FORM 3 ENDYEAR EXAMS

ALL SUBJECTS

SERIES 2

SUBJECTS TESTED:

Maths, English,Kiswahili,Biology,Chemistry,Physics,History, French, CRE,Geography,Agriculture,Business Studies,French Home Science and Computer Studies.

A SINGLE COMPREHENSIVE PAPER IN EVERY SUBJECT

A Standard Compilation of well-organized updated End of Year Test Examinations for our Current Form 3 Students in preparation for promotion to Next Class.

Contact Mr Isaboke for marking schemes.

CALL/TEXT/WHATSAPP 0746-222-000

MWALIMU AGENCY

FORM 3 ENDYEAR EXAMS

SERIES 2

BIOLOGY

TIME: 2 HOURS

NAME…….. ADM NO…….....

SIGN……...……. DATE;……...

231

BIOLOGY

FORM 3

2 Hours

END OF TERM 3 EXAMINATION

INSTRUCTIONS TO CANDIDATES

- *Write your name and admission Number in the spaces provided above.*
- *Sign and write date of examination in the spaces provided above.*
- *Answer **ALL** questions in the spaces provided.*
- *All workings **must** be clearly shown where necessary.*

QUESTIONS	TOTAL MARKS	MARKS SCORED
1-25	100	

Answer ALL questions in the spaces provided

1.State the importance of the structure given below in a seed.

(a) Endosperm. **(1 mark)**

……

……

(b) Testa. **(1 mark)**

……

……

2.State function of the following in seed. Germination. **(2 mks)**

i) Water

……

……

ii) Enzymes

……

……

3.Which organelle would be numerous in the following cells; **(2 mks)**

a) Liver cell

……

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b) Palisade cell

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4.(a) Distinguish between transpiration and guttation. **(2mks)**

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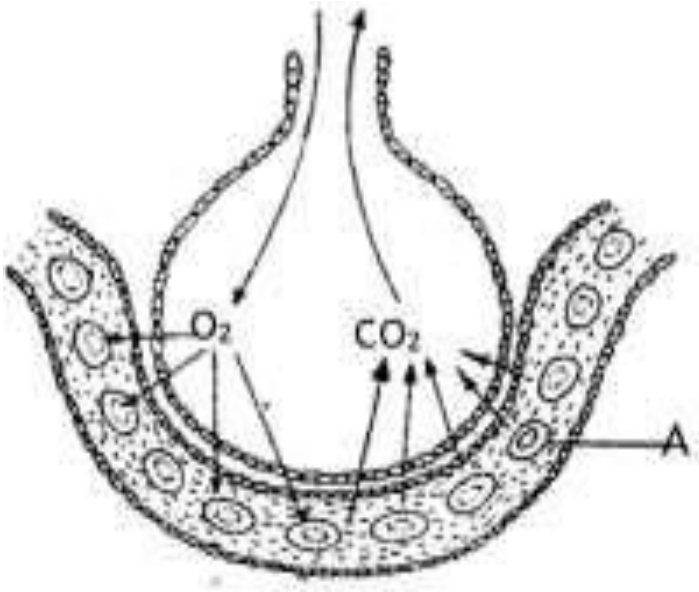
(b) State **two** importance of guttation in hydrophytes. **(2mks)**

……

……

……

5.The diagram **below** shows the exchange of gases in alveolus.



(i) State how the alveoli are adapted to their function. **(2mks)**

……

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(ii) Name the cell labelled **A**. **(1mk)**

……

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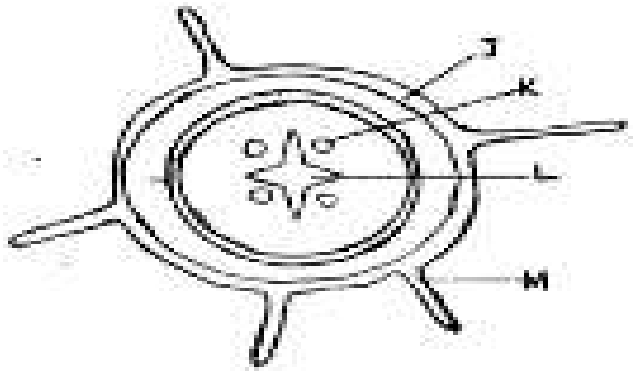
6. State **two** structural adaptations of veins to their function. **(2mks)**

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7.The diagram below represents a transverse section of a plant organ.



(a) From which plant organ was the section obtained? **(1mk)**

……

(b) Give **two** reasons for your answer in (a) above. **(2mks)**

……

……

……

(c) Name the parts labelled J and L. **(2mks)**

J:

L:

8.In what **two** ways does excretion differ between plants and animals? **(2marks)**

PLANTS	ANIMALS

9 Explain why there is increased heart beat during vigorous exercise in man. **(2 marks)**

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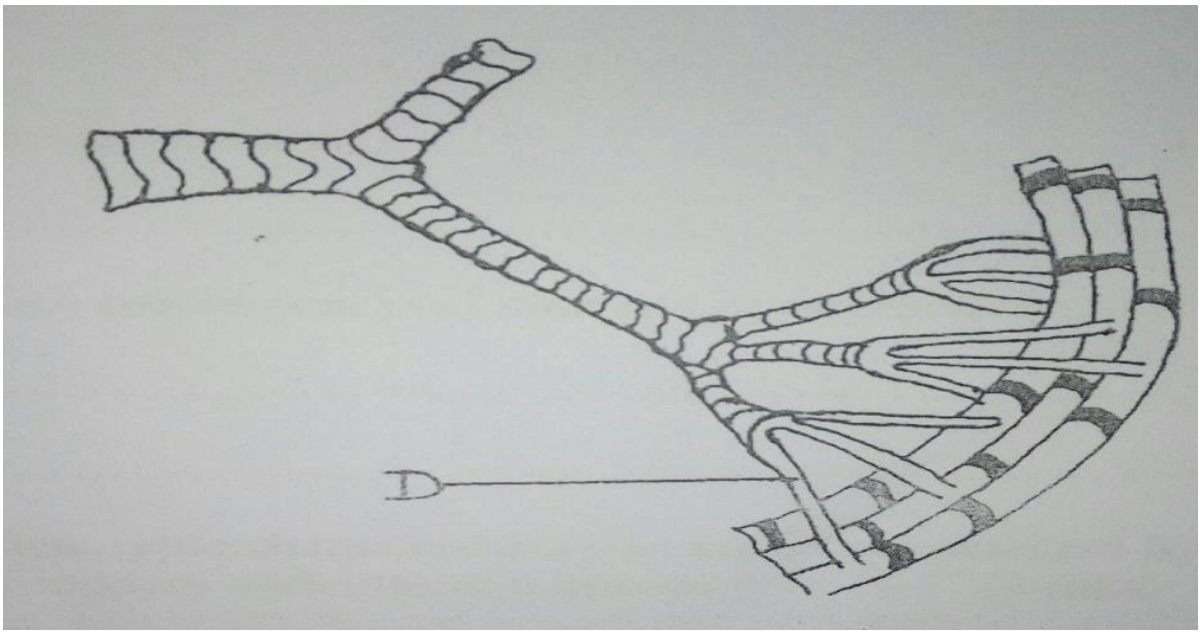
10. Outline two differences between division Bryophyta and division Pteridophyte **(2mks)**

Bryophyta	Pteridophyta

11. Below is a list of organisms, which belong to classes insecta, and arachnida. Tick, praying mantis, tsetse fly and spider. Place all the organisms in their respective classes in the table below. Give reasons in each case **(4mks)**

class	Organisms	Reasons

12. The diagram below is a structure used in gaseous exchange in insects



(a) Identify part labelled D **(1mk)**

……

(b) State **one** adaptation of structure D to its function **(1mk)**

……

……

(c) A person who has been smoking for many years was found to have a lot of dust and microorganism in the lungs. Explain **(2mks)**

……

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13. Below is a food chain extracted from a certain ecosystem.

Mango tree ⟶ caterpillars ⟶ sparrow ⟶ hawk.

a) Draw a pyramid of numbers for this feeding relationship **(1mark)**

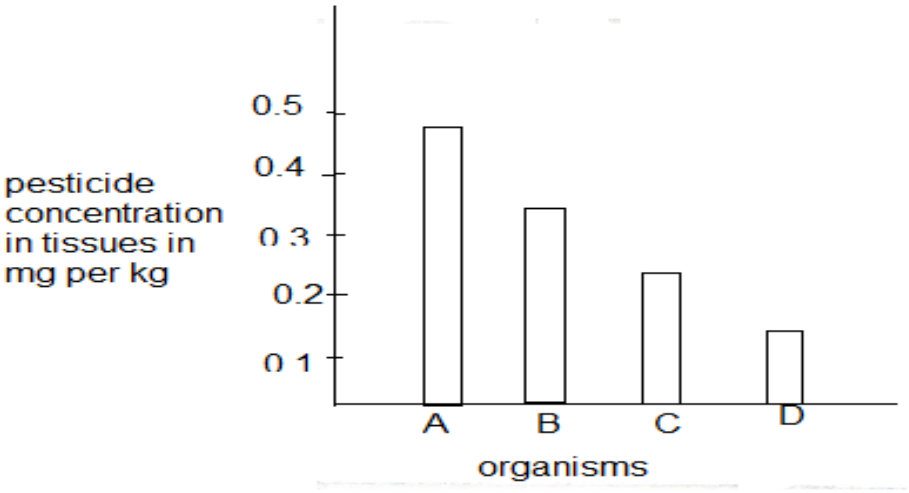
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b) The concentration of pesticides in the tissues of the organisms in the food chain was measured and the result plotted in the bar graph below



i)Which organism in the bar chart is the sparrow**?** **(1mark)**

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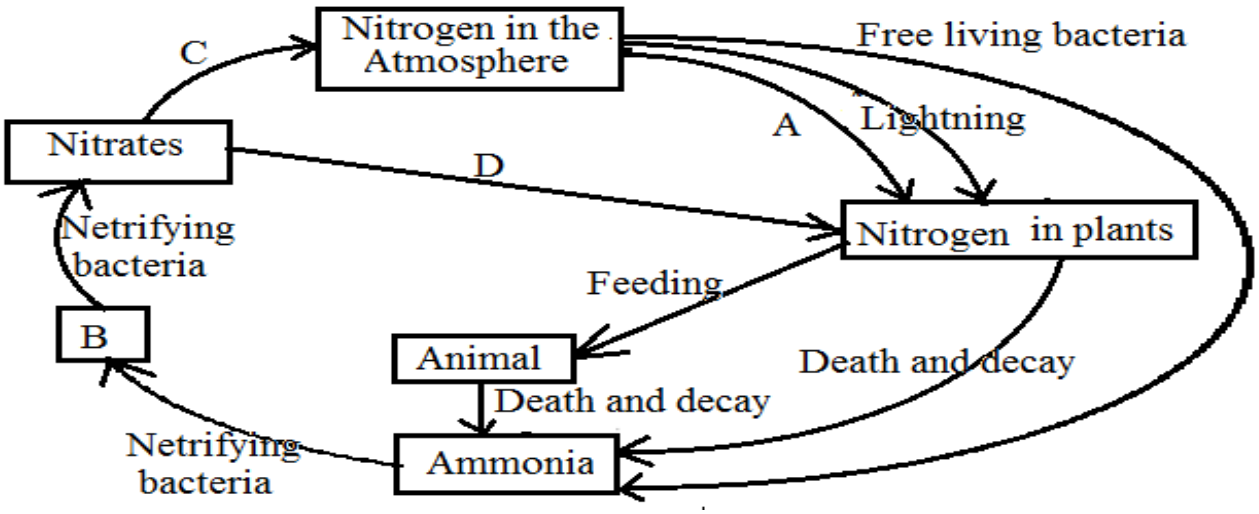
ii)Give reason for your answer**.** **(2mks)**

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14. The diagram below represents the nitrogen cycle.



(a) State the process labelled A and D. **(1mk)**

……

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(b) Name the compound represented by B. **(1mk)**

……

(c) Name the group of organisms labelled C. **(1mk)**

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(d) **(i)** Name the group of plants which promote process A. **(1mk)**

……

(ii) State the part of the plant where process a takes place. **(1mk)**

……

……

(e) How would excess pesticides in the soil interfere with process A. **(1mks)**

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15. The equation below represents a process that occurs in plants

$$C_6H_{12}0_6 \longrightarrow B + C_2H_5OH + Energy$$

a)Name the process **(1mk)**

……

b)Name the product B **(1mk)**

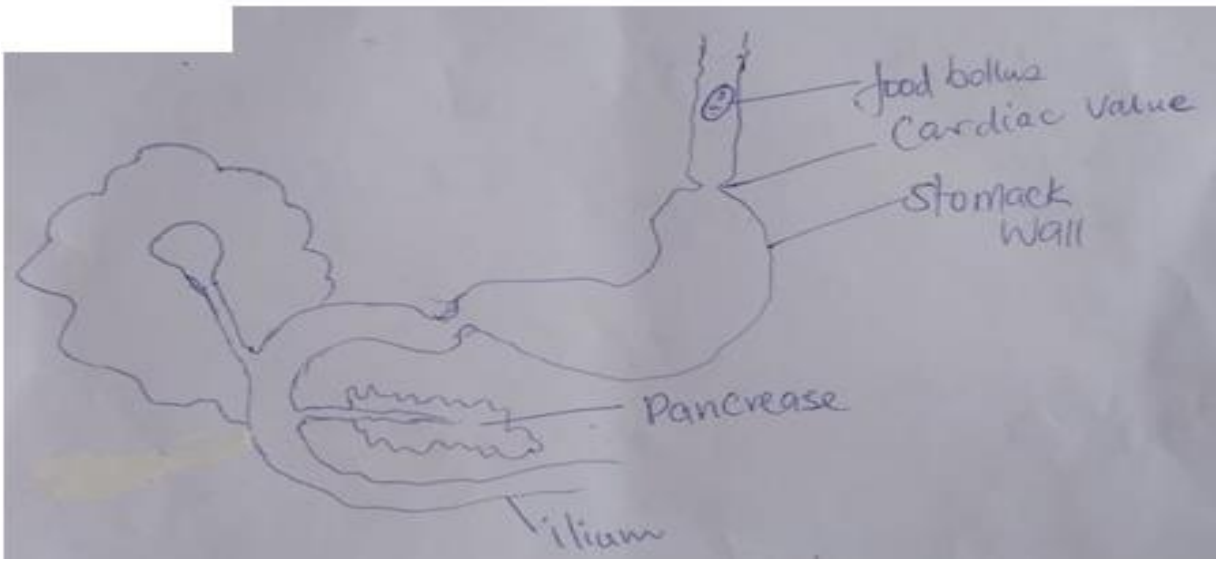
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c)State two economic importance of this process **(2mks)**

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16.Study the diagram below and then identify and correct the mistakes made in labelling (5 marks)



i)

ii)

iii)

iv)

v)

17.(a) State two main functions of a plant leaf**.** **(2 mks)**

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(b). Briefly explain what is reversed stomatal rhythm**.** **(2 mks)**

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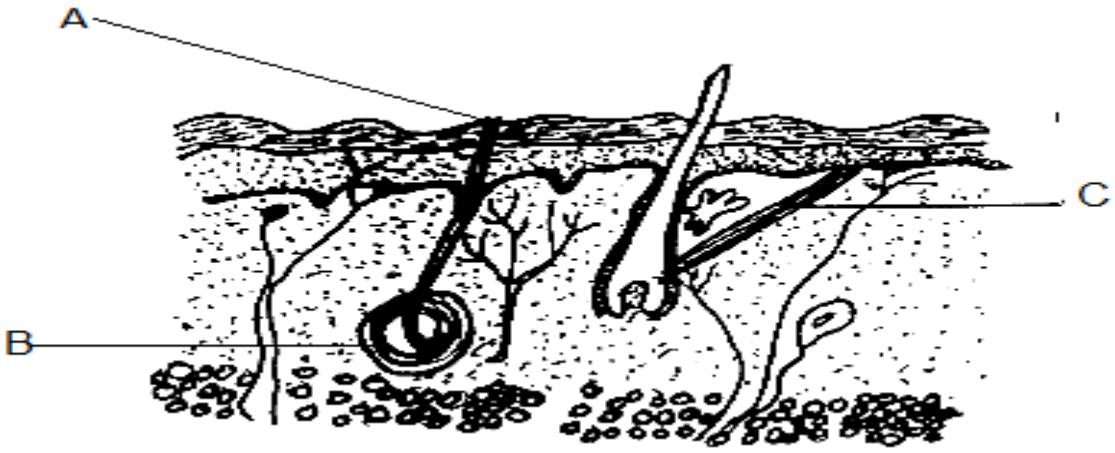
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18.a) Why should organisms excrete their waste products? **(2 mks)**

