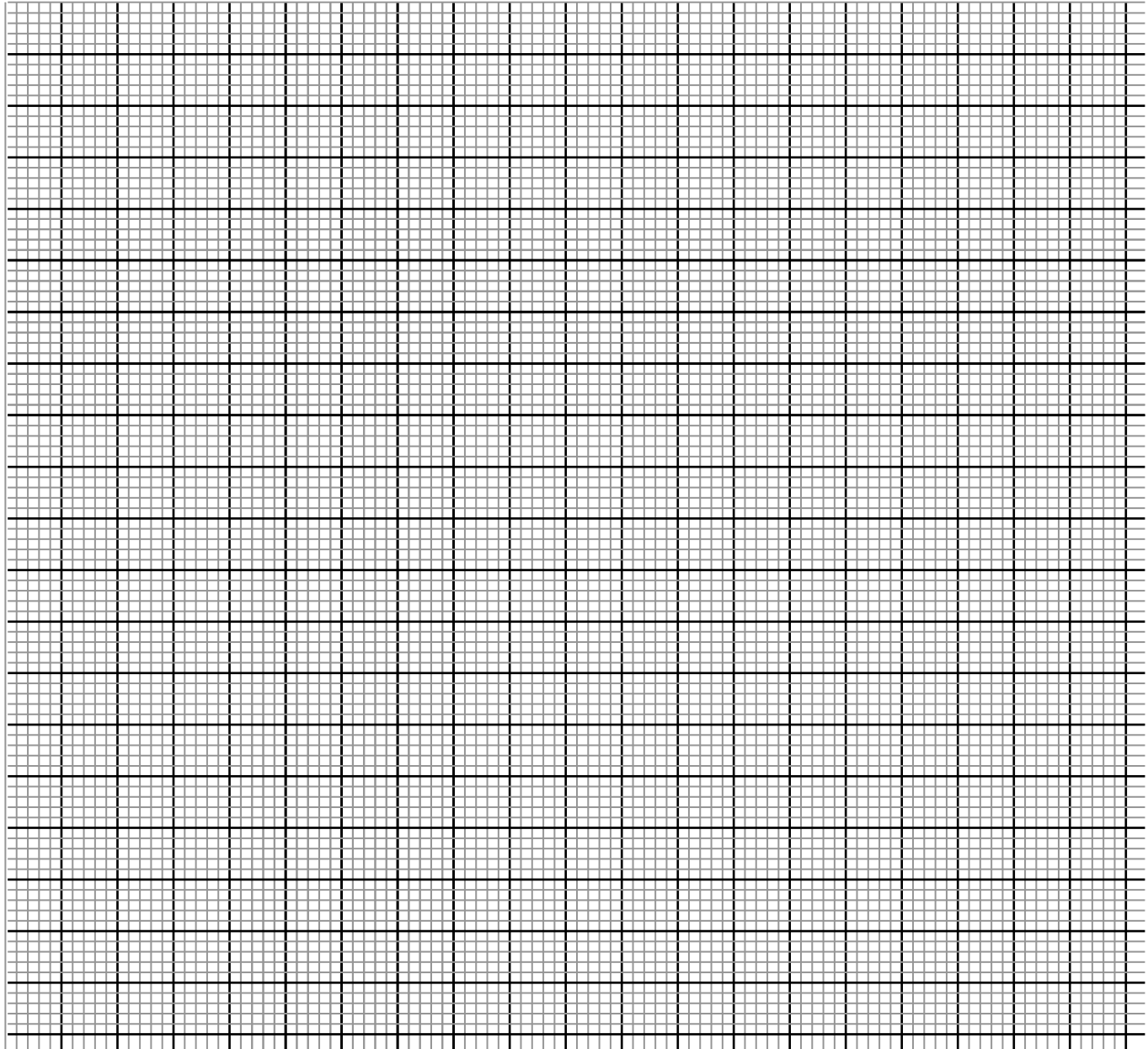
d) Repeat the procedure in (c) above for the value of lengths given

6mks)

e) Calculate the values of $\frac{1}{I}$ and record in table above

f) On the grid provided, plot a graph of $\frac{1}{I}$ (y axis) against L

5mks)



g) Determine the gradient of the graph

3mks)

h) i) Measure the diameter of the wire in three points used

$d_1 =$

$d_2 =$

$d_3 =$

Average $d =$

1mk)

ii) Determine the cross section area of the wire

2mks)

i) From the equation

$$\frac{1}{I} = \frac{kL}{AE} + \frac{Q}{E} \text{ determine,}$$

i) The value of k

2mks)

ii) The value of Q

1mk)

