

F4 TERM 2 MIDTERM ALL SUBJECTS

Dear Candidates, Attempt These School Exams!
For Marking Schemes Call 0705525657

FORM 4 TERM 2 MIDTERM EXAMS

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

231/1
BIOLOGY
PAPER 1
TIME: 2 HOURS

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

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2. (a) Give **two** contributions made by Carolus Linneus to classification **(2marks)**

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.....

- b) Classify Human being based on the **Order** and **Family** it belongs to? **(2marks)**

Order..... Family

.....

3. (a) State **two** functions of the plasma membrane? **(2marks)**

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.....

- (b) Give the synthesis role of smooth endoplasmic reticulum. **(1mark)**

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.....

4. (a) Distinguish between Plasmolysis and turgidity (2marks)

(b) Explain how the following factors affect active transport (4marks)

Oxygen concentration

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Metabolic poisons

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5. How is a palisade cell suited to carry out photosynthesis? (3marks)

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6. (a) What is anaphylaxis (1mark)

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(b) State the difference between active artificial acquired and active natural acquired immunity (2marks)

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7. State how the following structural features affect transpiration (3marks)

Leaf fall

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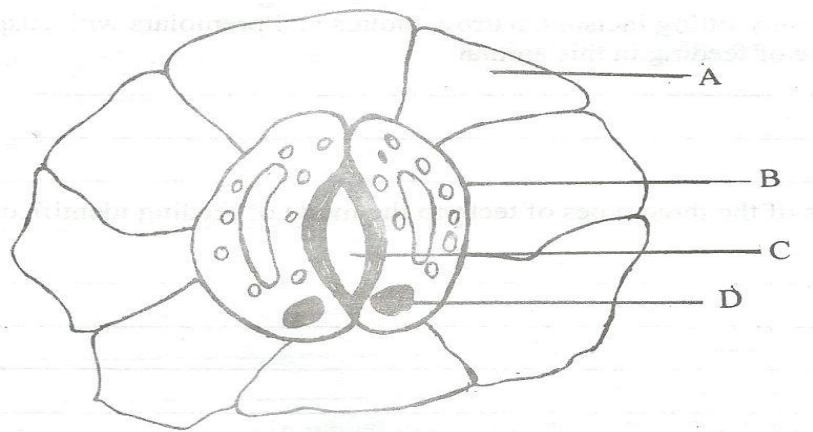
Sunken stomata

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Thin cuticle

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8. The diagram below represents a specialized plant structure



(a) Name the cells labelled A and B (2marks)

A

B.....

(b) Describe the mechanism of closing of aperture C (4marks)

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9. Name the causative agent of whooping cough (1mark)

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10. State the economic importance of the following excretory products in plants (2marks)

Nicotine

Quinine

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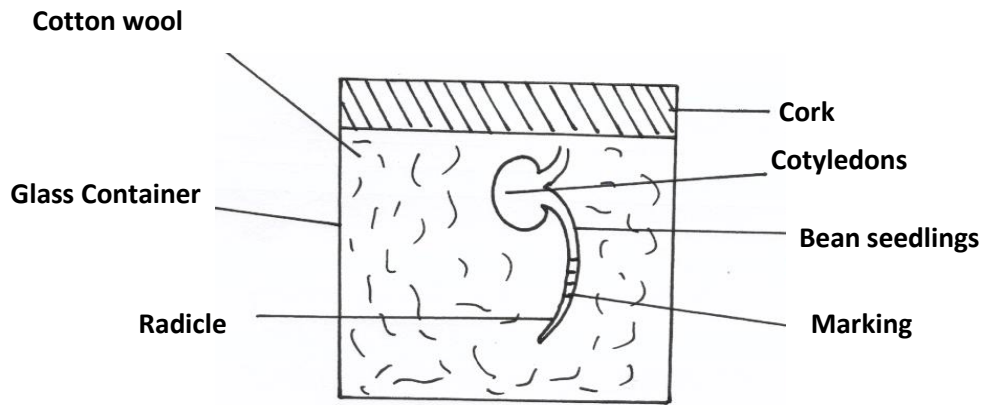
11. Give **three** distinguishing features of class Aves (3marks)

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11. State two differences in the roots of *Monocotyledonae* and *Dicotyledonae*? (2marks)

<i>Monocotyledonae</i>	<i>Dicotyledonae</i>

12. A student set up an experiment as shown in the diagram below.



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

.....

(ii) Draw a diagram to indicate the expected results of the experiment after three days.

(2mks)

(iii) Why was it necessary to have wet cotton wool in the container **(1mark)**

.....

b) What is the role of the following in a germinating seed **(2 marks)**

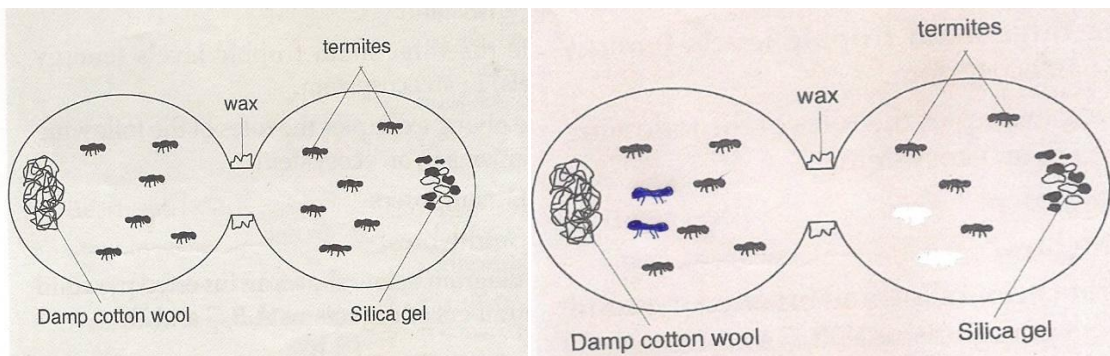
(i) Oxygen

.....

(ii) Cotyledons

.....

13. The following set up was used in an experiment



At the start of experiment

at the end of experiment

(a) State the function of the following in the set –up **(3 marks)**

i). damp cotton wool

.....

ii) Silica gel.

.....

iii) Wax

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b) Deduce the condition that must be present in a termite habitat **(2 marks)**

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14. (a) Give the importance of nitrogen cycle. **(1mark)**

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(b)What are the roles of the following organisms in an ecosystem? **(2 marks)**

Decomposers

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Detrivores

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15. Define the term:

Greenhouse effect

(1mark)

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Global warming

(1mark)

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16. (a)What is organic evolution? (1mark)

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(b)Briefly explain how the peppered moth (*Bistonbetularia*) shows natural selection

(3marks)

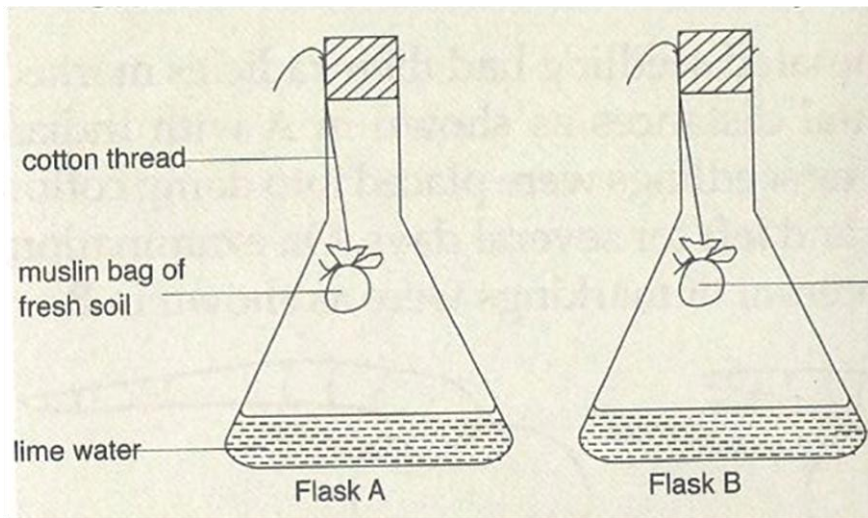
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c) Distinguish between convergent and divergent evolution

(2 marks)

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17. Study the diagram and answer the questions that follow



(a) In which set-up did the lime water become turbid?

(1 mark)

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(b) Explain your answer in (a) above

(2 marks)

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18. State the **three** structural adaptations of the lungs in mammals (3marks)

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.....

19. What are the roles of each of the following on transmission of impulses:(2 marks)

i) Nodes of Ranvier

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.....

ii) Myelin Sheath

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.....

20. (a) Give **three** effects of over secretion of adrenaline?

(3 marks)

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21. (a) Define non disjunction? (1 mark)

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(b) Name **two** genetic disorders of the blood. (2marks)

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22. (a) How are female parts of wind pollinated flowers adapted to perform their function?

(2marks)

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.....

.....23. State how herbaceous plants obtain their support? (3marks)

- (i)
- (ii)
- (iii)

FORM 4 TERM 2 MIDTERM EXAMS

Kenya Certificate of Secondary Education

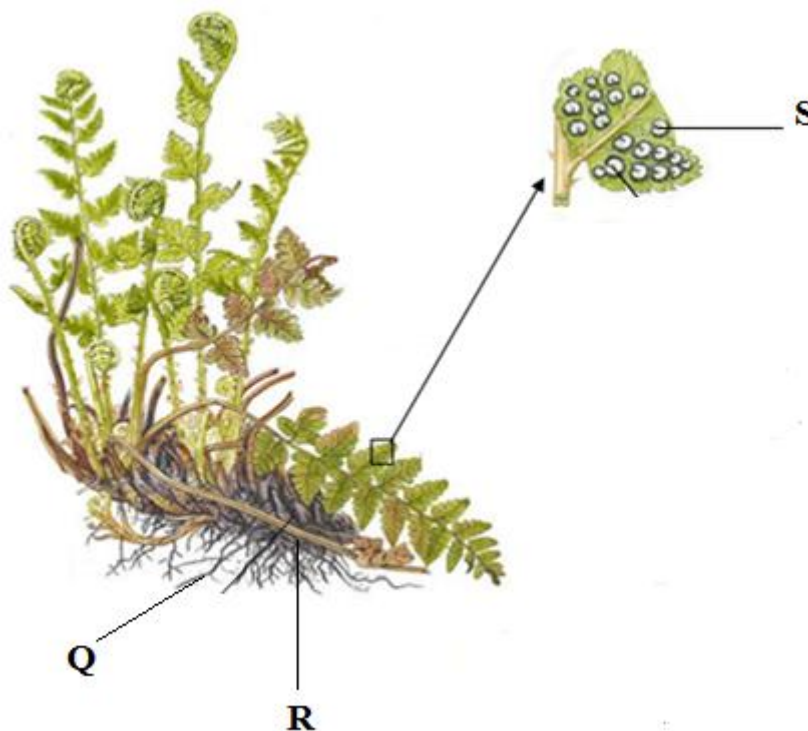
BIOLOGY

Paper 2

SECTION A

Answer all questions in this section

1. The diagram below indicates an organism that grows under shaded places with damp conditions. Study it and answer the questions that follow.



- (a) Name the division to which the specimen belongs. **(1 mark)**

.....

- (b) Name and state the functions of the parts labelled Q, R and S. **(6 marks)**

Q

Name.....

Function.....

R

Name.....

Function.....

S

Name

Function.....

- (c) Name the two body forms of the organism in its alternation of generation. **(2 marks)**

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.....

2. In cattle the gene for red colour is represented by letter R and that of white colour as W. A Red bull and a white cow were crossed and all the offspring were Roan.

- (a) Give a reason for the appearance of roan cattle in F1 generation. **(1 mark)**

.....

- (b) Using a punnet square work out the F2 generation.

(4 marks)

- (c) State the genotypic and phenotypic ratio of the F2 offspring above.

(2 marks)

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.....

- (d) Name the molecule that carries genetic information in eukaryotic cells.

(1 mark)

.....

3. Study the diagram of the organism shown below then answer the questions that follow.



(a) State the phylum to which the organism belongs. **(1mark)**

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(b) With reasons state the class to which the organism belongs.

Class **(1 mark)**

Reasons

.....

.....

(3 marks)

(c) Name **two** human diseases of which the organism is a vector. **(2 marks)**

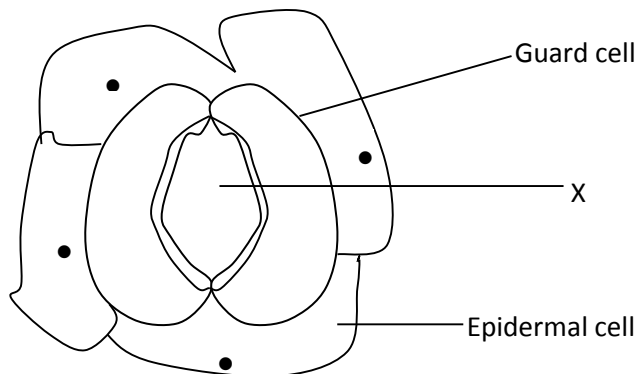
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(d) What type of metamorphosis does the organism show? **(1 mark)**

.....

4. The epidermis of a leaf is adapted to have the specialized cells known as the guard cell such as shown below.



(a) (i) Name the structure labelled X on the diagram. **(1 mark)**

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- (ii) State **three** adaptations of the guard cell to its function of opening and closing of stomata in plants. **(3 marks)**

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- (b) The mammalian lung is known to have adapted the mammal to terrestrial habitat by having a pleural membrane.

- (i) State **two** functions of a pleural membrane that gives the mammal advantage over other organisms. **(2 marks)**

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- (ii) Name **two** diseases of the respiratory system. **(2 marks)**

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.....

5. The human ear has the following structures; (i) Auditory meatus (ii) ear drum (iii) eustachian tube (iv) ear ossicles and (v) cochlea.

- (a) Name **two** functions of the mammalian ear. **(2 marks)**

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- (b) For each of the structures above, state its function. **(5 marks)**

(i) Auditory meatus

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.....

(ii) Eardrum

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(iii) Eustachian tube

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(iv) Ear ossicles

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(v) Cochlea

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(c) Name a defect caused by damage of the cochlea. **(1mark)**

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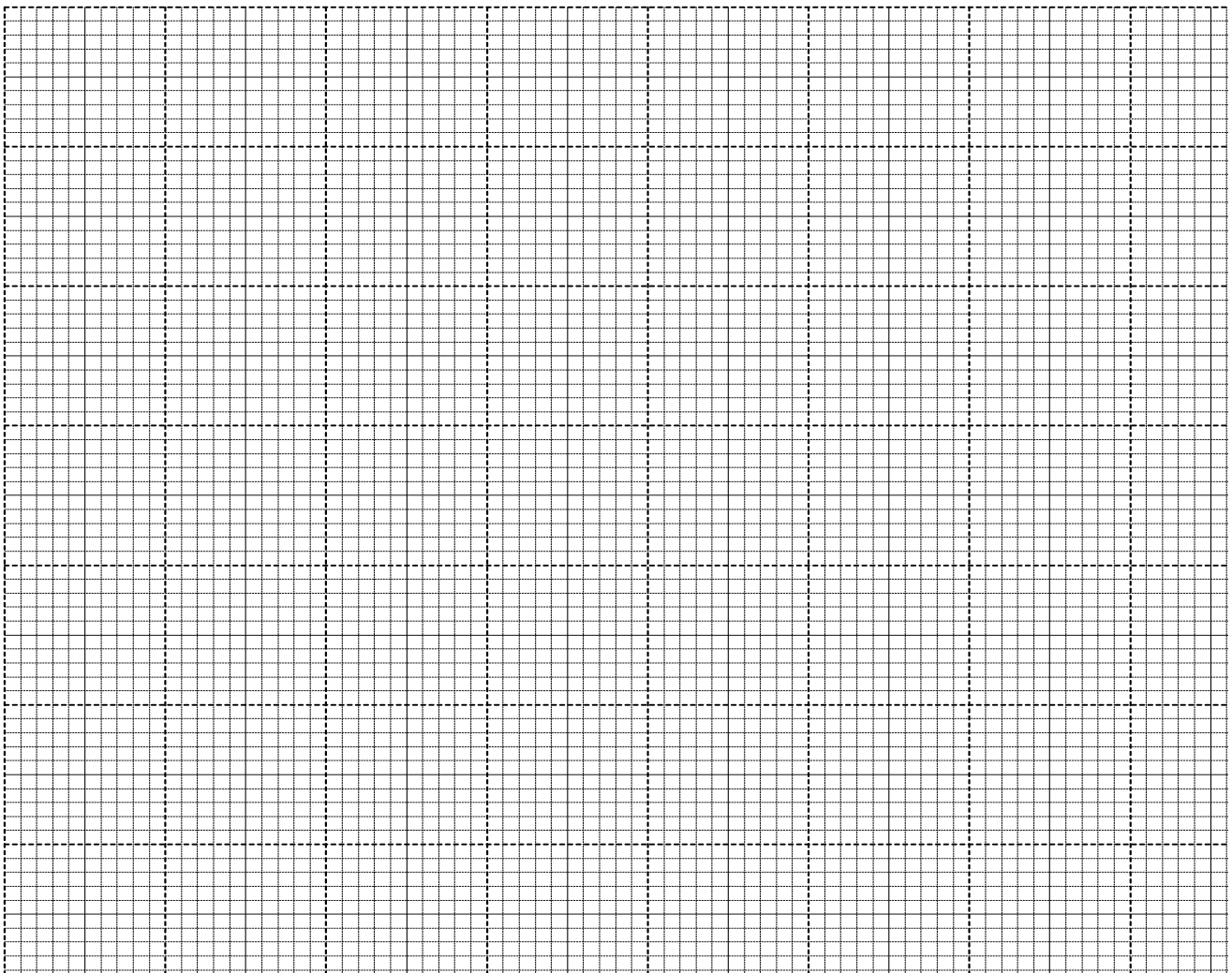
SECTION B:

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

6. A physiologist working to determine the amount of glucose levels in the iliac artery and hepatic vein per hour after a heavy carbohydrate meal in mg/100ml of blood collected and recorded the following data in a 24 hour period. Study the data and use it to answer the questions that follow.

Amount of glucose in mg/100ml	Iliac artery	2	2	2	2	2	2	2	2	8	12	20	24	20	24	22	28	20
	Hepatic vein	20	22	24	24	24	24	18	12	6	4	2	2	2	2	2	2	2
Time of day		00	1.00	2.00	3.00	4.00	5.00	6.00	7.00	8.00	9.00	10.00	11.00	12.00	13.00	14.00	15.00	16.00

(a) On the same axes plot a line graph to show amount of glucose in mg/100ml of blood against time of the day in a 24hour day up to 4.00 p.m. **(8 marks)**



b) At what time of day was the amount of glucose the same in the iliac artery and iliac vein? **(1 mark)**

.....

(c) Account for the rise in glucose levels in the iliac artery peaks at: **(3 marks)**

(i) 11.00 hrs a.m.

.....

.....

(ii) 14:00 hrs p.m.

.....

(d) Which organ and hormone is responsible for raising the sugar levels in Hepatic vein between 00.00 hrs – 2.00 hrs a.m. **(2 marks)**

Organ

Hormone

(e) Name the hormone responsible for the fall of glucose and the complex polysaccharide that forms between 14:00 hrs p.m. and 6.00 hrs p.m. **(2 marks)**

Hormone -

Complex polysaccharide -

(f) Name a disease that would have resulted if the hormone in (e) above failed to be produced. **(2 marks)**

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7. (a) Explain the role of the following factors in germination

(i) Oxygen **(2marks)**

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(ii) Water **(3 marks)**

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(iii) Gibberellic acid (1 mark)

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(b) (i) Describe the various modes of adaptation for the flat worm of the blood *Schistosoma mansoni* (8 marks)

.....
(ii) State the effects of *Schistosoma mansoni* on its primary host, the human (12 marks)

8. (a) Describe how the digestion of a protein is achieved in the following portions of the alimentary canal.

(i) Stomach (4 marks)

(ii) Duodenum (4 marks)

(b) (i) Describe the process of absorption at the root hair to the xylem of the root. (8 marks)

(ii) Describe how temperature and light intensity affect the rate of transpiration. (4 marks)

FORM 4 TERM 2 MIDTERM EXAMS

565/1

BUSINESS STUDIES

PAPER 1

TIME: 2½ HOURS

Name: _____ Adm No.: _____

Candidate's Signature: _____

1. Define the following terms as used in Business Studies. (4 mks)

- (i) Economics.....
.....
- (ii) Entrepreneurship.....
.....
- (iii) Opportunity cost.....
.....
- (iv) Scale of preference.....
.....

2. Highlight four reasons why food is an important basic need. (4 mks)

- (i)
- (ii)
- (iii)
- (iv)

3. Outline four importance of a warehouse to a consumer. (4 mks)

- (i)

- (ii)
- (iii)
- (iv)

4. Outline four requirements for one to start a limited liability company as one of the forms of business units. (4 mks)

- (i)
- (ii)
- (iii)
- (iv)

5) Highlight four factors a firm must take into account when deciding on the product(s) to produce.

- (i)
- (ii)
- (iii)
- (iv)

5. Highlight four ways in which entrepreneurs can observe ethics in the management of their business. (4 mks)

- (i)
- (ii)
- (iii)
- (iv)

6. The following information was extracted from the books of Dawida business enterprise for the year ended 30th June 2000.

Capital as at 30 th June, 2000	640,000
Capital as at 1 st July 1999	420,000
Drawing for the year	180,000
Net profit for the year	140,000

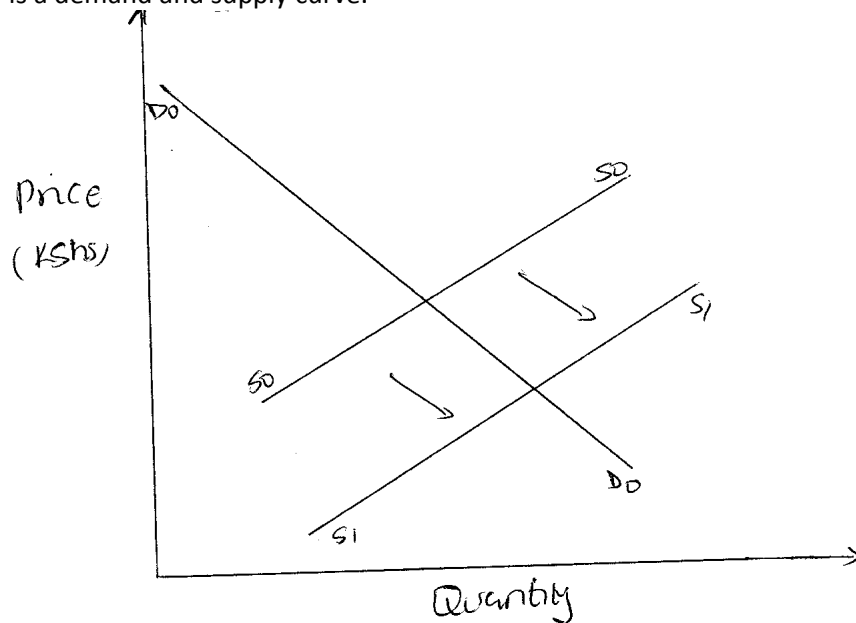
Determine the additional capital during the year.

(4 mks)

7. Highlight four ways through which one can convey verbal communication. (4 mks)

- (i)
- (ii)
- (iii)
- (iv)

8. Below is a demand and supply curve.



Highlight the factors that may have led to the above behavior. (4 mks)

- (i)
- (ii)
- (iii)
- (iv)

9. Outline four circumstances under which a trader can issue a credit note to a customer. (4 mks)

- (i)
- (ii)
- (iii)
- (iv)

10. Give the difference between: (4 mks)

(a) Double and co-insurance

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.....
.....