……

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(b). Study the diagram of skin below and then answer the questions that follow.



i) Label parts labelled B and C **(2 marks)**

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……

ii) What are components of the fluid produced by part labelled B**?** **(2 marks)**

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……

19.(a) Tabulate two differences between active transport and diffusion. (2 mks)

Active Transport	Diffusion

(b). List down two properties of a cell membrane that enable it to effect cell physiology. **(2 mks)**

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20.Name the excretory products stored in miraa and state one effect on human body. **(2mks)**

Excretory product	effect on the human body

21.(i). Briefly explain the importance of reproduction **(2 mks)**

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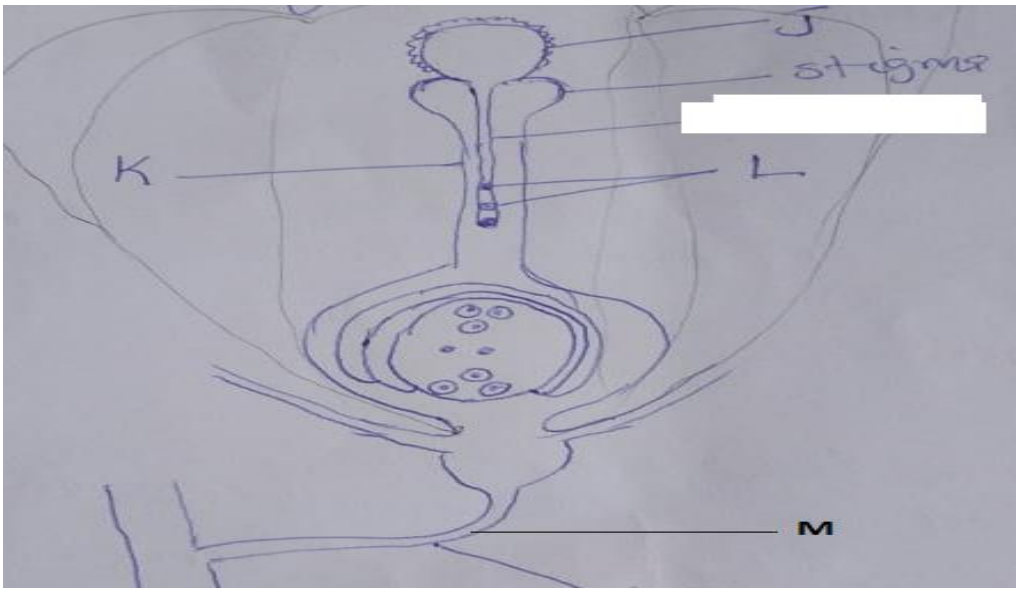
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ii. Outline two similarities between hormones oestrogen and testosterone **(2 mks)**

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22. Study the diagram of a plant part below and then answer the questions that follow.



(a) Name the parts labeled J and **L** **(2mks)**

……

……

……

(b). State two functions of the part labelled K in (a) (ii) above **(2 mks)**

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……

(c). After successful fertilization in a mango, what does structure labelled M become? **(1 mk)**

……

……

23. Vibrio cholerae is a bacterium that causes cholera. Through which process does it reproduce in the cholera patient? **(1 mk)**

……

24. Tinned food like beef, fish is very salty. What is the effect of salt in preservation? **(2mks)**

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25.Explain causes of air pollution and their effects on living organisms. **(20 mks)**

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FORM 3 ENDYEAR EXAMS

SERIES 2

BUSINESS STUDIES

TIME: 2 HOURS

NAME…….. ADM NO…….....

SIGN……..……. DATE;……...

INSTRUCTIONS

Answer All The Questions In The Spaces Provided.

1. Outline four characteristics of services. **(4 marks)**

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2. Outline four features of capital as a factor of production**.** **(4 marks)**

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3. Highlight four reasons why a farmer would prefer to transport a herd of cattle by rail rather than road. **(4 marks)**

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4. Highlight four reasons why a manufacturer of technical products would need to use shorter channel to distribute his goods**.** **(4 marks)**

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5. Name the type of warehouse associated with each of the statement given below.**(4 marks)**

	STATEMENT	TYPE
a)	Goods can be stored before payment of customs duty	
b)	Individuals can hire storage facilities	
c)	Goods are stored from several manufacturers	
d)	Specialised goods are stored	

6. The following balances were extracted from the books of Wanji Traders for the year ended 30th June 2015.

	Sh
Debtors	120,000
Creditors	60,000
Machinery	450,000
Cash in hand	70,000
Cash at bank	180,000
5 yearloan	270,000
Stock	60,000

Prepare a balance sheet of Wanji Traders as at 30th June 2015. **(4 marks)**

7. Outline four disadvantages of poor filing of documents in an office**.** **(4 marks)**

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8. Outline four circumstances under which a cooperative society may be dissolved. **(4 marks)**

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9. The table below represent the supply schedule of potatoes for eight weeks in the month of May and June 2015.

week	1	2	3	4	5	6	7	8
Quantity(metric tonnes)	505	485	430	375	340	290	215	195

Outline four causes of the trend in the table**.** **(4 marks)**

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10. Highlight four ways in which the technological environment may improve the business performance**.** **(4 marks)**

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11. Highlight four features of a monopoly market. **(4 marks)**

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12. State four functions of commercial attaches. **(4 marks)**

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13. On 2nd November 2007, Njeri received an invoice for sh 20,000. Terms of payment were trade discount 5% and cash discount 10 %. If payment is made within 30 days, determine the amount paid if payment was made on 28th November 2007. **(4 marks)**

14. Highlight four causes of change in capital of a business. **(4 marks)**

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15. Outline four reasons why most companies have adopted use of road shows to promote their products. **(4 marks)**

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16. Explain five characteristics of an entrepreneur. **(10 marks)**

17. Explain five factors that may lead to an increase in a country's national income. **(10 marks)**

18. Explain the procedure for making an insurance claim. **(10 marks)**

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19. Explain five types of unemployment. **(10 marks)**

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FORM 3 ENDYEAR EXAMS

SERIES 2

CHEMISTRY

TIME: 2 HOURS

NAME…….. ADM NO…….....

SIGN……...……. DATE;……...

233

CHEMISTRY

FORM THREE

TIME: 2 HOURS

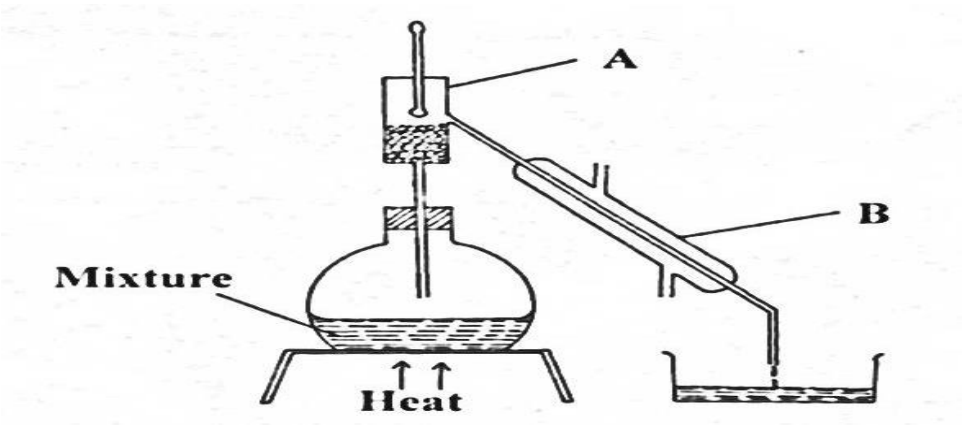
Kenya Certificate of Secondary Education

INSTRUCTIONS TO CANDIDATES: -

- *Write your name, Admission number and class in the spaces provided above.*
- *Answer all the questions in the spaces provided*
- *Candidates should answer the questions in English.*

QUESTIONS	TOTAL MARKS	MARKS SCORED
1-25	100	

1.The diagram below shows a set-up of apparatus used to separate miscible liquids.



a) Name the parts labelled A and B. **(2marks)**

A

B

b) State the function of the part labeled A . **(1mark)**

……

……

c) State the property of the mixture that makes it suitable to be separated by the method above.

(1 mark)

……

……

2. Study the table below which shows the pH values of solutions **A**, **B**, **C**, **D** and **E**.

Use it to answer the questions that follow.

Solution	A	B	C	D	E
pH	13.0	7.0	9.0	6.5	2.0

i) Which solution is the most acidic? **(1 mark)**

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(ii) Which solution is a neutral? **(1 mark)**

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(iii) Identify the solution that is most likely to be: **(3 marks)**

(a) Rain water

(b) Antacids tablet

(c) Sodium hydroxide

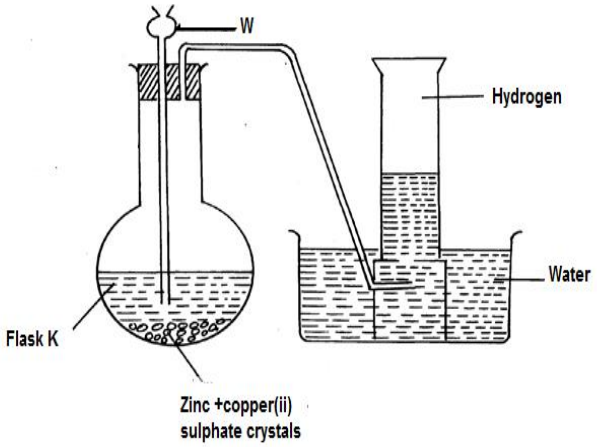
3. A student accidentally mixed potassium chloride with white sand in the laboratory. Briefly describe how the mixture can be separated**.** **(3mks)**

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4.The diagram below shows laboratory preparation of hydrogen gas. Use it to answer the questions that follow.



i)Identify solution **W** **(1mk)**

……

ii) State the observation made in flask K when liquid W is allowed to react with Zinc **(1mk)**

……

……

iii) What is the role/use of copper (ii) sulphate in the reaction **(1mk)**

……

……

iv) Write a word equation for the reaction producing hydrogen gas **(1mk)**

……

……

v) State any two drying agents for hydrogen gas **(2mks)**

……

……

vi) State any two properties of hydrogen gas **(2mks)**

……

……

vii) State any two uses of hydrogen gas **(2mks)**

……

……

5. Use the grid below to answer the questions that follow. The letters do not represent the actual symbols of elements.

				M		**O**	
F	**J**		**K**			**N**	**P**	**Q**
G								
H								

a) Give the family name of the group in which elements G and H are members? **(1mk)**

……

b)State and explain the difference in reactivity between ;

I. F and J **(1mk)**

……

……

II.O and P **(1mk)**

……

……

c).How does the atomic radius of N compare to that of Q? Explain . **(1mk)**

……

……

(d).Element R forms an oxide of the formula RO_2 and belongs to period two. Indicate in the grid the position of R. **(1 mk)**

……

……

e). Explain the trend in the melting points in the group of elements to which F and J belong? **(2mks)**

……

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……

(f). Give the formula of the compound formed between K and P. **(1mk)**

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……

(g).Name the type of bond formed when F reacts with O. Explain. **(2mks)**

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……

(h).Give one use of element Q ? **(1mk)**

……

……

(i).Give the electron arrangement of an ion of ;

G **(½ mk)**

M **(½ mk)**

6.Describe how a solid sample of Lead(II) Chloride can be prepared using the following reagents:Dilute Nitric Acid, Dilute Hydrochloric Acid and Lead Carbonate**.** **(3mks)**

……

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7.(a)State Charles's law **(1mk)**

……

……

(b).The volume of a sample of nitrogen gas at a temperature of 298k and 600minHg pressure was 4.8×10^{-2} m^3. Calculate the temperature at which the volume of the gas would be 3.2×10^{-2} m^3 if pressure is constant. **(2 mks)**

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8.A compound X is made of carbon, hydrogen and oxygen whose percentage composition by mass are 62.1%, 10.3% and the rest oxygen respectively. The relative molecular mass of X is 58 (H = 1, O = 16, C = 12) Determine the molecular formula of the compound. **(3 marks)**

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9. An element A has two isotopes ^{50}D and ^{52}D. The relative atomic mass of A is 51.5

Define the term isotopy **(1mk)**

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i) Determine the percentage abundance of each isotope. **(2mks)**

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10. Using dots (·) and crosses (×) to represent the outermost electrons, draw the structure to show the bonding in CO_2. (C=6, O = 8). **(2mk)**

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

……

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(b) 50cm^3 of Carbon (IV) Oxide diffuses through a porous plate in 15 seconds. Calculate the time taken by 75cm^3 of Nitrogen (IV) Oxide to diffuse through the same plate under similar conditions. (C = 12, 0 = 16, N = 14) **(2mks)**

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12. 12.0cm^3 of 0.05m hydrochloric acid reacted with calcium hydrogen carbonate to form calcium chloride, water and carbon IV oxide.

(a)Write the chemical equation for the reaction. **(1mk)**

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(b)Calculate the number of moles of hydrochloric acid used. **(2mks)**

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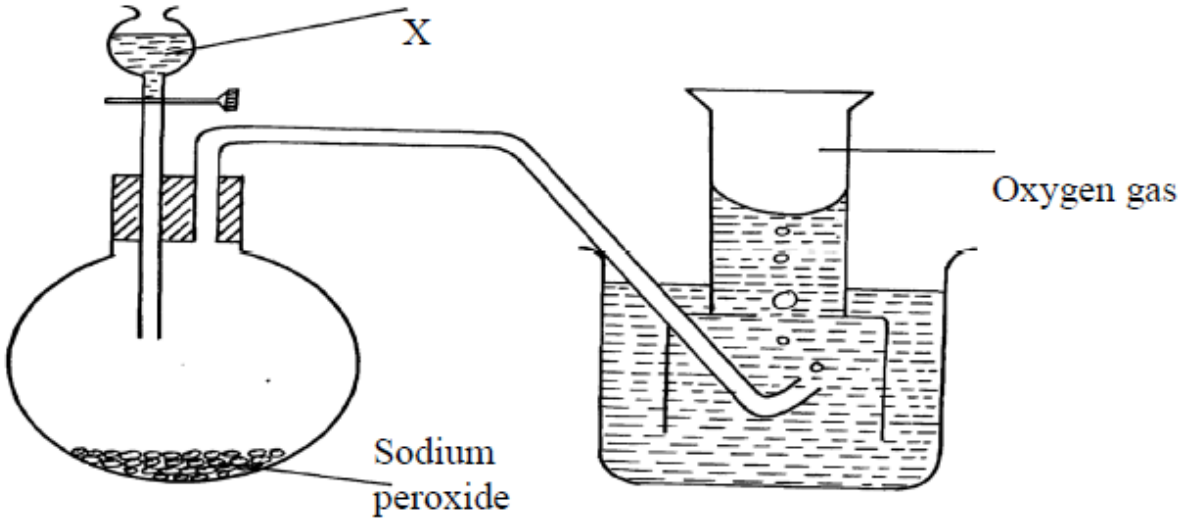
(c)Determine the number of moles of calcium hydrogencarbonate used. **(1mk)**

……

……

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13.The diagram below shows students set-up for the preparation and collection of oxygen gas



(a) Name substance X used **(1mk)**

……

(b) Write an equation to show the reaction of sodium peroxide with the substance named in **1(a)** **(1mk)**

……

(c) State ONE industrial uses of oxygen. **(1mk)**

……

14a) What is meant by Isomerism**?** **(1mk)**

……

……

b) Draw and name two Isomers of butane**.** **(2mks)**

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c)Give the name of the substance CH ≡ CH **(1mk)**

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15. Give two reasons why a luminous flame is not used for heating **purposes** **(2mks)**

……

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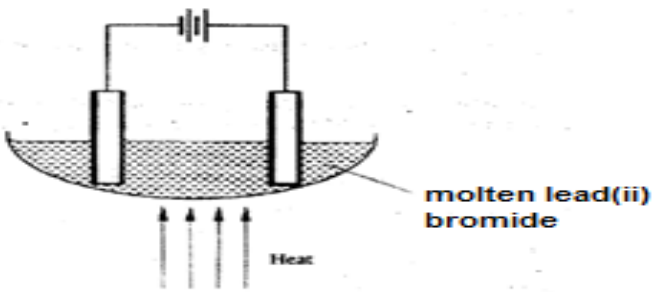
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16. Complete the table below to show the colour of the given indicator in acidic and basic solutions:

Indicator	**Colour in acidic solution**	**Basic solution**
Methyl orange	Pink	
Phenolphthalein		Pink

(2mks)

17.The set-up below was used to electrolyse a bromide of lead , $PbBr_2$.