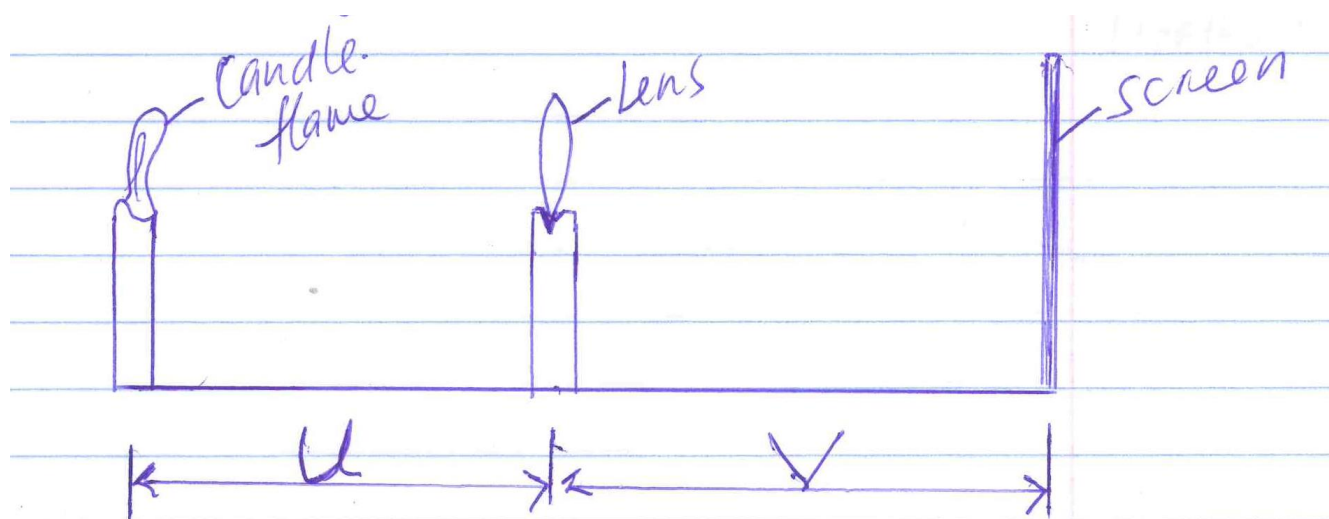
QUESTION 2.

Section A

You are provided with the following

- A candle
- A lens and a lens holder
- A screen
- A metre rule

a) Set up the apparatus as shown in figure below (ensure that the candle flame and the lens are approximately the same height above the bench)



b) Set the position of the lens so that the 40cm from the candle ($U=40$). Adjust the position of the screen until a sharp image of the candle flame is obtained. Measure the distance, V between the lens and the screen. Record the value of V_1 $V = \dots\dots\dots \text{cm}$)

1mk)

c) Repeat the procedures in b) above for other values of U in the table b below.

Table b)

$U(\text{cm})$	45	50	55
$V(\text{cm})$			
Magnification (m) $\frac{v}{u}$			

- d) Given that $f = \frac{v}{m+1}$, where f is the focal length of the lens, use the results in table above to determine the average values of f . 4mks)

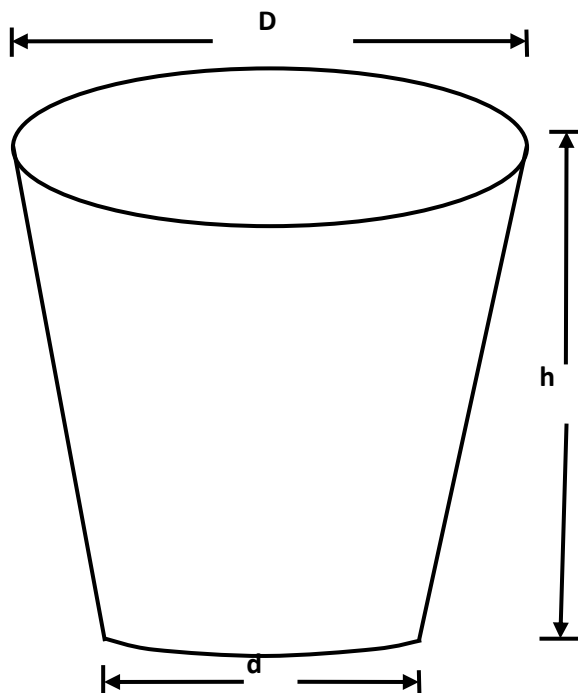
PART B.

