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FORM 3 SET 3 EXAMS

ALL SUBJECTS

Dear students attempt these exams!

FOR MARKING SCHEMES CALL

0705525657

FORM THREE SET 3 EXAMS 2020

FORM THREE

BIOLOGY PAPER 1

TIME: 2HRS

NAME _____ADM NO _____

INSTRUCTIONS: ANSWER ALL THE QUESTIONS

1(a) What is an enzyme? (1mk)

(b)(i) What is the difference between denaturation and inactivation of an enzyme. (2mks)

(ii) State a factor that can denature an enzyme. (1mk)

2(a) What is the relationship between a genus and a species. (1mk)

(b) Name the three divisions of the kingdom plantae. (3mks)

(c) Classify the black jack(Bidens pilosa into the following toxa. (4mks)

Kingdom _____

Division _____

Subdivision _____

Class _____

3(a) Name two plant tissues that are lignified. (2mks)

(b) Name the tissue that

(i) Transports synthesized food substances in a plant.

(1mk)

(ii) Supports the plant

(2mks)

4(a) Some students examined a slide of onion epidermal cells under the light microscope. They were able to count 12 cells across the diameter of the field of view. They removed the slide and placed a transparent ruler on the stage and counted three millimeters spaces across the diameter of the field of view. Work out the size of one cell in microns(Imm=1000) (2mks)

(b) Which animal cells are likely to have large number of mitochondria. (2mks)

(c) When examining cells from an unidentified rabbit organ under an electron microscope it was found that most cells are rich in rough endoplasmic reticulum and Golgi bodies. What does this tell you about the organ? (1mk)

5 Slices of onion epidermis were placed in different sucrose solution concentrations. The percentage of plasmolysed cells were determined after thirty minutes. The results were as follows:

Concentration of sucrose solution(molar)	0.55	0.6	0.65	0.7	0.75

Percentage of plasmolysed cells	0	5	20	80	100

(a) What does the word plasmolysis mean? (1mk)

(b) Explain the results obtained 0.55 molar sucrose solution. (1mk)

(c) What description/term would be used on a plant where 100% of its cells were plasmolysed?
(1mk)

6(a) Explain how wilting assists plants to reduce excessive water loss to the atmosphere.
(2mks)

(b) Define osmosis. (2mks)

7(a) Name the structural units of lipids. (1mk)

b) Liver damage leads to impaired digestion of fats. Explain this statement. (1mk)

8(a) State any three functions of the mucus which is secreted along the wall of alimentary canal. (3mks)

(b) Give the two major functions of the small intestine. (2mks)

9(a) Give two structural features which enable plants to reduce the loss of water. (2mks)

(b) Which apparatus is used to measure the rate of transpiration (1mk)

10(a) Which blood vessel:

(i) carries oxygenated blood to the heart tissues
(1mk)

(ii) Connects arteries to the veins (1mk)

(iii) Transports blood from the body tissues back to the heart (1mk)

(b) What is the role of the semi lunar valves. (2mks)

(c) Explain why the wall of left ventricle is more muscular than that of the right ventricle.
(2mks)

11(a) Apart from the lungs,name two gaseous exchange surfaces in a frog. (2mks)

(b) What is the effect of contraction of the diaphragm muscles during breathing in mammals? (3mks)

12 $5C_{51}H_{98}O_6 + 145O_2$ $102\ CO_2 + 98\ H_2O$ + Energy.

The above equation shows an oxidation reaction of food substances.

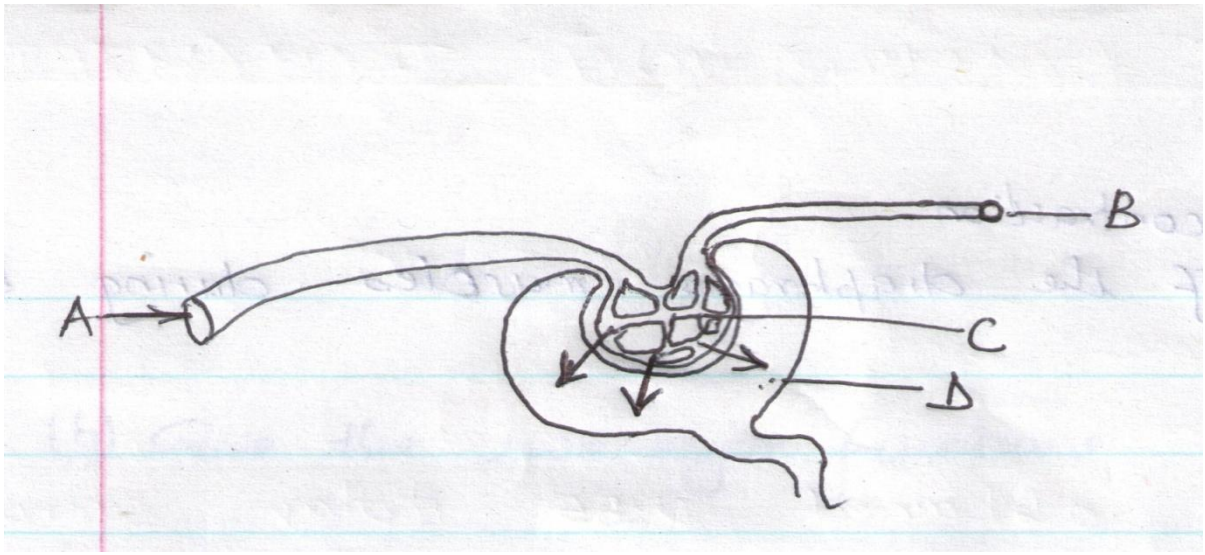
(a) What do you understand by the term respiratory quotient. (1mk)

(b) Determine the respiratory quotient of the oxidation of the food substance shown above. (2mks)

(c) Identify the type of respiration taking place. (1mk)

(d) Other than carbon(iv)oxide,name the other products of anaerobic respiration in plants. (2mks)

13 A part of the nephron is shown in the diagram below. Use it to answer the questions that follow



(a) Name the parts labeled A,B,C and D (2mks)

A- B-

C- D-

(b) Name the process by which fluid in D is formed. (1mk)

(c) What is osmoregulation? (2mks)

14 Explain why the rate of transpiration is reduced when the humidity is high. (2mks)

15(a) A millipede,grasshopper and crayfish all belong to phylum arthropoda. State three major characteristics that they have in common. (3mks)

(b) List three characteristics that are used to sub-divide arthropoda into classes. (2mks)

16(a) Give two reasons as to why clotting of blood is important. (2mks)

(b) Why do the people living regularly at higher attitude have more number of red blood cells than people living at sea level? (2mks)

17(a) What is meant by each of the following ecological terms:

(i) Population (1mk)

(ii) community (1mk)

(iii) Ecosystem (1mk)

b) Name the equipment used to measure the following factors in an ecosystem:

i) light penetration in water. (1mk)

ii) Wind velocity (1mk)

iii) Atmospheric pressure (1mk)

18 Name the spore bearing structure in the members of division pteridophyta. (1mk)

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FORM THREE SET 3 EXAMS 2020

BIOLOGY PAPER 2

FORM 3

NAME …… **ADM ……**

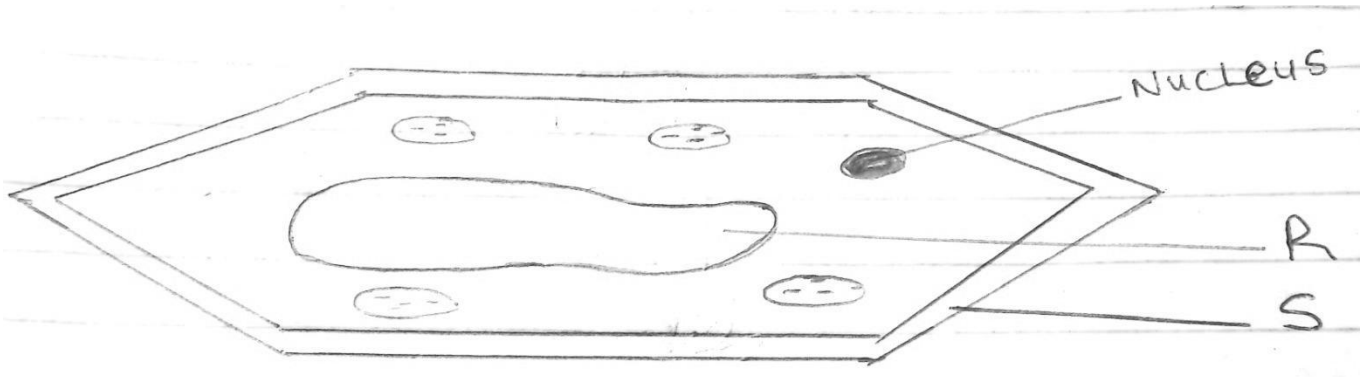
CLASS ……..

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

In section B answer question 6 (Compulsory) and either question 7 or 8 in the spaces provided after question 8.

SECTION A (ANSWER ALL QUESTIONS)

1(i) The diagram below represents a plant cell.