(i) Write equation for the reactions at the

I cathode **(1 mark)**

II anode **(1 mark)**

(ii) The electrodes used in the experiment were made of carbon and lead. Which of the two electrodes was used as the anode? Give a reason. **(2 marks)**

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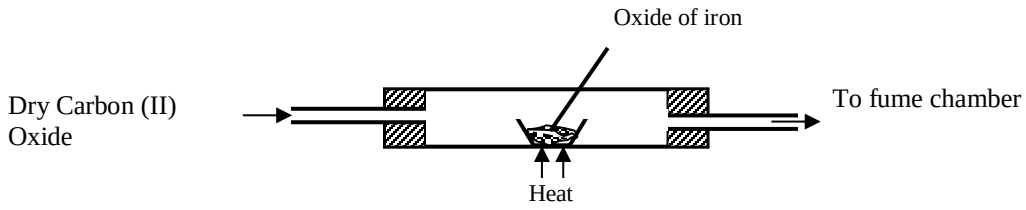
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(iii) Give a reason why this experiment is carried out in a fume cupboard. **(1 mark)**

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18. Excess Carbon (II) Oxide was passed over a heated sample of an oxide of iron as shown in the diagram below. Study the diagram and the data and use it to answer the questions that follow.



Mass of empty dish =6.72g

Mass of empty dish + oxide of iron =9.04g

Mass of empty dish + residue=8.40g

(a)Determine the formula of the oxide of iron given that the relative formula mass of oxide of Iron is 232. (Fe = 56.0, O=16.0) **(2marks)**

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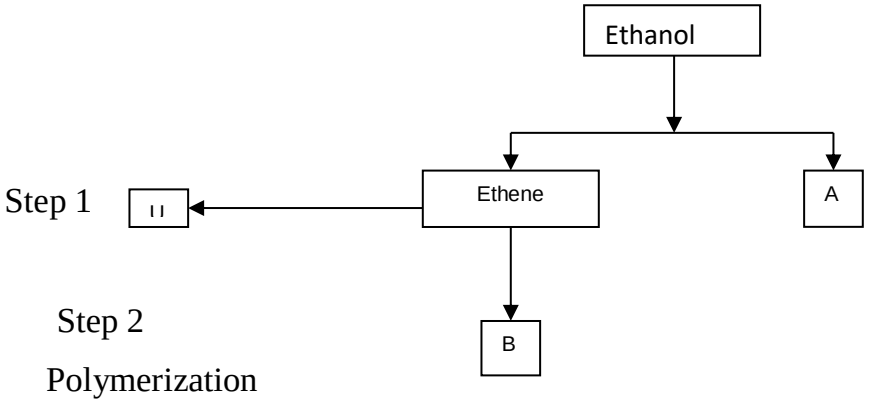
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(b) Write an equation for the reaction which took place in the dish **(1mark)**

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19.Study the flow chart below and answer the questions that follow.



Step 3. Temp. of 150^0

Nickel catalyst, H_2

a) Identify substances: A,B and C **(1½ marks)**

……

……

……

(b) State the conditions for the reaction in step 1 to occur. **(2mks)**

……

……

(c) Give one disadvantage of continued use of substances such as C. **(½mk)**

……

20. (a) When magnesium was burnt in air, a solid mixture was formed. On addition of water to the mixture a gas which turned moist red litmus paper blue was evolved. Explain these observations. **(2 marks)**

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(b)Describe the process by which Nitrogen is obtained from air on a large scale. **(4 marks)**

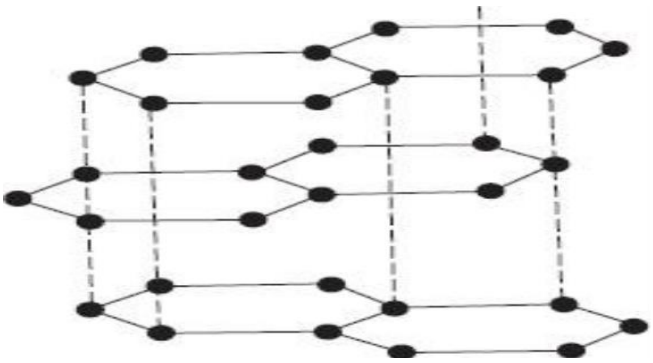
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21. The diagram below represents an allotrope of carbon.



a) Name the allotrope. **(1mk)**

b)Explain why:- **(2mks)**

(i) it is slipperly

(ii) Conducts an electric current

22.Use the information in the table to answer questions that follow. (The letters are not the actual chemical symbols of the element)

Element	Atomic radius (nm)	Ionic radius (nm)
M	0.158	0.097
N	0.202	0.132
L	0.133	0.061

Do these elements belong to a metallic or a non – metallic group? Give a reason. **(2mks)**

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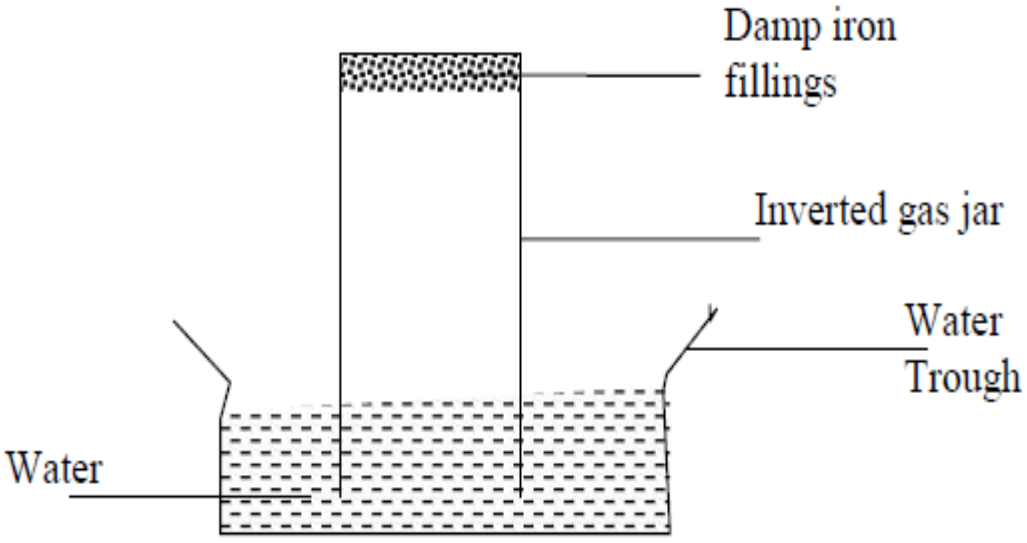
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Which element is the most reactive? Explain. **(1mk)**

……

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23.In an experiment a gas jar containing some damp iron fillings was inverted in a water trough containing some water as shown in the diagram below. The set-up was left un-disturbed for three days. Study it and answer the questions that follow:



(a) Why were the iron filings moistened? **(1mk)**

……

……

(b) State and explain the observation made after three days. **(2mks)**

……

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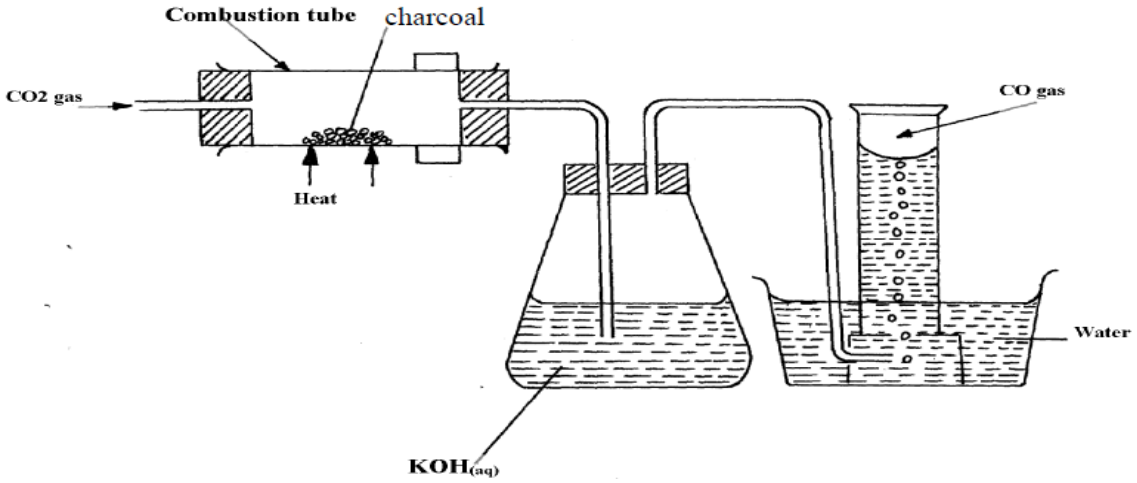
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(c) State two conclusions made from the experiment. **(1mk)**

……

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24.The set-up below was used to prepare **dry** carbon (II) Oxide gas. Use it to answer the questions below it:



(a) (i) State two mistakes committed in the set-up arrangement above **(2mks)**

……

……

……

(iii) Write the equation for the reactions taking place in the combustion tube and the conical. (1mk) flask:

……

……

(b) $PbO(s) + CO(g) \longrightarrow Pb(s) + CO_2(g)$

(i) Which property of carbon (II) Oxide is demonstrated by the above equation? **(1mk)**

……

(ii) State one use of carbon (IV) Oxide gas apart from fire **extinguisher** **(1mk)**

……

25. State the difference simple distillation and fractional distillation**.** **(2mks)**

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FORM 3 ENDYEAR EXAMS

SERIES 2

AGRICULTURE

TIME: 2 HOURS

NAME…….. ADM NO…….....

SIGN……...……. DATE;……...

443/1

AGRICULTURE

FORM THREE

TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

1. *This paper consists of three sections; A, B and C*
2. *Answer ALL the questions in sections A, B and C*
3. *All answers to be written in English*

FOR OFFICIAL USE ONLY

SECTION	QUESTION	MAX. SCORE	CANDIDATE SCORE
A	1 – 19	40	
B	20 – 25	30	
C	26 – 27	30	
	TOTAL	100	

SECTION A (40 MKS)

ANSWER ALL QUESTIONS IN THE SPACES PROVIDED

1. Differentiate between apiculture and aquaculture in livestock production. **(1 mk)**

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2. Give three reasons why primary cultivation should be done early before the onset of rains **(3 mks)**

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3. State three benefits of possessing a land title deed **(3 mks)**

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4. Name one exotic dairy cattle breed in Kenya which produces milk with

a. Highest butter fat content **(½ mk)**

b. Lowest butter fat content **(½ mk)**

5. Give four reasons why burning of vegetation is discouraged as a method of land clearing. **(2 mks)**

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6. State two reasons for tooth clipping in piglets. **(1 mk)**

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7. Outline two methods of stocking a beehive **(1mk)**

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8. Differentiate between flushing and steaming up. **(2mks)**

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9. The table below shows gross margins of four crops that a farmer is deciding to grow.

CROP	GROSS MARGIN/HA
Cabbages	25,000
Bananas	16,000
French beans	21,000
Kales	10,000

a. Which crop should the farmer grow? Give reason. **(2 mks)**

b. What is the farmer's opportunity cost? **(1 mk)**

10. Outline four characteristics of the mother plant from which stem cuttings should be obtained.

(2 mks)

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11. Give three reasons for seasoning timber. **(1 ½ mks)**

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12. a). State the gestation period of the livestock animals given below

i. rabbit **(½ mk)**

ii. sow **(½ mk)**

b). Enumerate four disadvantages of natural mating. **(2 mks)**

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13. Describe how the following factors cause loss of soil fertility.

a). Leaching **(1 mk)**

b). Mono-cropping **(1 mk)**

14. A farmer was preparing concrete blocks by mixing ingredients in the ratio of 1:3:4. Name the ingredients represented by the numbers 1, 3 and 4. **(1 ½ mks)**

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15. Outline two functions of a screen in a fishpond. **(2mks)**

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16. Give three ways in which trees help in soil and water conservation. **(3 mks)**

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17. List two biotic factors that affect livestock production in Kenya. **(2mks)**

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18. Name the function of the following parts in a poultry digestive system.

i. Crop **(1mk)**

ii. Gizzard **(1mk)**

19. Name the equipment used alongside each of the following

i. Trocar – **(1mk)**

ii. Bull – ring – **(1 mk)**

iii. Wood chisel – **(1mk)**

iv.Elastrator – **(1mk)**

SECTION B (30 MKS)

ANSWER ALL QUESTIONS IN THIS SECTION IN THE SPACES PROVIDED.

20. Below is a method of identifying a cow

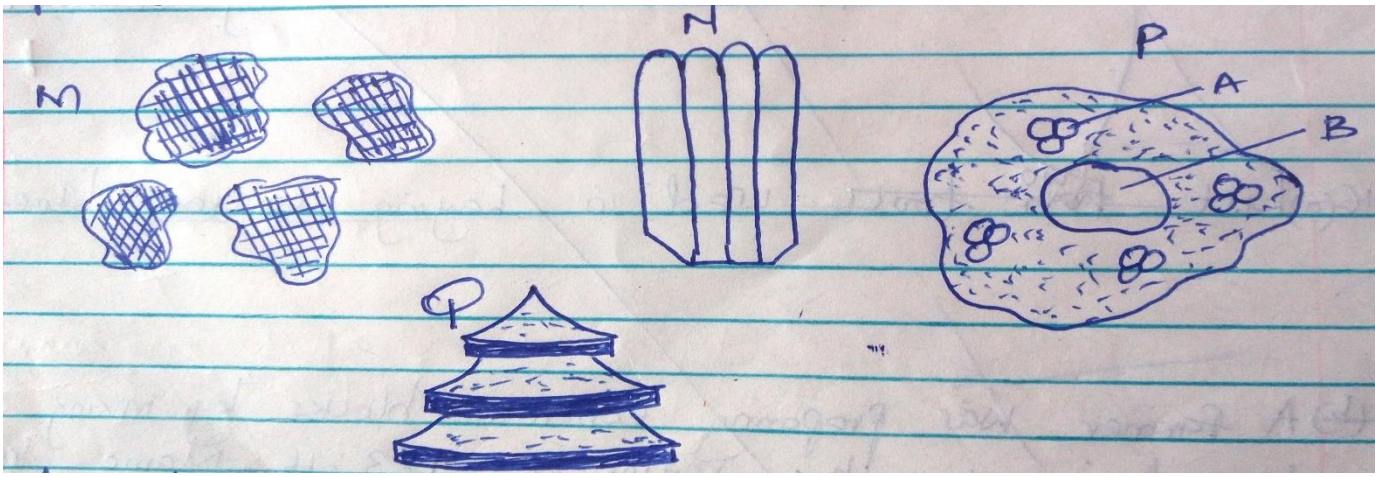


a). Name the method of identification. **(1mk)**

b). From the diagram, state the number of the animal. **(1mk)**

c). Using the diagram, illustrate how you would identify animal number 12 and 15. **(2mks)**

21. The diagram below illustrates various soil structures. Study them carefully and answer questions that follow.



a). Name the type of soil structure labeled M, N, P and Q. (4mks)

M

N

P

Q

b). Name the parts labeled A and B in the soil structure labeled P. (2mks)

c). Describe two ways in which soil structure affects crop growth. **(2mks)**

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22. The diagram below shows common farm weeds.