(b) Premiums and surrender value

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.....
.....

11. Highlight four advantages of indirect tax. (4 mks)

- (i)
- (ii)
- (iii)
- (iv)

12. Highlight four ways in which a legal-political environment can impact negatively on entrepreneurs. (4 mks)

- (i)

- (ii)
- (iii)
- (iv)

13. Highlight four duties of commercial attaches in trade promotion. (4 mks)

- (i)
- (ii)
- (iii)
- (iv)

14. Identify the book of original entry in which the following transactions can be recorded. (4 mks)

Transaction	Book of Original Entry
Paid salaries by cheque	
returned goods to a supplier	
Sold goods on credit	
Bought delivery van on credit	

15. Outline three leakages in a circular flow of income. (3 mks)

- (i)
- (ii)
- (iii)

16. Outline four advantages of using celebrities in product promotion. (4 mks)

- (i)
- (ii)

(iii)

(iv)

17. Distinguish between the following terms of sale as used in international trade. (4 mks)

(a) Free on rail (FOR)

.....
.....

(b) Free on board (FOB)

.....
.....

(c) In Bond

.....
.....

(d) On nearest offer (ONO)

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.....

18. Kenya is planning to extend her pipeline transport. State four advantages of pipeline transport to the country. (4 mks)

(i)

(ii)

(iii)

(iv)

19. Outline four emerging issues in office management. (4 mks)

(i)

(ii)

(iii)

(iv)

20. Kiburu carried out the following transactions during the month of February 2015.

February 1: Started business by depositing sh 220,000 in business bank account

7: Bought goods on credit from Miyogo Sh 72,000

8: Paid rent by cheque Sh 20,000

16: Sold goods to Kamula on credit Sh 50,000.

Required: Post the above transaction in the relevant ledge accounts.

21. Highlight four features of perfect competition market. (4 mks)

- (i)
- (ii)
- (iii)
- (iv)

22. Mention whether the following transactions have an increase, decrease or no effect on the assts, capital and liabilities of a business. (4 mks)

	Transaction	Assets	Capital	Liabilities
(a)	Bought premises on credit			
(b)	Took stock of goods and donated to a local dispensary			
(c)	Withdrew money from bank for office use			
(d)	Sold furniture receiving cash			

23. The following information relates to Liston traders for the period ended 31st March 2012.

Opening stock Sh 40,000

Sales Sh 100,000

Closing stock 25% on cost of sales

Mark-up 25%

By clearly calculating gross profit and purchases, prepare a trading account

(i) Gross profit (1 mk)

(ii) Purchases for the year (2 mks)

FORM 4 TERM 2 MIDTERM EXAMS

Kenya Certificate of Secondary Education

BUSINESS STUDIES,

Paper 2,

Duration: 2¹/₂ Hours

1. a) Explain **five** benefits of direct production. (10marks)

b) Explain **five** differences between private limited company and partnership forms of Business units. (10marks)

2. a) Discuss **five** factors that Nakuru county government may consider before spending county Funds. (10marks)

b) The following information relates to Maralal Traders for the month of May 2014.

May 1: Balance brought forward:

Cash Shs. 180,000

Bank Shs. 450,000 (Cr)

3: Received a cheque of 1,500,000 from Mpasha, a debtor

7: Cash sales Shs. 280,000

11: Jolloimat, a creditor of Shs.600, 000 was paid by cheque of sh 400,000 and the balance by cash.

14: Received commission in cash sh. 150,000

17: A debtor, Leteipa, paid his account of 185,000 by cheque less 2% cash discount.

19: Paid the following expenses by cheque:

Rent Shs. 75,000

Electricity Shs. 32,000

Water Shs. 25,000

21: Withdrew Shs. 100,000 from bank for personal use

24: Paid cash Shs 133,280 to Kinai after deducting a cash discount of 2%

25: Received a cheque of sh. 200,000 from Kiyapi, a debtor

28: Paid Salaries Shs. 120,000 by cheque.

31: Banked all cash except sh. 50,000.

Required:

Record the above transactions in a three column cash book. (10marks)

3. a) Describe **five** types of unemployment. (10marks)

b) Explain **five** problems a country may encounter when measuring national income using the output approach. (10marks)

4. a) Explain **five** factors that encourage entrepreneurial development in Kenya. (10marks)

b) By use of diagrams, show the effects on the equilibrium price and output due to increase in demand and supply respectively. (10marks)

5. a) Explain **five** benefits that Kenya as a country may achieve by adopting 2030 Millennium development goals. (10marks)

b).Discuss **five** reasons why a manufacturer may sell directly to consumers. (10marks)

6. a) The following trial balance has extracted from the books of Bishar Retailers on 30th April, 2006.

	Dr shs	Cr shs
Sales		186,000
Purchases	115,560	
Stock 1.5.2005	37,760	
Carriage outwards	3,260	
Carriage inwards	2,340	
Returns outwards		3,550
Returns inwards	4,400	
Motor expenses	6,640	
Rent	4,560	
Salaries and wages	24,490	
General expenses	12,000	
Rates	1,200	
Equipment	60,000	
Machinery	31,960	
Trade debtors	45,770	
Trade creditors		30,450
Bank	38,760	
Cash	12,000	
Drawings	20,500	
Capital	<u>348,440</u>	<u>128,440</u> <u>348,440</u>

Stock at 30th April, 2006 was shs 49,980.

Required; i) Prepare Trading, profit and loss Account for the year ended 30th April 2006. (7marks)

ii) Balance as at 30th April 2006. (5marks)

b) Explain **four** forms of economic integration. (8marks)

FORM 4 TERM 2 MIDTERM EXAMS

(The Kenya Certificate of Secondary Education)

233/1

CHEMISTRY

Paper 1

(Theory)

1. (a) What is the importance of the shape of a conical flask? (1 mark)

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.....

2. A mixture consists of sulphur powder and iron filings.

(i) Describe how to obtain sulphur from the mixture using methylbenzene. (2 marks)

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.....
.....

(ii) Is the mixture homogeneous or heterogeneous? Explain. (1 mark)

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3. Nitrogen gas can be prepared in the laboratory using a mixture of ammonium chloride solution and sodium nitrite solution.

(a) The reaction occurs in two steps. State the two steps in the correct order. (2 marks)

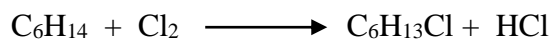
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(b) State two uses of nitrogen. (1 mark)

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4. (a) Draw structural formulae of two positional isomers with molecular formula C₄H₈. (2 marks)

(b) Study the equation below and answer the questions that follow.



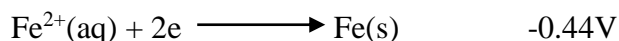
(i) State the condition under which this reaction occurs. (1 mark)

.....
(ii) Give the general name of this type of reaction. (1 mark)

.....
5. (a) Define hydration energy. (1 mark)

.....
(b) Given that: the hydration energies of Ca²⁺ and Cl⁻ are -1891 kJ mol⁻¹ and -384 kJ mol⁻¹ respectively, and that the lattice energy of calcium chloride is +2237 kJ mol⁻¹. Calculate the molar enthalpy change of solution of calcium chloride. (3 marks)

6. The standard electrode potentials of a metal G and iron are given below.



A piece of iron is coated with metal G. If the coating is scratched, would the iron be protected from rusting? Explain. (3 marks)

.....
.....7. (a) Why is the percentage of carbon (IV) oxide in the atmosphere fairly constant? (1 mark)

.....
.....

(b) Calculate the volume of carbon(IV)oxide in 8,000 m³ of air contained in a hall.(2 marks)

8. State two conditions that would make the boiling point of water to be higher than 100°C. (2 marks)

.....
.....

9. Explain the effects of the accumulation of nitrogenous compounds in water masses? (2 marks)

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.....

10. Study the table below and use it to answer the questions that follow. (The letters do not represent the actual symbols of the elements).

Element	Q	R	S	T	U
Atomic number	5	20	3	18	5
Atomic mass	10	40	7	40	11

(a) Select two letters that represent the same element? Give a reason. (2 marks)

.....

(b) Give the number of neutrons in an atom of element S. (1 mark)

.....

11. Dry carbon (II) oxide gas was passed over heated lead (II) oxide.

(a) Write an equation for the reaction. (1 mark)

.....

(b) Give one industrial application of the above reaction. (1 mark)

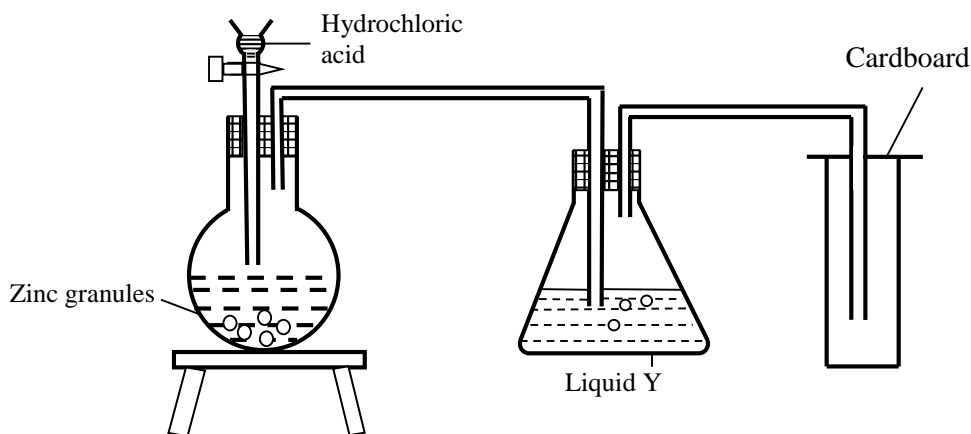
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(c) Name another gas that can be used in the above reaction. (1 mark)
.....

12. (a) Proteins are obtained from amino acids monomers. Complete the equation below to show the polymer formed. (1 mark)



(b) Name the type of polymerization shown above. (1 mark)
.....

13. The set up below was used to prepare dry hydrogen gas. Study it and answer the questions that follow.

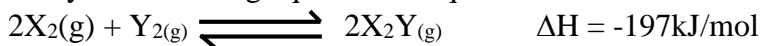


(i) With a reason, identify the mistake in the set-up above. (1 mark)
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(ii) What would be liquid Y? (1 mark)
.....
.....

(iii) Give two physical properties of hydrogen gas (1 mark)
.....
.....

14. Study the following equilibrium equation.



(a) Suggest two ways of increasing the yield of X_2Y . (1 mark)
.....

.....
(b) Draw the energy level diagram for the forward reaction. (2 marks)

15. 5.0g of calcium carbonate were allowed to react with 25cm³ of 1.0M hydrochloric acid until there was no further reaction. Calculate the mass of calcium carbonate that remained unreacted.

(3 marks)

(Ca = 40, C = 12, O = 16)

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.....

16. (a) State Graham's law of diffusion. (1 mark)

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(b) 50cm³ of Carbon (IV) Oxide diffuses through a porous plate in 15 seconds. Calculate the time taken by 75cm³ of Nitrogen (IV) Oxide to diffuse through the same plate under similar conditions. (C = 12, O = 16, N = 14) (2 marks)

17. A student fetched water from a river in a limestone area. He used it for washing and realized that it did not lather easily.

(i) Name the two ions that prevent lathering. (1 mark)

.....
.....
(ii) Given that the structure of soap is $C_{17}H_{35}COONa$.
Explain by means of ionic equations how the above ions prevent lathering. (2 marks)

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18. A student burnt magnesium ribbon in a gas jar full of sulphur (IV) oxide gas.

(i) State two observations made in the gas jar. (2 marks)

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.....
.....

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

.....

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

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

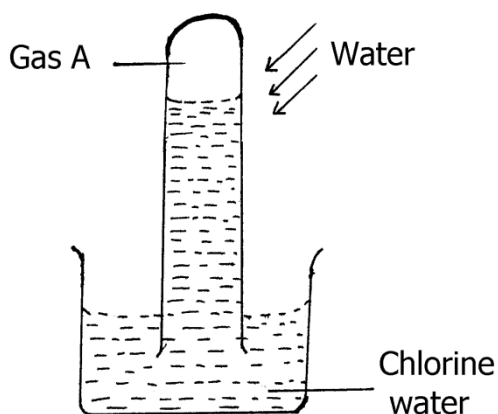
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(b) Calculate the initial mass M of the radioactive isotope. (2 Marks)

20. (i) With the aid of a well labeled diagram, show that the innermost region of a non luminous flame consist of unburnt gas. (1½ marks)

(ii) Highlight the steps followed when lighting a Bunsen burner. (1½ marks)

21. The diagram below shows an experiment involving chlorine water.



a) State and explain the observations made after 24 hours. (2 marks)

.....

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.....

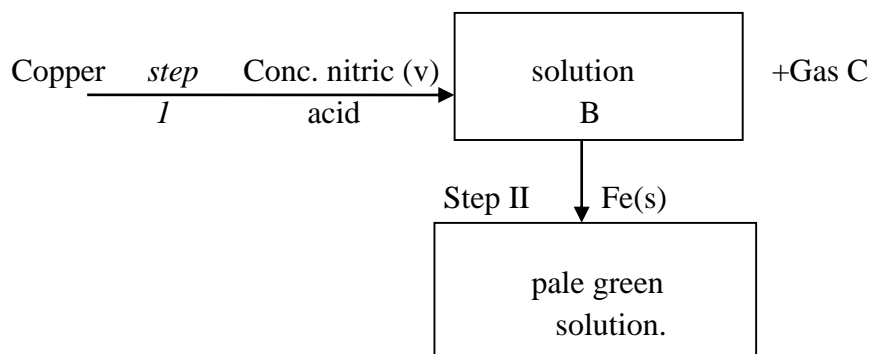
b) Write an equation to show the formation of gas A. (1 mark)

.....

c) State one use of chlorine gas. (1 mark)

.....

22. Study the reaction scheme below and the answer questions that follow.



(i) Identify: (2mark)

Solution B

Gas C

(ii) What type of reaction is taking place in step II (1mark)

23. a) Define solubility. (1 mark)

b) In an experiment to determine the solubility in water at 30⁰c, the following results were obtained.

Mass of empty evaporating dish = 26.2g

Mass of evaporating dish + saturated solution = 42.4g.

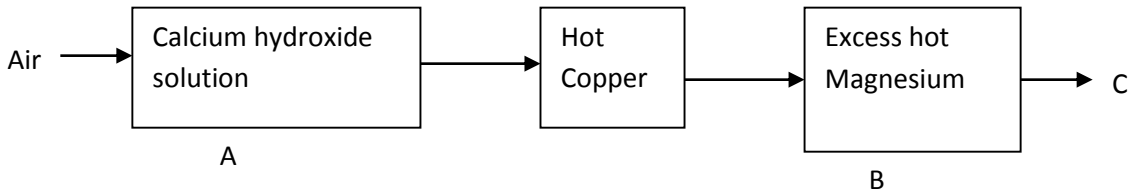
Mass of evaporating dish + dry solid Y = 30.4g

Use this data to calculate the solubility of Y at 30⁰C . (3 marks)

24. In terms of structure and bonding. Explain why water (H₂O) is a liquid at room temperature while Hydrogen sulphide (H₂S) is a gas. (2 marks)

25. Explain why hard water flowing in lead pipes may be safer for drinking than soft water flowing in the same pipes. (2 marks)

26. Air was passed through reagents as shown below.



i) State and explain the observations made when air is passed through chamber A for a long time.

(2 marks)

ii) Name one component in Explain

(1 mark)

27. Using dots (·) and crosses (x), draw the dimer structure of aluminium chloride and name the bonds. (Al=13, Cl=17) (2 marks)

28. Iron is extracted from its ore by the blast furnace process.

a) Name the chief ore from which iron is extracted from.

(1 mark)

b) An ore is suspected to contain mainly iron. Describe a method that can be used to confirm the presence of iron in the ore.

(2 marks)

FORM 4 TERM 2 MIDTERM EXAMS

233/2

CHEMISTRY

PAPER 2

(THEORY)

TIME: 2 HOURS

NAME INDEX NO.....

CLASSADM.....CANDIDATE'S SIGNATURE

1. The figure below represents a section of the periodic table. Study it and answer questions (a) to (h). Note that the letters do not represent the actual symbols of the elements.

A							D	
B			G	J		F	H	E
C							I	

(a) Consider elements D, H and I.

(i) Give the chemical family of these elements. (1 mk)

.....

(ii) How do their ionic size compare. (1 mk)

.....

.....

(iii) Compare and explain the reactivity of the three elements. (2 mks)

.....

.....

FOR MARKING SCHEMES CALL/TEXT/WHATSAPP 0705525657

.....
(b) (i) Write the electronic configuration of:

Element H

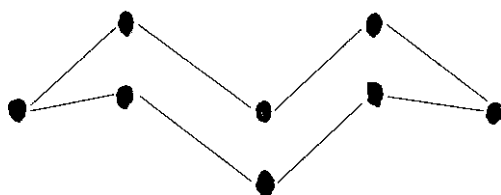
(1 mk)

.....
(ii) The ion of element G.

(1 mk)

.....
(c) A molecule of one of the elements is shown below.

(2 mks)



(i) **Identify** this element from the section of the periodic table and give its actual **symbol** and **name**.

(2 mks)

.....
(ii) Explain why this element has a higher boiling point compared to that of oxygen.

(2 mks)

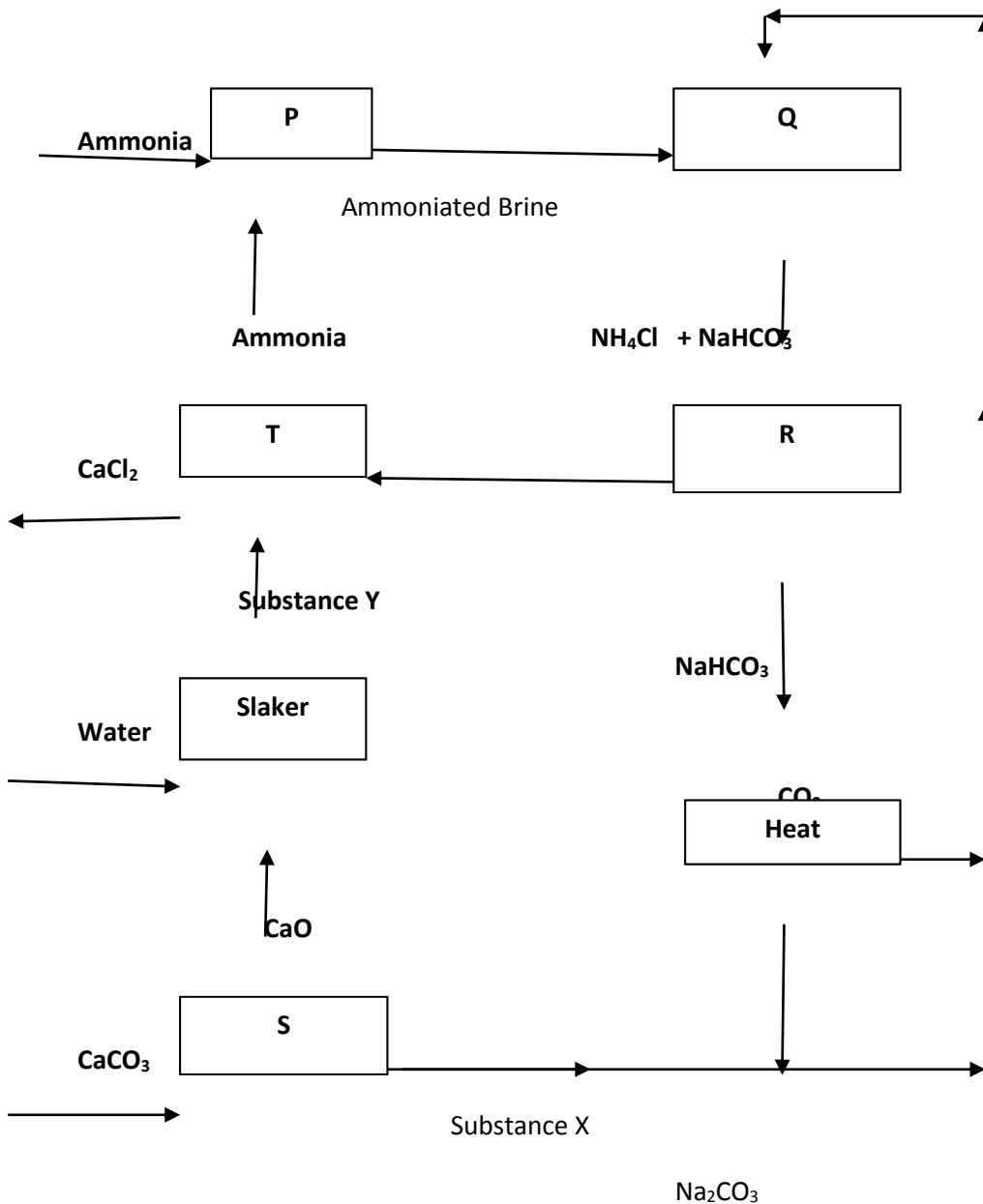
.....
(iii) Write an equation to show the reaction between the element named above with oxygen.

(1 mk)

(iv) Predict the pH of the oxide of the above element when in water.

(1 mk)

2. Use the flow chart below to answer the questions that follow.



(a) Name the substances labelled:

(2 mks)

X.....

Y.....

(b) Name 2 substances being recycled in the process represented by the flow chart. (2 mks)

.....

.....

(c) Name the process that takes place in:

(2 mks)

S.....

R.....

(d) Give 2 uses of calcium chloride.

(1 mk)

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.....

(e) Write equations for the reaction that take place in: (2 mks)

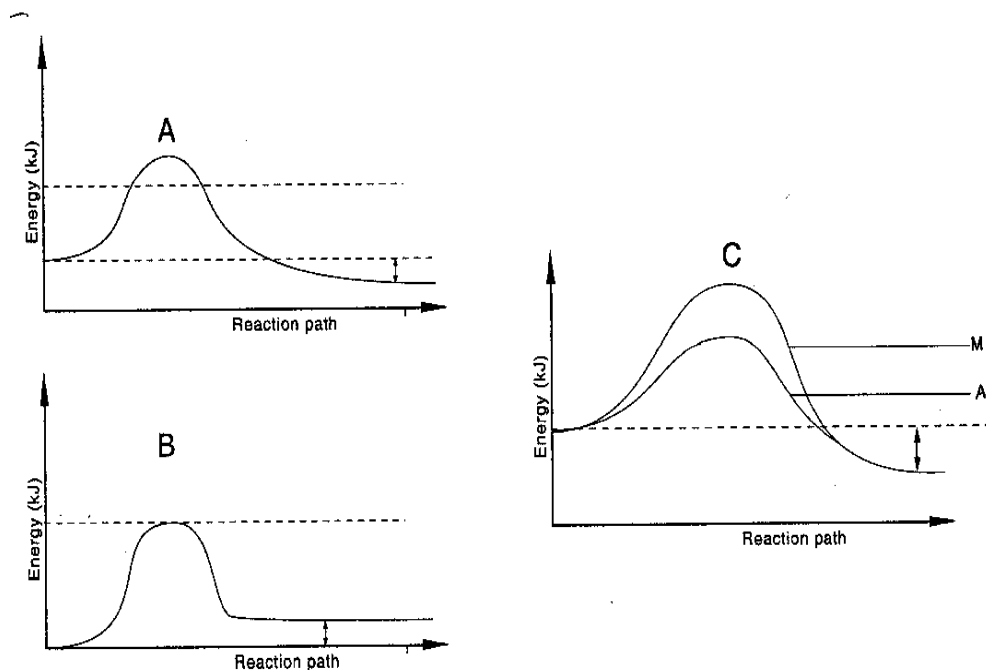
Q.....
.....
T.....
.....