(a) Name a carbohydrate which forms part of the structure labelled S. (1mk)

(b) State two functions of the part labelled R (2mks)

(c) Name two structures present in the diagram but absent in an animal cell (2mks)

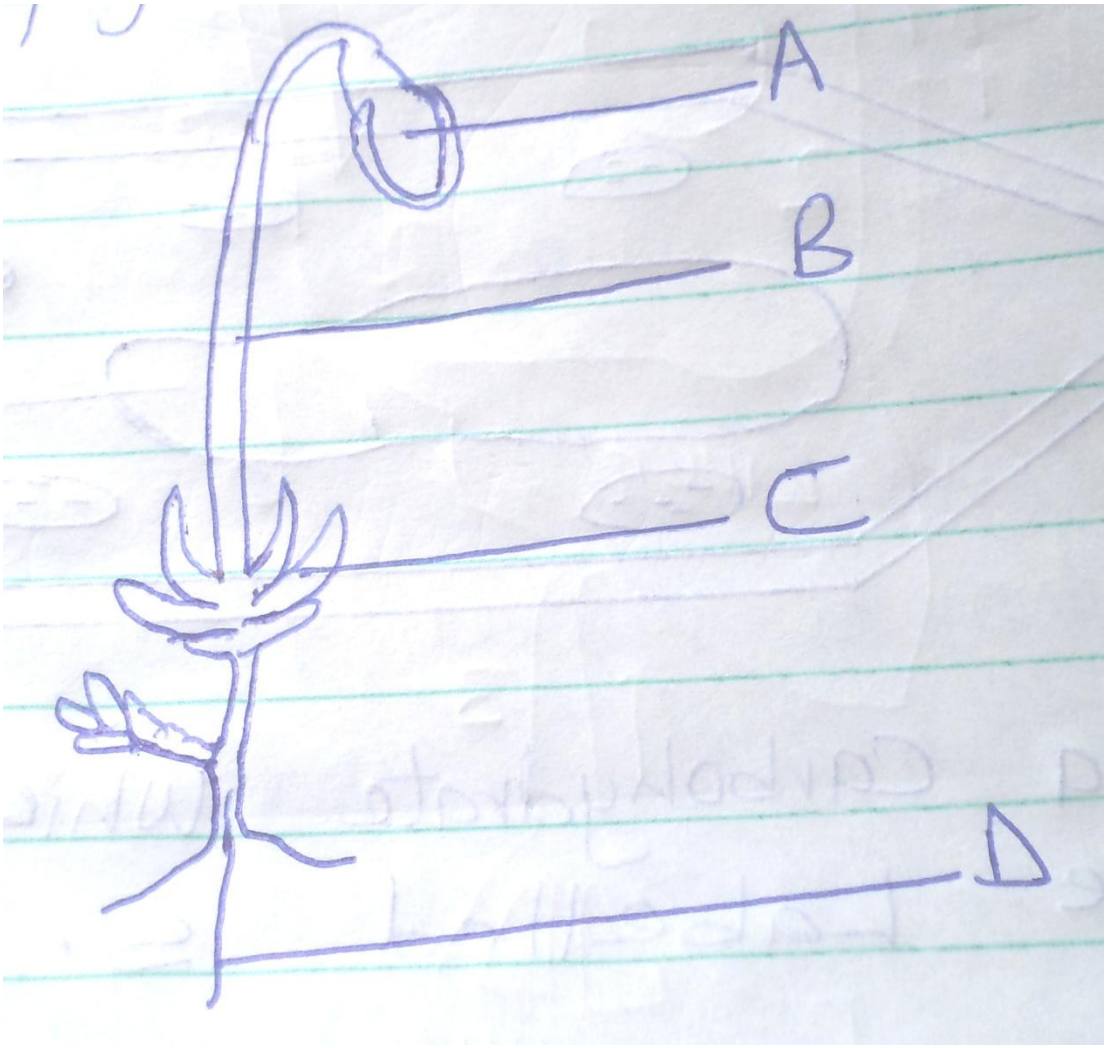
(ii) Name the organelles that perform each of the following functions (3mks)

(a) Excretion in amoeba

(b) Carries out digestion and destruction of worn out cell organelles

(c) Movement in paramecium

2(A) The diagram below represents a plant in the division Bryophyta.



(i) Name the parts labeled B and D (2mks)

B -

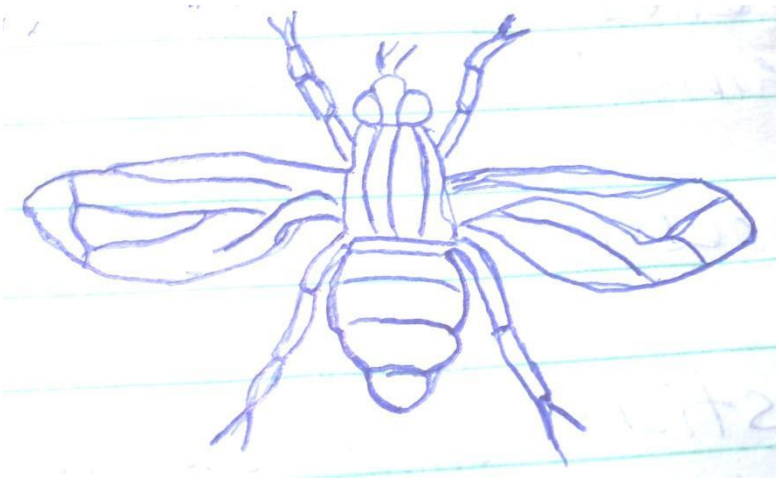
D -

(ii) State one function for each of the parts labelled A and C (2mks)

A -

B -

(B) (a)To which phylum and class does the following organism belong ?

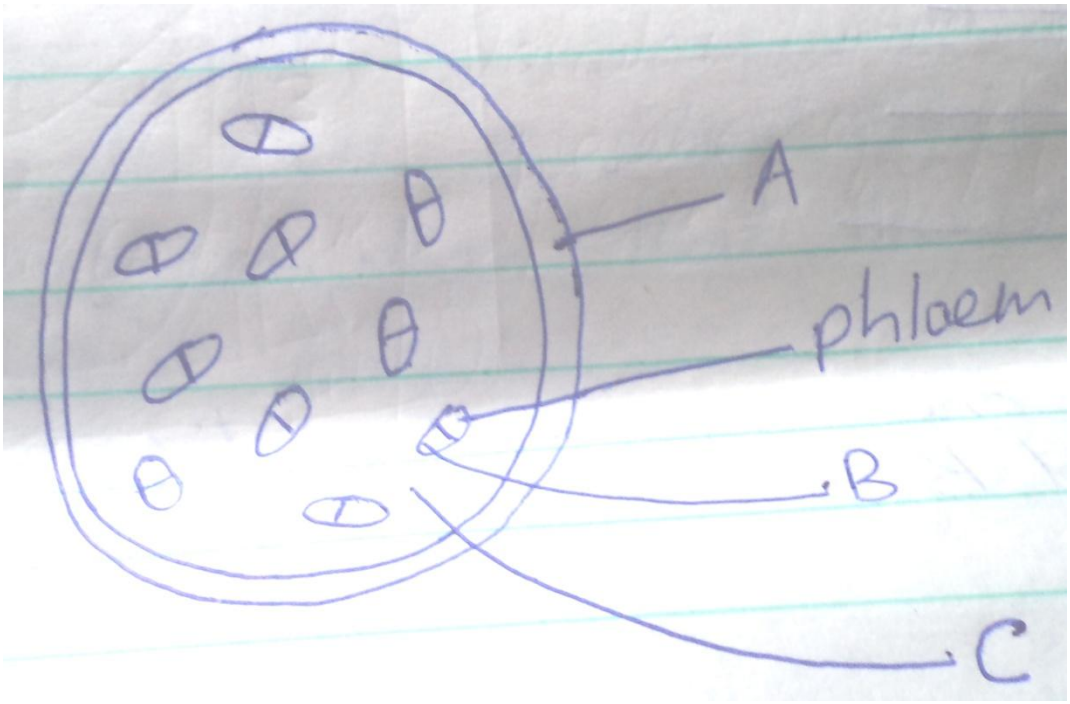


Phylum -

Class -

(b) Using observable features in the diagram, give two reasons for the phylum you have stated in (a) above

3. The figure below shows a transverse section of a monocot stem. Study it and answer the questions that follow.



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

A -

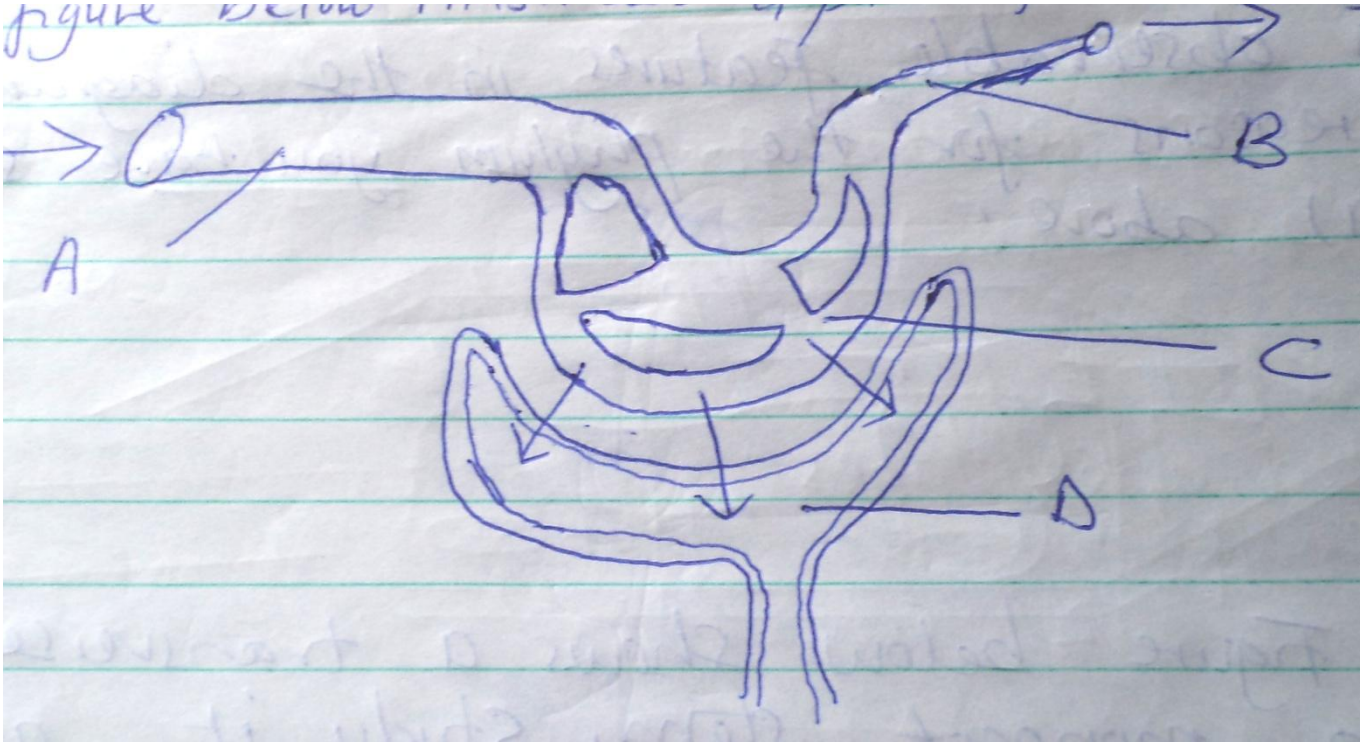
B -

C -

(b) State the function of the part labelled C (2mks)