You are provided with the following:

- rubber bung.
- vernier calipers.
- beam balance.

Proceed as follows:

- a) Using a vernier caliper, measure the lengths D , d , and h as shown in **figure 2**.



$D = \dots\dots\dots$ m (1 mark)

$d = \dots\dots\dots$ m (1 mark)

h = m

(1 mark)

b) (i) Measure the mass, M of the rubber bung using the beam balance.

M = kg

(1 mark)

(ii) Given that $Q = \left(\frac{d + D}{4} \right)$, determine the value of Q.

(1 mark)

(iii) Determine the value of r given that $\pi r Q^2 = \frac{M}{h}$

(3mark)

(iv) what are the units of r

(1 mrk)

(v) what is the significance of r

(1 mrk)

SECTION C

You are provided with the following

- a metre rule
- a retort stand, one boss, one clamp
- One 500ml beaker $\frac{3}{4}$ full of water
- One 100g mass
- One 50g mass
- 3 pieces of thread approximately 30cm long

Procedure

- a) Balance the metre rule horizontally by suspending it from the stand and clamp with one of the threads.

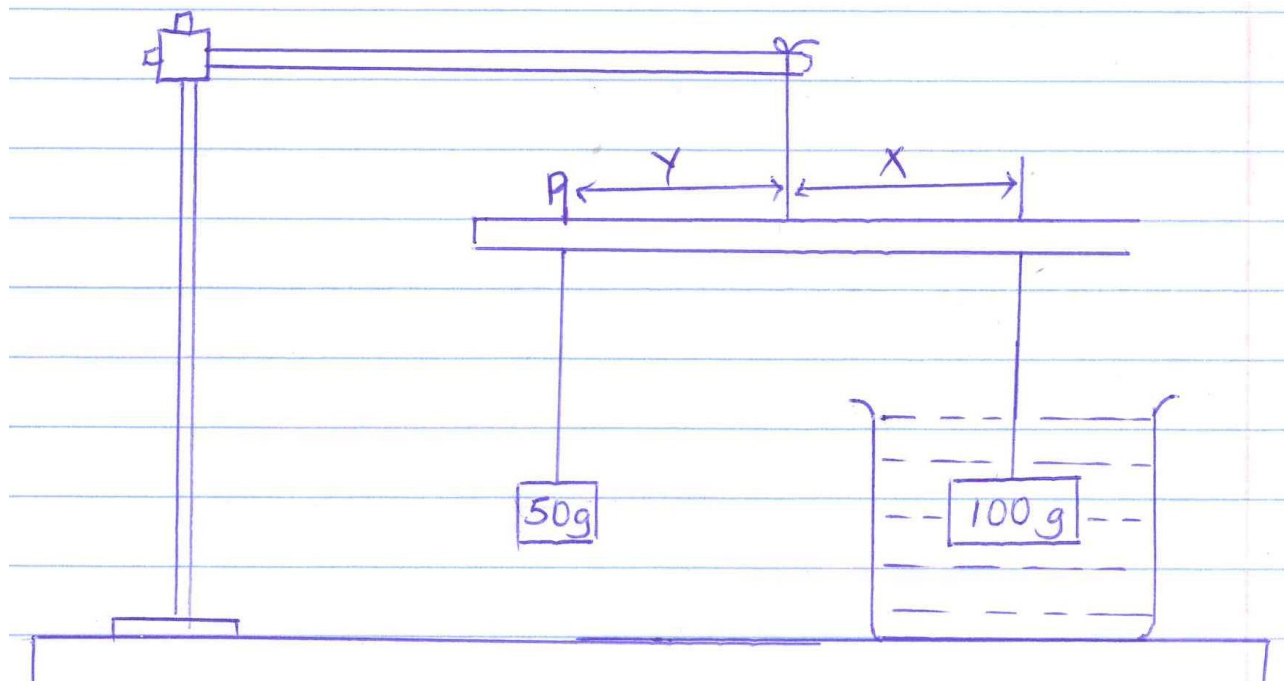
Record the balance point G

G = _____ cm 1mk)

- b) suspend the 100g mass from the metre rule at a point such that $x = 5\text{cm}$ from point G, with the 100g mass completely immersed in water in the beaker hang the 50g mass from the metre rule.