(f) Using ionic equation explain how sodium carbonate can be used to soften hard water. (2mks)

(g) Other than softening of hard water give 2 other uses of sodium carbonate. (1 mk)

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.....

3. Consider this group of reaction energy profiles for some different reactions (A, B, C).



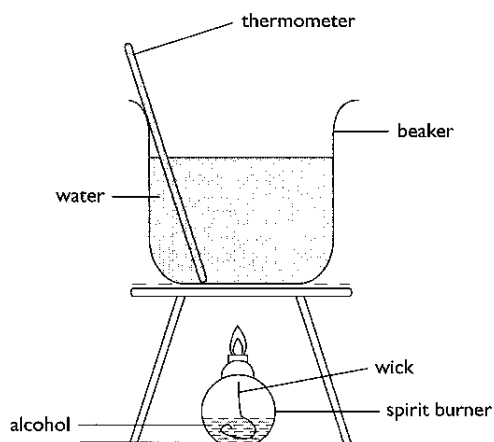
(a) Which reaction(s) is: (2 mks)

- (i) exothermic
- (ii) Endothermic.....

(b) Explain why the activation energy of A in diagram C is lower than the activation energy of M in the same diagram. (1 mk)

.....

(c) In an experiment to determine the heat of combustion of methanol, CH_3OH , a student set up apparatus as shown in the diagram below. Study the set up and the data and answer the questions that follow.



Volume of water = 100cm³

Final temperature of water = 22.0⁰c

Initial temperature of water	=	36.0 ⁰ c
Final mass of lamp and methanol	=	84.75g
Initial mass of lamp and methanol	=	85.10g
Density of water	=	1 g/cm ³

(S.H.C of water = 4.2 g⁻¹K⁻¹)

(i) Write an equation for the combustion of methanol. (1 mk)

(ii) Calculate:
(a) Number of moles of methanol used in this experiment. (1 mk)

(b) The heat change for this experiment. (1 mk)

(c) The heat of combustion per mole of methanol. (1 mk)

(d) Explain why the molar heat of combustion for methanol obtained above is different from the theoretical value. (1 mk)

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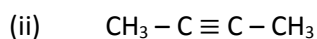
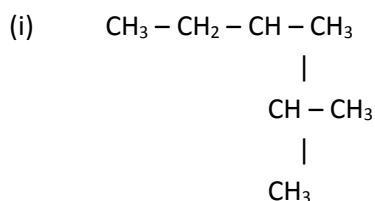
(e) State two factors to consider when choosing a fuel. (1 mk)

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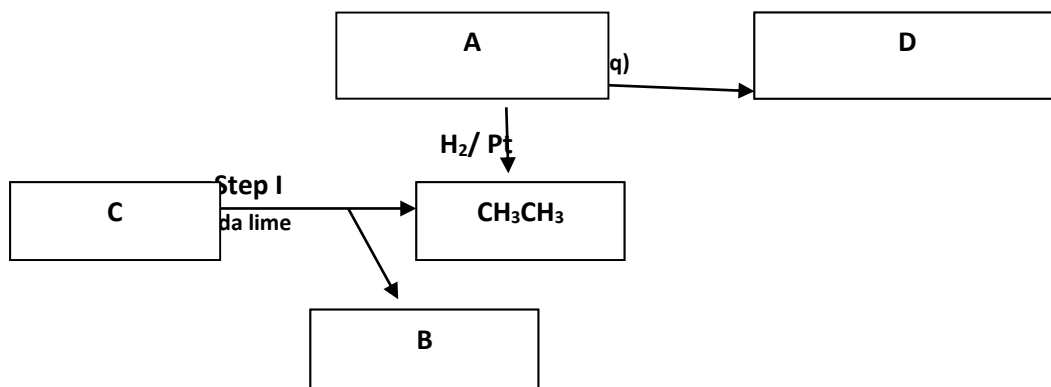
(f) Outline two disadvantages of using hydrogen as a source of fuel. (1 mk)

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



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



(i) Identify (2 mks)

A.....

B.....

C.....

D.....

(ii) Explain how substance A and CH_3CH_3 could be distinguished by burning. (1 mk)

.....
.....

(iii) Give one reason why soda lime is preferred to pure sodium hydroxide in step I. (1 mk)

.....
.....

(c) Write down the equation for the reaction between substance A and hydrogen when equal numbers of moles are used. (1 mk)

(d) A student found a bottle containing $\text{CH}_3\text{CH}_2\text{COO CH}_3$.

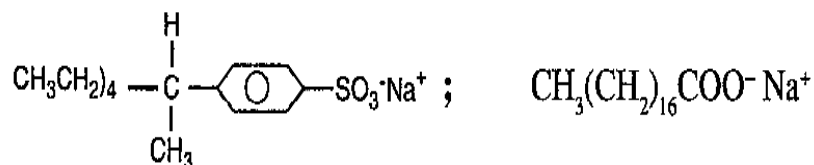
(i) Name the process of formation of the substance above. (1 mk)

.....

(ii) Identify the two substances from which the substance in (d) (i) is derived. (1 mk)

.....
.....

(e) The formulae below represents the active ingredients in a soapless detergent and in soapy detergents respectively.



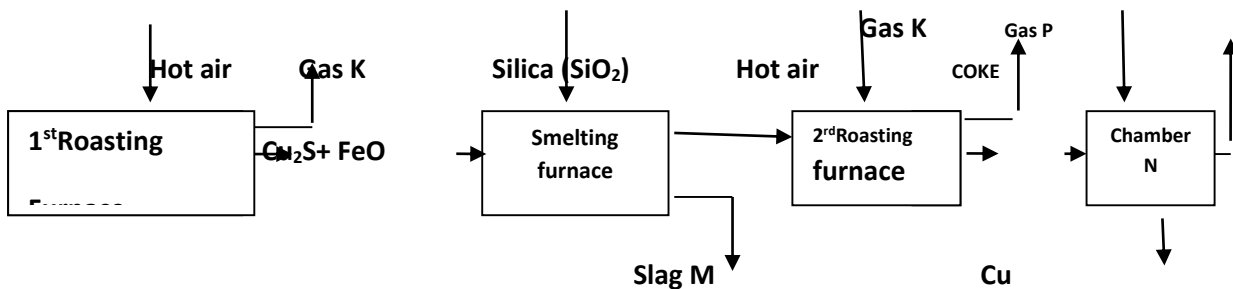
(i) Give one advantage and one disadvantage of using soapless detergent. (1 mk)

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- (ii) Explain briefly how the soapy detergents given above may be manufactured. (2 mks)

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



- (i) Name gas K. (1 mk)

.....

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

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

(iv) Identify gas P. (1 mk)

.....

(v) What name is given to the reaction that takes place in chamber N? Give a reason for the answer. (2 mks)

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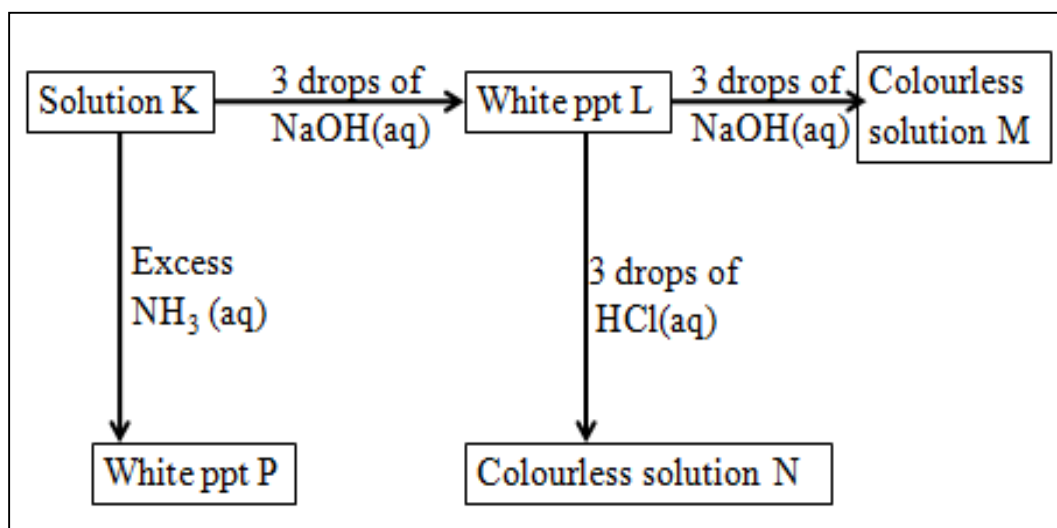
(b) The copper obtained from chamber N is not pure. Draw a labeled diagram to show the set up you would use to refine the copper by electrolysis. (3 mks)

(c) Given that the mass of copper obtained from the above extraction was 210kg, determine the percentage purity of the ore (copper pyrites) if 810kg of it was fed to the 1st roasting furnace. (Cu = 63.5, Fe = 56, S = 32.0) (2 mks)

(d) Give 2 effects that this process could have on the environment. (2 mks)

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6. Study the scheme below and use it to answer the questions that follow:



(a) Write the formula of:

(i) Cation in solution K (1 mk)

(ii) White precipitate L (1 mk)

(iii) Colorless solution M (1 mk)

(iv) Colorless solution N (1 mk)

(v) White precipitate P (1 mk)

(b) Write the ionic equation for the reaction for the formation of white precipitate L. (1 mk)

(c) What property of L is illustrated in the formation of colorless solution M and N. (1 mk)

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(d) Electrical conductivity decreases when temporary hard water is heated. Explain. (2 mks)

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(e) When excess iron filings were dissolved in dilute sulphuric (IV) acid, a pale green solution was obtained. The solution was filtered and divided into two portions.

(i) Write an equation for the reaction (1 mk)

(ii) To the first portion aqueous ammonia was added till in excess. State observation made. (1 mk).

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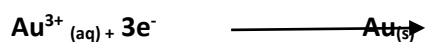
(iii) Write an ionic equation for the reaction in (ii) above. (1 mk)

7. a) State the Faraday's law of electrolysis (1mk)

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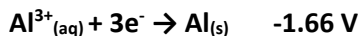
b) Calculate how long it would take an aqueous gold (III) chloride cell to coat 2.5 g of gold on a bracelet using a current of 2.5 A. The half reaction has been provided for you.

(Au = 197) (3mks)



c) Two half-cells are connected under standard conditions to make an electrochemical cell.

The two half-cells are a copper-copper (I) ion (**Cu/Cu⁺**) and an aluminum-aluminum ion (**Al/Al³⁺**). Using your the Standard Reduction Potentials below answer.



(i) Write the cell representation for the cell obtained when the two half cells are connected. (2mks)

(ii) Identify the reaction that takes place at the anode and at the cathode. (2mks)

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(iii) Calculate the emf for the above cell (1mk)

(iv) Write the overall balanced redox reaction for the electrochemical cell. (1mk)

d) An excess of copper solid is dropped into a solution which contains AgNO₃ , Fe (NO₃)₃ and Zn (NO₃)₂. Write the equations for any reduction **half-reactions** that occur over time under standard conditions. (1mk)

FORM 4 TERM 2 MIDTERM EXAMS

Kenya Certificate of Secondary Education

Computer Studies

Paper 1

(THEORY)

2 ½ Hours

SECTION A (40 Marks)

Answer all questions in this section

1. Give **TWO** reasons why Powder type fire extinguishers are not recommended to be used in a computer laboratory. (2 Marks)

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2. State the purpose of each of the following memories in a computer system. (2 marks)

(i) ROM

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(ii) RAM

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3. State two factors that one would consider when selecting data entry method in computing. (2 Marks)

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4. Describe the following types of printers and state one application area of each.(3Marks)

(a) Dot matrix

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(b) Thermal printer.

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5. Differentiate between in-house software and freeware. (2 Marks)

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6. Give two importance of feedback mechanism in systems (2 Marks)

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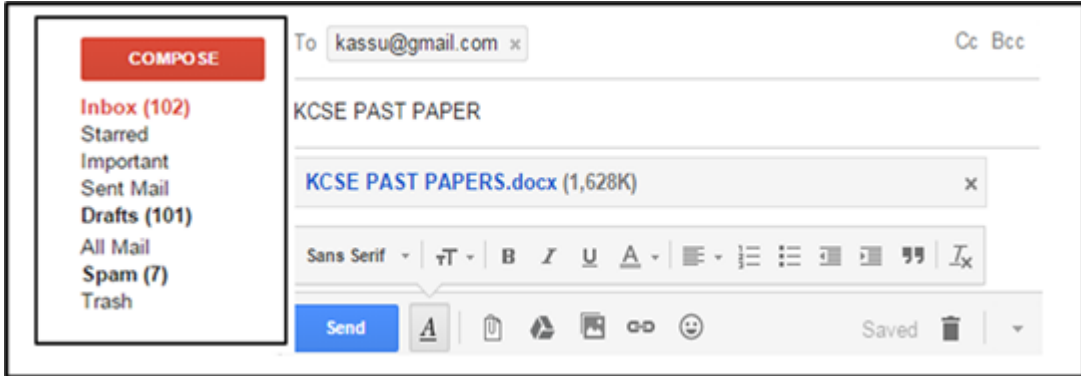
7. With an aid of a diagram, explain one-to-one database relationship. (2 Marks)

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8. KASSU Secondary School intends to set up internet connection in their school for e-learning purposes. Advise the school management on four internet connectivity requirements that is required for them to be able to access internet. (2 Marks)

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9. The figure below shows an extract of an e-mail application.



What is meant by each of the following terms: (3 Marks)

(a) Trash

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(b) Spam

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(c) *Inbox*

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10. State two ways in which users in an organization can be a security threat to data in an information system. (2 Marks)

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11. State three negative impact of information communication technology on the Environment. (3 Marks)

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12. In a computer based information system, state the purpose of the following files and give **one** example where such a file may be required in a school. (4 marks)

a. Report file.

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b. Sort file.

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13. State three responsibility of a Database administrator in an organization. (3 Marks)

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14. With an example for each, describe how computers are used in the following areas of education; (3 Marks)

a. Simulation

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b. Tutorial

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15. a. Dan a computer student noticed that every time a person enters the computer lab the computer screen flickers. Identify three reasons why the monitor might be flickering
(3 Marks)

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b. State two ways in which the problem can be solved (2 Marks)

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SECTION B (60 Marks)

Answer question 16 and any other three questions

16. a. State two advantages and two disadvantages of high level programming language
(2 Marks)

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b. State three situations when REPEAT .. UNTIL structure can be used in writing a program
(3 Marks)

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c. The roots of the equation $ax^2 + bx + c = 0$ are given by the formula

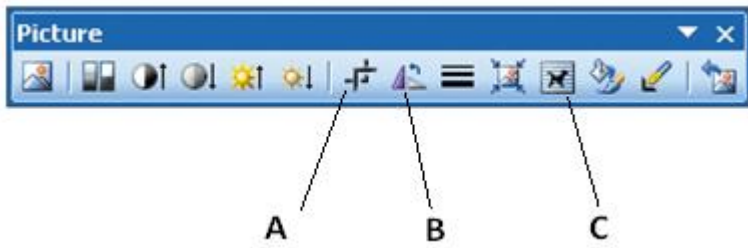
$$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$$

i. Write a pseudocode for the above program (5 Marks)

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ii. Draw a flow chart for the above pseudocode (5 Marks)

17. (a) (i) The figure below shows a picture tool bar



Name and state the functions of the features marked A, B and C:

(i) A (1 Mark)

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.....
.....

(ii) B (1 Mark)

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

(iii) C (1 Mark)

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

(b) State the importance of Column breaks as used in word processor. (1 Mark)

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

(c) Change case is where a user applies so that the text can have some contrast in size. Write the word Digital SIGNAL (2 Marks)

(i) Title case

(ii) Toggle case

(d) Define the following terms as used in charts.

(2 Marks)

(i) Legend

(ii) Data range

(e) The table below shows how a kiosk owner uses a spread sheet to keep records in a shop.

	A	B	C	D	E	F
1	ITEM NAME	NUMBER OF ITEMS	UNIT COST	TOTAL BUYING PRICE	TOTAL SELLING PRICE	PROFIT
2	Blue band	150	120			3600
3	Toss	135	50			1350
4	Cow boy	120	120			2880
5	Panga soap	118	50			1180

(I) Write a **function** to calculate the total buying price.

(2 Marks)

(II) Write a **formula** to calculate the Profit.

(2 Marks)

(III) The total buying prices of all items was increased by 12% and the value 12% is placed in cell B6. Using cell addresses with absolute referencing, write a formula to calculate the Total Selling Price in cell E2.

(2 Marks)

(IV) State the output of the expression =SUMIF(F2:F5,"<1 500")would return.(1 Mark)

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18. a. Describe the term prefixing an extra sign bit as used in data representation. (2 Marks)

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b. Convert each of the following numbers system.

(i) 0.78125_{10} to binary (2 Marks)

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(ii) $3A9_{16}$ to Octal (2 Marks)

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c. Perform the following binary operation. (3 Marks)

$$1010.11 + 111.10 - 101.11$$

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d. Using one's complement, perform the following binary arithmetic leaving the answer decimal notation. $17_{10} - 45_{10}$ (6 Marks)

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19. a. Distinguish between the following terms as used in data communication (6 Marks)

i. Guided transmission medium and unguided transmission media

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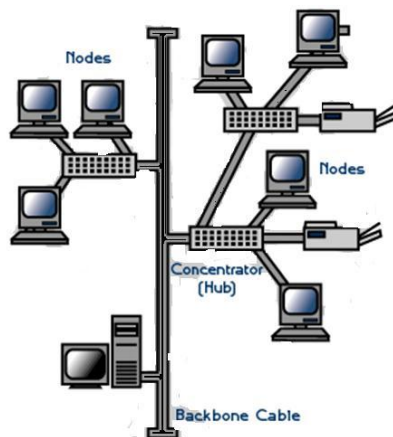
ii. Multiplexing and demultiplexing

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iii. Logical and physical Topology

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b. Below is a diagram of a network topology.



i. Name the above topology (1 Mark)

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ii. State two advantages and two disadvantages of using the topology named above (4 Marks)

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c. List and explain the two data transmission techniques (4 Marks)

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20. a. Distinguish between a computer drive and computer driver (2 Marks)

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b. State any four factors to consider when selecting an operating system (4 Marks)

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c. Explain any four factors that dictates how the operating system organizes data in a computer (4 Marks)

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d. Define the term file in relation to the operating system (1 Mark)

e. The operating system stores details of a file for easy identification and retrieval of files. Explain any four file details the operating system uses to search and identify a file (4 Marks)

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f. Distinguish between a menu driven operating system and graphical user interface operating system (2 Marks)

FORM 4 TERM 2 MIDTERM EXAMS

Kenya Certificate of Secondary Education

(K.C.S.E)

451/2

COMPUTER STUDIES

Paper 2

(PRACTICAL)

Question 1

(a) Using Desktop Publishing application program, design the following publication. Name the file as HEALTHY_SCHOOL (19mks)

(b) Prepare the page layout out as follows:

(i) Custom paper size: Width = 11.6", Height = 8.268 (2mks)

(ii) Set the margins to 0.787" all round (2mks)

(iii) Divide the page into TWO equal horizontal parts using a ruler guide. (2mks)

(iv) The border of the design should start from the set margins (2mks)

NB: After designing one part of the divided page, TWO copies of the publication should fit into one page in landscape as set up above.

(c) Create a logo as shown to measure **height** 1.213" and **width** 1.118" (3mks)

(d) (i) The main title text (near the logo) should be of **Candara, Font size 26, Bold and Right aligned** (4mks)

FOUNDATIONS FOR A HEALTHY SCHOOL

The implementation of the health and physical education curriculum is a significant component of a healthy school environment.

The Ministry of Education's "Foundations for a Healthy School" (www.edu.gov.on.ca/eng/healthy_schools/foundations.pdf) identifies four components that together represent a comprehensive approach to creating a healthy school. This approach ensures that students learn about healthy, active living in an environment that reinforces their learning through policies and programs that promote healthy, active living. **The four components are as follows:**

- high-quality instruction and programs
- a healthy physical environment
- a supportive social environment
- community partnerships

The roles and responsibilities in health and physical education must involve the following groups:

1. Teachers
2. Students
3. Parents
4. Principals

(ii) Set-up the rectangular object with the main heading to a background color of **Accent 1** (1mk)

(e) The text on the lower part of the publication should be formatted as follows: (3mks)

- Color: **Custom color combination (Red=51, Green=4, blue=252)**

- Alignment: **Left**

- Font: **Size 10**

(f) Format all other text to **times new roman font type and font size 12** (2mks)

(g) Apply a style to the line below the text in columns and a thickness of 4.5" in weight

(1mk)

(h) Enforce hyphenations to the text in columns

(1mk)

- (i) The star object with text “Reach every group” should be a 24-point star. Format the text inside to font type **calibri** (2mks)
- (j) Make the designs to fit one page (1mk)
- (k) Group all objects in the two designs as one. (2mks)
- (l) Insert a footer using your name index number, aligned to the center (2mks)
- (m) Print the publication. (1mk)

Question 2

The information in the table below was obtained from the books of Safiri Transport Company.