(c) State three differences between a monocot stem and a dicot stem (3mks)

4. The figure below illustrates a part of kidney nephron



(a) Name the parts labeled A, B and D (3mks)

A -

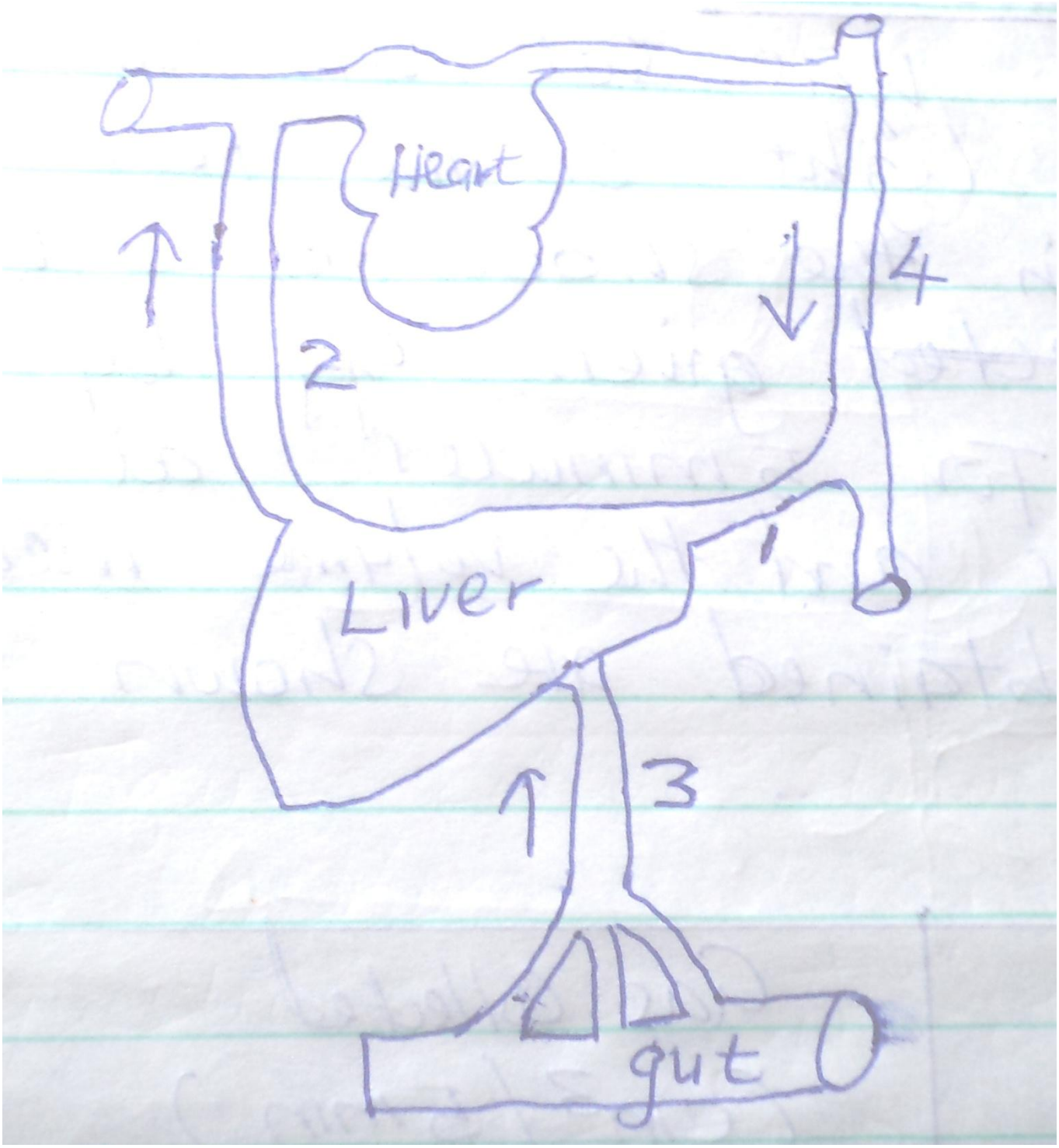
B -

D -

(b) State one observable difference between part A and B

(c) Name the fluid that is found in part D (1mk)

5. Below is a sketch diagram showing the parts of a mammalian circulatory system.



(a) Explain why the level of blood sugar in vessel 2 would be higher than that in vessel 3 during fasting (2mks)

(b) Name the vessel that has the highest concentration of urea among the vessels labelled 1,2 and 3
(1mk)

(c) How is vessel 3 structurally adapted to perform its functions. (3mks)

(d) Name the vessels labelled 2 and 4
2 -

4 -

SECTION B (40MKS)

6. An experiment was set up to investigate the effect of light on the rate of photosynthesis in the shoot of a water plant. The gas given off by the shoot was collected for 5 minutes at different light intensities and the volume measured. The results obtained are shown on the table below.

Light intensity (units	Gas collected (cm^3 / 5min)
1	0.35

2	0.60
3	0.85
5	1.20
10	1.55
20	1.70
30	1.80
40	1.79
50	1.79

(a) Using the data given in the table, plot a graph of the volume of the gas collected against light intensity. (6mks)

(b) Account for the rate of gas production in the following intervals of light intensity.
(i) 1 - 10 (2mks)

(ii) 30 – 50

(c) Write a word equation for the process of photosynthesis (2mks)

(d) State the products of the light stage of photosynthesis

(e) State the role of light in photosynthesis.

(f) Other than light intensity, name two other factors that affect the rate of photosynthesis.

7. Explain the economic importance of the organisms of each of the following kingdoms.

(a) Monera (10mks)

(b) Fungi (10mks)

8. Explain how abiotic factors (Environmental factors) affect plants. (20mks)

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FORM THREE SET 3 EXAMS 2020

NAME ---------- **INDEX NO----------**
DATE_____ **CANDIATES SIGNATURE _____**

565/1

BUSINESS STUDIES

PAPER 1

TIME: 2HRS

INSTRUCTIONS TO CANDIDATES

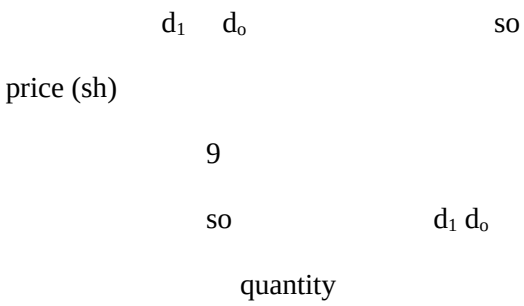
- Write your Name and index No in the spaces provided
- Answer all the questions
- All answers must be written in the spaces provided

This paper consist of 7 printed pages candidates should check the questions paper to ascertain that all the pages are printed as indicated and that no questions are missing

ANSWER ALL THE QUESTIONS

1. Name the discipline described below that is part of the subject Business Studies (4mks)

2. The diagram below shows a shift of the demand give of a commodity from dodo to d1d1. Outline any four factors that could have led to the shift (4mks)



3. Highlight four factors that may make communication in an organization to be ineffective (4mks)

4. Give four circumstances under which a cooperative society may be dissolved (4mks)

5. Outline any four characteristics of an imperfect competition market (4mks)

6. Write down the meaning of the following terms as used in business (4mks)

7. Give four benefits of electronic filing in an office (4mks)

8. Give four reasons why business firms advertise their products (4mks)

9. Mr Kigen is the managing director of Mbau furniture ltd. Which has a large, well equipped workshop with expensive machines. The company handles large sums of money. Outline four insurance policies that the company may have (4mks)

10. Outline four benefits to a firm that uses modern technology in its production activities(4mks)

11. Highlight four benefits to a retailer who uses a public warehouse to store goods (4mks)

12. A business wishes to communicate the arrival of much waited stock of goods to its customers. Give four reasons why it might describe to write a short text message(sms) to the customers instead of a business letter (4mks)

13. Outline any four advantages of using intermediaries in the chain of distribution (4mks)

14. List down four assumptions of the circular flow of income in a two sector economy (4mks)

15. Give any four challenges faced by human beings in their endevour to satisfy human wants (4mks)

16. Highlight any four benefits that the recently launched standard gauge railway from Mombasa to Kisumu would bring to Kenya's economy (4mks)

17. Name any four occupations that are found at the extractive level of production (4mks)

18. Outline any four advantages of small-scale retailers over large-scale retailers (4mks)

19. Highlight any four methods used to determine prices of goods and services in the economy (4mks)

20. Outline any four challenges that entrepreneurs face in Kenya (4mks)

21. Highlight four characteristics of free resources (4mks)

22. Give four advantages of self employment (4mks)

23. Outline any four duties of an office receptionist (4mks)

24. Name the types of advertising that are described below (4mks)
    i. Brand name and other features of the brand features more prominently –

    ii. Advertising that aims at popularizing a new product –

iii. Advertising that popularizes the business organization –

iv. **U**sed by organization that deals with similar products to convince potential customers to buy their products and not the other –

25. Highlight any characteristics of subsistence production in Kenya (4mks)

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FORM THREE SET 3 EXAMS 2020

NAME …….. **INDEX NO. ……..…**

DATE ……. **CLASS ……..**

KENYA CERTIFICATE OF SECONDARY EDUCATION

565/2
BUSINESS STUDIES
PAPER 2

TIME: 2 HOURS

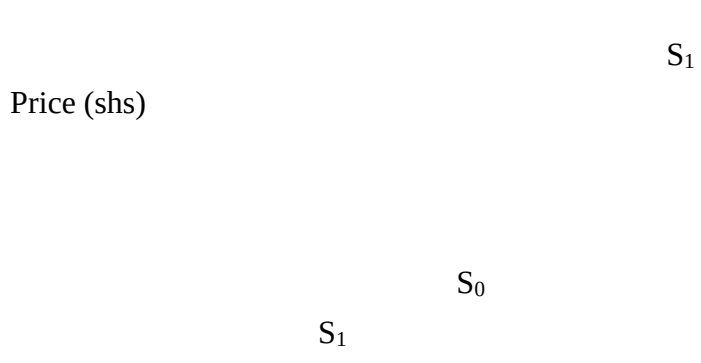
Instructions for candidates

1. This paper consists of six questions.
2. All questions carry equal marks.
3. Answer any five questions.
4. All answers must be written in English.
5. Answer the questions on the answer sheet provided.