a). Identify the weeds labeled J and K. **(2mks)**

J

K

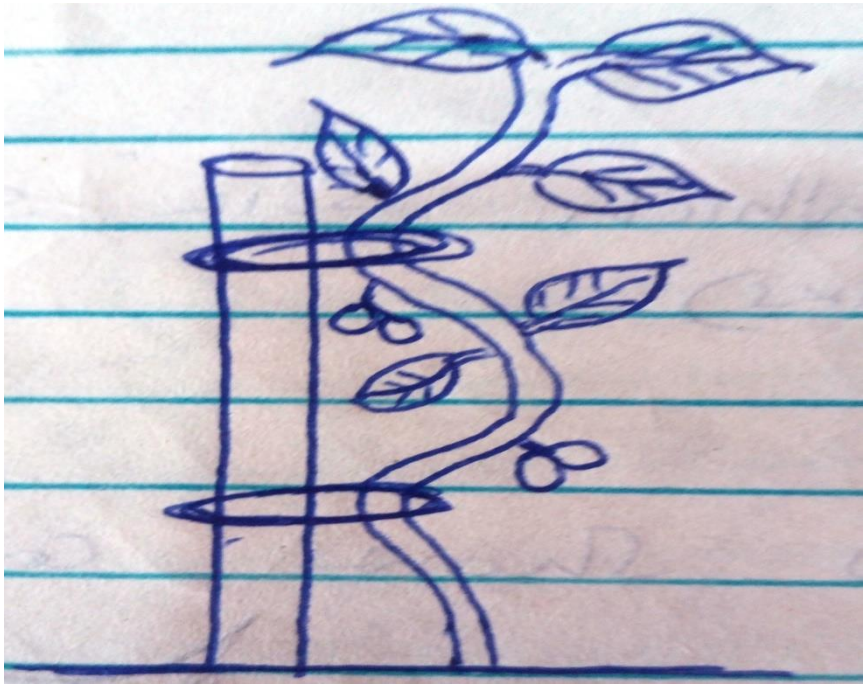
b). Classify weed J according to its life cycle. **(1mk)**

c). State one harmful effect of weed K to livestock. **(1mk)**

23. a). A fertilizer has the grade 10:5:15. What do the numbers 10, 5 and 15 represent? **(3mks)**

b). Calculate the amount of K_2O in 300kgs of a compound fertilizer 10:20:30. **(2mks)**

24. The diagram below illustrates a field management practice in tomatoes.



i. Identify the practice. **(1mk)**

ii. State three reasons for carrying out the practice. **(3mks)**

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iii. Give another practice that could be carried out to give the same results **(1mk)**

25. A dairy farmer wanted to prepare 200kgs of a calf rearing ration containing 20% DCP. The feedstuffs available were maize (10% DCP) and sunflower (35% DCP). Use the Pearson's Square to calculate the amount of each feedstuff required. (show your working) **(4mks)**

SECTION C (30 MKS)

ANSWER ALL QUESTIONS IN THIS SECTION IN THE SPACES PROVIDED.

26. a). Explain the factors that influence soil erosion **(5mks)**

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b). Describe the effects of strong wind in crop production. **(5mks)**

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c). Describe uses of water in the farm. **(5mks)**

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27. a). Describe the use of the following parts in a plunge dip

i. Collecting yard **(1mk)**

ii. Foot bath **(2mks)**

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iii. Roof/shelter **(2mks)**

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iv.Drying yard **(1mk)**

b). State four methods of breaking seed dormancy **(4mks)**

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c). Describe transplanting of cabbage seedlings **(5mks)**

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FORM 3 ENDYEAR EXAMS

SERIES 2

COMPUTER STUDIES

TIME: 2 HOURS

NAME…….. ADM NO…….....

SIGN……...……. DATE;……...

SECTION A (40 MARKS)

ANSWER ALL QUESTIONS FROM THIS SECTION

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

(a) Burglar proofed door **(1mk)**

_____

_____

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

_____

_____

2. Distinguish between special purpose keys and editing keys on a keyboard, with an example.**(3mrk**

_____

_____

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_____

3. Two features of Von Neumann architecture are the use of registers and the use of buses. Give the names of any **two** registers and **two** buses. **(2mrks)**

_____

_____

4. Nicolae needs to send 30 photos to a friend and he chooses to send all 30 together as a single email attachment. Each photo is 1.8 MB in size, but the maximum possible attachment size is only 20 MB. State how Nicolae can solve this problem. **(2mrks)**

5. What is portability and Authenticity in relation to software specification? **(2 marks)**

6. Describe each of the following data processing methods **(6mrks)**

(i) Batch processing.

(ii) Distributed processing

(iii) Multiprogramming

7. (a) Distinguish between firmware and device drivers as used in computers. **(2mrks)**

8. What is the difference between system files and application files? Give examples. **(3mrks)**

9. Differentiate between the terms **upgradability** and **compatibility** in relation to hardware specification. **(2mrks)**

10. State two differences between Disk Operating System (DOS) and WINDOWS operating system**.** **(2mrks)**

11. Publishing firms prefer using DTP instead of Word processors. Give any TWO reasons for this. **(2mrks)**

12. Banks have replaced each credit card with a smart card, which contains a microchip, in order to give greater protection against fraud. State **three** items of data that are stored on the microchip in a smart card. **(3mrks)**

13. Explain three ways how one can manage his/her disks using windows. **(3mrks)**

14. Define the following terms as used in data representation. **(4mrks)**

Amplitude

Frequency

Nibble

Byte

_____

_____

15. Failure of information systems is a major concern in the security of data in computing systems. State **two** causes of such failure. **(2mrks)**

_____

_____

_____

_____

SECTION B (60 MARKS)

Answer Question 16 (compulsory) and any other <u>THREE</u> questions from this section.

16. a) Give three types of errors that may be detected during program testing **(3mrks)**

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b) State any three activities that occur in a program compilation process. **(3mrks)**

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c) A program is needed for calculating the average age of students in a class. Write a pseudocode that will read the age of the students and calculate the average age. The program should terminate if the value of 999 is entered for age and output the number of times the statements within the loop were executed. **(9 marks)**

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17 **(a)** Subtract 0111_2 from 1001_2

(2mks)

(b) Using two's compliment, subtract 7 from 17 and give the answer in decimal notation.

(4mks)

(c) Convert

(i) $91B_{16}$ to octal **(3mks)**

(ii) 376_8 to hexadecimal **(3mks)**

(iii) 9.625_{10} to binary **(3mks)**

18. i) (a) Give four reasons why a firm may decide to computerize its operation. **(4mks)**

(b) An individual has a right to demand guarantee to privacy of personal information stored on a computer. Give three such types of information **(3mks)**

i) A passenger logs onto an airline website and types in the reference number for their flight. Once the passenger accesses their account they can choose their seat and also print out a boarding pass which contains a unique barcode. This barcode is scanned at the airport check-in desk.

a. Name **one** input and **one** output device found at the check-in desk and give a reason for your choice.

(2mrks)

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b. The training department of an international airline has introduced computer based training (CBT) to teach foreign languages to its cabin crew. Give four advantages of using CBT. **(4mrks)**

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iii) State any four ways the computers can be used in a hospital. **(2mrks)**

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19. a) A student set up a spreadsheet to compare share prices in six companies over five years.

	A	B	C	D	E	F	G	H
1	Name of company	Share price	Share price	Share price	Share price	Share price	Average share price	Highest share price
2	Year:	2005	2006	2007	2008	2009		
3	Global Oil	81	190	305	130	140	169	305
4	GSD	619	722	622	325	324	522	722
5	KLN	60	71	71	63	45	62	71
6	Nesto	316	418	522	600	640	499	640
7	Takkco	149	316	394	202	122	237	394
8	Uniway	122	135	254	365	570	289	570

(i) What formula is in cell G5 to find the mean share price for KLN? **(2mrks)**

(ii) What formula is in cell H5 to find the highest share price for KLN? **(2mrks)**

(iii) If the data in cell E4 was changed to 425, which cells would be automatically updated? **(2mrks)**

(iv) State the cells that are needed to create a line graph to show the share prices for years 2006 to 2008. **(2 marks)**

(v) The student wants to extend the spreadsheet to include share prices for 2010. Describe how the student would do this. **(2mrks)**

b) Describe the following terms with reference to security of data:

(i) Log files **(1mk)**

(ii) Firewalls. **(1mk)**

(c) List three functions of antivirus software. **(3mks)**

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20. A students' database comprises of students[1] details table and fees received table as shown below:

Students' details table	**Fees Received table**
Surname	Admission Number
Middle Name	Amount
Admission Number	Date
First Name	Receipt Number
Course	

a) i) State the primary key field for each table. **(2mks)**

_____

_____

ii) State the field, which should serve as the linking field for the two tables. **(2mrks)**

_____

_____

iii) Name three types of relationships that can be applied in database design. **(3mrks)**

_____

_____

_____

c) Bunam Water Company sends out field officers to take consumer meter readings. The data collected by the officers is then keyed into the computer. The system then generates utility bills which are printed and sent to the consumers.

i) State two transcription errors that are likely to occur during meter reading or input. **(2mrks)**

_____

_____

_____

ii) State three ways such errors can be avoided **(3mrks)**

_____

_____

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_____

d) Mention at least three trends in the technological revolution of computers. **(3mrks)**

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FORM 3 ENDYEAR EXAMS

SERIES 2

CHRISTIAN RELIGIOUS EDUCATION

TIME: 2 HOURS

NAME…….. ADM NO…….....

SIGN……..……. DATE;……...

Instructions.

Answer any five questions,

1. a) Identify **six** factors which led to widespread idolatry in Israel during the time of Prophet Elijah. **(6mks)**

b) Describe the incident in which prophet Elijah challenged the prophets of Baal at Mount Carmel (1kings 18:19 – 41). **(8mks)**

c) State **six** reasons that may influence some Christians to turn away from God today. **(6mks)**

2. a) Outline **six** reasons why Jesus used parables in his teaching**.** **(6mks)**

b) Narrate the parable of the Good Samaritan (Luke 10:29-37). (8mks)

c) Give **six** reasons why Christians should ask for forgiveness from God. **(6mks)**

3. a)With reference to the story of the rich man and Lazarus, explain the teaching of Jesus on the proper use of wealth (Luke 16:19 – 31) **(7mks)**

b) Give **seven** reasons why Jesus appeared to His disciples after resurrection. **(7mks)**

c) Why should Christians be discouraged from taking part is mob justice. **(6 mks)**

4. a) Explain how the unity of believers is expressed in the image of the body of Christ. **(7 marks)**

b) Give **seven** reasons why Jesus sent the Holy Spirit to the disciples after his ascension. **(7mks)**

c) Outline the activities that the church in Kenya engage in to demonstrate love for God. **(6mks)**

5. a) State **seven** ways in which God would punish Israel for her evils according to prophet Amos. **(7mks)**

b) Outline **seven** ways in which the rich oppressed the poor during the time of Prophet Amos. **(7mks)**

c) How is the church promoting social justice in Kenya today? **(6 mks)**

6. a) Give **seven** reasons why Jeremiah was not willing to accept the call of God to become a prophet**.** **(7 marks)**

b) In what ways did Prophet Jeremiah suffer while carrying out his work in Judah **(6 marks)**

c) Outline the problems encountered by Christians in their commitment to Christ. **(7 marks)**

FORM 3 ENDYEAR EXAMS

SERIES 2

ENGLISH

TIME: 2 HOURS

NAME…….. ADM NO…….....

SIGN……..……. DATE;……...

INSTRUCTIONS

1. *Answer all the questions.*

2. *All answers should be written in the spaces provided.*

FOR EXAMINER'S USE ONLY

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1	20	
2	10	
3	20	
4	20	
5	10	
6	20	
TOTAL	100	

QUESTION 1: FUNCTIONAL WRITING (20MKS)

You are the secretary of the **Social Welfare Club**. The school has received infrastructure improvement funds and the Principal has requested you to investigate and recommend the best ways to spend the donation funds in your school. The club has observed the following needs:

i. Construct a school gate

ii. Construct new bathrooms

iii. Improve library facilities

Taking these needs into account, write a report to the principal making your recommendations.

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QUESTION 2: CLOZE TEST (10 mks)

Fill in the blanks in the passage below with an appropriate word

A student in Mandera County *1*_____ history after scoring an A in last year's form four examination. Ibrahim Abdi Ali, a former student at Sheikh Ali Secondary School *2* _____
the troubled Rhamu Sub-county, *3* _____ 81 points. No Mandera student had
4 _____ scored an A. Speaking at Tawfiq Secondary school where *5* _____
has been a volunteer teacher, Ibrahim said it was by God's 6 _____ that he broke the record in the hardship 7_____ ."I challenge students to keep the fire 8 _____since it has taken much perseverance to achieve this," he said. Ibrahim said he had 9_____ _ out of school in Form Two due to lack of fees,
10_____the Principal of Sheikh Ali had come to his rescue.

QUESTION 3: READING COMPREHENSION (20 mks)

Read the following passage carefully, then answer the questions that follow.

The prevalence of diabetes in Kenya has more than doubled in the past three decades, accounting for 20 per cent of deaths in the country.

With a national prevalence rate of between 3.1 per cent and 4.6 per cent (between 1.4 million and 2.1 million Kenyans), experts are warning that the cases are rising at an alarming rate.

Today, one in every 17 Kenyans has diabetes, and 12,890 people in the country died from both diabetes and high blood glucose in 2014.

A report jointly published by the World health Organisation (WHO) and *Lancet* on World Health Day last year shows that the prevalence of diabetes in Kenya was six per cent in 2014, a 150 per cent rise from 2.4 per cent in 1980.

Globally, the number of adults with diabetes has almost quadrupled to 4.22 billion in 2014 from 108 million in 1980, with most living in developing countries.

So alarming is the situation that during the launch of the first Global Report on Diabetes, WHO director general Margaret Chan called for action on diabetes, saying there was need to step up prevention and treatment of the disease.

According to experts, sedentary lifestyles, stress, being overweight and obese, are some of the factors driving this dramatic rise. However, some people, especially those in rural areas, are affected by diabetes as a result of their genetic make-up.

"People are also not getting screened as often as they should. Some are not getting screened at all despite the test being cheap," said Dr. Eva Njenga, a diabetes specialist.

Experts note that the normal diabetes health advice – not smoking, eating healthy, and limiting alcohol intake – can help keep people healthy.

Dr. Njenga advises: "If you are not diabetic, ensure that you go for screening at least once a year. If any of the members of your family has diabetes, then you should be **screened** two to three times in a year, since you are genetically **predisposed**."

Mr. Zachary Ndegwa, a programme officer at the division of **non-communicable** diseases, said there are only 50 diabetes clinics and at most 12 specialists (endocrinologists) in Kenya.

"As we speak, it can take up to six months after the first booking for a patient to start their routine check-up," said Dr. Njenga.

Diabetes is a **non-communicable** disease in which the body's ability to produce or respond to the hormone insulin is impaired, resulting in abnormal breakdown of carbohydrates and elevated levels of glucose in the blood and urine.

The most common diabetes symptoms include frequent urination, intense thirst and hunger, weight gain, unusual weight loss, fatigue, cuts and bruises that do not heal, male sexual dysfunction, numbness and tingling in hands and feet.

If not controlled, diabetes has dire consequences including possibility of heart attack, stroke, blindness, kidney failure and for some, gangrene, leading to leg amputation.

Questions

(a) Name the WHO director general according to the passage. **(1 mk)**

_____

(b) Define diabetes according to the passage. **(3 mks)**

_____

_____

_____

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(c) In note form list down the most common diabetes symptoms. **(6 mks)**

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(d)State three factors that are driving the dramatic rise of diabetes according to experts. **(3 mks)**

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(e) Mr. Zachary Ndegwa, a programme officer at the division of non-communicable diseases, said there are only 50 diabetes clinics and at most 12 specialists in Kenya. (Rewrite changing the sentence into direct speech) **(1 mark)**

_____

_____

_____

(f) Identify three consequences of not controlling diabetes according to the passage**. (3mks)**

_____

_____

_____

(g) Give the meaning of the following words as used in the passage. **(3mks)**

(i) screened

_____

(ii) predisposed

_____

(iii) non-communicable

QUESTION 4: **(20mks)**

a. FATHERS OF NATIONS

Read the excerpt below then answer the questions that follow

When all four were back at their seats, the Chair began to wrap up."Excellencies, we've come to the end of our summit." He smiled, and why not? Had The Trick not saved the day? Had it not eliminated the need for the consensus he could not achieve? "Go back home safely, Excellencies. As we say in my country, travel like lions, without fear of attack or worry about

supper. And, speaking about supper, the Pinnacle informs me that, to cap our summit, it has organised a closing ceremony on the mezzanine floor. Things will start sizzling in thirty minutes. So we'll meet there soon." Gavel hit wood.Bang. "I now declare the summit itself formally closed." Bang. Bang.