CAR	MODEL	REGNo	YEAR OF MANUFACTURE	DRIVER	IDNO	EMPLOYMENTNo	TRIPS MADE	DESTINAT
TOYOTA	PICKUP	KAG 725 H	1996	JOHN	122834	DI1223	5	NAIROBI
ISUZU	SALOON	KCB 725 D	2010	MARY	153458	DI9853	3	KERICHI
MAZDA	S/SAGON	KBC 763 L	2006	BETTY	986732	DO4587	15	KISUMU
IVECO	TRUCK	KAG 625 H	1987	KYLE	985443	DO6592	20	KERICHI
TATA	TRUCK	KZG 725	2011	PETER	758849	DI4010	25	KERICHI
JAC	TRUCK	KAA 740 H	1992	JERRY	985873	DO9203	40	NAIROBI
NISSAN	S/WAGON	KAG 552 M	1990	PAUL	857330	DO8345	2	MUHOROBI
MAZDA	SALOON	KCB 678 J	2010	SETH	764943	DI9352	15	MOMBA
MITSUBISHI	TRUCK	KCC 345 F	2006	KATE	934472	DI8754	2	KERICHI
TOYOTA	S/WAGON	KCA 892 U	1987	CALEB	109456	DI6557	1	MUHOROBI
TOYOTA	S/WAGON	KAP 544 R	2011	TIM	678842	DO7395	1	KISUMU
ISUZU	S/WAGON	KAP 711 R	1992	PATRICK	764484	DO5764	7	NAIROBI
BENZ	SALOON	KBN 877 C	1991	BRIAN	769973	DI2343	3	KISUMU

- a. Using a database management application split the information in the above table into two tables namely vehicle and drivers respectively and save the database as Safiri Transport Company (15 Marks)
- b. Create a relationship between the two tables (2 Marks)
- c. Create an appropriate form that would be used to enter new records in the driver's table and save it as form driver (7 Marks)
- d. Create a query that will display a list of all the drivers who made more than 5 trips to kericho, include all the necessary details. Save it as kericho. (5 Marks)
- e. Create a query with a calculated field named total allowance to display the total allowance earned by each driver, include all the necessary details. Save it as allowance (5 Marks)
- f. Using both tables, create a query that would be used to complete each driver's earnings and save it as pay roll. (3marks)
- g. Using the payroll query in (f) design a report for Safari Transport Company that would be used to calculate total allowance and monthly pay for each driver, assuming that each driver works for 25 days in a month. (7marks)
- h. Print vehicle, driver, form driver, kericho, allowance and payroll (6 Marks)

FORM 4 TERM 2 MIDTERM EXAMS

Kenya Certificate of Secondary Education CHRISTIAN RELIGIOUS EDUCATION Paper 1

1. (a) Giving examples, outline **seven** authors of the bible. (7 mks)
(b) Explain Gods plan of salvation according to Genesis. (6 mks)
(c) Identify **seven** occasions when the bible is used in Kenya today. (7 mks)
2. (a) Describe the background to the call of Abraham. (6 mks)
(b) Describe the preparations made by Israelites for the making of the Sinai covenant. (7 mks)
(c) Identify **seven** moral values Christians learn from the Decalogue. (7 mks)
3. (a) Explain **seven** ways how King David is an ancestor of Jesus Christ. (7mks)
(b) Identify **six** expressions of syncretism in Israel at the time of Prophet Elijah. (6mks)
(c) State **seven** qualities of a good leader that modern leaders can learn from King David. (7mks)
4. (a) Outline **seven** ways in which the Old Testament prophecies are related to the New Testament. (7mks)
(b) Explain the message of Prophet Amos on Repentance and Hope. (7mks)
(c) Mention **six** ways how Christians today play their prophetic role. (6mks)
5. (a) Describe the personal life of prophet Jeremiah. (8mks)
(b) Outline Nehemiah's reforms on observing the Sabbath. (5mks)
(c) Identify **seven** ways in which Christians observe the day of worship. (7mks)
6. (a) Describe the traditional African understanding of God. (7mks)
(b) Outline **seven** teachings on the meaning of life and its wholeness in the traditional African society. (7mks)
(c) Outline the changing attitude to birth and naming in the society today. (6mks)

FORM 4 TERM 2 MIDTERM EXAMS

Kenya Certificate of Secondary Education CHRISTIAN RELIGIOUS EDUCATION Paper 2

1. (a) State Jeremiah's prophesies about the Messiah. Jeremiah 23:5-6. (6 mks)
(b). With reference to the incident when Jesus was dedicated to God at the age of forty days, outline **seven** revelations of Simeon and Anna about His life. (7 mks)
(c) State **seven** lessons Christians learn from the incident when Jesus was dedicated. (7 mks)
2. (a) Describe the raising of Jairus' daughter. (6 mks)
(b) Outline **six** lessons that Christians learn from the raising of Jairus' daughter. (6 mks)
(c) Give **eight** ways in which the church cares for the sick in Kenya today. (8 mks)
3. (a) State the meaning of the parable of the sower as explained by Jesus in Luke 8:11-15. (8 mks)
(b) Give seven reasons why Jesus referred to the Pharisees as hypocrites. (7 mks)
(c) Write down six factors which hinder people from accepting the call of salvation. (6 mks)
4. (a) Outline the characteristics of the people of God as taught by Peter in 1 Peter 2:9 – 10. (7 mks)
(b) Identify seven gifts of the Holy Spirit. (7 mks)
(c) Outline the importance of the Holy Spirit to Christians today. (6 mks)
5. (a) Explain **six** ways in which males and females related in traditional African context. (6mks)
(b) State **eight** uses of leisure today. (8mks)
(c) Give **six** factors that promote drug abuse among youths in Kenya today. (6mks)
6. (a) Outline **seven** ways of acquiring wealth rightfully. (7mks)
(b) Give **six** reasons why Christians are opposed to genetic engineering. (6mks)
(c) Explain the Christian attitude to bribery and corruption. (7mks)

2. Cloze Test.

Read the passage below and fill in the blanks with the most appropriate word.

The country (1).....benefitted greatly from reduced fuel prices in the past year (2)..... from favourable international market dynamics. (3)..... is a major production cost and when the prices go (4)....., commodity prices stabilize, which is good for the economy.(5)....., something untoward has been happening lately. Fuel (6).....has become erratic, causing distress to motorists. According (7)..... the Petroleum Institute of East Africa, which is the industry lobby, the intermittent supply is artificial. Some industry players are (8).....oil for speculation, hoping to (9).....shortage and, in turn, influence the regulator, the Energy Regulatory Commission, to raise the (10).....

3. Oral Skills

a). For each of the following words, write another that is pronounced the same as the one given. (4mks).

- i). Miner
- ii). Suite
- iii). Throws
- iv). Flew

b). Identify the silent letters in each of the following words. (3mks).

- i). Soften
- ii). Corps
- iii). Exhaust

c). Indicate the correct intonation for the following sentences. (3mks).

i). Can I take you home?

.....

ii). How did she travel to Nairobi?

.....

iii). I have been working very hard for the coming examination.

.....

d). Pick the odd one out in the pronunciation of the following words in each group, with reference to the letters in bold. (4mks).

i) **m**otion, **v**isual, **p**assion, **m**achete

ii). **H**ook, **f**ood, **w**ould, **t**oo

iii). **a**x, **x**enon, **t**ax, **m**aximum

iv). **C**harade, **c**hurch, **ch**auffeur, **ch**asis

e). (i) A local television station is holding interviews for the position of a news anchor. You are invited to attend the interview. Explain three things you would do to ensure you are well prepared for the interview. (3mks).

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(ii). Unfortunately, you fail to secure the job. What could you have done wrong during the interview that led to this failure? (3mks).

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e). Read the genre below and answer the questions that follow.

‘Slipperiness knows no king.’

i). Classify the above genre (1mk).

.....

ii). What is the most appropriate audience for the above genre. (1mk).

.....

iii). What would be lost if the above genre is translated into another language. (1mk).

.....

.....

f). Read the telephone conversation below and answer the questions that follow.

Francis: Hello, is that Chileka International Airport?

Edith: (*Picking the phone*) The mushrooms are 500 kwacha per kilogram.

Hello, is anybody on this line?

Francis: Hello, is that Chileka International airport?

Edith: What do you want?

Francis: Please confirm for me whether I called the right place, Chileka International Airport?

Edith: (*Frowning*) Which other airport shares a similar phone number as this?

Francis: May I then speak to the Managing Director?

Edith: I don't mind a baby...*(on phone)*, what did you say ?Oh, the Managing Director can't talk to you.

Francis: Can I then leave a message which you can pass to him?

Edith: Why can't you call him on his personal line...*(away from the receiver)* serve me a cup, tea tastes better when hot.

Francis: *(Surprised)* Hello, excuse me madam, I am Francis Chumachamara and am requesting to talk to the Managing Director over an important matter concerning one of your employees...

Edith: I told you the Managing Director is not in *(hangs up)*.

i). Explain four things that make Edith an ineffective communicator.(4mks).

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ii). Explain three things that one should observe if they are to communicate effectively over the phone. (3mks).

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2&3 ENGLISH**

FORM 4 TERM 2 MIDTERM EXAMS

Kenya Certificate of Secondary Education

312/1

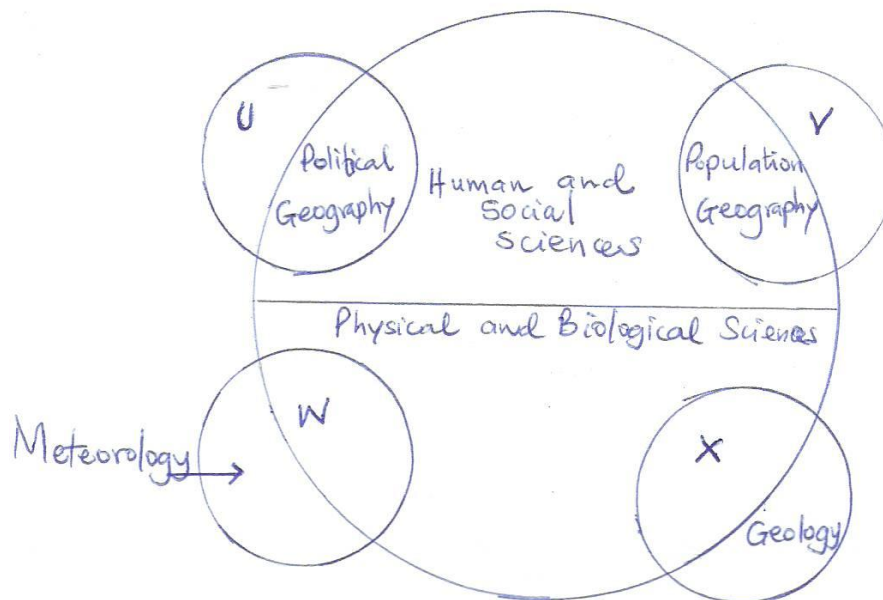
GEOGRAPHY

Paper 1

SECTION A

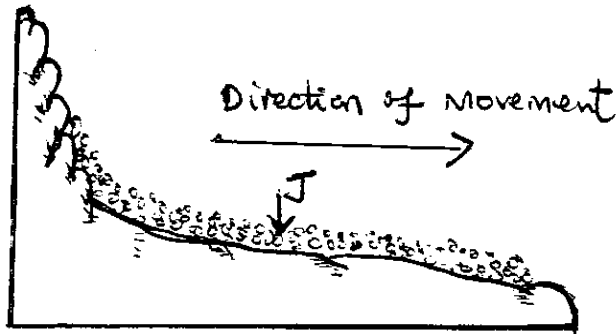
Answer all the questions in this section.

- (a) State two reasons why Geography is a unique subject. (2 mks)
(b) The diagram below shows the relationship between geography and other disciplines.



- Name the disciplines marked U, V, W and X. (4 mks)
- (a) If a given parcel of air at 35°C contains 15.5 gm/m^3 of moisture and the given air can hold a maximum of 20 gm/m^3 at the same temperature, calculate the relative humidity. (2 mks)
(b) Draw a well labelled diagram to illustrate a mercury Barometer. (3 mks)

3. (a) Study the diagram below showing mass wasting.



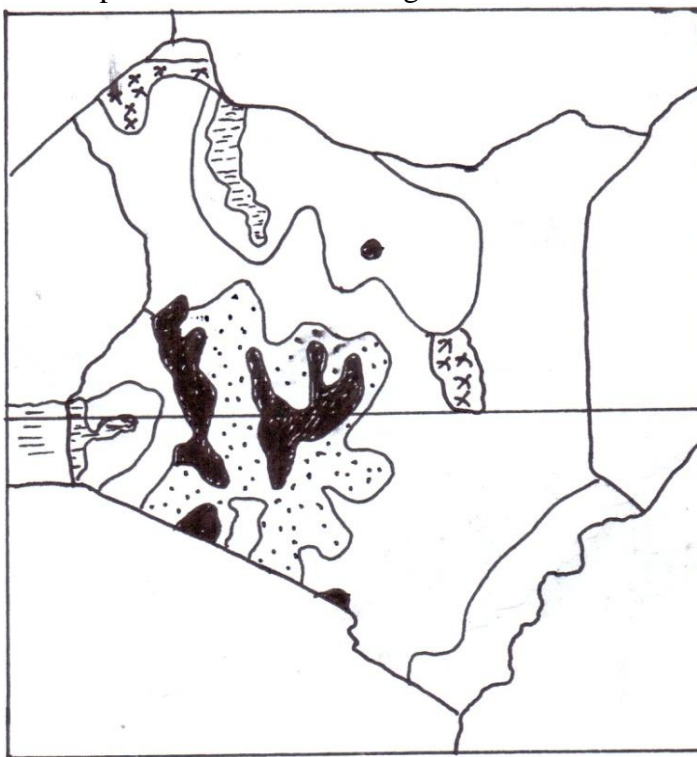
- (i) Name the mass wasting process in the diagram. (1 mk)
- (ii) Name the part marked J. (1 mk)
- (b) State three effects of this process on the landscape. (3 mks)
4. (a) Define a lake. (2 mks)
- (b) State three effects of a lake on the climate of the surrounding areas. (3 mks)
5. (a) Name two surface features found in a Karst region. (2 mks)
- (b) State three conditions necessary for the formation of a Karst scenery. (3 mks)

SECTION B

Answer question 6 and any other TWO questions from this section.

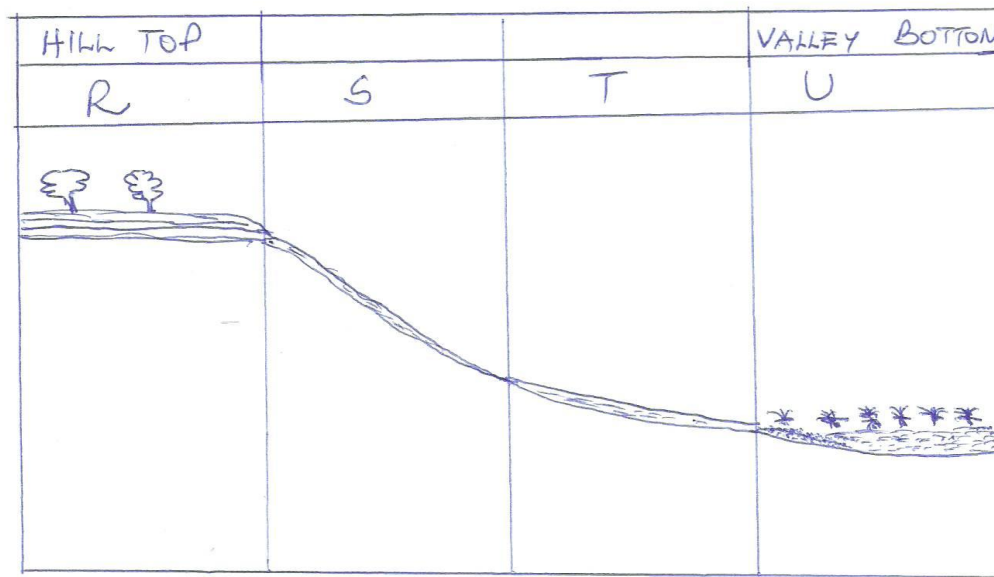
6. Study the map of Kitale 1:50,000 (sheet 75/3) provided and answer the following questions.
- (a) (i) Name two districts found in the area covered by the map. (2 mks)
- (ii) What is the magnetic variation of the map? (1 mk)
- (b) (i) Convert the scale of the map into a statement scale. (2 mks)
- (ii) Calculate the area of land to the North and North East of the Loose Surface road C637 and B10/2 in the North Eastern corner of the map. (Give your answer in square kilometers). (2 mks)
- (iii) Measure the distance of the Loose Surface Road C638 from grid reference 400137 and reference 472106. (Give your answer in Kilometres). (2 mks)
- (c) Explain three factors which have influenced the distribution of settlements in the area covered by the map. (6 mks)

- (d) Describe the relief of the area covered by the map. (4 mks)
- (e) Citing evidence from the map, explain three factors that favour cattle rearing in Kitale area. (6 mks)
7. (a) (i) What is faulting? (2 mks)
- (ii) Apart from normal fault and reversed faults, name three other types of faults. (3 mks)
- (b) (i) Apart from tensional forces, explain two other causes of faulting. (4 mks)
- (ii) With the aid of well-labeled diagrams, describe how a rift valley was formed by tensional forces. (8 mks)
- (c) Explain four effects of faulting on drainage. (8 mks)
8. (a) Explain how the following factors influence the distribution of vegetation.
- (i) Climate (2 mks)
- (ii) Human beings (2 mks)
- (b) The map below shows some vegetation



question (i). zones of Kenya. Use it to answer

- (i) Name the vegetation zone marked X and Y. (2 mks)
- (ii) Give two uses of Savannah vegetation. (2 mks)
- (iii) Describe the characteristics of Mediterranean type of vegetation. (5 mks)
- (c) Explain three ways in which desert vegetation adapts to climatic conditions. (6 mks)
- (d) You are planning to carry out a field study of the vegetation within the local environment.
- (i) State three preparations you will make for the field study. (3 mks)
- (ii) How will you identify the different types of vegetation? (3 mks)
9. (a) (i) Distinguish between river discharge and river regime. (2 mks)
- (ii) Describe how a river erodes through the following processes:-
- Abrasion (3 mks)
 - Solution (2 mks)
- (b) Describe how the following features are formed:
- (i) Gorge, when a waterfall retreat (4 mks)
- (ii) River braids (4 mks)
- (c) State four characteristics of a river in the old stage. (4 mks)
- (d) Explain three significance of a river to human activities. (6 mks)
10. (a) What is soil profile? (1 mk)
- (b) The diagram below shows a soil catena.



- (i) Name the type of soils found in position R and U. (2 mks)
- (ii) State two characteristics of soils found in section marked.
- I. R (2 mks)
- II. (ii) Vegetation (4 mks)
- III. U (2 mks)
- (c) (i) Name two components of soil. (2 mks)
- (ii) Differentiate between soil structure and soil texture. (2 mks)
- (d) Explain how the following factors influence soil formation. (2 mks)
- (i) Climate (4 mks)
- (e) Explain how the following practices cause soil degeneration.
- Burning (2 mks)
- Leaching (2 mks)
- Over-application of fertilizers (2 mks)

FORM 4 TERM 2 MIDTERM EXAMS

Kenya Certificate of Secondary Education

312/2

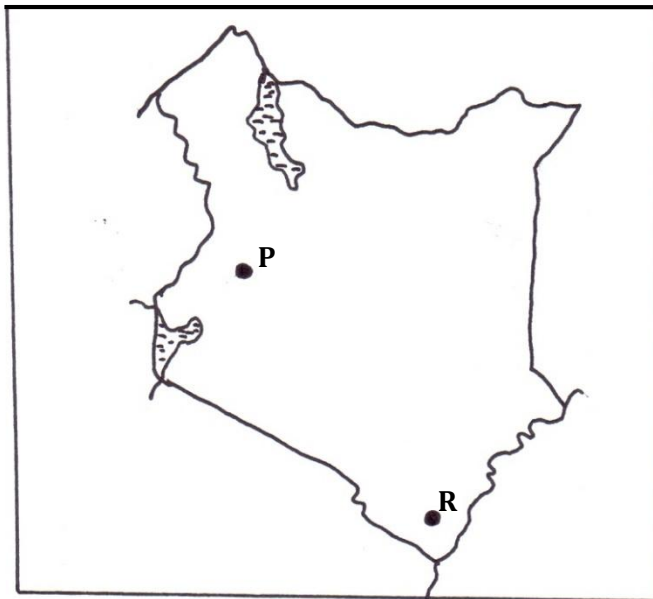
Paper 2

GEOGRAPHY

SECTION A

Answer **ALL** the questions in this section.

1. (a) Name **two** indigenous softwood tree species found in Kenya. (2 marks)
- (b) State **three** factors that favour the development of softwood forests in Canada. (3 marks)
2. Use the map of Kenya below to answer question (a).



- (a) Name the minerals mined in the areas marked **P** and **R**. (2 marks)
- (b) State **three** benefits of Gold mining to the economy of South Africa. (3 marks)
3. (a) State **three** factors which led to the growth of Eldoret town. (3 marks)
- (b) State **three** functions of Central Business District in a town. (3 marks)
4. (a) State **two** negative effects of tourism in Kenya. (2 marks)
- (b) State **three** social-economic factors that attract tourists in Switzerland. (3 marks)
5. Describe long lining as a method of fishing. (4 marks)

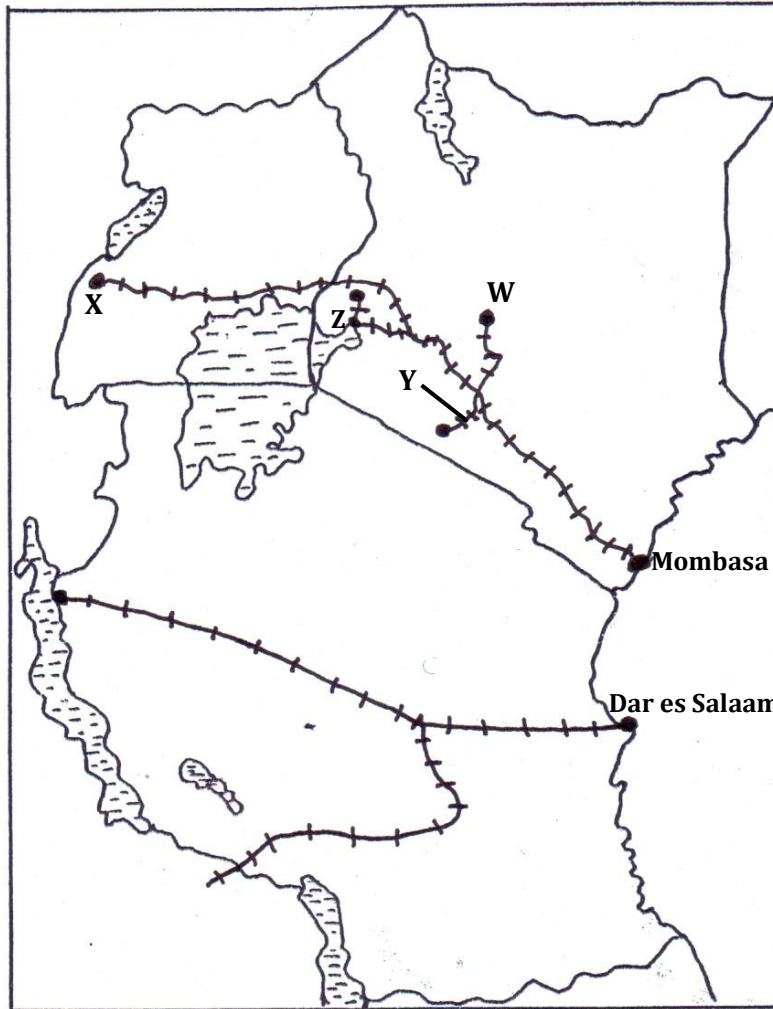
SECTION B

Answer question 6 and any other TWO questions from this section.

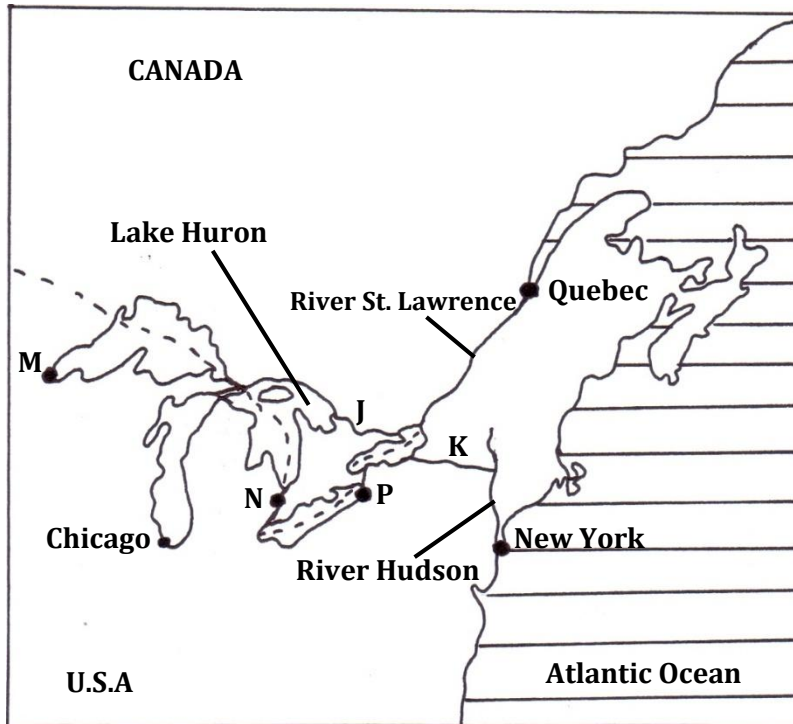
6. The table below shows the prices of sugar in Kenya shillings per ton in some countries in Africa. Use it to answer question (a).