1. (a) Discuss any **five** benefits to a trader who uses cheques as a means of payment rather than paying in cash.
(10 mks)

(b) Kirinyaga county government is considering setting aside one area where all manufacturing firms will be located. Highlight any **five** merits of concentrating the firms in one area. (10 mks)

2. (a) The diagram below shows the supply curve of a certain commodity in the market. Explain any five factors that could have contributed to the shift of the supply curve from S_0S_0 to S_1S_1.
(10 mks)



(b) Outline any five benefits to a farmer who is a member of a producer co-operative society.
(10 mks)

3. (a) Highlight any five circumstances under which a firm may become a monopoly. (10 mks)

(b) Explain any five advantages of having a short channel of distributing goods. (10 mks)

4. (a) Discuss the role played by air transport in the growth of Kenyan economy. (10 mks)

(b) Explain any five uses of the national income statistics. (10 mks)

5. (a) Discuss any five disadvantages of using newspapers as a medium of product promotion.
(10 mks)

(b) Explain any five reasons why the government offers training to business people. (10 mks)

6. (a) Describe the procedure to claiming compensation from an insurer incase of occurrence of the insured risk.
(10 mks)

(b) Highlight five problems that a trader who sells goods on trade credit terms may experience.

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FORM THREE SET 3 EXAMS 2020

NAME.....

ADM. NO.....

DATE.....CLASS.....

KENYA CERTIFICATE OF SECONDARY EDUCATION

C.R.E PP1

TIME: 2½ HOURS

INSTRUCTIONS TO CANDIDATES

ANSWER ANY **FIVE** QUESTIONS IN THE ANSWER SHEETS PROVIDED.

Answer any five questions in the answer sheet provided

1. a) Identify eight historical books in the old testament (8mks)
   b) Give seven reasons why the Bible is referred to as a library (7mks)
   c) State five different occasions when Christians use the Bible (5mks)

2. a) Outline the activities carried out by the Israelites on the night of the Passover (5mks)
   b) Give five reasons why the Exodus was important to the Israelites (10mks)
   c) How do Christians show respect for God? (5mks)

3. a) Explain the achievements of Solomon as the king of Israel (7mks)
   b) State the importance of the temple in Jerusalem to the Israelites (7mks)
   c) Give six lessons that modern political leaders in Kenya can learn from King Solomon (6mks)

4. a) Describe the call of Amos to become a prophet of God (5mks)
   b) Identify the five visions of prophet Amos (5mks)
   c) Give five reasons why Amos was against the way Israelites worshipped God (10mks)

5. a) Outline five teachings of prophet Amos on the remnant and restoration of the Israelites (5mks)
   b) State five ways in which God would punish Israel for her evils according to prophet Amos (10mks)
   c) How does the church in Kenya punish errant members? (5mks)

6. a) How do the aged in Traditional African communities prepare their family members before they die? (7mks)
   b) State the Traditional African understanding of spirits (5mks)
   c) What is the responsibility of the living towards the ancestors in traditional African communities? (8mks)

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FORM THREE SET 3 EXAMS 2020

NAME……..ADM……

FORM

PAPER 2

ANSWER ANY FIVE QUESTION S IN THE ANSWER SHEET PROVIDED

1. With reference to Luke's gospels, explain eight ways in which Jesus fulfilled the Old Testament prophesies about the Messiah. (8mks)

b) Explain What Zachariah revealed about John the Baptist in the Benedict sin Luke 1:68-80 (6mks)

c) Give reasons why then birth of a child is celebrated in the modern society? (6mks)

2 a) Give reasons why Jesus was rejected in Nazareth (8mks)

b) Describe the healing of the paralytic (lk 5:17-26) (7mks)

c) Give reasons why a church leader may be rejected today (5mks)

3 a) Narrate the parable of the widow and the unjust judge (lk18:1-8) (6mks)

b) Explain Jesus teaching on prayer (8mks)

c) Give the importance of prayers in a Christian life today (6mks)

4a) Explain actions taken by Jewish leaders to ensure that Jesus was put to death (8mks)

b) Give evidence to show that Jesus resurrected (6mks)

c) What is the importance of Jesus resurrection to Christian today? (6mks)_

5a) Explain the New Testament teaching s on the unity of the believers as expressed in the bride (8mks)

b) Identify causes of disunity in the early church (6mks)

c) Explain how church disciplines those who cause disunity in to church today (6mks)

6 a) Outline seven teachings about Jesus from peters message on the day of Pentecost (7mks)

b) Outline the characteristics of love as taught by St.Paul in 1corinthian 13 (7mks)

c) State activities of the church in Kenya which show that the Holy Spirit is working among them. (6 marks

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FORM THREE SET 3 EXAMS 2020

CHEMISTRY
THEORY
PAPER 1
FORM 3I

EXAMINATION YEAR 2020

Name: ……..class: ……..Adm no: ……..school:……

1. Name another gas which is used with oxygen in welding [1 Mk]

2. a. write the electronic configuration of calcium (atomic number 20) and magnesium (atomic number 12)
   Calcium…… [½ Mk]

   Magnesium…… [½ Mk]

   b. Why is calcium more reactive than magnesium? [2 Mks]
   ……
   ……
   ……
   ……
   ……

3. The table below shows the relative atomic masses and the percentage abundance of the isotopes T_1 and T_2 of element T

	RAM	% abundance
T_1	62.93	69.09
T_2	64.93	30.91

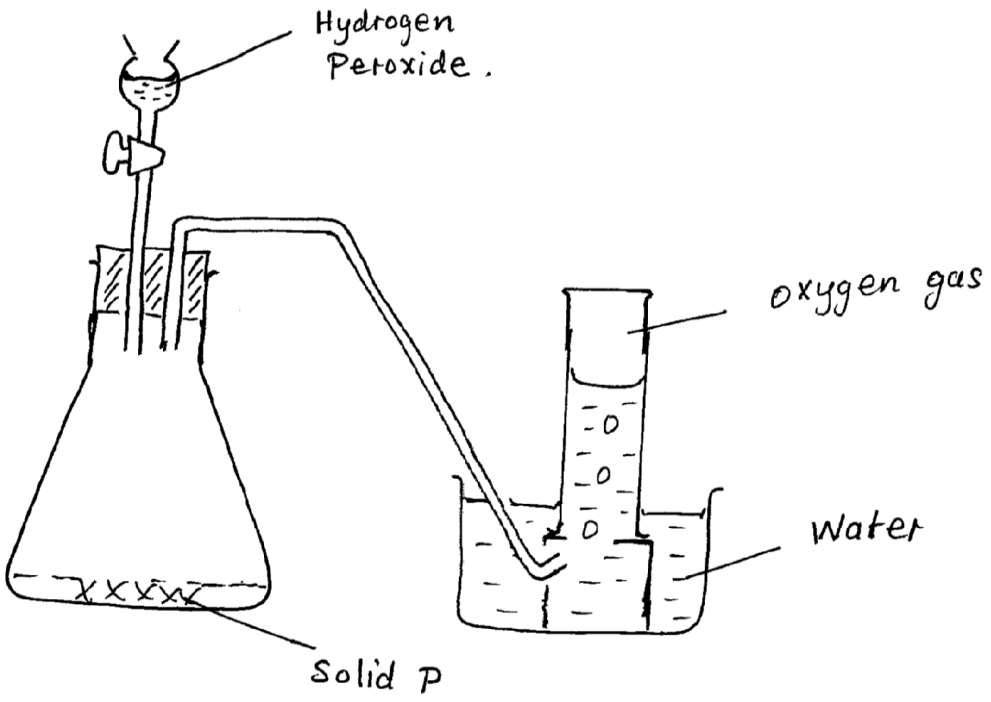
   Calculate the relative atomic mass of element T [3 mks]
   ……
   ……

……

……

……

4. The diagram below is a set-up for the laboratory preparation of oxygen gas.



a. Name solid P.

……..…
……[1 mk]

b. Write an equation for the reaction that takes place in the conical flask

……[1 mk]

c. Give two commercial uses of oxygen

[2 mks]

i. ……
…..…….

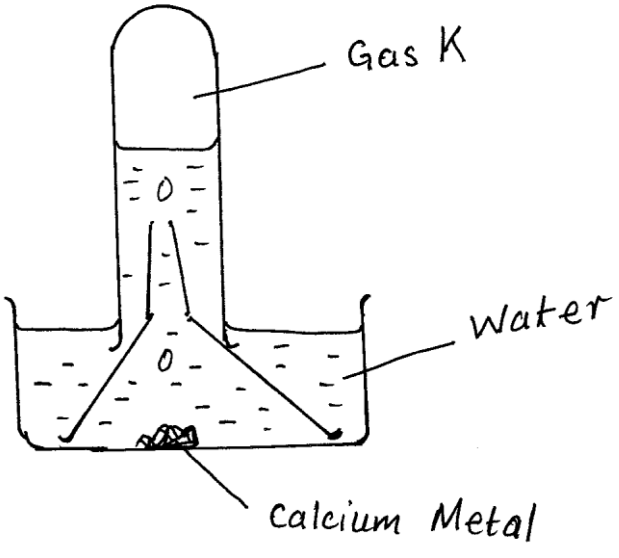
ii. ……
…..……

5. State two reasons why hydrogen is not commonly used as a fuel [2 mks]

i. ……..…
……

ii. ……..…
……

6. The figure shows a set-up by a form three student to prepare a certain gas



a. Write an equation for the formation of gas K [1 mk]

……

b. Give one use of gas K in the industries [1 mk]

……

c. Give one use of the resulting solution after the metal has reacted [1 mk]

……

7. Draw a dot and cross diagram showing the bonding in a molecule of calcium oxide. Name the type of bond.

[3 mks]

8. When 0.288g of an oxide of metal M was reduced using suitable reducing agent, 0.256 of pure metal was formed. Determine the empirical formula of the oxide of the metal M. [M=64 O=16]

[4 mks]

……

……

9. X+ is an ion with electronic configuration 2,8,8. Identify element X [1 mk]

……
……..……

10. 20g of solid sodium hydroxide were dissolved in distilled water and made to 400cm^3. 30 cm^3 of this solution required 27 cm^3 of dilute sulphuric (iv) acid for complete reaction. [Na=23 O=16 H=1]

    Determine

    i. Moles of sodium hydroxide contained in 30 cm^3 of solution [2 mks]

    .....