President Dibonso sprang to hit feet at once. "Mr Chairman, don't insult our intelligence withthat rubbish." His voice was grating on all ears with tones of rage.

"What rubbish are you referring to? President Dibonso?" asked the Chair. He was rising tothe challenge.

"The Choice Matrix indeed! Do you really expect us to buy into that madness? Can't you seethat some of us are not senile? We reject the matrix, lock, stock and barrel."

"I said the summit stands closed," insisted the Chair. Bang. Bang."And I say it is open again," retorted President Dibonso.

"But, President Dibonso, you do not have the power to do so."

"Who says I do not have the power to do so? See this?" He pulled out a pistol, pocket-size.The other heads of state scrambled to hide under their desks.

"President Dibonso, put that thing away!" demanded the Chair."Make me!" retorted President Dibonso,

The pistol clicked, It was ready to start spitting fire at the Chaire

POSSSIBLE EXCERPT QUESTIONS

a) Briefly explain what happens just before the excerpt. **(4 marks)**

b) Identify and illustrate two-character traits of the Summit Chair and one of President Dibonso.

(6 marks)

c) What two themes come out in the excerpt? **(4 marks)**

d) We reject the matrix, lock, stock and barrel. (Write beginning with "Lock"**)** **(1mark)**

e) Discuss two stylistic devices used in the excerpt. **(4 marks)**

f) I said the summit is closed. (Rewrite using a question tag) **(1 mark)**

g) Explain the meaning of the following words as used in the excerpt. **(3 marks)**

i. Consensus

ii. Cap

iii.sizzling

QUESTION 5: Oral **skills** **(10mks)**

Read the poem below and answer the questions that follow.

Phenomenal woman: Maya Angelou (*first stanza)*

Pretty women wonder where my secret lies.
I'm not cute or built to suit a fashion model's size
But when I start to tell them,
They think I'm telling lies.
I say,
It's in the reach of my arms,
The span of my hips,
The stride of my step,
The curl of my lips.
I'm a woman
Phenomenally.
Phenomenal woman,
That's me.

Questions

i. Identify three pairs of rhyming words from the poem. **(3mks)**

ii. Apart from rhyming words, how else has the poet achieved rhythm? **(2mks)**

iii. How would you say the last line of the poem? **(2mks)**

iv. How would you prepare yourself before presenting the poem to an audience? **(3mks)**

QUESTION 6: Grammar **(20mks)**

a. Use the correct form of the word in brackets to fill in the blanks. **(4mks)**

i. The damage caused by the floods was so severe that it was.....……..……(repair)

ii. In rural Kenya, clean drinking water is a……(rare).

iii. I have……..(ring) this bell five times.

iv. If I had studied something different in university, my life …….(be) very different.

b. Rewrite the following sentences as instructed **(4 mks)**

i. Manchester United beat Liverpool at Old Trafford. (Rewrite in the passive)

……

……

ii. He was absent from work for three days without permission. He wrote a rude letter to the manager.(Rewrite as one sentence beginning: Not only....)

……

……

iii. "We have to set out early tomorrow if we are serious about getting back the same day,"one member suggested. (Rewrite in indirect speech)

……

……

……

iv. Onyango regretted renting the house in that estate. (Begin: Onyango wished**.....)**

……

c. The sentence below has two meanings. Explain clearly the two different meanings. (2 marks)

The Manager was as anxious to please his customers as his staff.

i. ……

……

ii. ……

……

d. Fill each blank space in the following sentences with the correct preposition (3 mks)

i. Sometimes it is quicker to go……..foot than …….bus.

ii. Sign your name …….the dotted line ……the bottom of the page.

iii. There is something exciting ……football. Throughout Kenya, football matches are played ……capacity crowds.

e. Replace the underlined words with a phrasal verb which begins with the word in brackets to convey the same meaning. (2 marks)

i. Good students constantly <u>revise</u> their work in preparation for the examination (go).

……

……

……

ii. Atieno is usually so smartly dressed that she <u>is easy to notice</u> in the midst of other girls (stand).

……

……

……

f. Add question tags to the following statements. **(5mks)**

i. He should have finished by now,……?

ii. I'm rather late,…….?

iii. Let us go to the cinema,……..…?

iv. You haven't seen the teacher,……..…?

v. I will come with you,……?

FORM 3 ENDYEAR EXAMS

SERIES 2

FRENCH

TIME: 2 HOURS

NAME…….. ADM NO…….....

SIGN……..……. DATE;……...

501

FORM 3

FRENCH EXAM

TIME: 2 HOURS

Answer all the questions in French

Répondez à toutes les questions en français

Section I Reading compréhension

Lisez les passages suivants et répondez aux questions

Passage I

Il y a beaucoup de moyens de transport par exemple le bus, le train, l'avion, le bateau, le taxi, la bicyclette et le camion.

L'avion est le moyen le plus cher mais plus rapide. Il est le moyen de transport par l'air. Par route, il y a le bus, le taxi et le camion ; ce n'est pas très cher. Pour le transport nautique, on a les bateaux et les navires qu'on utilise pour les longs trajets.

Pour améliorer le transport, il faut que le gouvernement réparer les routes. Dans notre pays par exemple, le ministre de transport a introduit les ceintures de sécurité pour éviter la perte de vie humaine. Les chauffeurs sont aussi conseillés de ne pas conduire à toute vitesse ou bien quand ils sont ivres. Il faut suivre le code routier.

Question

1. Nommez les quatre moyens de transport selon le texte 2pts

2. Décrivez l'a1vion comme le moyen de transport 1pt

3. Quel est l'avantage d'utiliser le bus? 1pt

4. Qu'est-ce que le gouvernement doit faire pour améliorer le transport? 1pt

Passage II

Est-ce que tu aimes regarder la tele ?

Moi je regarde la télé tous les soirs quand je retourne du collège. ça me détend. J'aime surtout les documentaires et les émissions sur la cuisine. On peut apprendre beaucoup. Mais je trouve qu'il y a trop de publicité à la télé. C'est surtout énervant quand on coupe un bon film pour passer de la publicité. Et je trouve qu'il y a trop de violence par exemple dans les séries policières et je n'aime pas ça.

Questions

1. Qu'est-ce qu'il aime faire tous les soirs? 1pt

2. Quel type d'émissions aime-t-il ? 1pt

3. Est-ce que le narrateur aime les séries ? pourquoi ?1pt

4. Nommez la préférence du narrateur 1pt

Section II Grammaire I Ecrivez les phrases suivantes au futur simple 10pts

1. Mon ami voyage pendant les vacances

2. Les étudiants viennent à l'école après trois mois

3. Je vais à l'hôpital pour voir le dentiste

4. Nous partons pour Malawi tout de suite

5. Toi, tu t'amuses pendant la fête traditionnelle

II Réécrivez les phrases suivantes en remplaçant avec (lui leur, le, la, l', et les) 5pts.

1. Vous voyez <u>les oiseaux</u>

2. Le président parle <u>aux citoyens</u>

3. Marie téléphone <u>à sa mère</u>

4. Le chauffeur conduit la voiture

5. Nous achetons le vélo

III Répondez aux questions et mettez les phrases a la forme négative 10pts

1. Vous avez déjà écrit cette histoire?

Non,

2. Tu vas toujours à la piscine pendant le weekend ?

Non,

3. Vous connaissez quelqu'un dans ce village ?

Non,

4. Les enfants veulent quelque chose à manger?

Non,

5. Salma a un frère seulement

Salma n'a

IVEcrivez l'adverbe correcte dans les phrases suivantes 5pts

1. Les enfants ont été _____ sévère) punis
2. Il a parlé _____(méchant) a son ami
3. Les coureurs courent _____rapide
4. Nous recevons les nouvelles _____(joyeux)
5. Pendant le concours, la tortue marche_____(lent)

V

VI Réécrivez les phrases suivantes au gérondif 10pts

Ex : la mère prépare le repas et elle fait la lessive

La mère prépare le repas en faisant la lessive

1. Les étudiants lisent et ils écrivent les notes

2. Mamadou conduit la voiture et il écoute la radio

3. On parle au sourd et on fait des gestes

4. Il part et ils ferment la porte

5. C'est en _____qu'on devient fort.

VII Conjuguez les verbes entre parenthèses a l'imparfait 5pts

1. Les garçons (manger) les fruits les samedis

2. Tu (jouer) avec la boue quand tu être petite

3. La compétition (commencer) à huit heures pile.

4. Nous (arriver) à la gare routière en avance

5. Je choisir le hockey car c'est très intéressant

VIII Utilisez 'se faire mal' ou 'avoir mal' 10pts

1. Les jambes nous font mal

2. Le genou te fait mal

3. Le dos vous fait mal

4. Karisa a mal à la gorge

5. J'ai mal aux oreilles

IX Répondez aux questions suivantes 5pts

1. Quel âge as-tu ?1pt

2. Ou habites-tu ? 1pt

3. Expliquez trois raisons pourquoi tu pratiques le sport 3pts

Section IV Redaction

1. In 120-150 words, write in french a composition on,

Either

a) C'est votre anniversaire le samedi prochain. Ecrivez un programme d'activite de ce jour 10pts

Or

b) Vous avez un(e) visiteur et vous avez déjà préparé son repas favori. Ecrivez la recette de ce repas 10pts

2. In 120-150 words, write a composition on ;

Une journée inoubliable 10pts

Bonne chance!!!!

FORM 3 ENDYEAR EXAMS

SERIES 2

GEOGRAPHY

TIME: 2 HOURS

NAME…….. ADM NO…….....

SIGN……...……. DATE;……...

312/1

GEOGRAPHY FORM THREE

PAPER 1

TIME: $2^{3}/_{4}$ HOURS

INSTRUCTIONS TO CANDIDATES

- *This paper has two sections, **A** and **B.***
- *Answer all the questions in section A*
- *Answer question **6** and any other **TWO** questions in section B.*

FOR EXAMINERS USE ONLY

SECTION	QUESTION	MARKS	SCORE
A	1-5	25	
B	6	25	
	7	25	
	8	25	
	9	25	
	10	25	
TOTAL MARKS		**100**	
TOTAL SCORE			

SECTION A [25MARKS]

1 a) what is a solstice **[2MARKS]**

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b) State **three** effects of the revolution of the earth **[3MARKS]**

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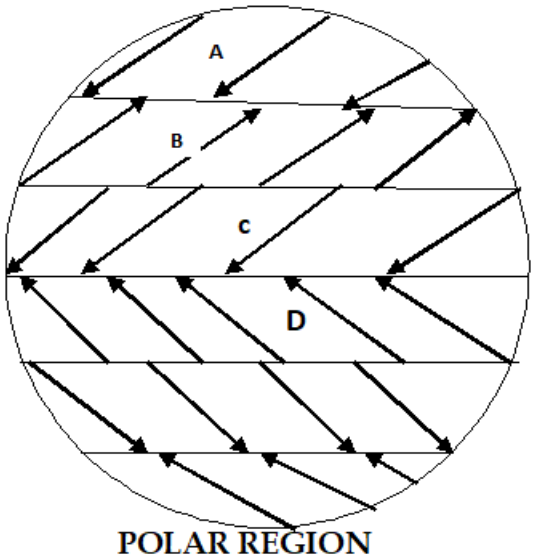
2. **(a)** What is an air mass? **(2 MARKS)**

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(b)Study the diagram below and name the air masses marked **A, B , C** and **D**



Key

LP- Low Pressure

HP- High Pressure

A-

B-

C-

D- **(4mks)**

3a] Give two ways through which rocks may be metamorphosed. **(2Marks)**

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b) Name **two** examples of plutonic rocks **(2Marks)**

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4 (a) Differentiate between veins and lodes **(2Marks)**

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(b) State **three** effects of land dereliction **(3Marks)**

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5. (a) Give any **two** natural causes of earthquakes **(2Marks)**

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(b) Name **three** characteristics of the rift valley lakes of Kenya **(3Marks)**

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SECTIONB {75MARKS]

INSTRUCTIONS;

Answer question 6 and any other two questions from this section

6. Study the map of MUMIAS (1:50,000, sheet 101/2) provided and use it to answer the following questions.

a) i) What type of map is Mumias map extract? **(1 mark)**

ii) Give the magnetic declination of the map as at 1965. **(2 marks)**

iii) Identify any two districts covered by the map. **(2 marks)**

b) i) Name two human made features found in the grid square 6132. **(2 marks)**

ii) What is the bearing of Bumala Dam from the Trigonometrical station-Other, 101 T 6 found in the Northern part of the map? **(2 marks)**

iii) Measure the length of the Dry weather road found in the North Western part of the area covered by the map. **(2 marks)**

c) i) Using a scale of 1cm to represent 20 m, draw a cross-section from grid reference 610310 to 650350**.** **(3 marks)**

ii) On the cross-section mark and name:

- River Lusimu **(1 mark)**
- Woodland **(1 mark)**
- All weather road – loose surface **(1 mark)**

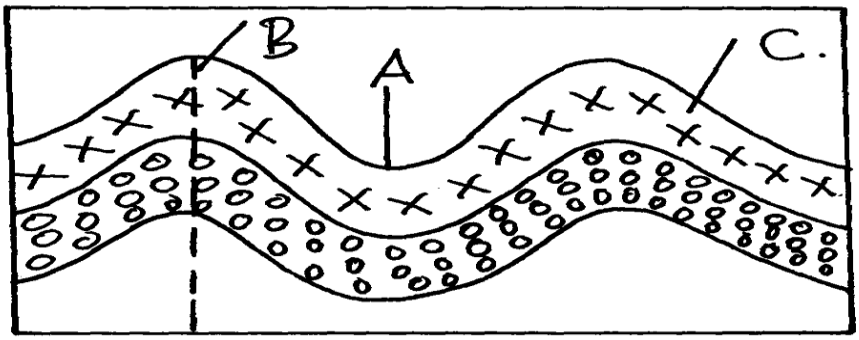
iii) Calculate the vertical exaggeration of the cross-section**.** **(2 marks)**

d) i) Identify two social services offered in the area covered by the map. **(2 marks)**

ii) Describe the drainage of the area covered by the map. **(4 marks)**

7. The diagram below shows a simple fold

(a) (i) Name the part marked **A, B** and **C** **[3marks]**



(ii) Name **three** fold mountains outside Africa **[3marks]**

(iii) Give **thee** landform associated with folded regions **[3marks]**

(b) With the aid of well labeled diagram describe the process of formation of Fold Mountain. **(8Marks)**

(c) Explain **four** ways in which folding influences human activities **[8marks]**

8. a)i) What is chemical weathering **[2Marks)**

ii) State **five** factors that affect the rate of chemical weathering in equatorial regions **[5marks]**

b) Explain the following chemical weathering process

i) Carbonation **(2Marks)**

ii) Hydrolysis **(2Marks)**

c) Explain **four** economic importance of weathering to physical and human environments **[8marks]**

(d) Explain **three** factors which influence mass-wasting **[6marks]**

9 **(a)** Give **three** reasons for over-exploitation of hardwoods in Africa**.** **[3marks]**

(b) State **four** measures taken to conserve forests in Kenya. **[4marks]**

(c) (i) Name **two** major lumbering provinces in Eastern Canada. **[2marks]**

(ii) Explain the factors that have favored forestry in Canada. **[10marks]**

(d) Explain **three** differences between softwoods in Kenya and Canada. **[6marks]**

10 (a) (i) State **two** ways in which wind erodes the surface of the earth. **[2marks]**

(ii) Explain **three** ways thorough which wind transports its load. **[6marks]**

(b) Describe how the following desert features are formed:-

(i) Zeugen **[5marks]**

(ii) Rock pedestal **[5marks]**

(c)(i) Give the name given to rocky desert in the Sahara **[1mark]**

(ii) Explain **three** positive effects of desert features to both human and physical environment. **[6marks]**

FORM 3 ENDYEAR EXAMS

SERIES 2

HISTORY AND GOVERNMENT

TIME: 2 ½ HOURS

NAME…….. ADM NO…….....