Year	Kenya	South Africa	Tanzania	Zambia
2010	95,400	61,927	68,702	84,447
2011	111,713	67,462	66,985	93,798
2012	110,878	65,173	90,649	86,832

- (a) (i) Draw a divided rectangle 16cm long to represent the prices of sugar in the year 2012. (7 marks)
- (ii) State **two** advantages of using divided rectangles to represent data. (2 marks)
- (b) State **three** physical conditions that favour large scale sugarcane farming in Western Kenya. (3 marks)
- (c) Describe the stages involved in sugar production from harvesting to marketing. (7 marks)
- (d) Explain **three** problems facing sugarcane farming in Kenya. (6 marks)
7. (a) State **two** advantages of written communication. (2 marks)
- (b) Use the outline map of East Africa provided to answer questions (i) and (ii).

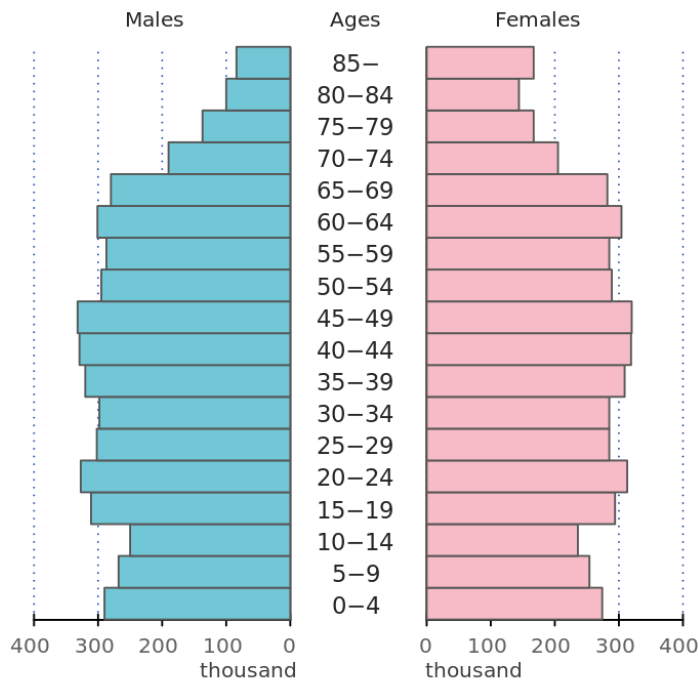


- (i) Name the towns marked **W** and **X**. (2 marks)
 - (ii) Name the railway lines marked **Y** and **Z**. (2 marks)
 - (c) (i) State **two** ways in which Kenya would benefit from the construction of the Standard gauge railway. (2 marks)
 - (ii) Explain **three** factors that hinder development of River transport in Africa. (6 marks)
- (d) The map below shows the Great Lakes and St. Lawrence Seaway. Use it to answer question (i) and (ii).



- (i) Name the canals marked **J** and **K**. (2 marks)
 - (ii) Name the towns marked **M**, **N** and **P**. (3 marks)
 - (iii) Explain **three** measures that were taken to solve the challenges that faced navigation along the Great Lakes and St. Lawrence Seaway. (6 marks)
8. (a) Differentiate between manufacturing industries from tertiary industries. (2 marks)
- (b) (i) Name **two** non-food agricultural industries in Kenya. (2 marks)
 - (ii) State **three** measures that are being taken by the government of Kenya to promote Jua-Kali industries. (3 marks)
 - (iii) Describe the characteristics of the cottage industries in India. (5 marks)
- (c) (i) State **three** benefits of decentralizing industries in Kenya. (3 marks)
 - (ii) Other than iron and steel, name **two** other industries located in Ruhr region of Germany. (2 marks)
 - (iii) Explain **four** factors which influenced the location of iron and steel industry in the Ruhr region of Germany. (8 marks)
9. (a) (i) What is sex ratio? (1 mark)
- (ii) Apart from population census, give **two** other primary sources of population data. (2 marks)
 - (iii) State **three** significance of population census to a country. (3 marks)

- (b) Explain **four** factors that have led to a high population density in the Kenya Highlands. (8 marks)
- (c) The pyramid below represents the population structure of Sweden.



Population pyramids of Sweden 2011 (OECD stat)

Describe the characteristics of population represented by the pyramid. (5 marks)

- (d) Explain **three** cause of urban-rural migration. (6 marks)
10. (a) (i) Distinguish between visible and invisible exports. (2 marks)
- (ii) Name **two** seaports that handle exports in East Africa. (2 marks)
- (b) Explain **three** measures Kenya can take to reduce her unfavourable balance of trade. (6 marks)
- (c) Explain **three** reasons for low volume of trade between the countries in Africa. (6 marks)
- (d) (i) State **three** benefits of ECOWAS to the member states. (3 marks)
- (ii) Explain **three** ways in which the future of international trade in Kenya can be improved. (6 marks)

FORM 4 TERM 2 MIDTERM EXAMS

Kenya Certificate of Secondary Education

HISTORY AND GOVERNMENT

Paper 1

SECTION A (25 MARKS)

Attempt ALL the questions in this section

1. Identify **two** sources of Kenyan History. (2 marks)
2. State **two** similarities in the political organization of the Ameru and the Abagusii during the 19th Century. (2 marks)
3. Give the **main** reason why the rulers of Malindi welcomed the Portuguese in the 16th Century. (1 mark)
4. State **two** advantages of a written constitution. (2 marks)
5. Identify **one** fighting tactic used during the African resistance against the establishment of British rule in Kenya . (1 mark)
6. Identify **one** feature of African farming in Kenya during the colonial period. (1 mark)
7. Give the **main** reason why poll tax was introduced in Kenya during the colonial period. (1 mark)
8. Name **one** personality who inspired Jomo Kenyatta to join politics. (1 mark)
9. Identify **one** condition that one must fulfill in order to register as a voter in Kenya. (1 mark)
10. Give **one** member of the African Elected Members Organization (AEMO) at its inception in 1957. (1 mark)
11. Give **one** strategy used by the colonial government to achieve its objectives in offering missionary education in Kenya. (1 mark)
12. Outline **two** roles of polling clerks in Kenya. (2 marks)
13. Identify **two** functions of the National Intelligence Service (NIS) in Kenya. (2 marks)
14. Give **two** roles played by the ruling party in Kenya. (2 marks)
15. Give **two** ways in which parliamentarysupremacy is undermined in Kenya. (2 marks)
16. Give the **main** function of the Commission on Revenue Allocation in Kenya. (1 mark)

17. State **two** ways through which the savings and credit cooperative societies in Kenya benefit their members. (2 marks)

SECTION B (45 marks)

*Answer any **three** questions from this section.*

18. (a) Identify **three** communities that interacted with the Abagusii as they migrated and settled in Kenya. (3 marks)
- (b) Describe the social organization of the Abagusii. (12 marks)
19. (a) Identify **three** factors which enabled the white settlers to establish farms in Kenya during the colonial period (3 marks)
- (b) Explain **six** ways in which the colonial government promoted settler farming in Kenya (12 marks)
20. (a) Apart from Kenya African National Union (KANU) name **three** other political parties formed in Kenya between 1960 and 1963 (3 marks)
- (b) Explain the political developments which hastened the achievement of independence in Kenya between 1945 -1963 (12 marks)
21. (a) Identify **three** education commissions appointed by the government to review the education systems since independence. (3 marks)
- (b) Explain **six** challenges facing the education sector in Kenya today. (12 marks)

SECTION C (30 marks)

22. (a) Identify **three** ways that could be used to amend the constitution in Kenya. (3 marks)
- (b) Explain **six** challenges faced in giving Kenyans a new constitution. (12 marks)
23. (a) Outline the procedure for solving disputes in presidential elections in Kenya. (3 marks)
- (b) Explain **six** functions of the Senate in Kenya. (12 marks)
24. (a) State **three** reasons why African socialism was adopted. (3 marks)
- (b) Explain **six** social impacts of National philosophies in Kenya. (12 marks)

FORM 4 TERM 2 MIDTERM EXAMS

Kenya Certificate of Secondary Education

HISTORY AND GOVERNMENT

Paper 2

SECTION A (25 MARKS)

1. What is meant by paleontology? (1 mark)
2. State the earliest form of art by early man. (1 mark)
3. Why was the trans-Atlantic trade referred to as triangular trade? (1 mark)
4. State two ways in which railway transport promoted industrialization in Europe. (2 marks)
5. State one way through which European powers maintained peace among themselves during partition of Africa. (1 mark)
6. State two pottery-making styles associated with iron working. (2 marks)
7. Identify two terms of the treaty signed between Lobengula and Charles Rudd the BSA company representative. (2 marks)
8. State two methods used by Ghanaians in articulating their quest for nationalism. (2 marks)
9. State two regions that attempted to break away from Congo during 1960s Congo crisis. (2 marks)
10. Identify two fighting methods used in the First World War. (2 marks)
11. Name two sources of laws for British unwritten constitution. (2 marks)
12. State the main function of the international court of justice. (1 mark)
13. State the main objective of the Marshall plan after the Second World War. (1 mark)
14. State two demands of the Australian government towards Bosnia after the assassination of Franz Ferdinand. (2 marks)
15. Name one leader who was the founder of the non-Aligned movements. (1 mark)
16. Name the head of the government in Aristocratic government. (1 mark)
17. Which body is in charge of elections in USA? (1 mark)

SECTION B

18. (a) Give five reasons why it is important to study history. (5 marks)
- (b) Explain five advantages of using linguistics as a source of information on History and government. (5 marks)
19. (a) Identify three challenges of air transport. (3 marks)
- (b) Explain six positive effects of telecommunication today. (12 marks)
20. (a) State five factors that led to the growth of Johannesburg. (5 marks)
- (b) Explain five ways in which the Industrial and Agrarian Revolution influenced urbanization in Europe in the 19th century. (10 marks)
21. (a) Identified three chartered companies which were used. European powers to acquire colonies in Africa. (3 marks)
- (b) Discuss six political impacts of partition of Africa by European powers. (12 marks)

SECTION C (30 MARKS)

Answer any two questions from this section in the answer booklet provided

22. (a) Name **three** communes of Senegal where Assimilation policy was successfully applied. (3 marks)
- (b) Explain **six** reasons why indirect rule failed in southern Nigeria. (12 marks)
23. (a) Identify **three** methods used by nationalists in Ghana during their struggle for independence. (3 marks)
- (b) Describe **six** factors that contributed to the struggle for independence in South Africa. (12 marks)
24. (a) Give **three** reasons why the United States of America (USA) was reluctant to join the First World war (3 marks)
- (b) Explain **six** social effects of the Second World War. (12 marks)

FORM 4 TERM 2 MIDTERM EXAMS

Kenya Certificate of Secondary Education

441/1

HOME SCIENCE

SECTION A: 40 MARKS

Answer all the questions in the spaces provided.

1. What are cosmetics? (½ mark)

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.....

2. State **two** ways of preventing bites and stings in the home. (1 mark)

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3. State **two** points to consider when cleaning oil painted walls. (1 mark)

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4. What is buffing? (½ mark)

.....
.....

5. Classify the following small kitchen equipment. (1 ½ marks)

(a) Pie dish

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(b) Ice scoops

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(c) Saucepot

.....

6. Mention **two** disadvantages of cooking food by frying. **(2 marks)**

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7. Give **two** examples of elastofibres. **(1 mark)**

.....

8. State **two** points to consider when buying sewing threads. **(1 mark)**

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.....

9. State **two** causes of looped stitches when machining. **(1 mark)**

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.....

10. State **two** reasons for using trimmings during clothing construction. **(1 mark)**

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11. State **three** reasons for using tucks on children's clothes. **(1 ½ marks)**

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12. Name **three** kinds of equipment used for holding dirty clothes before laundering.

(1 ½ marks)

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13. State **two** properties of wool that should be considered when laundering woolen articles. (1 mark)

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14. French seam is not suitable for making pyjamas and knickers, why? (½ mark)

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15. Name **three** nutritional disorders associated with lifestyle. (1 ½ marks)

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16. What is incomplete or second class proteins? (½ marks)

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17. Name **two** types of buttonholes. (1 mark)

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18. Distinguish between raglan and kimono sleeve. (1 mark)

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.....
19. Name the **two** types of pockets. (1 mark)

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.....

20. Mention **three** types of play in child development. (1 ½ marks)

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21. State **three** flavouring essences used in cake-making. (1 ½ marks)

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.....22. Name **one** immunizable diseases that can cause disfigurement. (½ mark)

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23. What is insomnia? (½ mark)

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24. Identify **one** area in a garment where faced slit opening is applied. (½ mark)

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25. State **two** factors that influence consumer buying. (1 mark)

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26. Define the following terms as used in clothing construction process. (2 marks)

(a) Overlay

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(b) Layering

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(c) Gusset

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(d) Cuff

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27. State two qualities of a good hem. (1 mark)

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28. A stable state of mind of a lactating mother is important for milk production; identify two situations when the mother produces little or no milk at all.

(1 mark)

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29. Give **one** main disadvantage of using sodium bicarbonate in flour mixtures.

(½ mark)

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.....

30. State **one** common cause of badly risen loaf with close texture. (½ mark)

.....

31. Identify **two** ways of ventilating a house mechanically. (1 mark)

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.....

32. Name **two** areas in the house where light fixtures can be found. (1 mark)

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.....

33. State **two** disadvantages of using left-over food. (2 marks)

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.....

34. Identify the type/shape of flower arrangement suitable for placing on an invalid tray. (½ mark)

.....

35. Define double complementary colour scheme and give an example. (1 mark)

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.....

36. State **two** factors to consider when setting a tea tray. (2 marks)

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37. Name **two** common methods used to insert a zip fastener. (1 mark)

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38. State **two** factors that influence the efficiency of a detergent. (1 mark)

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SECTION B: 20 MARKS (COMPULSORY)

39. You are expecting guests. Describe how to;

(a) Launder a polyester shirt with chewing, gum stain. (11 marks)

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SECTION C (40 MARKS)

Answer any two questions in this section.

40. (a) Plastic is one of the commonly used materials used to make kitchen equipment. Discuss plastic under the following headings:-
- (i) Classification of plastics. **(3 marks)**
 - (ii) General care of plastics. **(3 marks)**
 - (iii) General cleaning of plastics. **(4 marks)**
- (b) (i) What is credit buying? **(1 mark)**
- (ii) Discuss **three** forms of credit buying. **(4 ½ marks)**
- (c) Explain **three** factors that determine the width of a hem. **(4 ½ marks)**
41. (a) Highlight **five** points to observe when laying pattern pieces onto the fabric and cutting out. **(5 marks)**
- (b) Highlight **five** points on the planning and serving of meals for invalids. **(5 marks)**
- (c) State **five** measures you would take to conserve fuels in your home. **(5 marks)**
- (d) (i) Give **two** examples of layette. **(1 mark)**

(ii) State **four** points to bear in mind when laundering layette.

(4 marks)

42. (a) Cholera is a waterborne disease caused by a bacteria. Cholera break-out is currently experienced in different parts of Kenya.

(i) Suggest **two** possible reasons for the outbreak.

(2 marks)

(ii) List **four** symptoms and signs of cholera.

(4 marks)

(iii) If you were called upon to address the people in the affected areas, What would be your advice on the prevention and control of cholera? Give **four** points.

(4 marks)

(b) Describe the procedure for attaching an already prepared collar into a shirt using a self-neatening method.

(5 marks)

(c) Explain **five** uses of sugar in flour mixtures.

(5 marks)

FORM 4 TERM 2 MIDTERM EXAMS

Hati ya Kuhitimu Kisomo cha Sekondari

KISWAHILI

Karatasi ya 1

Geuza ukurasa

1. Wewe ni balozi mteule wa nchi yako katika nchi ya kigeni. Andika tawasifu utakayotoa katika siku ya kutoa stakabadhi zako kwa rais wa nchi uliyoteuliwa kuwa balozi.
2. Utumizi wa afyuni[mihadarati] katika taasisi za masomo nchini ni suala ambalo ni muhali kutatuliwa. Jadili.
3. Andika kisa kitakachodhihirisha maana ya methali: Mwenye kovu usidhani kapoa.
4. Andika kisa kitakachomalizikia kwa: ... hivyo ndivyo ukurasa mpya katika kitabu cha maisha yangu ulivyofunguka.

FORM 4 TERM 2 MIDTERM EXAMS

**KISWAHILI
KARATASI YA 2
LUGHA
MUDA: SAA 2½**

MTIHANI WA PAMOJA KASSU

Kiswahili
Karatasi ya 2
Lugha

1. UFAHAMU

Soma taarifa ifuatayo kasha ujibu maswali.

Historia ya katiba

Katiba ni utaratibu wa sheria unaoweka mpango wa jamii kuendesha mambo. Ni muhimu kila raia ajue katiba ya nchi yake.

Katiba yaweza kuwa imeandikwa au haikuandikwa. Katika jamii za jadi, katiba ilihifadhiwa na kupokezwa kwa mdomo. Mtindo wa kuandika katiba ulianza nchini Marekani mwaka 1787. Ingawa katiba hii imefanyiwa mabadiliko hapa na pale, bado ni ileile. Kenya ilipowekwa chini ya himaya ya Uingereza mwaka 1895, ilianza kutumia katiba ya Uingereza. Baada ya masetla wa kikoloni kujikita, Kenya kuwa koloni. Hii ililazimu pawe na katiba nyingine mwaka 1920. Waafrika waliupinga mfumo huu kwa sababu haukuwahusisha kikamilifu kwenye masuala ya uongozi. Utetezi wa wanasiasa ulilazimisha serikali ya Uingereza kuitisha makongamano mbalimbali kama vile lile la Devonshire na mengine ili kurekebisha katiba. Waafrika hawakuridhika. Wakaendelea kudai katiba mwafaka. Harakati hizi zilileta kuitishwa kwa kongamano la katiba la Lancaster. Lengo lilikuwa kuandika katiba itakayotumiwa nchini hadi leo. Kati ya wajumbe walioenda Uingereza kuandika katiba mwaka 1962 ni pamoja na Tom Mboya, Jean Marie Seroney, Julius Kiano, Jomo Kenyatta, Masinde Muliro, Oginga Odinga, Ronald Ngala, Daniel Arap Moi na James Gichuru. Wengine ni Martin Shikuku, Dennis Akumu, Taita Towett, Abdilahi Nassir, Jeremiah Nyaga na John Keen.

Katiba ni kitovu cha taifa. Baina ya mambo inayotekeleza ni kuweka utaratibu na kanuni za utawala, kwa mfano, utawala wa kimikoa na serikali za wilaya. Pamoja na haya, katiba hufafanua vyombo vikuu vya serikali, mamlaka yavyo na mipaka yavyo ya kutenda. Vyombo hivi ni bunge, mahakama, urais, jeshi n.k. Hali kadhalika, katiba hupambanua haki za raia.

Hii hudumisha demokrasia na huwawezesha wananchi kupata uhuru na haki za kimsingi. Katiba hukinga haki za kila raia, hasa kutokana na udhalimu wa wengi au wenye uwezo mkubwa. Zaidi ya yote, katiba huimarisha asasi za umma ili kudumisha uwajibikaji.

Katiba huhalalishwa na watawaliwa. Hii hutokea wanaposhirikishwa katika uandishi wake. Kuanzia miaka ya themanini, raia walianza kudai katiba igeuzwe. Mwamko wa kutaka mageuzi ulianza kwa harakati za kubadilisha mfumo wa kisiasa kutoka ule wa chama kimoja hadi ule wa demokrasia ya vyama vingi. Haja ya mfumo mpya wa kisiasa ulilenga kuwashirikisha wananchi katika utawala na kuondoa uimla.

Harakati zilitia fora miaka ya tisini. Mambo yaliyochochea hali hii ni mengi. Kwanza, katiba iliyokuwa imeandikwa na watu wachache ilikuwa imefanyiwa marekebisho mengi. Marekebisho haya yalimpa rais mamlaka mengi juu ya serikali kuu na vyombo tofauti vya serikali. Pili, viongozi na watu wenye uwezo na utajiri walipuuza katiba. Raia walihisi wanadhulumiwa. Walipinga hali ya wachache

waliomzunguka rais kunufaika huku umma ukitengwa. Tatu, kutokana na uongozi uliokuwako wakati huo, wanawake, watoto na walemavu walidhulumiwa na kukosa uwakilishi ufaao. Hatimaye, pakawa na ongezeko la uharibifu wa mazingira, ufiisadi na unyakuzi wa mali ya umma kama vile ardhi.

Waliopigania katiba mpya walikuwa na haja ya katiba ambayo uandikaji wake ungewahusisha Wakenya wote. Mwanzoni, serikali ilipinga wito wa mabadiliko. Lakini mnamo mwaka 2001 iliunda Tume ya Marekebisho ya Katiba ili kutekeleza mahitaji ya wananchi. Tume hii iliwahamasisha na kuwashawishi raia kutoa maoni. Tume iliandaa vikao katika maeneo ya ubunge 210 ambapo wananchi walitoa mapendekezo kuhusu marekebisho ya katiba waliyotaka.

Katika mapendekezo hayo raia walisitiza mambo kadhaa. Jambo la kwanza ni utawala mwema na uwajibikaji wa viongozi na maafisa wa umma. Jambo lingine ni kulinda haki za binadamu zikiwemo za wanawake, watoto na walemavu. Raia walidai kanuni za usawa na ulinganifu. Aidha walitilia mkazo mahitaji ya msingi kama chakula, afya nzuri, makao, elimu, usalama, uchumi, na kadhalika.

Msingi wa mapendekezo hayo yote ni kuwepo na amani ya kitaifa, umoja na uadilifu ili kulinda maslahi ya wananchi wote na taifa.

Maswali :

(a) Eleza kilichosababisha kongamano la katiba la Lancaster

(alama3)

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(b) Taja mambo matatu yaliyotiliwa mkazo na raia katika maoni yao kuhusu katiba. **(alama3)**

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(c) Eleza umuhimu wa katiba kwa mujibu wa taarifa.

(alama3)

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(d) Taja sababu zilizochangia ubadilishaji wa katiba.

(alama3)

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(e) Eleza maana ya maneno haya kama yalivyotumiwa katika taarifa. **(alama3)**

(i) Kitovu

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(ii) Harakati

.....

(iii) Hamasisha

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2. UFUPISHO

Soma makala haya kisha ujibu maswali yanayofuata.

Lugha ya Kiswahili ni lugha iliyoendelea sana. Leo hii lugha hii inasemwa na watu wote nchini Tanzania, Rwanda, Burundi, nchini Kenya, Nchini Uganda, Zaire, Malawi, msumbiji, Zambia, Somalia, Bukini (Madagascar) na Ngazija (Comoro), inasemwa na asilimia kubwa ya wananchi wa huko. Aidha lugha hii ina wasemaji si haba katika kisiwa cha Soktana nchini Oman.

Fauka ya maendeleo haya, Kiswahili kinatumika kwa minajili ya matangazo ya habari katika idhaa nyingi za mashirika ya habari ulimwenguni. Nchi zenye idhaa za Kiswahili ni kama vile hizi zetu za Afrika ya Mashariki na kati, Afrika ya kusini, Nigeria, Ghana, Uingereza, (shirika la B.B.C) Marekani (shirika la V.O.A), Ujerumani (shirika la Radio DeutchWelle, Cologne), Urusi (Radio Moscow), China, India nakadhalika.