    .....

    .....

    ii. Moles of sulphuric (iv) acid that reacted [2 mks]

    ……

    ……..……

    ……..……

    ……

    ……..……..

    ……

    ……..……Concentration of the sulphuric (iv) acid in moles per litre [2 mks]

    ……

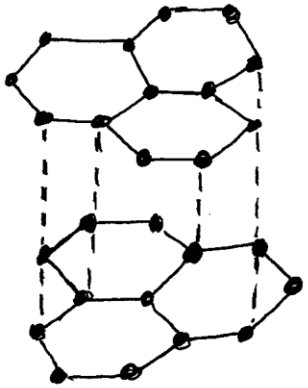
    ……..……

    ……..……

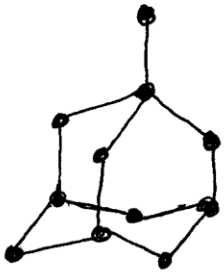
    ……

    ……..……..

11. The diagram shows the structures of two allotropes of carbon. Study them and answer the questions that follow.



A



B

a. Name allotrope A and B
[2 mks]

A……

B……

b. Give two uses of allotrope B [2 mks]
   i. ……
   ii. ……

c. Which allotrope conducts electricity? Explain. [2 mks]

……

……..……..

……

……..……

……..……

……

……..……

12. An oxide of element F has the formula F_2O_5
    a. Determine the oxidation state of F.
    [1 mk]

……
……

b. In which group of the periodic table is element F? [1 mk]

……
……

13. Explain how you would obtain solid sodium carbonate from a mixture of lead II carbonate and sodium carbonate.
[3 mks]

……
……..……..
……
……..……
……...……
……
……..……

14. Give two properties of aluminum that makes it very suitable for making cooking utensils [2 mks]

i. ……
……..……

ii. ……
……..……

15. Write down an ionic equation for the reaction between dilute hydrochloric acid and calcium carbonate
[3 mks]

……
……..……..

……

……..……

……..……

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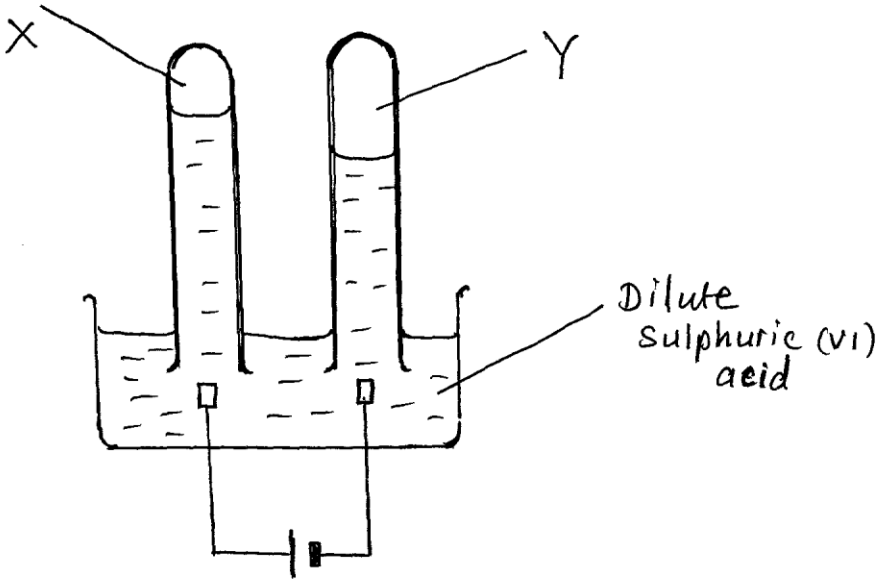
16. The diagram shows electric current passing through dilute sulphuric (iv)acid



a. On the diagram identify the cathode and the anode [2 mks]

b. Identify substances X and Y
[2 mks]

X

……
……[1 mk]

Y

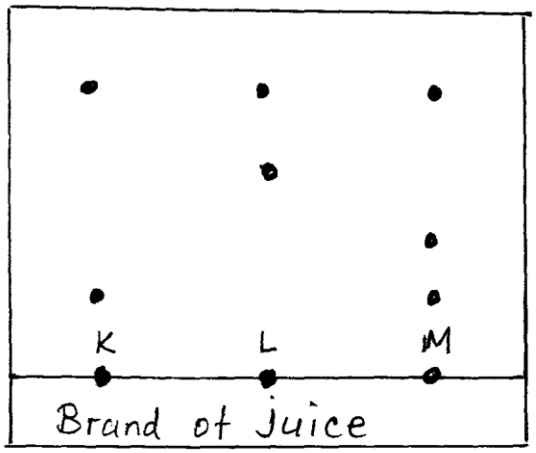
……
……[1 mk]

17. State and explain the change in mass that occur when following substances are separately heated in open crucibles
[4 mks]

a. Copper metal……..……
……..
……
……..……
……..……
……

b. Copper II nitrate……..……
……..
……
……..……
……..……
……
……..……..

18. The diagram below represents a paper chromatograph for three brands of juices suspected to contain banned food colourings



The result showed presence of banned food colourings in L and M only

a. On the diagram
   i. Circle the spots which show the banned colourings [2 mks]
   ii. Show the solvent front [1 mk]

b. On the same diagram indicate and label the baseline [1 mk]

19. Determine the number of sodium ions contained in $25cm^3$ of 0.5M sodium carbonate solution [a=6.023×10^{23}] [3 mks]

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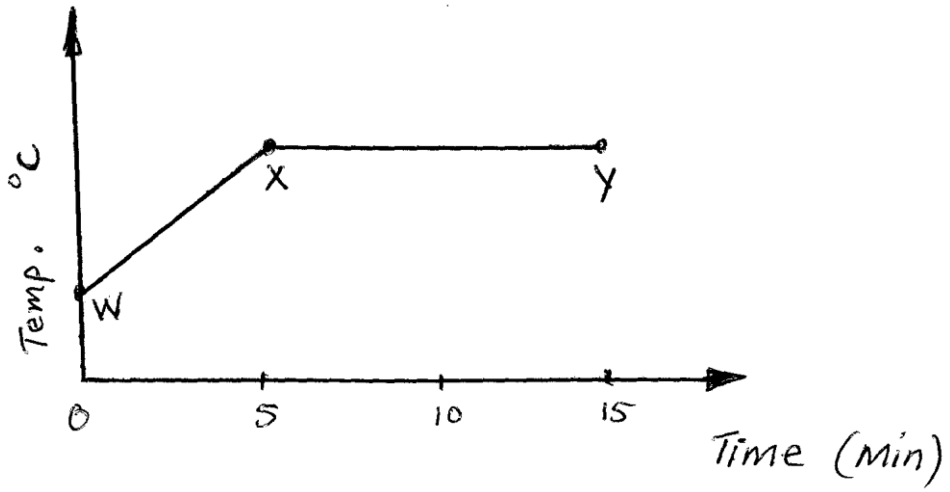
……..

20. The graph below shows a curve obtained when water at 20 was heated for 15 mins.



a. What happens to the water molecules between points W and X [1 mk]

……
……..
……
..……

b. In which part of the curve does a change of state occur? [1 mk]

……
……..
……
..……

c. Explain why the temperature does not rise between points X and Y [1 mk]

……
……..……
……..……
……

21. Write down the formula of the following compounds

i. Potassium manganate
vii……[1mk]

ii. Aluminium oxide
…….[1mk]

iii. Iron III chloride
…….[1m k]

22. Write balanced equations for the following reactions

a. Reaction between sodium and excess oxygen
[1mk]

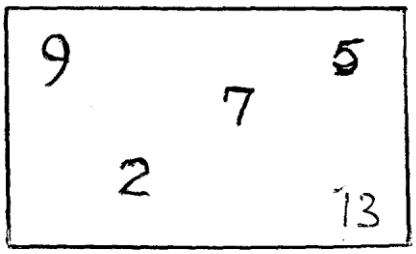
……
……..
……..……
……

b. [1mk]

……
……..
……..……
……

a. Reaction between Zinc and hydrochloric acid
[1mk]

23. The diagram shows PH values for several substances.



Choose the likely PH value for,

i. Dilute Hydrochloric acid……..[1mk]
ii. Calcium hydroxide…… ……..[1mk]
iii. Sodium hydroxide ……..[1 mk]
iv. Lemon juice…… ……..[1mk]

24. Briefly outline how you would obtain ethanol from a mixture of ethanol and water. [3mks]
……
……..
……..……
……

25. (a) What is rust? [1mkl]

(b) Give two advantages of rusting.
(i)
……
…….[1mk]
(ii)……
……[1mk]

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FORM THREE SET 3 EXAMS 2020

NAME……CLASS……ADM……

233/2

FORM 3 CHEMISTRY PAPER 2 THEORY

TIME 2HRS

EXAMINATION YEAR 2020

Instructions to candidates.

1. Write your name and index number in spaces provided in the question paper.
2. Answer all the questions in the spaces provided in question paper.
3. Mathematical tables and silent calculators may be used.
4. All working must be clearly shown where necessary.

QUESTIONS	MAXIMUM SCORE	STUDENT SCORE
1	12	
2	10	
3	5	
4	8	
5	12	
6	10	
7	11	
8	12	

1. The grid below show part of the periodic table.(the letter do not represent the actual symbols). Use it to answer the questions that follow.