SIGN……...……. DATE;……...

INSTRUCTIONS TO CANDIDATE.

1. ***This paper consist of three sections A,B,and C.***
2. ***Answer all questions from all sections.***
3. ***All answers must be written in English and in the spaces provided.***

SECTION A:ANSWER ALL QUESTIONS FROM THIS SECTION

1. Identify two limitations of using anthropology as a source of information on History and government. **(2mks)**

2. Give two ways through which archeologists identify a pre historic site. **(2mks)**

3. Name the last stage in the evolution of man. **(1mk)**

4. Identify one type of Early manuscripts which is likely to contain information on History and Government. **(1mk)**

5. State two ways in which Sumerians in Mesopotamia reclaimed land for Agriculture. **(2mks)**

6. Name the African community that organized the long distance trade in Kenya. **(1mk)**

7. Identify the main item of trade from west Africa during the Trans Saharan trade. **(1mk)**

8. Outline the role played by the middle men during the Transaharan trade. **(1mk)**

9. Name two metals that were used as currency in pre colonial Africa. **(2mks)**

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

11. State one contribution of Joseph Lister in the field of medicine in the 19th century. **(1mk)**

12. Give two problems facing Nairobi as an urban centre. **(2mks)**

13. Name the document that contains the rights of citizens in Kenya. **(1mk)**

14. Name two treaties signed by Lewanika of Lozi with the British. **(2mks)**

15. State one reason why the colonial government established local native councils in Kenya in 1924. **(1mk)**

16. Give two ways through which European settlers in Kenya were able to get labour force during the colonial period. **(2mks)**

17. Give two features of the political organization which were formed in Kenya before 1939. **(2mks)**

SECTION B: 45 MARKS

ANSWER ALL QUESTIONS IN THIS SECTION

18. (a) State 3 economic activities of the Borana during the pre colonial period. **(3mks)**

(b) Describe the social organization of Agikuyu during the pre colonial period. **(10mks)**

19. (a) State three terms of the Berlin act. **(3mks)**

(b) Explain six political impact of partition of Africa. **(12mks)**

20. (a) Give three reasons why the colonial government encouraged Europeans to settle in Kenya by 1939 **(3mks)**

(b)Explain six effects of constitution of Kenya Uganda railway. **(12mks)**

SECTION C: 30 MKS

ANSWER ALL QUESTIONS IN THIS SECTION

21. (a) State three functions of the Kabaka in the kingdom of Buganda during the pre-colonial period. **(3mks)**

(b)Explain six factors that led to the growth of the Buganda empire by the 19th century. **(12mks)**

22. (a) Name five early political organizations formed in Kenya up to 1939**.** **(5mks)**

(b)Explain five achievements of early political organizations. **(10mks)**

FORM 3 ENDYEAR EXAMS

SERIES 2

HOME SCIENCE

TIME: 2 HOURS

NAME…….. ADM NO…….....

SIGN……..……. DATE;……...

SECTION A (40 MARKS)

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

1. Mention any 2 ways of preventing the spread of dandruff**.** **(2mks)**

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2. State any 2 aims of first aid**.** **(2mks)**

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3. Give any 2 disadvantages of bungalow housing design. **(2mks)**

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4. Give any 2 reasons the U- plan kitchen type is said to be the most convenient. **(2mks)**

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5. What 2 safety measures should be considered when arranging furniture in the sitting room**.(2mks)**

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6. List any 4 waterborne diseases. **(2mks)**

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7. Give any 2 advantages of using cotton fabric for night wear. **(2mks)**

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8. State any 2 disadvantages of a concealed drainage system. **(2mks)**

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9. State any 2 qualities of a good iron box. **(2mks)**

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10. State any 2 principles of stain removal. **(2mks)**

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11. Mention any 2 possible causes of anaemia. **(2mks)**

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12. Mention the other name for the following nutrients. **(2mks)**

a) Vitamin E –

b) Vitamin A –

c) Vitamin K –

d) Vitamin D –

13. Give the reason folding in flour in a creamed cake mixture. **(2mks)**

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14. State any 2 benefits of manipulative play. **(2mks)**

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15. Highlight any 2 importance of weaning the baby gradually. **(2mks)**

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16. State any 2 reasons that may cause a baby to refuse to breastfeed. **(2mks)**

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17. Mention any 4 vaccines that a child should be given at the age of 9 months. **(2mks)**

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18. Apart from pregnancy give any 2 reasons for missing menstration. **(2mks)**

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19. Mention 2 reasons why its important to consider using foods in season when planning meals. **(2mks)**

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20. Give any 2 reasons why family meals should be planned**.** **(2mks)**

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SECTION B (COMPULSORY QUESTION) 20 MARKS

21. You are visiting your aunt during the holidays. Describe how you would assist her carry out the following chores.

a) Launder a woollen sweater. **(10mks)**

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b) Clean a cemented kitchen floor. **(10mks)**

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SECTION C (40 MARKS)

Answer any 2 questions in this section.

22 a) State and explain any 5 factors that determine the dietary needs of individual family members. (10mks)

b) Give any 5 reasons for food fortification. (5mks)

c) Explain 5 points to consider when choosing a pair of cutting out shears. (5mks)

23 a) Giving reasons state 5 factors to consider when weaning a baby. (10mks)

b) Describe any 3 forms of an advertisement. (6mks)

c) Suggest any 4 properties which make acetate fabric suitable for making garments. (4mks)

24 a) Giving reasons, state any 5 precautions to take when bathing a baby. (10mks)

b) Explain any 3 factors to consider when caring for a white nylon shirt. (6mks)

c) State any 4 causes of food spoilage. (4mks)

KISWAHILI

TIME: 2 ½ HOURS

NAME…….. ADM NO…….....

SIGN……...……. DATE;……...

102/2

KISWAHILI

MUDA SAA 2 ½

KIDATO CHA TATU

MAAGIZO

Jibu maswali yote.

Kwa matumizi ya mtahini pekee.

SEHEMU	SWALI	UPEO	ALAMA
A	UFAHAMU	15	
B	UFUPISHO	15	
C	MATUMIZI YA LUGHA	40	
D	ISIMUJAMII	10	
	JUMLA	80	

SEHEMU YA A: UFAHAMU ALAMA 15

Soma kifungu kifuatacho kisha ujibu maswali.

Bunge la 11 lililaumiwa mno kwa kutumiwa na serikali ya Jubilee kupitisha miswada iliyoendeleza utawala mbaya na kuathiri Wakenya. Kwa mfano, mnamo Desemba 18, 2014, Bunge lilipitisha Mswada wa Marekebisho ya Sheria za Usalama katika kikao kilichosheheni fujo na makabiliano kati ya wabunge wa mirengo ya Jubilee na wale wa muungano wa upinzani, CORD, wakati huo.

Sehemu kadha za mswada zilisheheni mapendekezo ambayo yalihujumu uhuru wa vyombo vya habari na haki ya Wakenya kujieleza, jambo ambalo ni kinyume cha vipengele 34 and 35 vya Katiba, mtawalia.

Serikali ilijitetea kwa kudai kuwa ilidhamini mswada huo kwa lengo la kupambana na ongezeko la visa vya mashambulio ya kigaidi, ambavyo vilikuwa tishio kwa usalama wa nchi.

Kwa kutumia wingi wa idadi ya wabunge wa Jubilee bungeni wakati huo mia mbili na kumi na sita (216), pamoja na Spika Justin Muturi aliyechaguliwa kwa usaidizi wa mrengo huo, serikali ilifaulu kupitisha mswada huo wenye mapendekezo dhalimu.

Rais Uhuru Kenyatta, akitiwa shime na naibu wake William Ruto, alitia saini mswada kuwa sheria dakika chache tu baada ya kupitishwa bungeni katika kikao kilichojivuta hadi usiku. Hata hivyo, mahakama ilibatilisha sehemu nane za sheria hiyo kwa misingi ya kukiuka Katiba.

Mswada mwingine ambao athari zake zinaumiza Wakenya hadi sasa ni ule wa Fedha wa 2016, uliopendekeza kuwa petroli, dizeli na mafuta taa zitozwe ushuru wa bidhaa (VAT) wa kiwango cha Shilingi kumi na sita kwa lita moja.

Mswada huo pia ulidhaminiwa na serikali na kuwasilishwa bungeni na aliyekuwa Kiongozi wa Wengi, Aden Duale. Kuanzishwa kwa ushuru huo, na nyinginezo, ndio zimechangia bei ya juu ya mafuta nchini kwa sasa na kupanda kwa gharama ya maisha.

Nimetoa kumbukumbu hizi ili Wakenya waelewe hatari inayowakodolea macho, kufuatia hatua ya Rais mteule Dkt Ruto kuvutia baadhi ya wabunge wa mrengo wa Azimio la Umoja-One Kenya wajiunge na Kenya Kwanza.

Sikubaliani na kauli ya Dkt Ruto kwamba hatua hiyo ni ya kumwezesha kufanikisha ahadi alizotoa kwa Wakenya wakati wa kampeni za kusaka kura. Lengo lake kuu la "kununua" wabunge hao wa Azimio ni kulemaza upinzani ili aweze kuendeleza utawala mbaya kwa kupitisha miswada kidikteta na kulemaza sauti za wakosoaji.

Kwenye hotuba aliyotoa ukumbi wa Bomas wiki jana baada ya kutangazwa mshindi, Dkt Ruto aliahidi kufanya kazi na upinzani mradi utatathmini utendakazi wa serikali kwa manufaa ya Wakenya. Lakini kinyume chake sasa kinajitokeza katika juhudi hizo zake za kudhoofisha nguvu ya upinzani ndani na nje ya Bunge.

MASWALI

1. Kwa nini bunge la kumi na moja lililaumiwa. **(alama 2)**

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2. Katiba ilikiukwaje katika miswada iliyowasilishwa **(alama 2)**

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3. Serikali ilidhamini miswada dhalimu kwa misingi ipi? **(alama 2)**

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4. Mahakama ni tume huru. Dhibitisha. **(alama 2)**

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5. Ni hatari gani inayokumba nchi iwapo upinzani umelemazwa. **(alama 3)**

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6. Eleza kinaya kinachojitokeza katika aya ya mwisho **(alama 2)**

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7. Eleza maana ya msamiati ufuatao kama ulivyotumika katika kifungu (alama 2)

i) Mswada

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ii) Akitiwa shime

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2. UFUPISHO (ALAMA 15)

Nchi nyingi zimetia sahihi mkataba wa umoja wa mataifa kuhusu haki za watoto. Haki hizi ni pamoja na uhai, lishe bora inayotosha na makazi bora yaliyo salama. Hali kadhalika, kila mtoto ana haki ya kupata elimu. Elimu inastahili kutolewa bure, iwe inayofaa na inayopatikana kwa urahisi. Isitoshe mtoto hastahili kupigwa, kudunishwa, wala kubaguliwa kwa namna yoyote ile; iwe kitabaka, kirangi, kijinsia au vinginevyo. Mtoto hapaswi kufanya kazi za kitumwa, nzito na za kushurutishwa. Vile vile, mtoto ana haki ya kutunzwa na kulindwa dhidi ya hali yoyote inayoweza kumhatarisha. Fauka ya haya, mtoto anastahili kushirikishwa katika kufanya maamuzi yanayoweza kumwathiri maishani. Pia, mtoto ana haki ya kupata huduma za afya, mahitaji maalum na habari kuhusu masuala mbalimbali. Pamoja na hayo, mtoto anastahili kupendwa na kuheshimiwa kimawazo na kihisia.

Haki za watoto zinatakiwa kulindwa na kila mwanajamii, serikali na wazazi wakiwa katika mstari wa mbele. Hii ndiyo sababu serikali za mataifa mengi zimeshirikisha haki hizi katika katiba na sheria za nchi husika. Yeyote anayezikiuka anapaswa kuadhibiwa kwa mujibu wa sheria. Walakini, haki hizi bado zinakiukwa. Watoto wengi kote duniani bado wananyimwa haki zao. Kuna watoto ambao hawajawahi hata kupata kibanda cha kuweka ubavu. Wengi wa hawa wamejipata wakiselelea kwenye mitaa na hata majaa ya maji na vijiji ambako hulazimika kupitisha usiku hata katika majira ya kipupwe na masika! Wengine hawapati chakula; licha ya kuwa wanatakiwa kupata chakula chenye lishe bora. Kwao kutarajia mlo awamu tatu kwa siku ni njozi; kwani hata awamu moja ni adimu kupata! La kusikitisha ni kwamba wale wanaotarajiwa kuwa vigogo wa kuzilinda haki hizi ndio wanaoongoza katika kupalilia ukiukaji wazo. Kila siku tunasikia na kushuhudia visa vya watoto kupigwa, kushinikizwa kufanya kazi za sulubu kipunda, kunyanyaswa kijinsia, kuishi katika mazingira hatari na hata kuuawa. Badhi ya wanaohusika na vitendo hivi hasi huwa wazazi au jamaa wa karibu kama vile wajomba, shangazi au wahudumu wa nyumbani.

Madhila yanayowapata watoto hayatokei tu katika mazingira ya nyumbani. Mateso huvuka mipaka na kufikia ngazi ya kimataifa. Watoto wengi katika mataifa yenye fujo na ghasia hutekwa na kutumikishwa vitani. Linalokata maini ni kwamba baadhi ya viongozi katika mataifa haya hawafanyi lolote kuwanusuru. Lao huwa kuwatazama watoto wanaotakiwa kuwalinda wakigeuzwa kuwa mababe wa kuua na kuuana. Watoto hawa hivishwa magwanda ambayo miili yao minyonge haiwezi kuyahimili. Pia hulazimika kuvaa mabuti ya kijeshi ambayo huwa nanga kwao kubeba, licha ya bunduki zinazokaribia kuwazidi uzani.

Mojawapo ya mambo ambayo viongozi nchini humu walilenga shabaha kuyafikia baada ya kijinyakulia uhuru ni elimu kwa wote. Hata hivyo, hii imekuwa kama ndoto isiyotabirika katika baadhi ya janibu. Ni kweli kwamba sera ya elimu bila malipo katika shule za msingi nchini humu inaendelea kutekelezwa. Hata hivyo, asilimia ya watoto na hata watu wazima wasiojua kusoma na kuandika ingali kubwa. Jukwaa la vijiji nchini humu na hata katika mataifa mengine ya ulimwengu wa tatu limesheheni idadi kubwa ya watoto wasienda shuleni. Kichocheo kikuu cha hali hii ni kwamba wazazi na walezi wamejipata katika lindi la ufukara uliokithiri. Hata wanapojitahidi kujinyanyua na kujikuna wajipatapo kuyakidhi mahitaji ya kielimu ya wanao, wao hujipata wakitapatapa katika kinamasi hicho hicho cha ulitima. Matokeo ni kwamba watoto wa matajiri

wanaendela kuelimika huku wa maskini wakibaki kwenye kiza cha ujinga. Wanaong'ang'ania kuwepo kwa elimu bila malipo ni kana kwamba ni waota ndoto mchana.

Hali ilivyo sasa hivi inadai kuwa mimi na wewe tufanye hima tuungane mikono na kutafuta suluhisho la kudumu kuhusu utekelezaji wa haki za watoto. Twapaswa kuhimiza serikali zetu kufanya kila ziwezavyo kuhakikisha kuwa watoto wako shuleni. Nasi tushirikiana kutoa huduma kwa watoto na kukomesha dhuluma, mateso na dhiki kwao. Haitoshi kupeleka miswada bungeni kuhusu haki za watoto na kuipitisha kuwa sheria. Twastahili kubadilisha misimamo yetu kuhusu haki hizi na kuzilinda kwa dhati.

a) Kwa kutumia maneno 60-65, fupisha hoja muhimu kuhusu **haki za watoto**. (alama 6) 1 ya mtiririko.

MATAYARISHO

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b) Fupisha hoja muhimu kuhusu kukiukwa kwa haki za wototo maneno 100-105 (alama 9) 1 mtiririko.