Maendeleo mengine yanapatikana katika upande wa elimu. Marekani peke yake, kuna vyuo zaidi ya mia moja vinavyofundisha Kiswahili kama lugha muhimu ya kigeni. Huko Uingereza vyuo kama London, Carmbridge na Oxford vinafundisha lugha hii. Nchi nyingine ambazo zina vyuo vinavyofunza lugha ya Kiswahili ni kama vile Japan, Korea, Ghana, Nigeria na kadhalika.

Kweli Kiswahili kimeendelea jamani. Lakini je, kilianza vipi? Na ilikuwaje kikaweza kupiga hatua hizi zote?

Kiswahili kilianza kuzungumzwa na kabila dogo la watu walio kuwa wakiitwa wangozi. Watu hawa walikuwa wakiishi mahali palipoitwa shungwaya. Shungwaya ni nchi ya zamani iliyokuwa eneo lililoko katika nchi mbili jirani ambazo siku hizi ni Kenya na Somalia. Kabila hili la wangozi liliishi jirani na makabila mengine kama vile wajikenda, wapokomo, Wamalakote (au Waelwana) na Wangazija (kabla hawajahamia visiwa vya Ngazija). Lugha ya wangozi siku hizo, ambayo ndiyo mzazi wa Kiswahili cha leo, ilijulikana kwa jina kingozi. Kama ilivyosemwa hapo awali, kingozi kilisemwa na watu wachache sana.

Je lugha hii ilikuwaje mpaka ikapata maendeleo haya makubwa tunayoyashuhudia siku hizi? Ama kwa hakika, Kiswahili ni lugha iliyo bahatika tu. Inaweza kusemwa kwamba lugha hii ilipendelewa na mazingira na historia.

Jambo la kwanza, wageni waliotoka mashariki ya kati kufikia hizi janibu zetu Afrika ya mashariki walikaribishwa vizuri na hawa wangozi. Wakaingilia wageni na wenyeji kindakindaki, kidini, kitawala, kibiashara na kitamaduni kwa jumla. Punde si punde wangozi, ambao baadaye walijulikana kama waswahili na wageni hawa, wakaelimika katika dini (yakiisilamu), biashara na mambo ya utawala aina mpya. Lugha yao nayo ikapanuka pale ilipochukua msamiati wa kigeni hususan wa Kiarabu na Kiajemi na kuufanya uwe wake, ili kueleza kwa rahisi zaidi mambo haya mageni katika taaluma za dini, biashara, siasa na hata sayansi kama vile unajimu. Wakati huo, lugha ya Wangozi sasa ikaitwa Kiswahili wala sio kingozi. Tatizo hapa ni kuwa kwa vile Kiswahili kilichukua msamiati mwingi wa kigeni ili kuelezea taaluma hizi mpya, baadaye kimekuja shukiwa kwamba ni lugha ya kigeni ilhali ni lugha ya Kiafrika asilia, na kitovu chake ni nchi mpya za kiafrika ziiwazo Kenya na Somalia hii leo.

(a) Thibitisha kuwa Kiswahili kimekuwa lugha ya kimaitaifa (maneno 35 – 40) (alama 7)

Matayarisho:

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(b) Ukitumia maneno yako mwenyewe, eleza ujumbe ulio katika aya ya mwisho. (alama 8)

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SARUFI

1. Eleza sifa bainifu za sauti /j/. (al 2)

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2. Tofautisha mofimu huru na tegemezi kwa kutolea mifano mwafaka. (al 2)

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3. Unda neno lenye silabi ifuatayo KIKKIKI (al 1)

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4. Tia shadda katika sentensi ifuatayo (al 1)

Wachezaji wamo uwanjani.

.....
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5. (i) Kiimbo ni nini? (al 1)

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(ii) Onyesha matumizi mawili ya kiimbo. (al 2)

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6. Ainisha (al 3)

Wasiorithishwa

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7. Sahihisha sentensi ifuatayo. (al 2)

Sukari zilizowekwa mfukoni zimenyeshewa

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8. Eleza maana ya sentensi zifuatazo. (al 2)

(i) Tunda lenyewe limeoza

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.....

(ii) Tunda lenye shimo halinunuliki

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.....

9. Kanusha sentensi ifuatayo. (al 2)

Ningalifuzu katika mtihani wangu ningalituzwa.

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10. Tunga sentensi na ubainishe kijalizo.

(al 2)

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11. Andika sentensi usemi halisi.

Rais alisema kuwa wangepata tiba ya bure kama bunge lingepitisha mswada huo.

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.....

12. Tunga sentensi yenye muundo wa:

(al 3)

Kiima, kiarifa, yambwa tendwa, yambwa tendewa na yambua ala.

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13. Changanua sentensi kwa kutumia jedwali.

(al 4)

Wachezaji vikapu watakifanikiwa katika mechi hiyo watatuzwa medali

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14. Nyambua kitenzi hiki katika kauli iliyo mabanoni *pa* (tendeka)

(al 1)

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15. Bainisha virai katika sentensi hii.

(al 3)

Juma alikwenda mjini kwa miguu

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16. Tunga sentensi kudhihirisha matumizi mawili ya KU. (al 2)

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17. Onyesha matumizi mawili ya nukta mkato. (al 2)

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18. Toa maana mbili ya sentensi ifuatayo: (al 2)

Laleni!

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.....

ISIMUJAMII: (ALAMA 10)

(a) (i) Eleza maana ya krioli. (alama 2)

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(ii) Eleza sifa zozote tatu za krioli. (alama 3)

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(b) (i) Eleza maana ya Lingua Franka (alama 2)

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(ii) Tambua sifa zozote tatu za Lingua Franka (alama 3)

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FORM 4 TERM 2 MIDTERM EXAMS

Hati ya Kuhitimu Kisomo cha Sekondari

KISWAHILI

Karatasi ya 3

FASIHI

Muda: Saa 2½

SEHEMU YA A: FASIHI SIMULIZI

1. SEHEMU A: USHAIRI (LAZIMA)

Eti

Mimi niondoke hapa
Niondoke hapa kwangu
Nimesaki, licha ya risasi
Vitisho na mauaji, siondoki

Mimi
Siondoki
Siondoki siondoki
Niondoke hapa kwangu!
Kwa mateke hata na mikuki
Marungu na bunduki, siondoki

Hapa
Siondoki
Mimi ni Pahame!
Niondoke hapa kwangu!
Fujo na ghasia zikizuka
Na kani ya waporaji, siondoki

Haki
Siondoki
Kwangu siondoki
Niondoke hapa kwangu!
Nawaje; waje wanaokuja
Mabepari wadhalimu, siondoki

Kamwe
Siondoki
Ng'oo hapa kwangu!
Katizame chini mti ule!
Walizikwa babu zangu, siondoki

Sendi
Nende wapi?

Si hapa kitovu changu
Niondoke hapa kwangu
Wangawa na vijikaratasi
Si kwamba hapa si kwangu, siondoki

Katu
Siondoki
Sihitaji karatasi
Niondoke hapa kwangu
Yangu mimi ni ardhi hii
Wala si makaratasi, siondoki

Maswali

- a) Shairi hili ni la aina gani? Kwa nini (alama 2)
- b) Taja masaibu anayopitia mzungumzaji (alama 4)
- c) Eleza toni ya shairi hili (alama 2)
- d) Eleza muundo wa shairi hili (alama 3)
- e) Tambua matumizi ya mbinu ya usambamba (alama 2)
- f) Andika ubeti wa tano kwa lugha nathari (alama 4)
- g) Tambua idhini moja ya mtunzi (alama 1)
- h) Eleza maana ya maneno yafuatayo kama yalivyotumika katika shairi (alama 3)
- (i) Karatasi
- (ii) Nimesaki
- (iii) kitovu

2SEHEMU B TAMTHILIA YA KIGOGO

2. Uliona nini kwa huyo zebe wako ? Eti mapenzi!

- a. Eleza muktadha wa dondoo. (al. 4)
- b. Andika mbinu za lugha zinazojitokeza kwenye dondoo hili (al. 4)
- c. Taja hulka za mnenaji unajitokeza katika dondoo. (al. 2)
- d. Mwanamke ni kiumbe wa kukandamizwa. Thibitisha kauli hii ukirekjeelea tamthilia. (al. 10)

3. wa kurejelea tamthilia ya 'Kigogo ya Pauline Kea, onyesha jinsi ambavyo viongozi wengi katika nchi za kiafrika wamejawa na tamaa. (alama 20)

SEHEMUC. RIWAYA YA CHOZI LA HERI (ASSUMPTA MATEI)

4. "Kwa kweli ni hali ngumu hii"

Weka dondoo katika muktadha wake.

(alama 4)

Ni hali gani yamsemewa inayorejelewa kwenye dondoo.

(alama 16)

5) Ukabila ni tatizo sugu katika nchi nyingi za Kiafrika. Tetea kauli hii ukilejelea Choji la Heri

(al.

20)

**Alifa Chokocho na Dumu Kayanda: Tumbo Lisiloshiha na Hadithi nyingine
jibu swali la 6 au la 7**

6. Ukirejelea hadithi zifuatazo, eleza jinsi maudhui ya mapenzi na asasi ya ndoa yanavyojitokeza.
(alama 20)

- a) Mapenzi ya kifaurongo
 - b) Masharti ya kisasa
 - c) Ndoto ya Mashaka
 - d) Mtihani wa maisha
- Au

Shibe inatumaliza : Salma Omar Hamad

7. "Hiyo ni dharau ndugu yangu. Kwa nini kila siku tunakula sisi kwa niaba ya wengine?"

- a) Eleza muktadha wa dondoo hili. (alama 4)
- b) Eleza sifa za msemaji. (alama 6)
- c) Eleza jinsi viongozi wanavyokuwa wabadhirifu. (alama 10)

SEHEMU YA E: FASIHI SIMULIZI

- 8a) Fafanua mchakato/fomula ya uwasilishaji wa vitendawili. (alama 4)
- b) Linganisha naulinganue vitendawili na methali. (alama 10)
- c) Toa sababu sita za kudidimia

FORM 4 TERM 2 MIDTERM EXAMS

121/1
Mathematics
Paper 1
2 ½ Hours

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

SECTION I

1. Evaluate without using tables or calculator.

(3 marks)

$$\frac{\frac{1}{4} \text{ of } 2 + 3 \frac{3}{4} \div \frac{3}{8} - 4 \frac{1}{2} \times 3 \frac{1}{3}}{2 \frac{4}{5} \times 13/7 - 4 \div \frac{2}{3} + \frac{3}{5} \text{ of } 15}$$

2. Using tables evaluate.

(3marks)

$$\frac{1}{34.52} + \sqrt[3]{0.787} + (0.934)^3$$

3. A tourist arrived in Kenya with US Dollars 3000 which he exchanged into Kenya shillings. He spent Ksh. 75000 on hotel accommodation and Ksh.42500 on travel and other expenses. He changed the remaining money into sterling pounds. Calculate how much money in sterling pounds that he remained with using the following rates. (Leave your answer to the nearest 1£)

	Buying(Kshs)	Selling(Kshs)
1 US dollar(\$)	78.45	78.95
1 Sterling pound(£)	120.27	121.04

(3marks)

4. Solve for y in the equation $8^{(2y-1)} \times 32^y = 16^{(y+1)}$.

(3marks)

5. Solve the equation:

(3marks)

$$\frac{1(x+3)+x}{x(x+3)} = \frac{11}{28x}$$

6. Determine the equation of the normal to the curve $y = 3x^2 - 4x + 1$ at the point (2, 5).

(3marks)

7. given that $\mathbf{AB} = \begin{pmatrix} 3 \\ 5 \end{pmatrix}$ and $\mathbf{CD} = \begin{pmatrix} K-1 \\ 15 \end{pmatrix}$ are parallel, find the value of K and hence evaluate $|\mathbf{CD}|$

(3marks)

8. Make \mathbf{a} the subject of the formula:

$$x = y + \sqrt{x^2 + a^2}$$

(3marks)

9. Find the equation of a straight line which is equidistant from the points A(2, 3) and B(6, 1). Express your answer in the form $\frac{x}{a} + \frac{y}{b} = 1$ where a and b are constant.

(3marks)

10. The GCD and LCM of three numbers are 3 and 1008 respectively. If two of the numbers are 48 and 72 respectively, find the least possible value of the third number.

(3 marks)

11. Kamau salary increased from Ksh 16,800 to 18,00 in the month of April. State the ratio in which it changed. What was the percentage change in his salary? Leave you percentage answer to 4. s. figures. (3marks)

12. If $\tan X = \frac{4}{3}$, find the value of $\sin^2X + \cos X$ without using tables or calculator. (3marks)

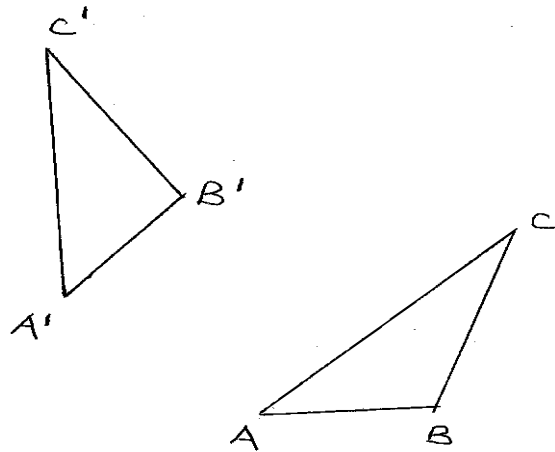
13. The area of a rhombus is 60cm^2 . Given that one of its diagonal is 15cm long. Calculate the perimeter of the rhombus. (3 marks)

14. If x is a positive integer find all the integral values of x given that: (3marks)

$$-3 < 2x + 4 < -3x + 9$$

15. Solve for x in $\log_3(4 + 3x) + 3\log_3 3 - 2 = \log_3(x + 6)$ (3marks)

16. The figure below shows triangle ABC and its image A'B'C' after the transformation. Describe the



transformation fully.
(3 marks)

SECTION II

17. Consider points A (50°N , 30°E) and B (50°N , 150°W) (Take $\pi = \frac{22}{7}$) and radius of the earth R = 6370 km. Find:

(a) The distance between A and B along a parallel of latitude in:

(i) Kilometres (km) (3 marks)

(ii) Nautical miles (nm) (2 marks)

(b) The shortest distance from A to B in nautical miles. (3 marks)

- (c) An aircraft takes 54 hours to fly between the two towns A and B along the great circle.
Calculate its speed in knots correct to 2 significant figures. (2 marks)

18. A curve whose equation is $2y = 6 - 12x + 9x^2 - 2x^3$ turns at points A and B.

- a) Find the coordinates of a and b (5marks)
- b) Determine the nature of points A and B (3marks)
- c) Sketch the curve (2marks)

19. Income tax is charged on annual income at the rate shown below.

Taxable income K£p.a	Rate Ksh/£.
1-2300	2
2301- 4600	3
4601- 6900	5
6901- 9200	7
9201- 11500	9
11501 and over	10

Mr. Kipsoroi earn a basic salary of Ksh.15,000 per month and lives in a company house for which he pays nominal rent of Ksh.1250 per month. He enjoys personal relief of Ksh.1056 per month and insurance relief of Ksh.270 per month.

Calculate;

(a) His taxable income in K£.p.a. (3 marks)

(b) The amount of tax he pays per month in Kenya shillings. (5 marks)

(c) His net monthly salary in shillings.

(2 marks)

20. The frequency distribution table below shows the marks scored by 117 form four candidates of Sanga High School.

Marks	10 – 19	20 – 29	30 – 39	40 – 49	50 – 59	60 – 69	70 – 79
No. of students	13	14	18	20	23	17	12

(a) Draw a cumulative frequency curve of the distribution.

(5marks)

(b) Use you graph to determine:

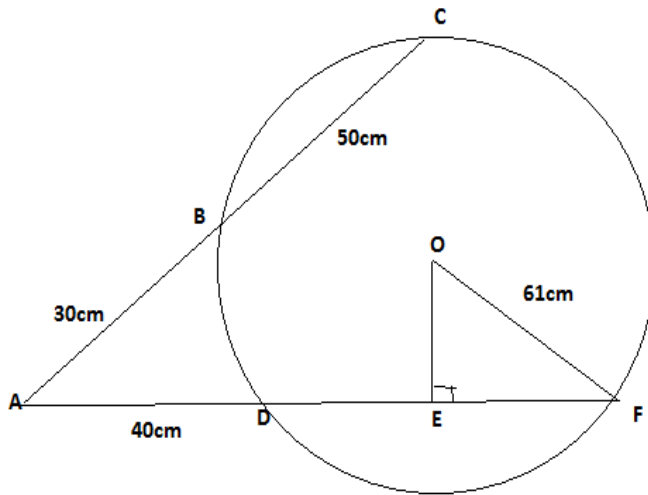
(i) The median

(2 marks)

(ii) Quartile deviation

(3 marks)

21. In the figure below OF is the radius of the circle centre O chords EDC and CB are extend to meet at A and OE is perpendicular to DF at E . $OF = 61\text{cm}$, $AB = 30\text{cm}$, $BC = 50\text{cm}$, $AD = 40\text{cm}$.



a) Calculate the length of

i) DF

(2marks)

ii) OE

(2marks)

b) Calculate correct to 1dp

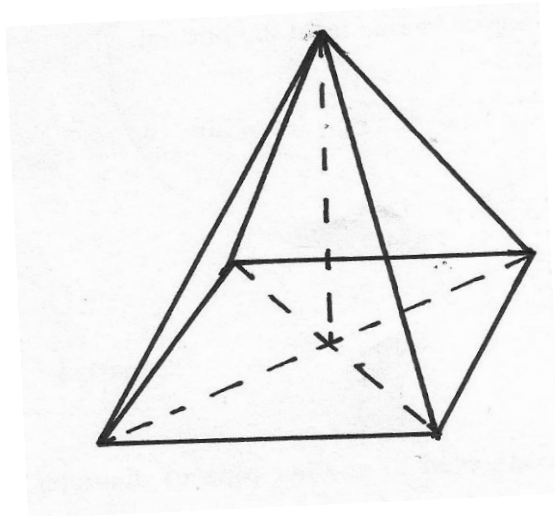
i) Size of angle EOF

(2marks)

ii) The length of the minor arc DF

(3marks)

22. ABCDE is a right pyramid on a horizontal square base of side 10 cm. The slant edges are all 8 cm long. Calculate;



(a) The height of the pyramid (3 marks)

(b) The angle between;

(i) A slant face and the base (2 marks)

(ii) A slant edge and the base (2 marks)

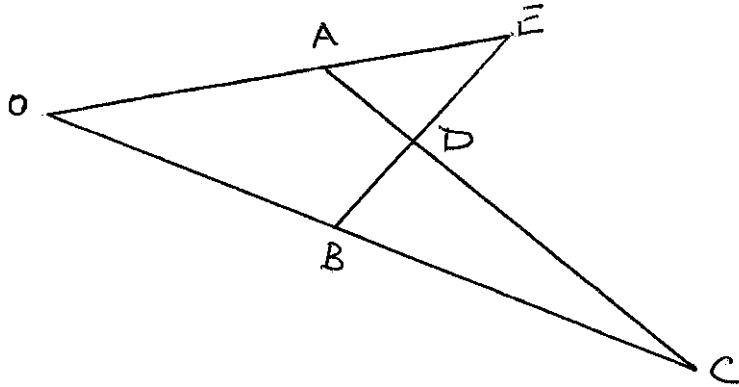
(c) The angle between the planes ABE and DCE (3 marks)

23. In the figure below $\mathbf{OE} = \mathbf{a}$, $\mathbf{OB} = \mathbf{b}$, $\mathbf{OA} : \mathbf{AE} = 2 : 3$

(a) Express \mathbf{AC} and \mathbf{BE} in terms of \mathbf{a} and \mathbf{b} . (2 marks)

(b) $\mathbf{DC} = k\mathbf{AC}$ and $\mathbf{BD} = m\mathbf{BE}$. Determine the values of k and m by expressing \mathbf{DC} in two ways. (6 marks)

(c) Find the ratio of $\mathbf{AD} : \mathbf{DC}$. (2 marks)



24. A theatre has seating capacity of 250 people. The charges are shs. 100 for ordinary seat and shs 160 for special seat. It cost shs 16000 to stage a show and the theatre must make a profit. There are never more than 200 ordinary seats and for a show to take place, at least 50 ordinary seats must be occupied; the number of special seats is always less than twice the number of ordinary seats.

- (a) Taking X to be number of ordinary seats and y to be the number of special seats, write down all the inequalities representing the above information (2 marks)
- (b) On the grid provided, draw a graph to show the inequalities in (a) above (4marks)
- (c) Determine the number of seats of each type that should be booked in order to maximize the profit (2 marks)
- (d) Calculate this maximum profit (2marks)

FORM 4 TERM 2 MIDTERM EXAMS

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

Name..... Adm

No.....Class.....