Note the point of suspension (p) of the mass

P= _____ 1mk)



c) Calculate the apparent weight of the 100 g mass in water.

3mk)

d) Find the upthrust of 100g mass in water.

2mk)

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

441/1

HOME SCIENCE

THEORY

PAPER 1

TIME: 2½ HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- (a) Write your name, school 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 **three** sections **A**, **B** and **C**.
(d) **All** the questions in Section **A** and **B** are compulsory.
(e) Answer any other **two** questions in section **C**.
(f) Answers to all the questions must be written in the spaces provided.

FOR OFFICIAL USE ONLY

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
A	1 – 20	40	
B	21	20	
C		20	
		20	
TOTAL SCORE		100	

SECTION A (40 MARKS)**Answer all questions in the spaces provided**

1. State **two** uses of lemon in cooking (2 marks)

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.....

2. Name **two** textile fibres of animal origin (1 mark)

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.....

3. Distinguish between a scald from a burn (2 marks)

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4. State **three** factors to consider when choosing sleeves for a garment (3 marks)

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5. Give **two** reasons for blanching vegetables (2 marks)

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6. List **four** items in a first aid kit that may be used to manage a sprain (2 marks)

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7. Name **two** vaccines a child is given at the age of nine months (2 marks)

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8. Give **two** uses of a loose cover on upholstery (2 marks)

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9. Give the meaning of the following terms in relation to colour:

(a) Hue

.....

..... (1 mark)

(b) Intensity

.....

..... (1 mark)

(c) Value

.....

..... (1 mark)

10. State two factors that may affect a budget (2 marks)

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11. Differentiate between batters and dough in flour mixtures (2 marks)

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12. State **two** positive effects of advertisement on the consumers. (2 marks)

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13. List four methods on neatening seams. (2 marks)

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14. What is food fortification? (2 marks)

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15. Give two reasons for using common salt when laundering handkerchief (2 marks)

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16. List **two** types of play in child development (2 marks)

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(17) Give **two** reasons for using facings on a garment (2 marks)

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(18) Name four methods of steaming foods. (2 marks)

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19. Give one reason for carrying out the following processes during cleaning: (2marks)

(a) Cleaning the window from outside then to the inside

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.....

(b) Closing the windows and the doors while sweeping

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20. Suggest two ways in which old newspapers may be used during the cleaning of a house (2 marks)

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SECTION B COMPULSORY (20 MARKS)

21. You are taking care of your uncle who is recovering from covid-19 infection;

(a) Explain how you would clean the cemented floor of his bedroom (9 marks)

(b) Describe how to wash and dry his woolen socks (6 marks)

(c) Sponge and press your Uncle's polyester tie (5 marks)

SECTION C***ANSWER ANY TWO QUESTIONS (40 MARKS)***

22. (a) Explain four factors to consider when weaning a baby (8 marks)
- (b) State four symptoms of roundworm infestation (4 marks)
- (c) Give four factors to consider when buying a sewing machine (4 marks)
- (d) Mention four qualities of a well constructed handmade button hole (4 marks)
23. (a) Giving a reason, identify four processes/methods that are not suitable when laundering loose coloured clothes (8 marks)
- (b) Explain four hygienic practices to observe during food storage (8 marks)
- (c) Suggest four factors that determine the repair method to be used on household articles (4 marks)
24. (a) Mention any five advantages of using left over food (5 marks)
- (b) State five duties of weights and measures inspectors (5 marks)
- (c) Suggest five reasons for caring for the sick at home (5 marks)
- (d) Highlight five advantages of lining a bedroom curtains (5 marks)

NAIROBI CLUSTER MOCK

JOINT EXAMINATION EXAM

441/2

HOME SCIENCE

PRACTICAL

PAPER 2

TIME: 2½ HOURS

NAME.....

SCHOOL.....

SIGN.....

INDEX NO

DATE.....

Kenya Certificate of Secondary Education.

441 /2

HOMESCIENCE

(CLOTHING CONSTRUCTION)

(PRACTICAL)

PAPER 2

2 ½ HOURS

Instructions to candidates

- a) This paper consists of 3 printed pages.
- b) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing.
- c) Candidates **MUST** use machine stitches appropriately in the construction of the garment. Hand stitches used **INSTEAD** of machine stitches will not be marked.
- d) Hand stitches will only be allowed for the making of hemming, tacking and loop stitches.