MATAYARISHO

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3. MATUMIZI YA LUGHA **(ALAMA 40)**

a) Taja sauti zenye sifa zifuatazo **(alama 2)**

i) King'ong'o cha kaakaa laini

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ii) irabu ya nyuma kati viringwa

……

b) Tunga sentensi yenye vitenzi sambamba. **(alama 2)**

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c) Ainisha sentensi ifuatayo kimuundo. **(alama 2)**

Mtoto aliyeanguka aliumia vibaya

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d) Huku ukitoa mifano, onyesha matumizi mawili ya vifungo. **(alama 2)**

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e) Geuza sentensi ifuatayo katika hali ya ukubwa. **(alama 3)**

Mshale ulifyatuliwa ukampata ng'ombe huyo kwenye kichwa chenye sikio kubwa.

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f) Eleza maana mbili zinazojitokeza katika sentensi hii. **(alama 2)**

Anapenda kucheza kuliko Juma.

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g) Andika sentensi hii katika usemi wa taarifa. **(alama 2)**

"Safisheni vyumba hivi vyenu." Mama aliwaambia watoto wake.

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h) Andika vitenzi vifuatavyo katika hali ya kuamrisha wingi. **(alama 2)**

i) Imba

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ii) Cheza

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i) Tunga sentensi iliyoko katika kauli ya kutendua ukitumia kitenzi; **(alama 2)**

Fuma

……..

j) Eleza matumizi ya 'ji' kwenye sentensi hizi; **(alama 2)**

i) Jitoto lile linacheza uwanjani.

……

ii) Wakimbiaji wale wanafanya mazoezi uwanjani.

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k) Eleza muundo wa kundi nomino katika sentensi ifuatayo. **(alama 2)**

Sikio lake lilikatwa kwa sime.

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l) Tumia –ki- ya mfanano katika sentensi hii bila kubadilisha maana. **(alama2)**

Ndizi kutoka Uganda huwa nzuri.

m) Changanua sentensi ifuatayo kwa njia ya matawi. **(alama 4)**

Wasichana wawili wanarusha ndege ilhali wavulana wanene wameenda sokoni.

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n) Andika sentensi ifuatayo bila ‘amba’ **(alama 2)**

Mtu ambaye hulewa sana huaibisha jamii

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o) Yakinisha sentensi zifuatazo; **(alama 2)**

i) Nisingesoma kwa bidii nisingepita mtihani.

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ii) Mtoto hujalilia kitabu hicho

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p) Tunga sentensi yenye kiwakilishi kiambata cha nafsi ya pili umoja. **(alama 2)**

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q) Taja na utolee mifano miundo mitatu ya nomino za ngeli ya U-ZI **(alama 3)**

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r) Unda nomino mbilimbili kutokana na vitenzi hivi; **(alama 2)**

i) Suka

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ii) Kufa

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4. ISIMU JAMII **(ALAMA 10)**

X: Bakari umeshatakiwa kwa kosa la mauaji. Unaweza kukubali mashtaka, kukana au kunyamaza. Je, unakubali mashtaka?

Y: Ninakanusha mashtaka haya bwana hakimu.

X: Je, kuna shahidi yeyote aliye na ushahidi wa kesi hii?

Y: Naam bwana hakimu.

X: Kulingana na katiba ya nchi hii kifungu cha 12 sehemu ya Ab, "Kuua au kutoa uhai wa binadamu ni hatia". Kwa hivyo kulingana na ushahidi uliotolewa, umepatikana na hatia na utafungwa jela kwa miaka kumi na miwili, ili liwe funzo kwako na kwa wengine walio na tabia kama hiyo. Una siku saba za kukata rufani.

i) Tambua sajili ya muktadha huu. **(alama 2)**

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ii) Eleza sifa nane za sajili hii. **(alama 8)**

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FORM 3 ENDYEAR EXAMS

SERIES 2

MATHEMATICS

TIME: 2 HOURS

NAME…….. ADM NO…….....

SIGN……...……. DATE;……...

MATHEMATICS

FORM 3

TIME: 2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

1. *Write your name and admission number in the spaces provided at the top of this page.*
2. *This paper consists of two sections:* **Section I and Section II.**
3. *Answer **all** questions in* **section I** and any five questions in Section **II.**
4. *Show all the steps in your calculations, giving your answers at each stage in the spaces below each question.*
5. *Marks may be given for correct working even if the answer is wrong.*
6. ***KNEC** Mathematical tables may be used.*

For Examiner's Use Only

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

17	18	19	20	21	22	23	24

Grand Total

SECTION 50 Marks

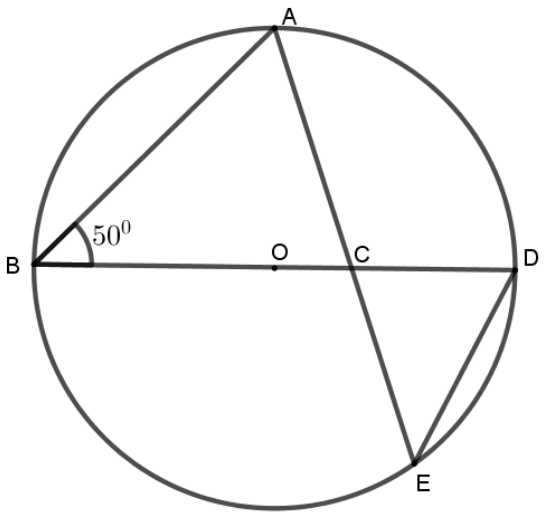
Answer all the questions in this section.

1. Express as a fraction **(3 marks)**

$24.9\dot{7}\dot{2}\dot{3}$

2. Given that $a = \frac{2a}{a-2}$, find two possible values of a**.** **(3 marks)**

3. In the figure below AB = AC and angle ABC =50°. BD is a diameter. Calculate the size of angle BDE**.** **(3 marks)**



4. Evaluate **(3 marks)**

$$\frac{-16 \div 4 + 18 \times 6 - 3 \times 8}{48 \div 6 \times 2}$$

5. A small cone of height 8 cm is cut off from a bigger cone to leave a frustum of height 16 cm. If the volume of the smaller cone is 160 cm^3, find the volume of the frustum. **(3 marks)**

6. A variable M varies directly as H and the square of *r*. Find the percentage change in M if *r* is increased by 25% and H is increased by 12**%.** **(4 marks)**

7. Use tables of square roots and reciprocals to find the value of x. **(4 marks)**

$$x = \sqrt{\frac{1}{15.36} + \frac{3}{1.302}}$$

8. An arc of a circle is 8.3 cm long. If the radius of the circle is 15.4 cm, find the angle it subtends at the centre of the circle**.** **(2 marks)**

9. Find the integral values that satisfy the inequality $2x + 3 \geq 5x - 3 > -8$ **(3 marks)**

10. The 20^{th} term of an arithmetic sequence is 60 and 16^{th} term is 20. Find the first term and the common **difference** **(3 marks)**

11. A translation vector $\begin{pmatrix} x-1 \\ 2-y \end{pmatrix}$ maps a point $A(4,6)$ onto $A'(9,12)$. Find the value of *x* and *y*. **(3 marks)**

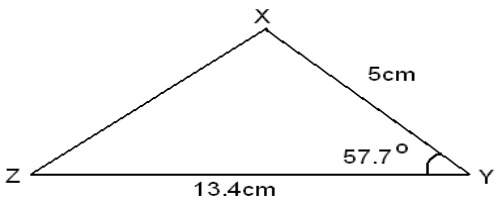
12. An angle of 1.8 radians at the centre of the circle subtends an arc of length 23.4 cm. Find,

a) The radius of the circle**.** **(1 mark)**

b) The area of the sector enclosed by the arc and the radii**.** **(2 marks)**

13. Three interior angles of an irregular polygon are$125°$,$140°$ and$160°$. The remaining angles are $145°$ each. Calculate the sum of the interior angles of the polygon. **(3 marks)**

14. The figure below is a triangle XYZ. ZY = 13.4cm, XY = 5cm and $\angle XYZ = 57.7°$



(i) Find the area of triangle XYZ**.** **(2 marks)**

(ii) Determine the shortest from point X to line ZY. **(2 marks)**

15. Solve for x in the equation $\log(x + 24) = 2\log 3 + \log(9 - 2x)$ **(3 marks)**

16. Achieng' wants to buy a sewing machine on hire purchase. It has a cash price of Sh. 7500. She can pay the cash price or make a down payment of Sh.2250 and 15 monthly instalments of Sh.550 each How much interest does she pay under the instalment plan**?** **(3 marks)**

SECTION II 50 Marks

Answer any five questions ONLY in this section.

17. (a) A dome of a building is in the form of a hemisphere from inside. It was whitewashed at a cost Ksh. 49,896. If the cost of the white washing is Ksh. 200 per square metre. Taking $\pi = \frac{22}{7}$, find:

i. Inside surface area**.** **(2 marks)**

ii. The volume of air inside the dome. **(4 marks)**

(b) The slant height of a frustum of a cone is 4 cm and the perimeters of the circular ends are 18 cm and 6 cm. Find the curved surface area of the frustum. **(4 marks)**

18. (a) Find the inverse of the matrix A given that A is $\begin{pmatrix} 2 & 3 \\ 3 & 4 \end{pmatrix}$ **(2 marks)**

(b) Jane bought 200 bags of sugar and 300 bags of rice for a total of Sh. 850 000. Peter bought 120 bags of rice and 90 bags of sugar for a total cost of Sh. 360 000. If the price of a bag of sugar is Sh. *x* and that of rice is *y*,

i. Form two equations to represent the above information**.** **(2 marks)**

ii. Use matrix method to find the price of one bag of each item**.** **(3 marks)**

(c) Robert bought 225 bags of sugar and 360 bags of rice. He was given a total discount of Sh. 33 000. If the discount on the price of a bag of rice was 2%, calculate the percentage discount of abag of sugar**.** **(3 marks)**

19. The following table shows the rate at which income tax was charged during a certain year.

Monthly taxable income in Ksh	Tax rate %
$0 - 9860$	10
$9861 - 19720$	15
$19721 - 29580$	20
$29581 - 39440$	25
$39441 - 49300$	30
$49301 - 59160$	35
$Over\ 59160$	40

A civil servant earns a basic salary of Ksh.35750 and a monthly house allowance of sh.12500. The civil servant is entitled to a personal relief of sh.1062 per month. Calculate:

a) Taxable income per month **(2 marks)**

b) Calculate his net monthly tax **(5 marks)**

c) Apart from the PYAE, the following deduction are also made from his monthly income.

WCPS at 2% of the basic salary

Loan repayment Ksh.1325

NHIF sh.480

Calculate his net monthly earning. **(3 marks)**

20. Two friends Jane and Tom live 60 km apart. One day Jane left her home at 9.15 a.m. and cycled towards Tom's house at an average speed of 15 km/h. Tom left his house at 10:45 a.m. on the same day and cycled towards Jane's at an average speed of 25 km/h.

a) Determine:

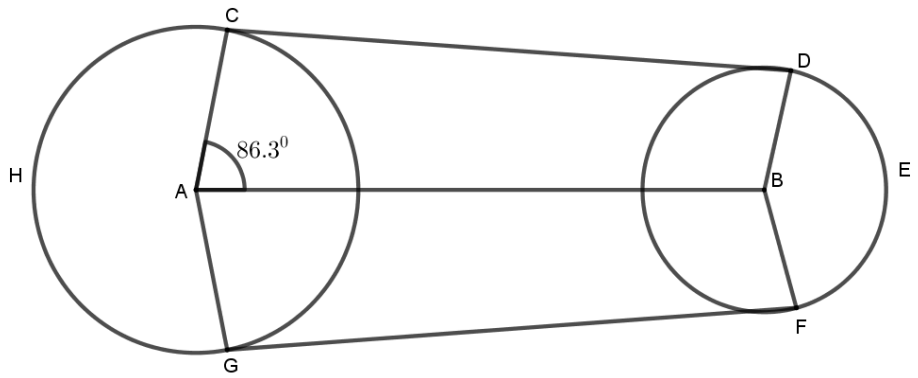
i. The distance from Jane's house to where the two friends met. **(4 marks)**

ii. The time they met**.** **(2 marks)**

iii. How far Jane was from tom's house when they met. **(2 marks)**

b) The two friends took 12 minutes at the meeting point and then cycled to Tom's house at an average speed of 12 km/hr. Find the time they arrived at Tom's house. **(2 marks)**

21. The figure below represents two pulley wheels centres A and B with a rubber band CDEFGHC stretched round them. Radius of the wheel centre A = 16 cm, Ab = 30 cm. CD and GF are tangents to the circles. Angle CAB = 86.3°.



Using $\pi = 3.142$, *c*alculate to 2 decimal places

i. Length CD**.** **(2 marks)**

ii. Arc length DEF**.** **(3 marks)**

iii. Arc length CHG**.** **(3 marks)**

iv. Total length of the belt**.** **(2 marks)**

22. Meshack and Kelvin contributed Sh. 60,000 and Sh. 90,000 respectively in order to start business. They employed a manager and agreed to pay him Sh.4,500 per month from the profit made each year. They also agreed that 20% of the profit made each year would be put back into the business while the rest would be shared between them in the ratio of their initial contribution. During the first year they made a profit of sh. 365,000. Calculate:-

a) The manager's annual salary for that year **(1 mark)**

b) The money put back into business that year. **(2 marks)**

c) The business net profit for that year. **(2 marks)**

d) How much each partner received that year. **(3 marks)**

e) The capital for the following year. **(2 marks)**

23. The points A and B have coordinates (1, 5) and (9, 7) respectively.

a) Find the equation of the line AB, giving your answer in the form $= mx + c$ **. (3 marks)**

b) Find;

i. The equation of the line *l* which is the perpendicular bisector of line AB. Give the answer in the form $ax + by + c = 0$ where a, b and c are integers**. (3 marks)**

ii. The point C has coordinates (3, q). Given that point C lies on line *l*, determine the value of q**. (1 mark)**

iii. The line *l* meets the axis at the point D. Find the length of the line CD**. (3 marks)**

24. (a) Complete the table below for the equation $y = 7 - 3x - 2x^2$. **(2 marks)**

x	-4	-3	-2	-1	0	1	2	3
7	7	7	7	7	7	7	7	7
$-3x$	12		6		0		-6	-9
$-2x^2$	-32		-8		0			-18
y	-13		5		7		-7	-20

(b) Using a suitable scale draw the graph of $y = 7 - 3x - 2x^2$. **(3 marks)**

(c) By drawing an appropriate straight line, solve the equation;

i. $2x^2 - 4x + 9 = 0$

ii. $-2x^2 - 3x + 15 = 0$ **(2 marks)**

FORM 3 ENDYEAR EXAMS

SERIES 2

PHYSICS

TIME: 2 ½ HOURS

NAME…….. ADM NO…….....

SIGN……...……. DATE;……...

Time: 2 Hours 30 mins

INSTRUCTIONS TO THE CANDIDATE:

*(a) Write your **name** and **Admission number** in the spaces provided above.*
*(b) This paper consists of **two** Sections **A** and **B**.*
*(d) Answer **all** the questions in sections **A** and **B** in the spaces provided.*
*(e) All working **must** be clearly shown in the spaces provided.*
*(f) Mathematical tables and electronic calculators **may be** used.*

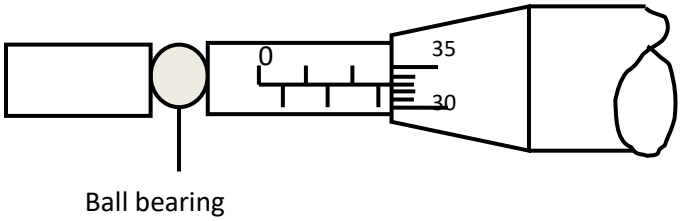
FOR EXAMINER'S USE ONLY:

Section	Question	Maximum Score	Candidate's Score
A	1 – 16	40	
B	17	07	
	18	14	
	19	11	
	20	15	
	21	13	
Total Score		100	

SECTION A: (40 MARKS)

1. A ball bearing is held between the anvil and spindle of a micrometer screw gauge as shown in the **Figure 1** below.

Figure 1



What is the diameter of the ball bearing? **(1 mark)**

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2. State two properties of a liquid that is suitable for use in a thermometer. **(2marks)**

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3. State the basic law of electrostatics. **(1 mark)**

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4. In an experiment to determine the relative density of a substance using a density bottle the following measurements were taken. (Take density of water to be $1g/cm^3$)

-Mass of empty density bottle = 43.2 g

-Mass of bottle full of water = 66.4 g

-Mass of bottle filled with liquid X = 68.2g

I)volume of liquid X 1mk

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II) Use the data to determine the density of the liquid X. **(2marks)**

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5. Why are gases compressible while liquids and solids are almost incompressible?