121/2

Mathematics

Paper 2

2 ½ Hours

SECTION A

1. Evaluate using logarithm (4 marks)

$$\sqrt{\frac{4.283 \times (0.009478)^2}{\log 9.814}}$$

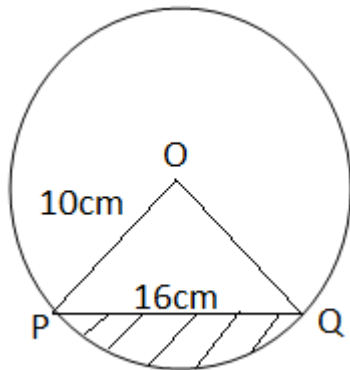
2. Calculate the density of the material used to make a concrete culvert of mass 1 million grams, internal diameter 0.72m, thickness 70mm and length $2 \times 10^{-3} \text{ km}$ (giving the answer in kgm^{-3} and in standard form)

(3 marks)

3. Simplify $\frac{3}{\sqrt{5}-2} + \frac{1}{\sqrt{5}}$ leaving the answer in the form $a + b\sqrt{c}$, where a, b and c are rational numbers

(3 marks)

4. The figure below shows a circle center O , radius 10 cm . The chord $PQ = 16\text{ cm}$. Calculate the area of the unshaded region. (3 marks)



5. Solve the equation $3x^2 + x - 4 = 0$ by the method of completing the square. (3 marks)
6. Two towns A and B are 200 m apart. From the top of A , the angle of elevation of the top of B is 15° . From the top of B , the angle of depression of the bottom of A is 40° . Find the height of A . (3 marks)

7. The first, the third and the seventh term of an increasing arithmetic progression are three consecutive terms of a geometric progression. If the first term of the arithmetic progression is 10, find the common difference of the arithmetic progression (3 marks)
8. Peter operates a printing firm and the cost of printing a book is partly constant and partly varies as the number as pages. If a book has 200 pages, the cost in sh 400 and if it has 100 pages, the cost is sh 240. Find the cost of printing a book with 400 pages. (3 marks)
9. A and B are two matrices. If $A = \begin{pmatrix} 1 & 2 \\ 4 & 3 \end{pmatrix}$ find B given that $A^2 = A + B$ (3 marks)
10. Find the constant term in the expansion $\left(3x - \frac{1}{2x}\right)^8$. Hence state it's value (3 marks)

11. Given that $x = 31.01$, $y = 12.9$ and $w = 0.0023$. Calculate the percentage error of $\frac{y}{xw}$, give your answer to 4 dp. (3 marks)

12. Evaluate $\int_{-1}^3 (2x + 3) dx$ (3 marks)

13. A merchant blends 350kg of tea costing Sh. 84 kg with 140kg of tea costing Sh. 105 per kg. At what price must he sell the mixture to gain 25% (3 marks)

14. Solve for x given that;

$$3 \sin (3x - 20^\circ) = -2 \text{ for } 0^\circ \leq x \leq 180^\circ \quad (4 \text{ marks})$$

15. $4x^2 - 10x + 4y^2 + 12y - 1 = 0$ represents a circle centre C (a, b) and of radius K. Find the values of a, b and K. (3 marks)

16. ABC is an equilateral triangle. P is a variable point on the same side of AB as C, and on the same plane such that $\angle APB = 60^\circ$. Use a ruler and a pair of compasses only to construct the locus of P. Describe the locus of P fully. (3 marks)

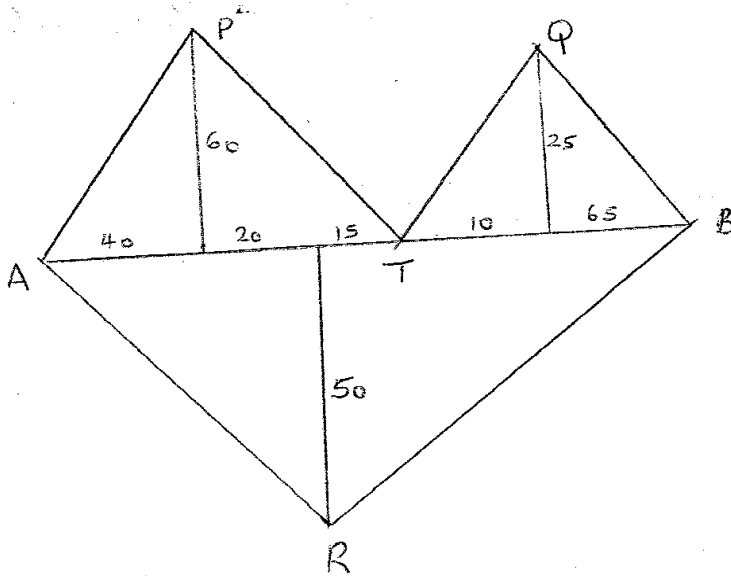
SECTION B

17. Four buildings A, B, C and D stand on a level ground such that B is 240m on a bearing of 60° from A. C is south east of B and east of A. D is 320m from C on a bearing of 150° from A.
- a) i) Use scales of 1 cm rep 40m draw accurately the points ABCD. (3 marks)

ii) Use the drawing to find the direction of B and D. (1 mark)

b) The height of building A is 200m and that of B is 80m. Determine the angle of depression of the top of building B from the top of building A. (3 marks)

c) Enter the layout of Kamau's plot shown below in a surveyor's book. (Unit in metres)
(3 marks)



18. The table shows the marks obtained by 40 candidates in an examination

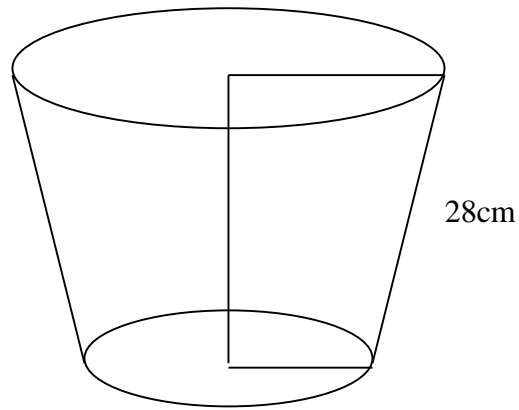
Marks	5-14	15-29	30-34	35-44	45-49
Frequency	2	12	7	15	x

(a) Find the value of x (2 marks)

(b) On the grid provided below draw a histogram to represent the data (5 marks)

(c) By drawing a straight line on the graph above determine the median mark (3 marks)

19. The diagram below shows a bucket with top diameter 30cm and bottom diameter 20cm. The height of the bucket is 28cm.

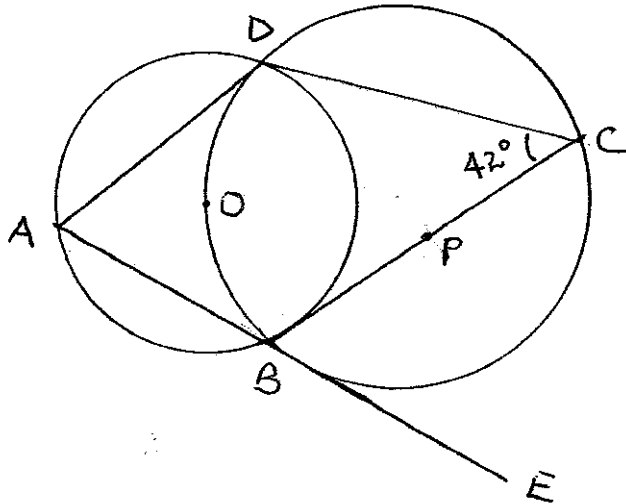


Find;

- (a) The capacity of the bucket in litres. (5 marks)

- (b) The area of the metal sheet required to make 100 such buckets, taking 10% extra overlapping and wastage. (5 marks)

20. (a)



Giving reasons, determine the size of:

a) Angle CBD (2 marks)

b) Angle ODB (2 marks)

c) Angle BAD (2 marks)

d) Angle ABC (2 marks)

e) Angle ODA (2 marks)

21. A car leaves town X for town Y 120 km away at an average speed of 80 km/hr at 8.30 a.m. At the same time a bus leaves town Y for town X at an average speed of 60 km/hr. At 8.45 a.m., a cyclist leaves town Y for town X at an average speed of 30 km/hr.

(a) Calculate the time when the bus meets the car to the nearest minute. (3 marks)

(b) Calculate the distance between the car and the bus by the time the cyclist meets the car.
(4 marks)

(c) If the bus upon reaching town X stops for 10 minutes then starts its journey back to Y,
Calculate how far from X the bus meets the cyclist. (3 marks)

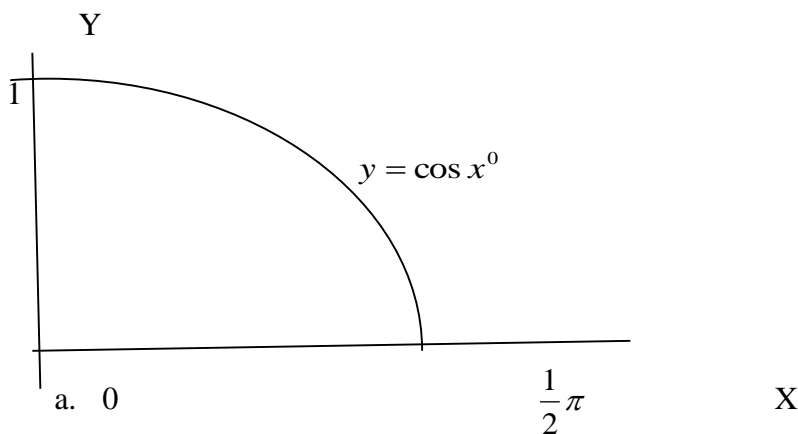
22. Two bags A and B contain identical balls except for the colours. Bag A contains 4 red balls and 2 yellow balls. Bag B contains 2 red balls and 3 yellow balls.

a) If a ball is drawn at random from each bag, find the probability that both balls are of the same colour. (4 marks)

- b) If two balls are drawn at random from each bag, one at a time without replacement, find the probability that:
- i) The two balls drawn from bag A or bag B are red (4 marks)

- ii) All the four balls drawn are red (2 marks)

23. The figure below shows a cross-section of a tunnel.



Determine the difference in area of the cross section if trapeziums rule rather than mid ordinate rule was used using six strips to estimate the area. (10 marks)

24. (a) Draw the graph of the function below on the grid provided

$$y = 2x^2 - 7x - 2 \text{ for the values of } -1 \leq x \leq 6$$

(5 marks)

(b) From your graph determine the roots of the function. $2x^2 - 7x - 2 = 0$. (1 marks)

(c) By drawing a suitable graph of function $y = 2x - 7$ on the same axis, solve the simultaneous equations $y = 2x^2 - 7x - 2$ and $y = 2x - 7$. (4 marks)

FORM 4 TERM 2 MIDTERM EXAMS

Kenya Certificate of Secondary Education

Physics Paper 1

232/1

PHYSICS

PAPER 1

SECTION A (25 MARKS)

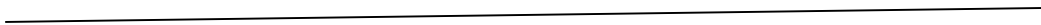
Attempt all the questions in the spaces provided.

1.State the name of the instrument used to take the following readings;

(i) 0.035m (1mk)

(ii) 0.00245m (1mk)

2. A vernier caliper which had an error of 0.02cm was used to measure the diameter of a spherical marble. If the actual diameter was 3.67cm, draw a vernier caliper scale showing its reading (2mks)

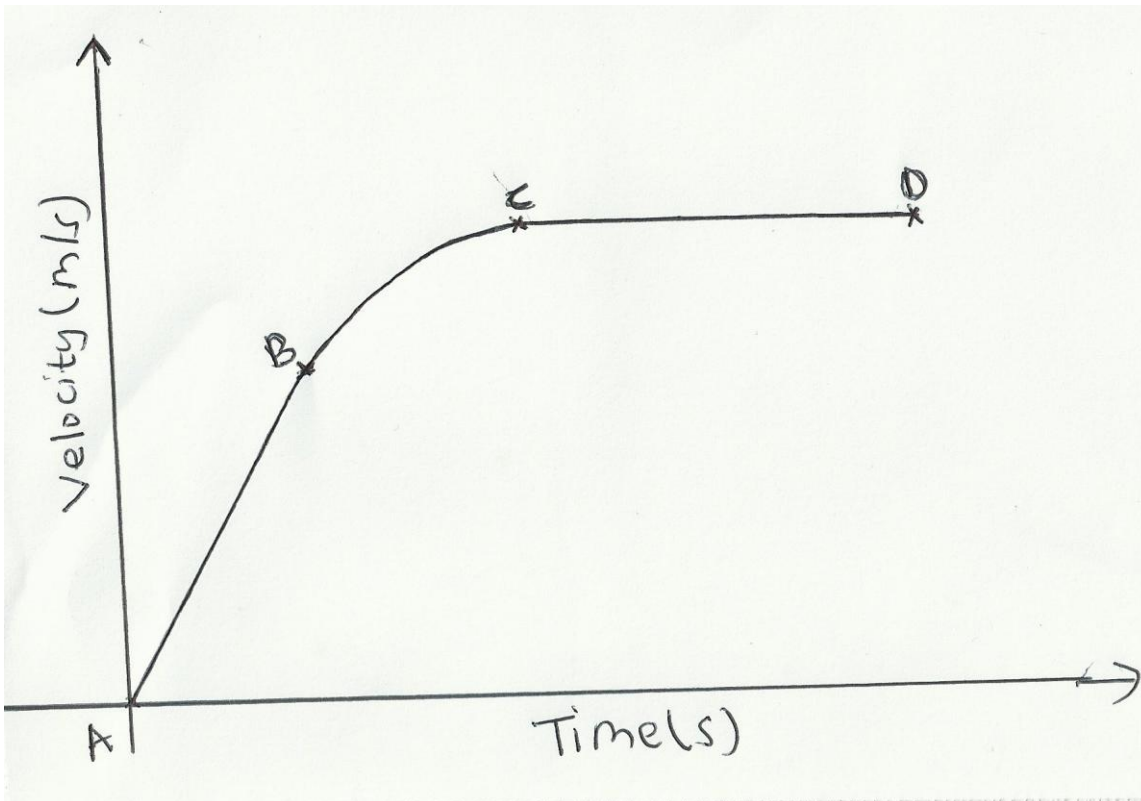


3. Fifty drops of oil have a volume of 1.0cm^3 . If a drop of oil forms an oil patch of diameter 20cm, determine the size of the oil molecule.(2mks)

4. (a) State Newton's third law of motion. (1mk)

(b) A man whose mass is 70kg stands on a weighing machine. When the lift ascends with an acceleration of 2.45m/s^2 , what is the reading on the scale. (2mks)

5. The figure below shows a sketch graph of velocity time graph for a body falling through a liquid. Explain the motion of the body between;



(a) A and B (1mk)

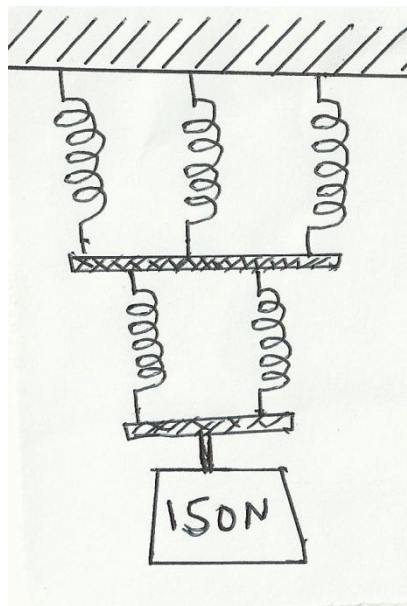
(b) B and C (1mk)

(c) C and D (1mk)

6. In a faulty mercury-in-glass thermometer was found that the mercury level stands at 3 cm mark in the tube at 0°C and 18 cm when in steam above boiling water at normal atmospheric pressure. Calculate the temperature when the mercury stands at 12 cm mark. (2mks)

7. A balloon filled with argon gas of volume 200 cm^3 at the earth's surface where the temperature is 20°C , and the pressure 760mm of mercury. If it is allowed to ascend to a height where the temperature is 0°C and the pressure 100mm of mercury, calculate the volume of the balloon. (2mks)

8.(a) The spiral springs shown in the figure below are identical. Each spring has a spring constant $K = 300\text{N/m}$. Each rod weighs 0.1N and each spring weighs 0.2N .



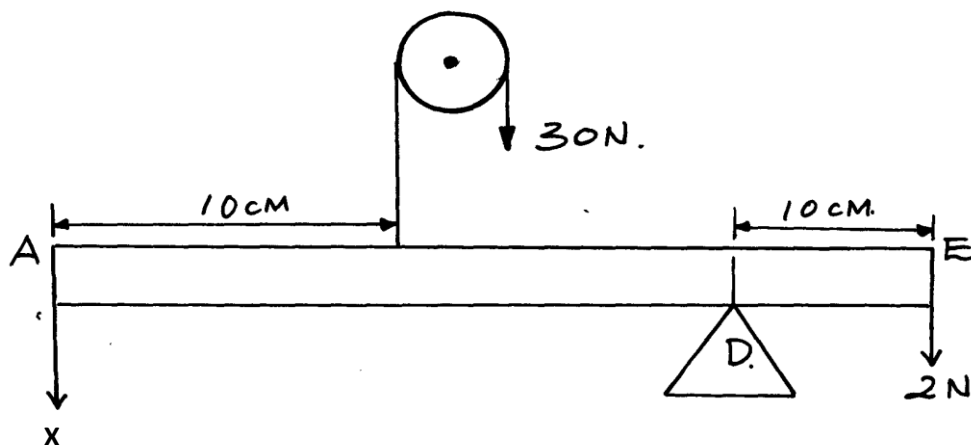
Determine the total extension caused by the 150N weight. (2mks)

(b) Apart from length of the spring and nature of material, state one other factor affecting the spring constant.(1mk)

9.State two conditions necessary for a body to be in equilibrium . (2mks)

10.(a) How does the position of the centre of gravity affect the stability of a body?(1mk)

(b)The figure below shows a uniform rod **AE** which is 40cm long. It has a mass of 2kg and pivoted at **D**. If 2N is acting at point **E**, and 30N force is passed through a frictionless pulley



Find the force X acting at end A (3mks)

SECTION B (55 MARKS)

Attempt all the questions in this section.

11.(a) Sketch a block and tackle pulley system with three movable pulleys in the lower block and two fixed pulleys in the upper block. (2mks)

Find:

(b) (i) Velocity ratio (V.R.) (1mk)

(ii) An effort of 450 N is used to raise a load of 2700N. Determine:

• Mechanical advantage (M.A) (2mks)

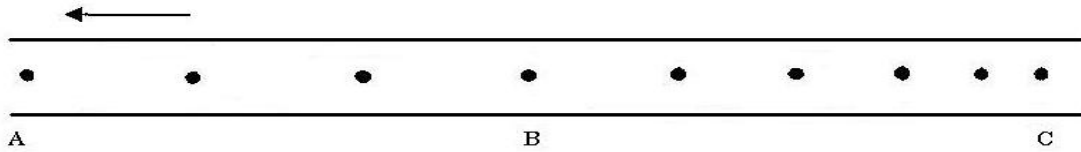
• Efficiency of the pulley system. (2mks)

(iii) If all the wasted energy is used to raise the lower block and the frictional force between the pulleys and moving parts is 3.6N; determine the weight of the lower block. (2mks)

(c) If the load moved through a distance of 50cm, determine the useful work done by the effort. (3mks)

(d) James applied a force of 400N in pushing a stationary wall. If he took one hour to push the wall, calculate the power developed. (1mk)

12(a)The figure below shows dots which were made by a ticker timer-tape attached to a trolley. The trolley was moving in the direction shown.



If the frequency used was 50 Hz, distance $AB = 12\text{cm}$ and $BC = 7.2\text{cm}$, determine
i) the velocities between AB and BC (2mks)

ii) the acceleration of the trolley. (2mks)

(b) An object is released to fall vertically from height of 100m. At the same time another object is projected vertically upward with velocity of 40m/s.

(i) Calculate the time taken before the objects meet (3mks)

(ii) At what height do the objects meet? (2mks)

(c)State two assumptions that were made when deriving the equation of continuity. (2mks)

13.(a) State Archimedes' principle

(1 mk)

(b) A block of length 50 cm, cross-sectional area of 5cm^2 and density 1.4 g/cm^3 is completely immersed in a liquid of density 1.08 g/cm^3 find

(i) The mass of the block

(2 mks)

(ii) The weight of the block in the liquid.

(2 mks)

(iii) The apparent loss in weight of the block if three quarter of it is immersed in the liquid.

(2 mks)

14.(a) Define specific latent heat of fusion

(1mk)

(b) You are provided with the following apparatus:

A filter funnel, a thermometer, a stop watch, ice at 0°C , an immersion heater rated P watts, a beaker, a stand, boss and clamp and a weighing machine.

Describe an experiment to determine the specific latent heat of fusion of ice. Clearly state the measurements to be made. (4mks)

(c) 200 g of ice at 0°C is added to 400g water in a well lagged calorimeter of mass 40g. The initial temperature of the water was 40°C . If the final temperature of the mixture is $X^{\circ}\text{C}$,

(Specific latent of fusion of ice $L = 3.36 \times 10^5 \text{ Jkg}^{-1}$, specific heat capacity of water, $c = 4200 \text{ Jkg}^{-1}\text{K}^{-1}$, specific heat capacity of copper = $400 \text{ Jkg}^{-1}\text{K}^{-1}$.)

(i) Derive an expression for the amount of heat gained by ice to melt it and raise its temperature to $X^{\circ}\text{C}$ (2mks)

(ii) Derive an expression for the amount of heat lost by the calorimeter and its content when their temperature falls to $X^{\circ}\text{C}$. (2mks)

(iii) Determine the value of X . (3mks)

15.(a) The moon goes round the earth at constant speed. Explain why it is true to say that the moon is accelerating. (1 mark)

(b) A string of negligible mass has a bucket tied at the end. The string is 60cm long and the bucket has a mass of 45g. The bucket is swung horizontally making 6 revolutions per second. Calculate:

(i) The angular velocity. (1 mark)

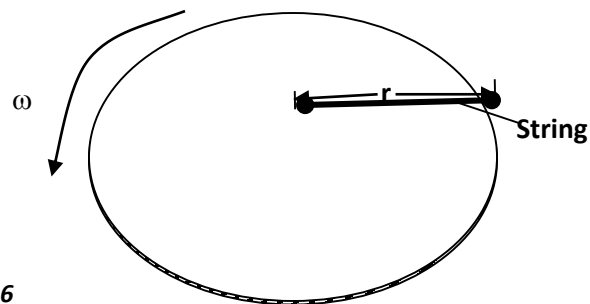
(ii) The centripetal acceleration. (2 marks)

(iii) The tension on the string. (2 marks)

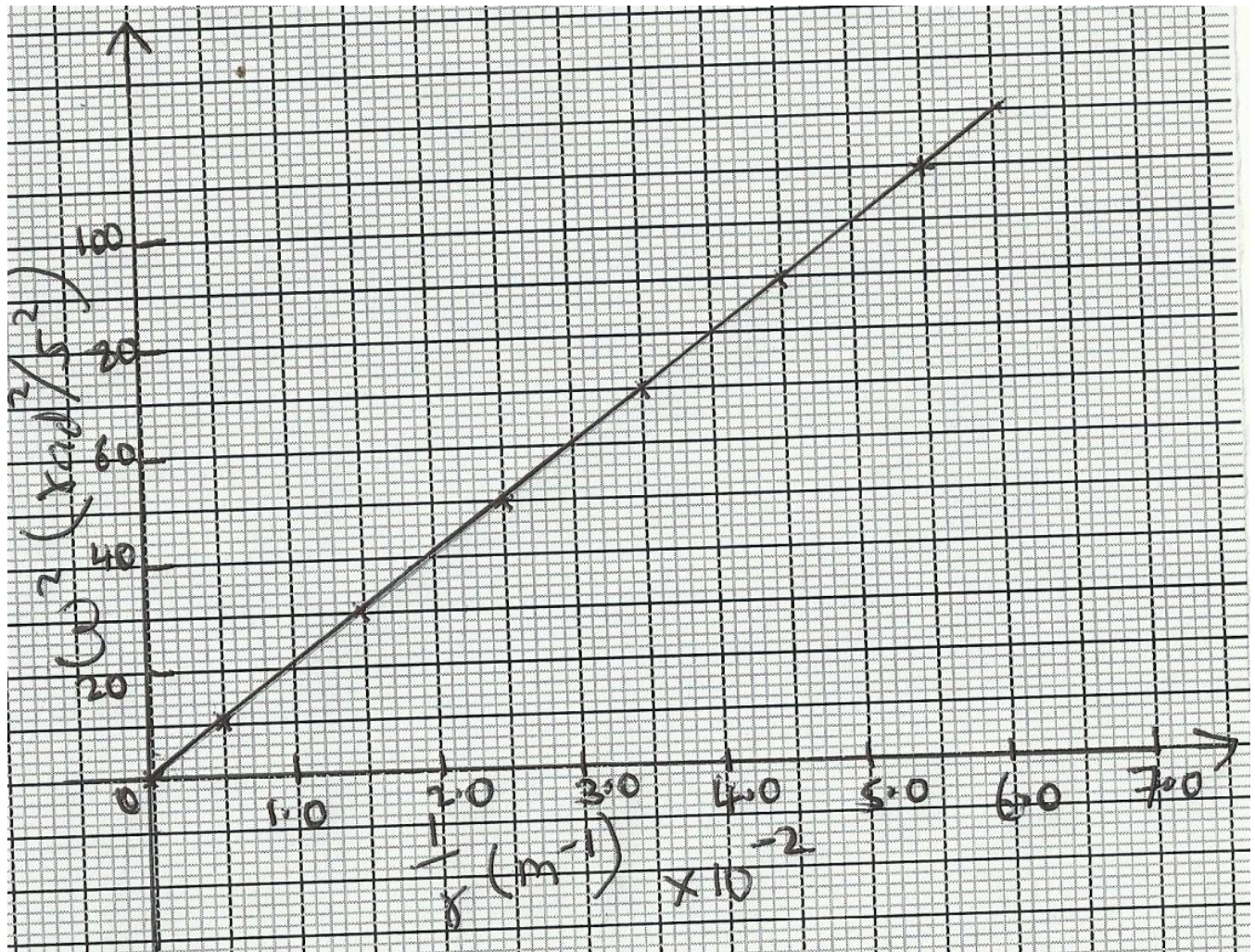
(iv) The linear velocity.