T								Q
				S		R	K	
A	J		Y		U		L	
W							M	B
	C						N	
P								

(i) Select the most reactive non-metal(1mk)

(ii) Select an element that forms a divalent cation. 1mk

(iii) Element Z has atomic number 14. Show its position in the grid. 1mk

(iv) How do the atomic radii of U and J compare. 2mks

(v) How does the boiling point of element K, L and M vary? Explain. 2mks

(vi) How do electrical conductivity of A and Y compare?(2mks)

(b) the table below gives information on four elements by letter K,L,M and N . Study it and answer the questions that follow. The letters do not represent the actual symbols of the element.

ELEMENT	ELECTRON ARRANGEMENT	ATOMIC RADIUS	IONIC RADIUS
K	2.8.2	0.136	0.065
L	2.8.7	0.099	0.181
M	2.8.8.1	0.203	0.133
N	2.8.8.2	0.174	0.099

i) Which two element have similar properties.explain .2mks

ii) Which element is a non-metal? Explain. 1mk

2. Define charle's law. 2mks.

iii) Rates of diffusion of two gases A and B are in the ratio 2:1. If the molecular mass of gas A is 16g. find the molecular mass of gas B. 3mks

bi) if the volume of a gas at s.t.p is 100cm^3 what is its volume at 30^0 c and a pressure of 800mmHg?(3mks)

c) Define Gays Lussac's law. 2mks.

3. What is a PH scale 1mk.

b. the following data gives the PH value of solution P,Q and R.

SOLUTION	PH VALUE
P	13.6
Q	6.9
R	1.3

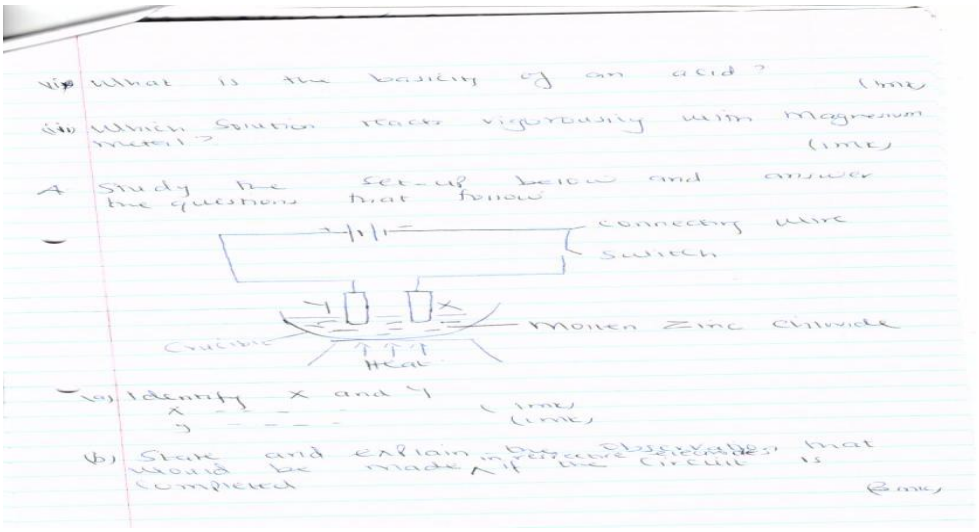
Which solution would produce carbon (iv) oxide when reacted with copper (II) carbonate.(1mk)

ii) What would be the colour of solution “p” after adding few drops of phenolphthalein indicator.(1mk)

iii) what is the basicity of an acid? 1mk

iv)Which solution reacts vigorously with magnesium. 1mk

4. Study the set up below and answer the questions that follow.



a) Identify x and y

x……..1mk

y……1mk

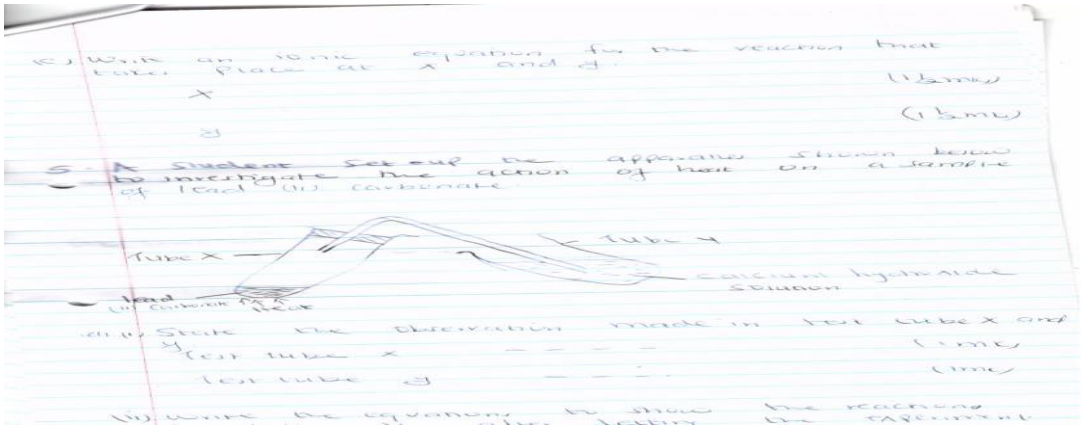
b) State and explain the observation that would be made in respective electrodes if the circuit is completed.(3mks)

c) Write an ionic equation for the reaction that takes place at x and y.

X ……1 1/2mks

y……1 1/2mks

5. A student set-up the apparatus shown below to investigate the action of heat on a sample of lead (II) carbonate.



a) I) state the observation made in test tube x and y.

Test tube x……..1mk.

Test tube y……1mk.

(ii) Write the equation to show the reaction in tube Y after letting the experiment proceed for a long time. 3mks.

Bi) What is meant by the term allotrophy. 1mk.

ii) Name the allotropes of carbon. 1mk.

C. Explain why graphite is a better lubricant than oil.2mks.

D. Describe a simple chemical test that can be used to distinguish between carbon (II) oxide and carbon (IV) oxide. 2mks.

d) State one use of carbon (iv) oxide. 2mks.

6. a)explain which of the following fertilizers urea $(NH_2)_2$ CO, or ammonium nitrate NH_4NO_3 is a better source OF Nitrogen? Show your working (N=14, C=12, O=16, H=1) (3mks).

b) An oxide of silicon was found to contain 47% by mass of silicon. What is the empirical formula of the oxide? (SI=28,O=16) 3mks.

c) Suppose 71g of sodium sulphate are dissolved in enough water then made to one litre of solution. Determine the molarity of the solution formed (Na=23, S=32, O=16) 2mks

d) One atom of a certain metal X has a mass 2.2×10^{-22}, calculate the relative atomic mass of x.(l=6.023×10^{23} ·(2mks)

7.i) using dots(.) and cross (x) to represent electrons draw structures to represent the following.

i) Hydrozonium ion H_3o^+ 2mks

II) Ammonia NH_3 (1mk)

ii) State why ammonia molecule combine with hydrogen ion to form NH_4^+ (1mk)

b) Name types of chemical bond formed in each of the following compounds.

i) Carbon (II) oxide (1mk)

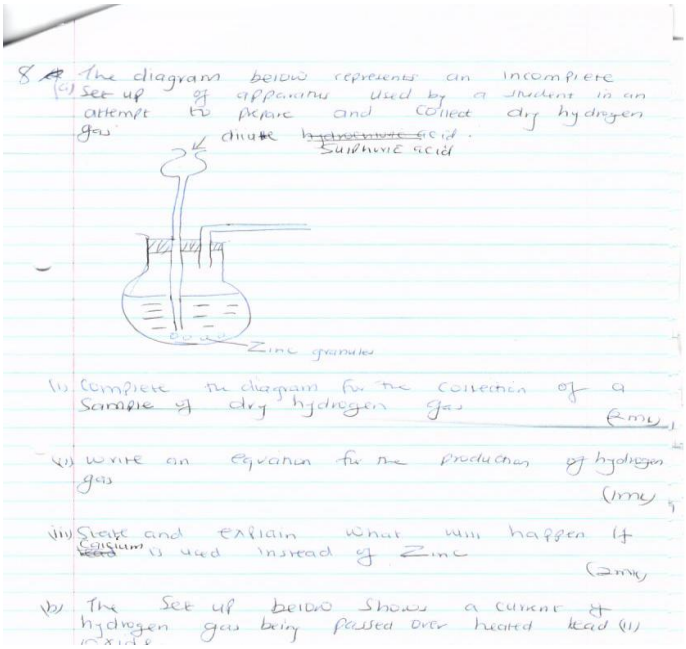
ii) Within water molecules (1mk)

iii) Between water molecules. 1mk.

ci) explain how the structure of diamond make it appropriate for use in drilling.(2mks)

(ii) Sketch a labeled diagram showing the structure of diamond.(2mks)

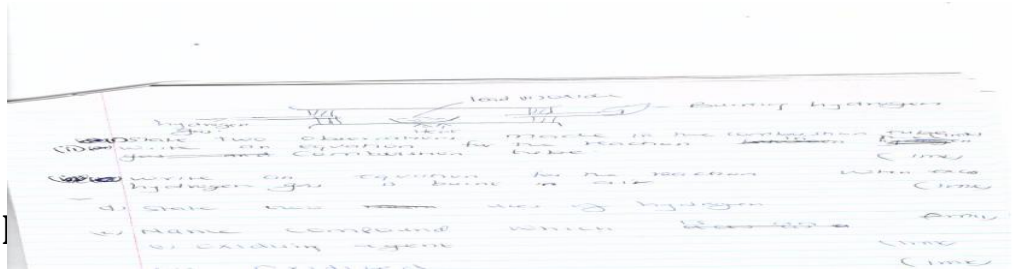
8. The diagram represents an incomplete set-up of apparatus used by a student in an attempt to prepare and collect dry hydrogen.



i) Complete the diagram for the collection of a sample of dry hydrogen gas.(2mks)

ii) Write an equation for the production of hydrogen gas. (1mks)

b) The set-up below shows a current of hydrogen gas being passed over heated lead (II) oxide.