(1mark)

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6. A driver looked into his side mirror and saw a diminished image of a car behind him.

(a) State the type of mirror the side mirror is made of. **(1 mark)**

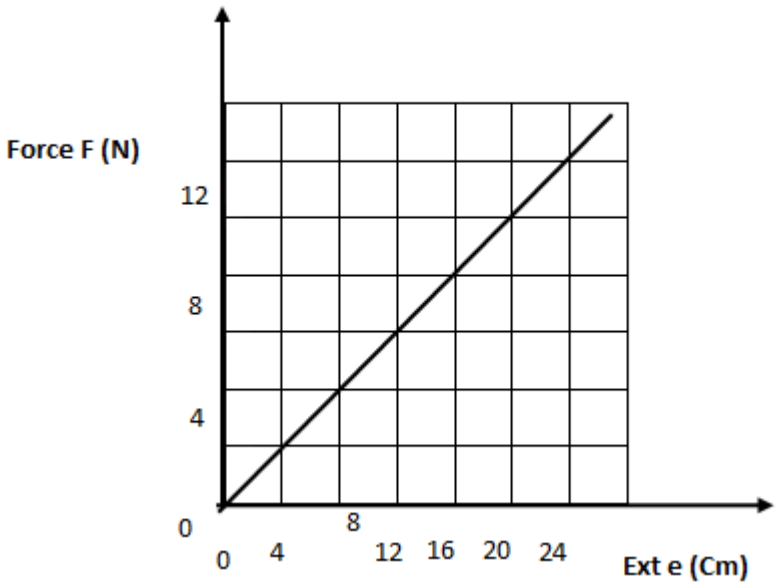
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(b) State two reasons why (a) above is preferred as side mirror. **(2 marks)**

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7. The graph shows variation of extension and stretching force F for a spring which obeys Hooke's law.



(i) Determine the spring constant in SI units. **(2marks)**

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(ii) The energy stored when the extension is 20cm. **(2marks)**

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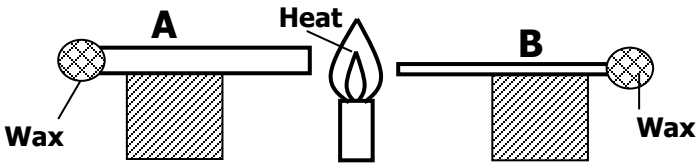
8. State one factor that would increase the surface tension of pure water in a beaker of water.

(1 mark)

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9. Two rods of copper **A** and **B** of the same length but different thickness with candle wax attached to either end are heated as shown in figure 3 below.



State and explain the observation made. **(2 marks)**

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10. Figure 4 shows a manometer attached to a gas supply. If the atmospheric pressure is 1.0336 x 10^5Pa. Calculate the pressure of the gas supply.

(Density of mercury = 13600kg/m^3) (3 marks)

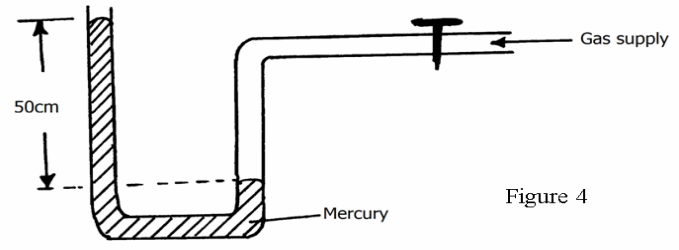


Figure 4

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11. (a) Define electric current. **(1 mark)**

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(b) A current of 3A passes through bulb B for 3 minutes 45 seconds. Determine the quantity of charge through B. **(3 marks)**

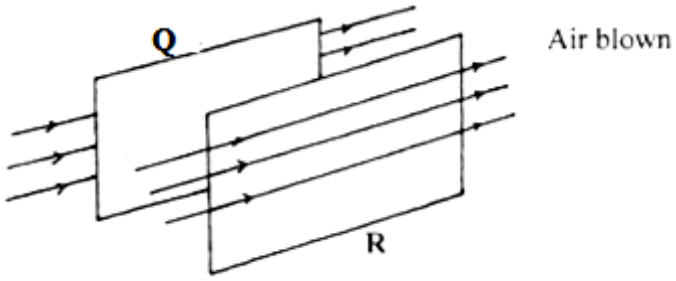
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12. The figure 5 below shows two light sheets of paper arranged as shown.



Its observed that the papers move away from each other when strong air is blown at the same time behind paper Q and in front of paper R as shown. Explain **(2 marks)**

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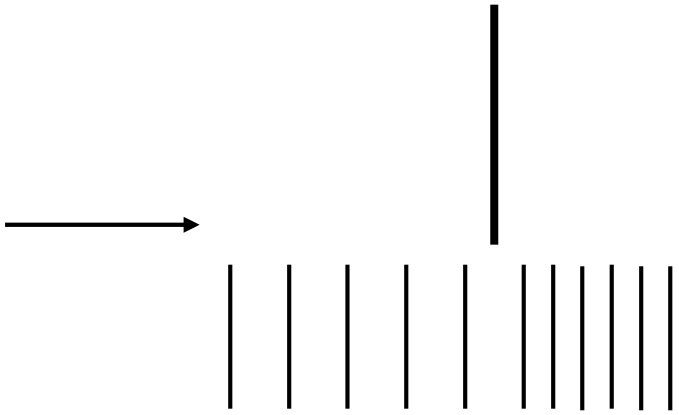
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13. Some plane water waves were produced in a ripple tank. They pass from a region of deep water into a region of shallow water. The figure 6 below shows what the waves look like from above.

Boundary



Direction of wave

Deep water Shallow water

(a) State what happens at the boundary to:

(i) The frequency of the waves. **(1mk)**

……..

(ii) The speed of the waves **(1mk)**

……

(iii) The wavelength of the waves **(1mk)**

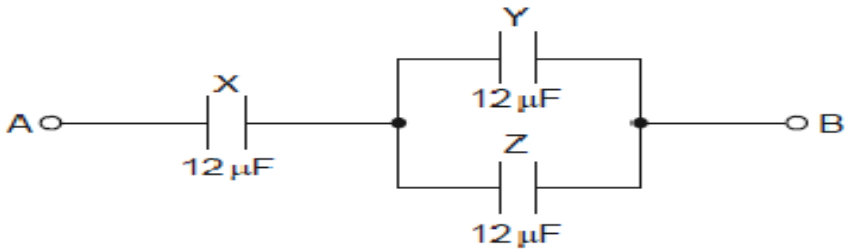
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14. Define capacitance. **(1 mark)**

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(b) Three uncharged capacitor X, Y and Z, each of the capacitance 12 microfarads, are connected as shown in Figure 7 below



A potential difference of 9.0V is applied between points A and B. Calculate the combined capacitance of the capacitors X,Y and Z. **(3 marks)**

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15. a) figure 8 below Shows the magnetic field pattern of the current carrying conductors shown below. **(2 mks)**



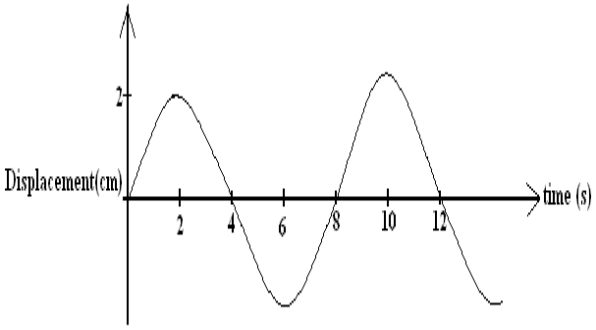
b) State two factors that determine the strength of an electromagnet. **(2 mks)**

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16. The figure 9 below shows a wave in progress.



Determine the

a) Amplitude **(1 mark)**

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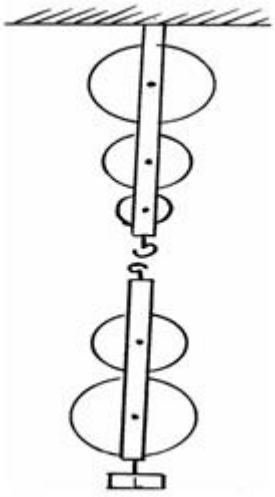
b) Frequency **(2 mrks)**

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SECTION B (60 MARKS)

17. A block and tackle is made up of three pulley wheels on top and two pulley wheels at the bottom in figure 10



(a) Complete the diagram by drawing the chain which passes over the wheels and indicate where the effort is applied **(2 mks)**

(b) What is the velocity ratio (V.R) of the machine **(1 mark)**

.....

(c) A load of 1120N is lifted by an effort of 250N

Determine

(i) The mechanical advantage (M.A) of the system **(2 mark)**

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(ii) The efficiency, E, of the system **(2 mks)**

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18. (a) State the principle of conservation of linear momentum. **(1mk)**

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(b) A body of mass 150kg moving at 10m/s collides with a stationary body of mass 100kg. They fuse after collision. Determine the

(i) Total momentum before collision. **(2 marks)**

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(ii) Their common velocity after collision. **(2 mks)**

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c) (i) State **two** factors which affect frictional force of a body **(2mks)**

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(ii) Suggest **two** ways in which friction can be minimized **(2mks)**

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(iii) State **two** advantages of friction **(2mks)**

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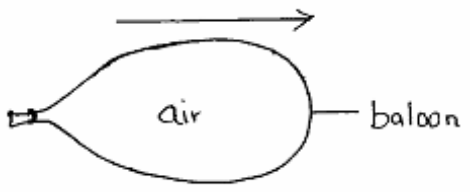
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(d) Give a reason why the inside of a helmet is lined with sponge. **(1 mark)**

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(c) The figure 11 below shows a balloon filled with air.

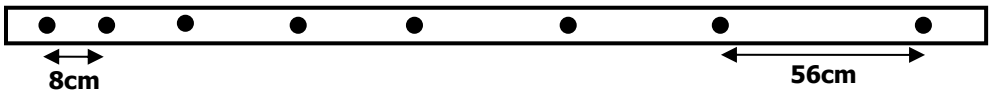


When the mouth is suddenly opened, the balloon moves in the direction shown above by the arrow. Explain that observation. **(2 mks)**

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19. (a). The section of the tape shown below was produced when a tape running down an incline plane was attached to a **ticker-tape timer** of frequency **50Hz**.



i) Indicate above the tape the direction in which the trolley was moving. **(1 mark)**

ii) What type of current was used to operate the ticker timer? **(1 mark)**

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iii) Find the acceleration of the trolley in SI units. **(3 mks)**

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(b). A stone is projected vertically upwards with initial velocity of 40m/s from the ground. Calculate:

i) Time taken to reach maximum **height** **(3 marks)**

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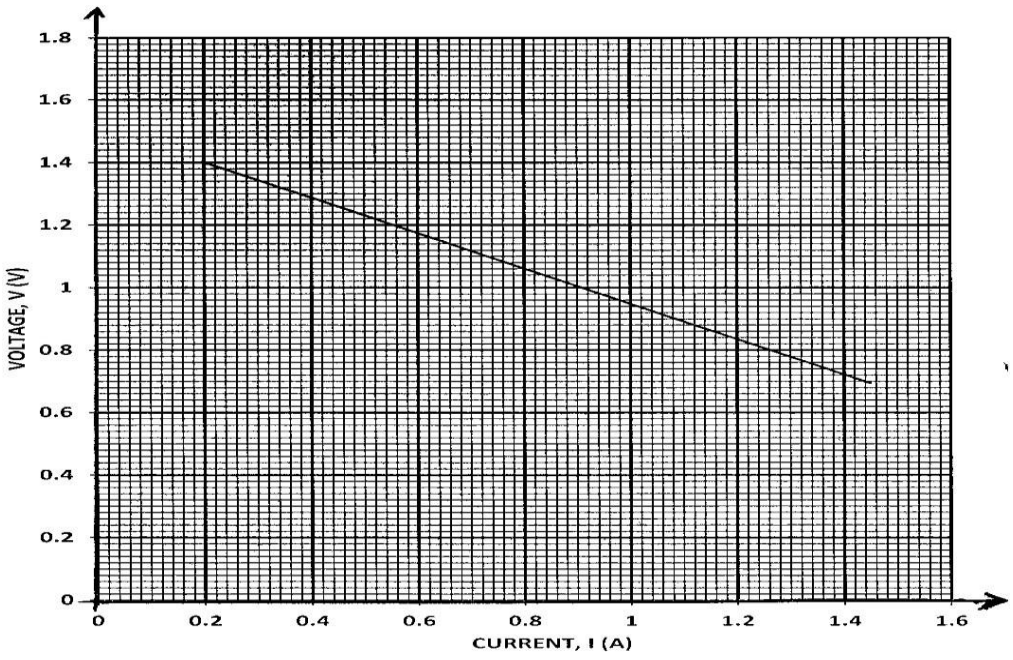
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ii) Maximum height **reached** **(3 marks)**

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20. The graph below shows the variation of p.d (V) across the terminals of a cell and the current drawn from the cell.



a) Use the graph to determine:

(i) The electromotive force (e.m.f) E of the cell. **(1mk)**

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……..

(ii) The internal resistance r, of the cell given that E = V + Ir. **(3mks)**

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(b) Draw a circuit diagram that may be used to obtain the values plotted in the graph. (2mks)

(c) Describe briefly how the circuit you have drawn may be used to carry out the experiment to obtain the values in the graph. **(2mks)**

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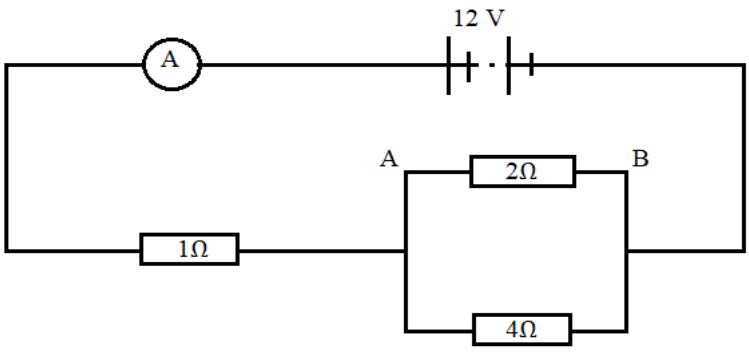
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d) Study the circuit diagram below and answer the questions that follow



Calculate

(i). The current flowing through the ammeter. **(3 marks)**

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.....

ii The PD across AB **(2 marks)**

.....

.....

.....

Ii The current through the 4Ω **(2 marks)**

.....

.....

.....

21. a) State Snell's law. (1mk)

……

……

(b) A coin is placed beneath a transparent block of thickness 10cm and refractive index 1.56. Calculate the vertical displacement of the coin. **(3mks)**

(c) The speed of green light in a prism is 1.94×10^8m/s.

(i) Determine the refractive index of the prism material.

(Speed of light in air = 3.0×10^8m/s). **(2mks)**

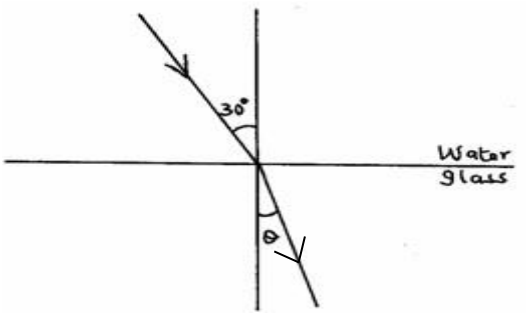
(ii) Determine the critical angle of the prism material. **(2mks)**

(d) State **two** advantages of using optical fibre in communication. **(2mks)**

……

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(e) The refractive indices of water and glass are $^{3}/_{2}$ and $^{4}/_{3}$ respectively. Find the value □ in the figure 13 below. **(3mks)**



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THE END

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