A pattern of a girls dress is provided. You are advised to study sketches, instructions and layout carefully before you begin the test.

Materials provided

1. Pattern pieces
 - A. Bodice front
 - B. Bodice back
 - C. Skirt front
 - D. Skirt back
 - E. Collar
- F. Cut out a cross way strip measuring 18cm long by 4cm wide
2. Plain light weight cotton fabric 70cm long by 90cm wide
3. Cotton sewing thread to match the fabric
4. One large envelope

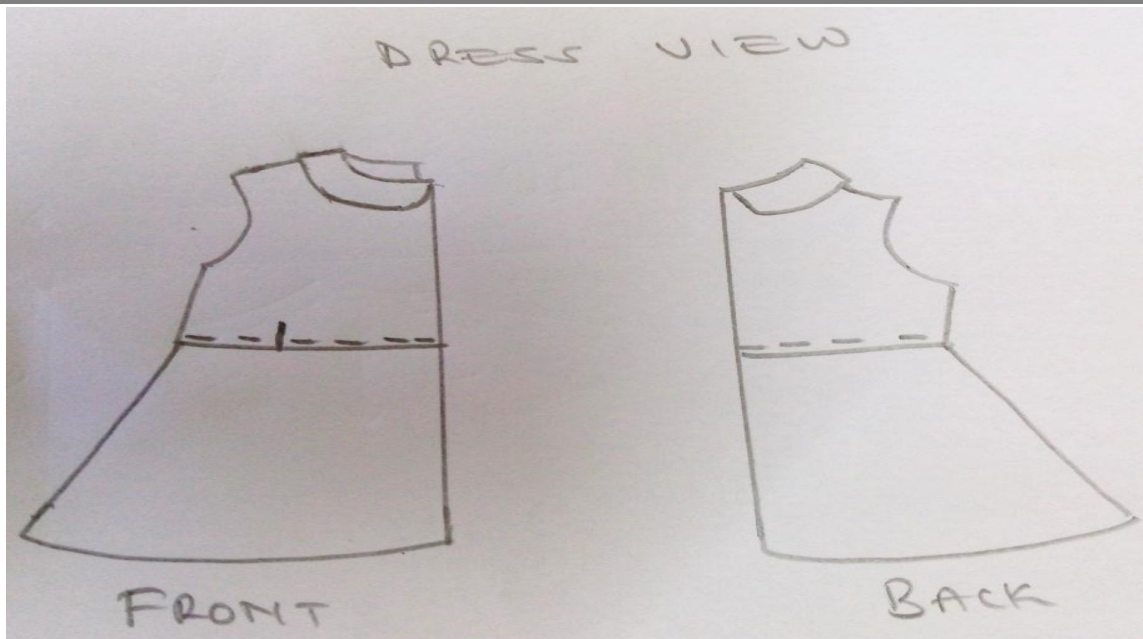
THE TEST

Using the materials provided, cut out and make the **LEFT SIDE** of the girl's dress to show the following processes:

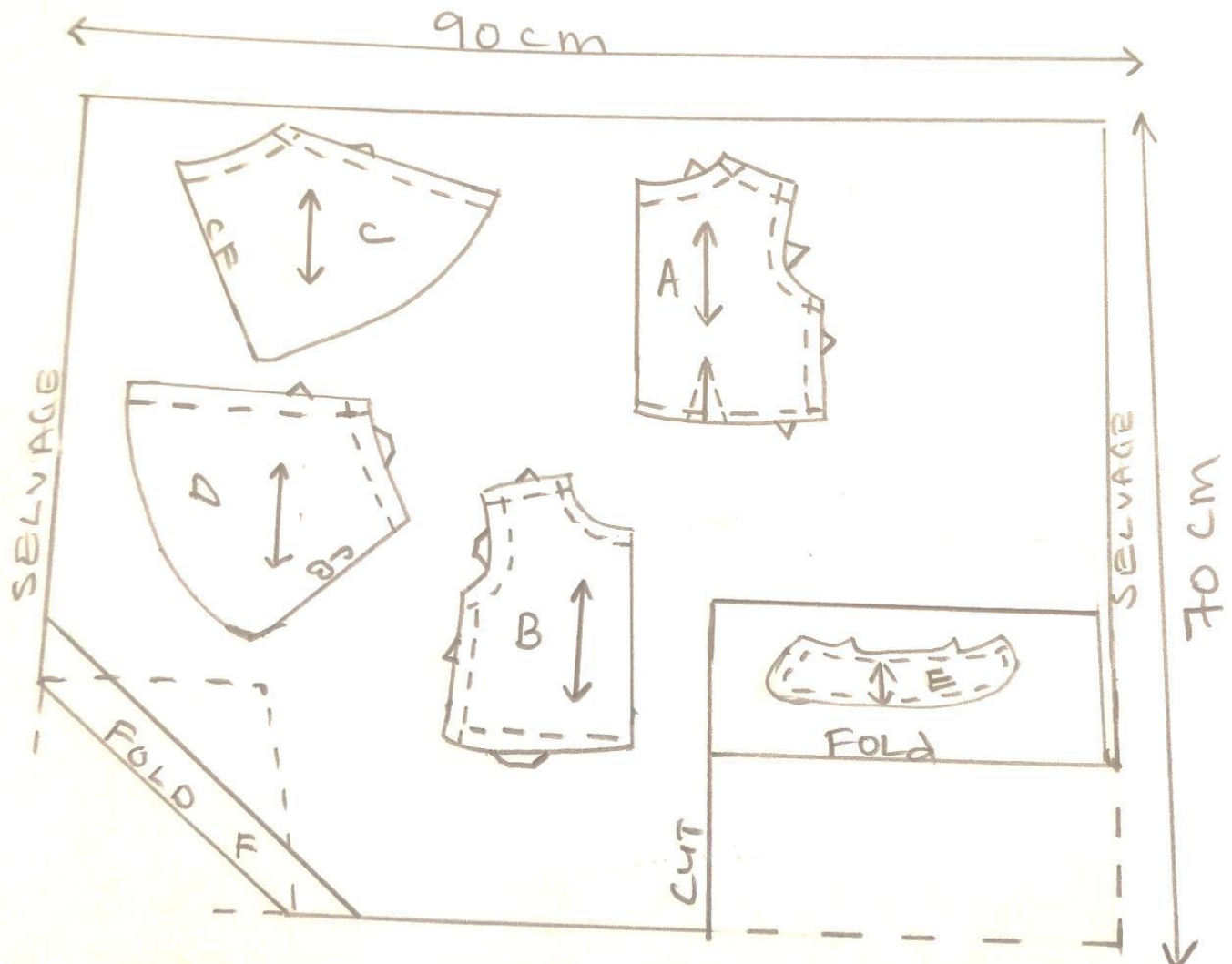
- | | | |
|-----|---|--------------|
| (a) | Cutting out | (18 marks) |
| (b) | Making of the dart at the front bodice | (6 ½ marks) |
| (c) | Making of the shoulder seam using an open seam | (13 ½ marks) |
| (d) | Making of the side seam on the bodice and skirt using a French seam | (22 marks) |
| (e) | Attaching of the bodice pieces to the skirt pieces using an overlaid seam and neatening of half of the back seam using overcasting stitches | (9 marks) |
| (f) | Preparation of the collar. Attaching of the collar using a crossway strip | (13 marks) |
| (g) | Edge stitching at the hem ready for attachment | (2 marks) |
| (h) | Overall presentation | (6 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. Fold your work neatly and place it in the envelope provided.

Do not put scraps of fabric in the envelope.



LAY OUT (NOT DRAWN TO SCALE)



THE END

FOR THE FOLLOWING;

- ✓ **ONLINE TUITION**
- ✓ **REVISION NOTES**
- ✓ **SCHEMES OF WORK**
- ✓ **SETBOOKS VIDEOS**
- ✓ **TERMLY EXAMS**
- ✓ **QUICK REVISION KITS**
- ✓ **KCSE TOPICALS**
- ✓ **KCSE PREMOCKS**
- ✓ **TOP SCHOOLS PREMOCKS**
- ✓ **JOINT PREMOCKS**
- ✓ **KCSE MOCKS**
- ✓ **TOP SCHOOLS MOCKS**
- ✓ **JOINT MOCKS**
- ✓ **KCSE POSTMOCKS**
- ✓ **TOP SCHOOLS PREDICTIONS**
- ✓ **KCSE PREDICTIONS**
- ✓ **KCSE REVEALED SETS**

CALL/TEXT/WHATSAPP

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