i) State two observation made in combustion tube. 1mk.

ii) Write an equation for the reaction in the combustion tube. 1mk.

c) Write an equation for the reaction when excess hydrogen gas is burnt in air. 1mk

d) State two uses of hydrogen. (2mks)

e) Name compound which is an

i) Oxidizing agent (1mk)

ii) Oxidized (1mk)

SECTION A [30 MAKRS]

1.State four practices that make Agriculture to be considered a science [2mks]

3.Give two advantages of organic farming [1mk]

4.Give 2 branches of crop farming[1 mk]

5. State 2 negative impacts of high temperature.(1mk)

6.Mention four farming practices that help to improve soil structure[2mks]

7. State three factors that have negative impacts on Agriculture

8.State four aspects of rainfall that affect crop production [2mks]

9.State 2 properties of the soil that are influenced by the texture [1mk]

10.Name four human factors that influence efficiency of Agriculture production[2mks

11.State four factors that determine the type of irrigation that can used in a given area (2mks)

12.State four disadvantages of using farmyard manure(2mks)

13.Give four disadvantages of minimum tillage(2mks)

14.Outline two methods used by farmers to harden off seedlings in a nursery bed (2mks)

15(a)Name two types of inventories used on the farm for the purpose of record keeping(1mk)

(b)What is the importance of taking farm inventories?(1mk)

16.Give 2 reasons why farmers should establish seedling first in a nursery bed during the growing of cabbages(1m)

17(a).What is vegetative propagation?(1m)

(b).State the materials used to propagate;

Sisal

Pineapples

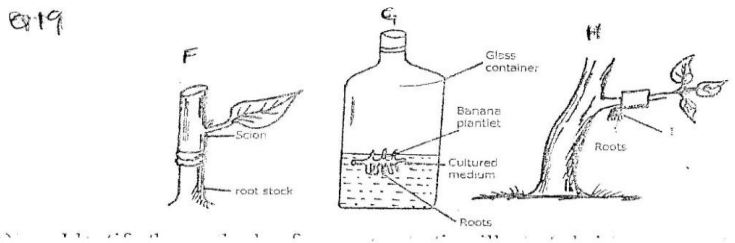
Irish potatoes

18(a)A farmer was advised to apply a fertilizer labeled 18:47:0 on the sack.What do labeled figures stand for?(1⅓mks)

(b)A farmer was advised to apply 200kg of C.A.N fertilizer per hectare,which top dressing the bean crop C.A.N contains 21% nitrogen. Calculate the amount of nitrogen applied per hectare [show your working]1½mk]

SECTION B 20MKS

19 Study the methods of crop propagation F, G, and H illustrated below and answer the questions that follow



[a] Identify the methods of crop propagation illustrated above[11/2 mks]

F

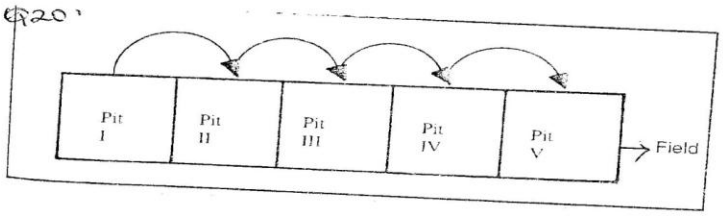
G

H

[b]Give 2 conditions under which H is carried out [2mks]

[c]Give 3 advantages of using the method of propagation illustrated in G above[11/2mks]

20 The following diagram shows a method of compost preparations

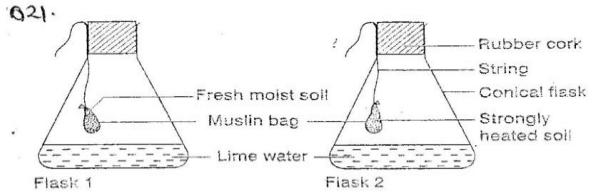


[a]Identify the method [1mk]

b)Give two factors that should be considered when siting the compost pit.(2mks)

[b] Give 2 factors that determine the time the manure would be ready for use in the field.(2mks)

21 The diagram below shows an experiment that was carried out by a form one class . Study it carefully and answer the questions that follow



[a]What was the aim of the experiment [1mk]

[b] What observations did the students make at the end of the experiment in the 2 flasks[2mks]

Flask 1

Flask 2

[c] Give the reason for the observations in flask 1.(1mk)

[d]Why did the students heat the garden soil in flask 2 strongly?[1mk]

22 Explain the meaning of the following practices in crop production

1 Chilting[1mk]

2 Seed dressing [1mk]

3 seed inoculation [1mk]

4 Earthing up [1mk]

5 Roguelling [1mk]

SECTION C 40 MKS

Answer any two questions in this section

23 [a] State and explain the factors considered when determining spacing of crops in the field [10mks]

[b] Determine the process of chemical water treatment [10mks]

24 [a] what are the uses of farm records [10mks]

[b] Explain 8 ways in which soil loses fertility [10mks]

25Describe the field production of tomatoes under the following sub-headings

[a] Ecological requirements [3mks]

[b] Land preparations [4mks]

[c] Transplanting [5mks]

[d] Field management practicals [5mks]

[e] Marketing [3mks]

K

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FORM THREE SET 3 EXAMS 2020

EXAMINATION YEAR 2020

AGRICULTURE PAPER 2

FORM 3

NAME …… ADM ……

CLASS ……..

SECTION A (30MKS) ANSWER ALL THE QUESTIONS.

1. State two disadvantages of artificial incubation of eggs. (2mks)

2. List four desirable of a good ewe for breeding should have. (2mks)

3. What is progeny testing as used in the selection of livestock? (1mk)

4. State two reasons for docking sheep. (1mk)

5. Name any four dual purpose breeds of cattle. (2mks)

6. Give 2 reasons for culling in cattle production (1mk)

7. Give two types of ticks that attack livestock. (2mks)

8. Give three causes of nutritional diseases. (3mks)

9. State two characteristics of the bacteria in camel. (1mk)

10. Name two types of dead fences. (1mk)

11. A) Give three factors to be considered when siting poultry house. (1 ½ mks)

    b) Define the term breeding. (1mk)

    c) Name two brooding methods in poultry. (2mks)

12. Define pre-disposing factors. (1mk)

    B. State four pre-disposing factors of scours in calves. (2mks)

13. Give four symptoms of internal parasites in livestock. (2mks)

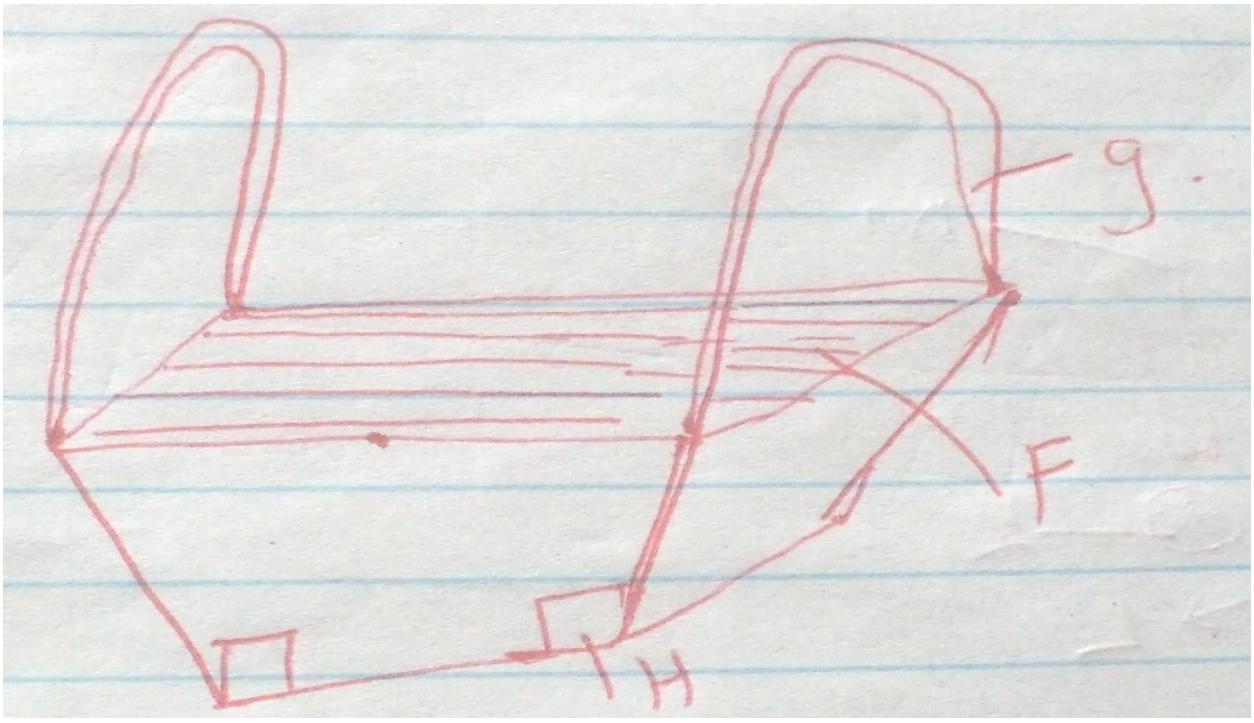
14. State two uses of footbath in a cattle dip. (1mk)

15. State five signs of fawowing in sows. (2 ½ mks)

16. Differentiate between terms apiculture and aquaculture as used in Agriculture. (1mk)

SECTION B (Answer all the questions.) 20mks)

17. Study the illustration below and use it to answer the questions that follow.



a) Name the type of beehive shown. (1mk)