(1 mark)

(c) Figure 6 shows a body of mass; $m = 200g$ attached to the centre of a rotating table with a string. The radius of the string was varied and different values of angular velocity recorded. The mass of the body remained constant throughout the experiment.



The results obtained for angular velocity and radius were used to plot the following graph;



From the above graph;

(i) Calculate the value of the slope. (2mks)

(ii) If ω^2 and $\frac{1}{r}$ are related by the equation; $\omega^2 = \frac{p}{r} \times \frac{1}{m}$ find the value of **P**. (2mks)

(iii) State the significance of **P**. (1mk)

FORM 4 TERM 2 MIDTERM EXAMS

NAME CLASSADM.NO.

INDEX NO.DATESIGN.....

232/2

PHYSICS

PAPER 2

SECTION A (25marks)

Attempt all the questions in the spaces provided.

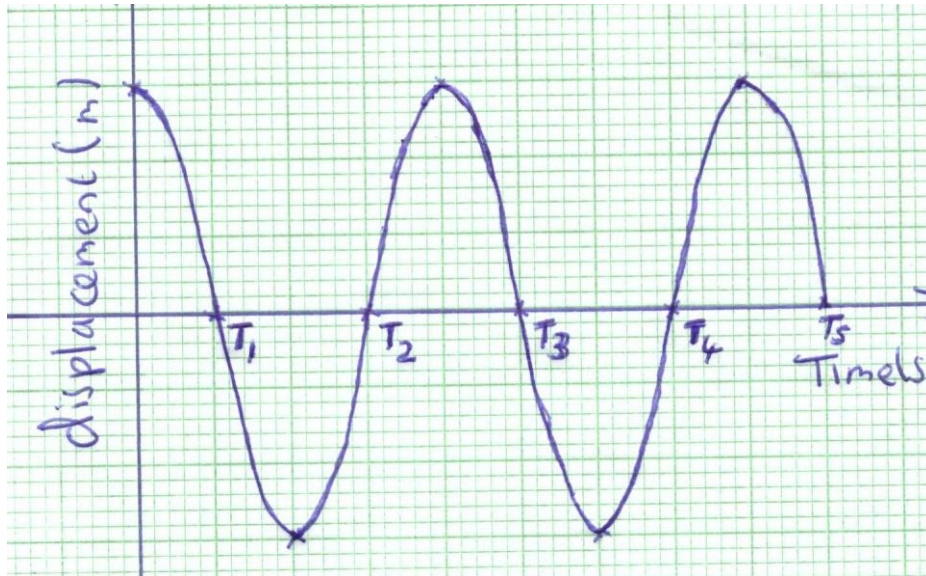
1.The recording below shows the reading of a stop watch as seen through a plane mirror. What was the actual reading time of the watch? (1mark)

18:81:80

2.State **two** conditions for generation of e.m.f from a magnet. (2marks)

3.A T.V tube is a modified cathode ray tube. State **two** modifications (2marks)

4.The figure below shows a wave profile for a wave whose frequency is 2 Hz.



Determine the value of T_4

(2marks)

5. What is meant by positive and negative sign convention as applied to curved mirrors. (1mark)

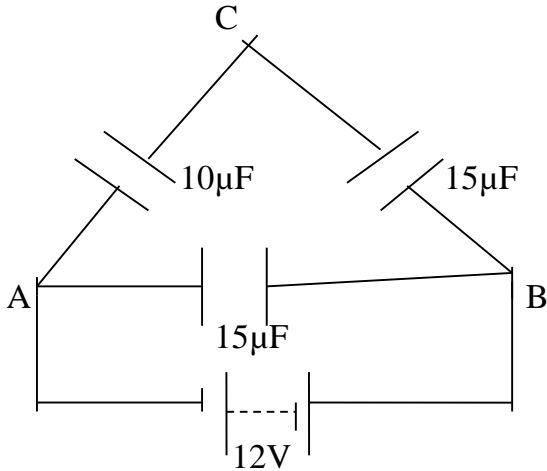
6. Explain why alternating current is preferred to direct current in power transmission. (1mark)

7. Distinguish between deviation and dispersion as used in light. (1mark)

8. Describe how the type of charge on a metal rod may be detected. (1mark)

9. Radon ${}_{86}^{224}\text{Ra}$ disintegrates with the emission of an alpha particle to form an element **P**. Show how this element may be represented. (2marks)

10. The figure below shows a circuit of three capacitors and a dc source of 12V.



Determine;

(a) Total capacitance (2marks)

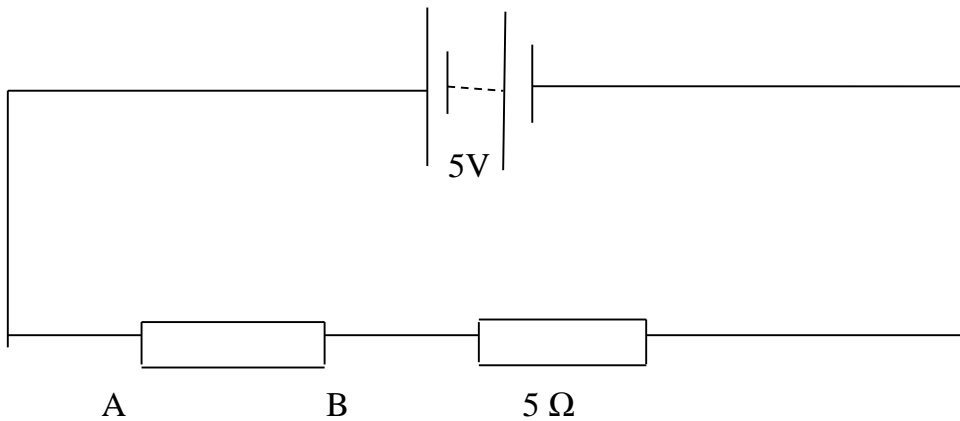
(b) Total charge (1mark)

(c) Energy stored between A and B. (2marks)

11. What is the frequency of an alternating p.d which is applied to the Y- plate of the C.R.O and produce five complete waves covering 10 horizontal divisions on the screen when the time base setting is 10ms/div. (2marks)

12. Give two differences between sound waves and light waves. (2marks)

13. The figure below shows a wire AB of uniform cross-sectional area 0.2 mm^2 and length 2m connected in a circuit as shown. Calculate the resistivity of the metal if the current flowing is 0.5A . (3marks)

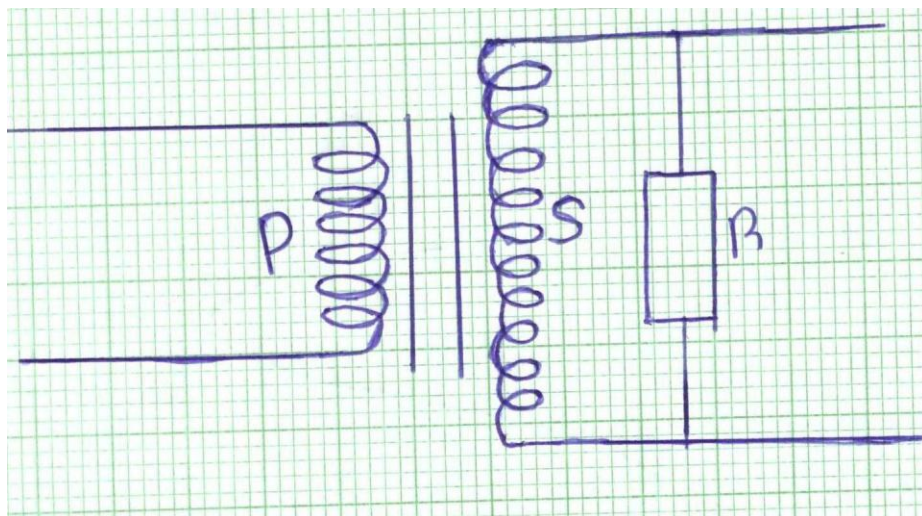


SECTION B (55 MARKS)

Attempt **ALL** the questions in the spaces provided.

14 (a) The size and direction of an induced current can be predicted using two specific laws of an electromagnetic induction. State the law that governs the direction of an induced current. (1mark)

(b).The figure below shows a perfectly efficient transformer. The number of turns in the secondary coil S is six times that of the primary coil P.



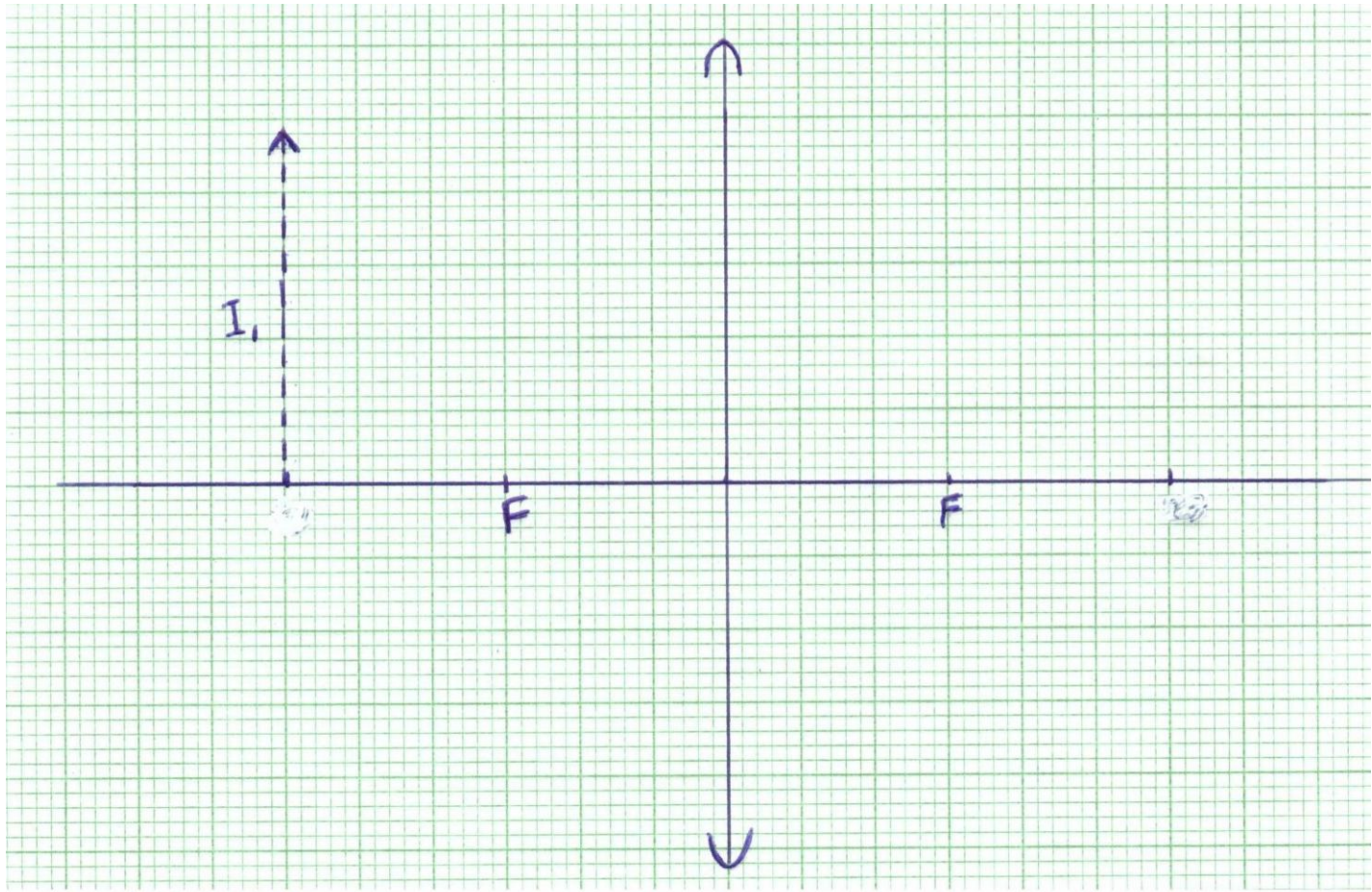
(i). Given that the supply voltage of 4 V a.c is operative across P, determine the p.d across R. (3marks)

(ii) If the supply voltage of 4 V d.c is connected across P, state with reason what happens to the voltage across R. (2 marks)

(c) A rectangular coil of wire is placed between the poles of a permanent magnet. What two factors determine the magnitude of the induced current if the coil is rotated? (2marks)

(d) State how a simple generator can be modified to produce a direct current. (1mark)

15 (a). The diagram below shows a convex lens with principal foci as shown. The Image I_1 of an object is as shown.



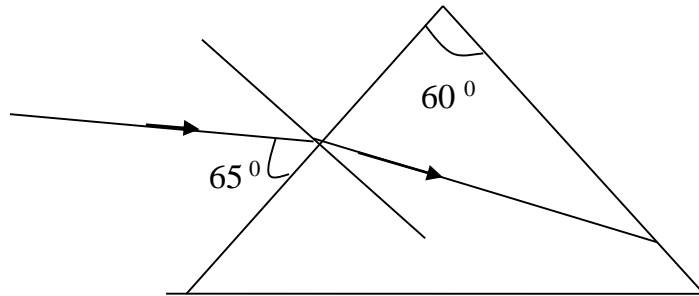
(i) Draw a ray to show the object of I_1 using a pencil. (3marks)

(ii) State **two** characteristics the object formed. (2 marks)

(b) The near point for a defective eye is found to be 40cm. What kind of lens is needed to correct this defect. (1mark)

(c) The power of lens is defined as $P = 1/f$, where f is the focal length of the lens. What happens to the power of the eye lens for the eye to be myopic? (2 marks)

(d) The diagram below shows a ray passing into a triangular glass prism. $n=1.5$



(i) Determine the critical angle of the prism. (2 marks)

(2)

(ii) What do you understand by the term critical angle? (1 mark)

(ii) Indicate on the diagram the emergent ray after passing through the prism. (1 mark)

16.(i) Differentiate between thermionic emission and photoelectric effect. (1 mark)

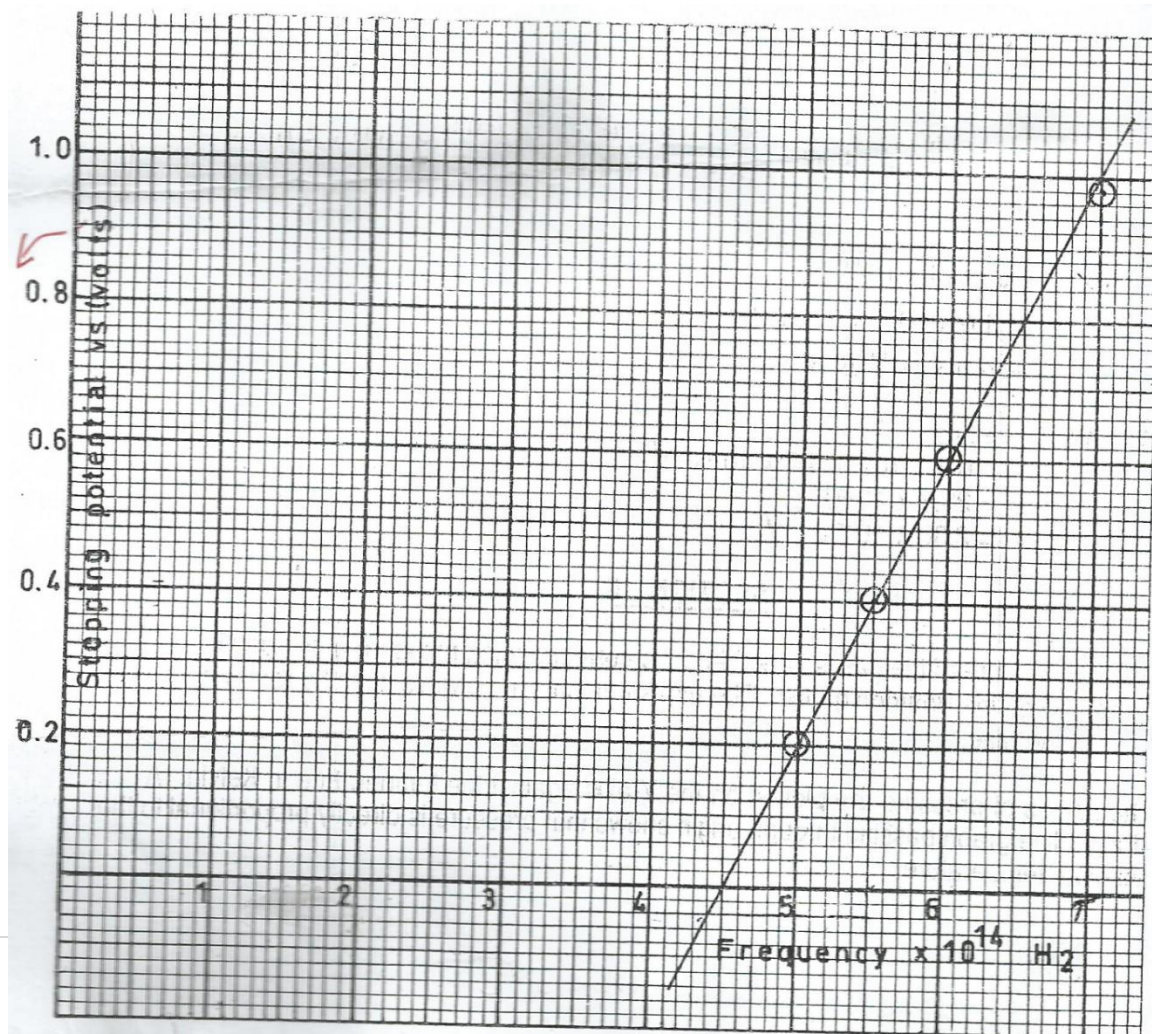
(ii) Explain how intensity of light affects photoelectric emission. (1 mark)

(b) A cathode ray tube operates at 30kV and the current through is 2mA. Calculate:
(i) the rate at which heat is being removed. (2 marks)

(ii) The number of electrons striking the target per second.
(Take charge of an electron, $e = 1.6 \times 10^{-19} \text{ C}$) (2marks)

(iii) The lower wavelengths limit of X- rays emitted. (2marks)
(Take $c = 3.0 \times 10^8 \text{ m/s}$ $h = 6.63 \times 10^{-34} \text{ Js}$)

(c). The graph below shows stopping potential against frequency in hertz.



Using the graph, determine the following;

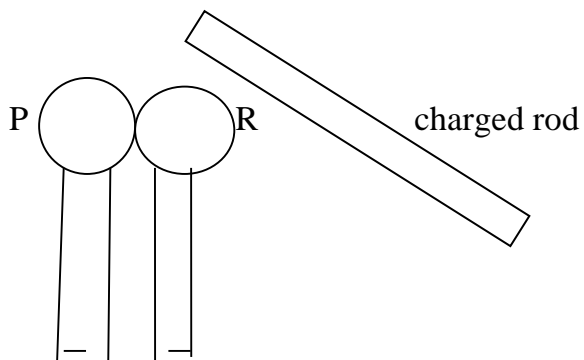
(i) Threshold wavelength. (2marks)

(ii) Planks constant. (2marks)

(iii) Work function in eV. (2marks)

17(a). Distinguish between forward and reverse bias of a P-N junction (1mark)

(b). A student set up two spheres P and R as shown in the diagram below. He brought a charged glass rod near the sphere R. He then touched sphere P with a finger, removed the finger, separated the spheres before removing the glass rod.





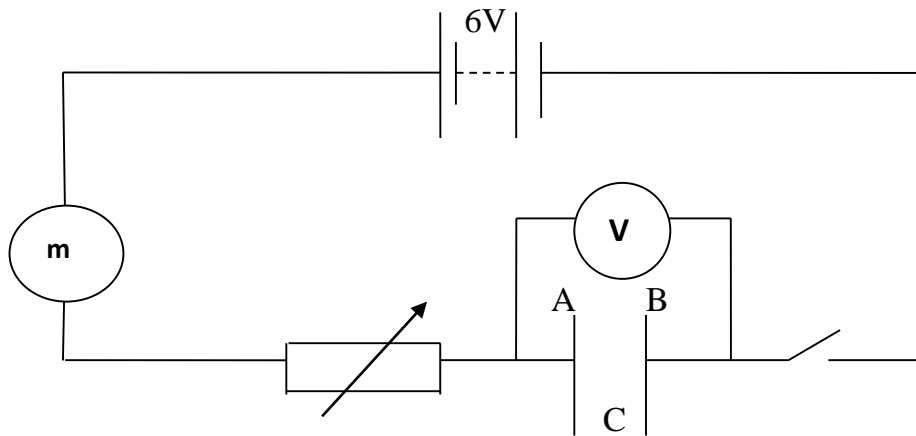
What observation is made when;

(i) R is brought near the cap of a negatively charged electroscope. (1mark)

(ii) P is brought near the cap of a positively charged electroscope. (1mark)

(iii) A lit match stick is held above the cap of a positively charged electroscope. State and explain the observation made. (2marks)

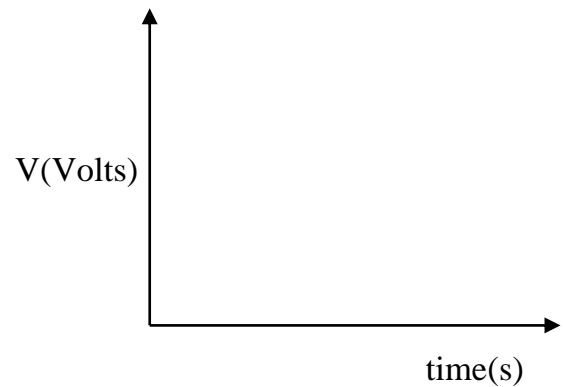
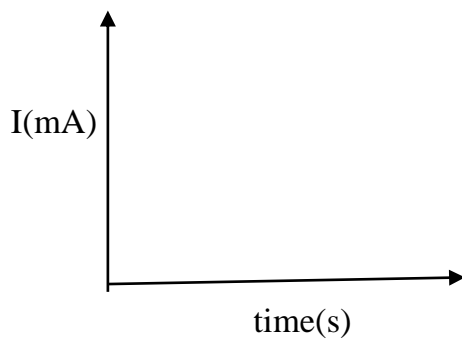
(c). The diagram below is an electric circuit used to experiment a certain phenomenon in physics.



(i) Name the phenomenon being investigated. (1mark)

(ii) Explain the process involved in the experiment. (3marks)

(iii). Sketch and label graphical representations of the results from the above experiment when current and voltage quantities are plotted against time on the same axes. (2marks)



18.(a) The emf of a cell is 3.0 V. A current of 0.2 A flows across a 20Ω resistor when the p.d between the ends is 2.5 V. Determine the internal resistance of the cell. (3marks)

(b) A domestic house has the following appliances;

- Three lighting bulbs each rated as 90 watts used for two hours per day.
- An electric iron box operated one hour twice per week rated 300 watts
- An electric cooker operated 4 hours daily rated 500 watts
- A tv set connected for 6 hours daily connected to 5 A, 240 V mains.
- An electric fan rated as 3 A, 220 V operating 30 minutes daily

Using the above information determine the cost of using electricity for 30 days if cost per unit is 0.50 cents, monthly standing charge of Ksh 3.75 and fuel levy of 0.25 cents per unit in addition are taxed. (4marks)

(c). In a domestic wiring circuit parallel arrangement of lighting bulbs is preferred to series connection although most consumers prefer series. Explain. (2marks)