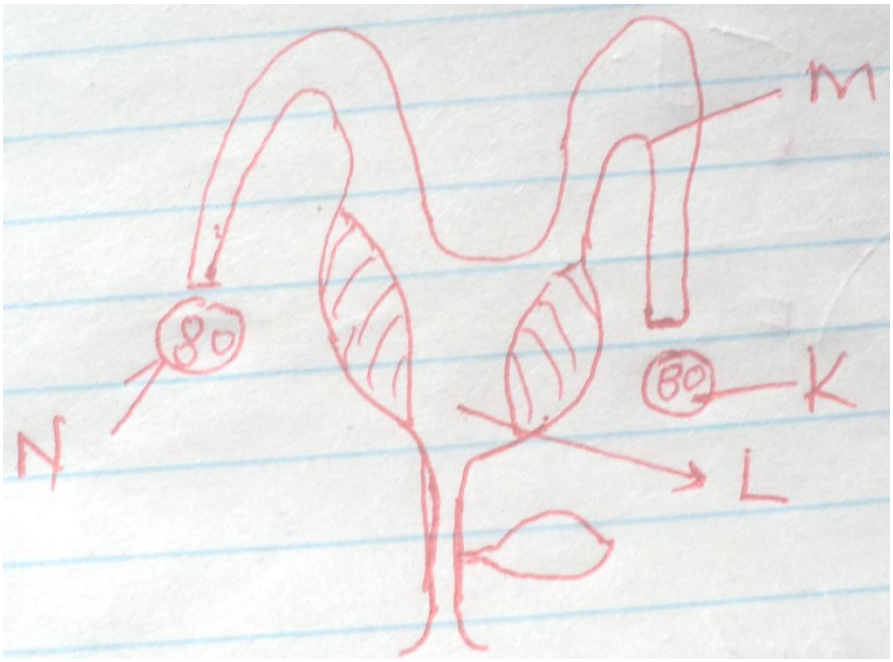
b) Give names of other two types of hives. (1mk)

c) Name the parts labeled F,G AND H. (3mks)

18. Define the term digestibility. (1mk)

b. Using the person's square method compute how much maize meal (8%cp) and soyabean meal 43%cp would be required to prepare 100kg of the mixture containing 15% cp. (4mks)

19. Study the diagram below of a reproductive system of a cow.

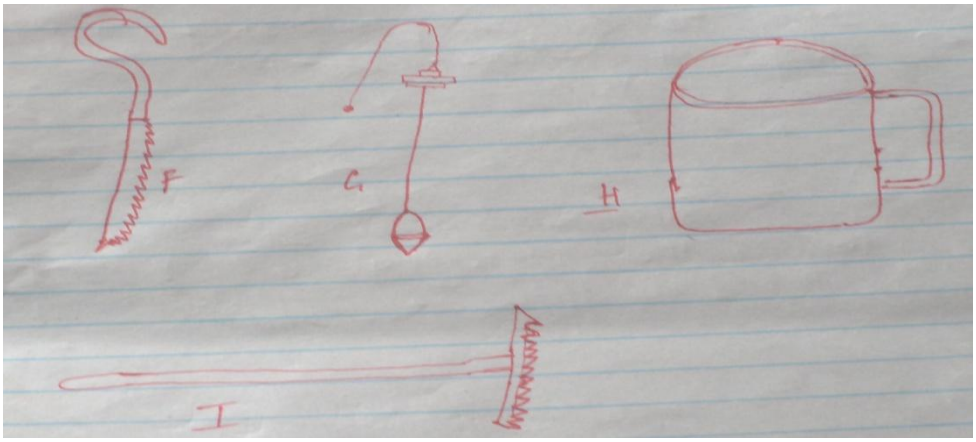


a) Name the parts labeled k and l. (1mk)

b) Give the use of the parts M and N. (2mks)

20. State any four cultural methods of controlling ticks. (2mks)

21. Diagrams F, G, H and J illustrate farm tools.



a) Identify the tools F, G, H and I. (2mks)

b) Give the function of each of the above tools. (2)

c) Indicate two maintenance practices on tool H. (1mk)

SECTION C (Answer any two questions) 40mks.

22. Outline six advantages of artificial insemination in dairy cattle management. (6mks)

b. Explain seven factors to consider when selecting materials for constructing a calf pen. (14mks)

23. Describe the importance of livestock in the farm. (10mks)

b. Outline five signs of ill health in livestock. (5mks)

c. List any five desirable features of rabbit hatch. (5mks)

24.a) Describe the management practices that should be carried out during rearing of a dairy calf from birth to weaning. (12mks)

c) State eight causes of calving internal. (8mks)

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FORM THREE SET 3 EXAMS 2020

EXAMS

GEOGRAPHY PAPER 1

FORM 3

SECTION A:

ANSWER ALL THE QUESTIONS:

1. a. State three forces that influence the shape of the earth.
(3 mks)

b. State three proofs that show that the earth is spherical.
(3 mks)

2. a. Distinguish between a rock and a mineral.
(2 mks)

b. Give the metarmophic equivalent of the following rocks. (3 mks)

Original rock	metarmophic
Granite –	
Limestone –	
Shale –	

3. a. What is the longitude of a place M whose local time is 11.00 am. If the local time at longitude 30^{o}E is 2.00 pm.
(3 mks)

b. State the effect of the International Date Line.
(1 mk)

4. a. What is Mass Wasting.
(2 mks)

b. State 3 factors which affects the rate of mass wasting.
(3 mks)

5. a. Define the term Vulcanicity.
(2 mks)

b. Name i. Two Intrusive landforms
(2 mks)

ii. Two Extrusive landforms
(2 mks)

SECTION B:

ANSWER QUESTIONS *SIX* (COMPULSORY) AND ANY OTHER TWO QUESTIONS.

6. Study the map of Karatina (1:50,000) sheet 121/3 provided and answer the following questions.

a. i. What type of map is Karatina?
(1 mk)

ii. Convert the scale used in the map into a statement scale. (2 mks)

iii. Outline 3 marginal information which you can be able to identify from the map given.
(3 mks)

b. i. Citing evidence from the map, use list three social functions of the area covered by the map.
(6 mks)

ii. Name 3 human made features from the map.
(3 mks)

c. i. Citing evidence from the map explain three economic activities of the area covered by the map.

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

7.a. i. Name three types of faults.
(3 mks)

ii. Apart from compressional force explain two other processes that may cause faulting.

(4 mks)

b. With aid of diagrams, describe how compressional forces may have lead to the formation of the Great Rift Valley.
(8 mks)

c. Explain five ways in which faulting is of significance to human activities. (10 mks)

8. a. The table below shows Rainfall and Temperature figures of a station in North America.

Month	J	F	M	A	M	J	J	A	S	O	N	D
Rainfall in mm	15	8	8	13	31	51	51	51	28	25	18	20
Temp (^oC)	-22	-19	-12	-1	4	10	11	11	5	-11	-18	-20

a. On the graph paper provided, draw a bar graph to represent the rainfall figures. (Use a vertical scale of 1cm represent 10 mm)
(5 mks)

b. Give four characteristics of a bar graph you have drawn. (4 mks)

c. i. Calculate the mean of temperature for the station. Show your working. (2 mks)

ii. State five characteristics of the climate experienced in the station. (5 mks)

d. You intend to carry out a field study on vegetation around the station with the above climate.

i.. State 3 methods you would use to collect the data.
(3 mks)

ii. Highlight 3 methods you are likely to use to record the data. (2 mks)

iii. State 3 problems you are likely to face during the field study.

9. a. Name three types of physical weathering.
(3 mks)

b. i. Give three factors that influence the rate of weathering. (3 mks)

ii. Describe two causes of biological weathering. (6 mks)

c. i. Give five types of chemical weathering.
(5 mks)

ii. Explain four significances of weathering to human activities. (8 mks)

10. a. What is aridity?
(2 mks)

b. What is desertification.
(2 mks)

c. State five causes of aridity and desertification.
(5 mks)

d. i. Explain 5 effects of aridity and desertification. (10 mks)

ii. Suggest 3 possible solutions to aridity and desertification. (6 mks)

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FORM THREE SET 3 EXAMS 2020

OPENER EXAM

GEOGRAPHY PAPER 2

FORM 3:

SECTION A:

ANSWER ALL THE QUESTIONS IN THIS SECTION:

1. a. Define the term Geography?
(2 mks)

b. Outline 4 importances of Geography in the learning process. (4 mks)

2. a. State 4 layers of the earth.
(4 mks)

b. Name the boundary that separate:-
(2 mks)

i. The crust and Mantle.

ii. The mantle and the core.

3. a. State 2 effects of earths rotation.
(2 mks)

b. Outline 3 causes of earth movements.
(3 mks)

4. a. Give three examples of rapid mass movements. (3 mks)

b. Name 3 fold mountains of Alphine Orogeny.
(3 mks)

5. a. What is agro-forestry.
(3 mks)

SECTION B:

INSTRUCTIONS:

QUESTION 6 IS COMPULSORY AND ANY OTHER TWO:

6. The table below shows temperature and rainfall date of station X.

Month	J	F	M	A	M	J	J	A	S	O	N	D
Temp. ^{o}C	12	13	14	17	19	22	24	26	24	20	16	13
Rainfall in (mm)	112	84	74	41	46	15	10	5	41	79	130	137

a. Use the data to calculate
   i. The mean monthly temperature.
   (3 mks)
   ii. The mean monthly Rainfall.
   (3 mks)
   iii. The median rainfall.
   (2 mks)
   iv. The temperature and rainfall range.
   (4 mks)

b. Use the rainfall data to draw a simple line graph.
   (7 mks)

c. State 3 advantages of using a simple line graph.
   (3 mks)

d. Outline clearly 3 disadvantages of using this technique. (3 mks)

7. a. Define the term vegetation.
(2 mks)

b. i. State and explain 4 factors which influences the distribution of vegetation. (8 mks)

ii. Explain clearly 4 uses of vegetation.
(8 mks)

c. i. Give 3 characteristics of Savanna Grasslands.
(3 mks)

ii. Fill in the blank spaces.
(4 mks)

Temperature grassland	Where its found
Prairies	-
Steppes	-
Pampas	-
Veldt	-

8. a. i. Define the term forest.
(2 mks)

ii. Explain five uses of forests and forest products in Kenya. (10 mks)

b. i. Outline any 4 problems facing forestry in Kenya. (4 mks)

ii. Highlight five forest conservation measures commonly used in Kenya. (5 mks)

c. Compare and contrast softwood forestry in Canada and Kenya. (4 mks)

9. a. i. Define the term mining.
(2 mks)

ii. State three ways in which minerals occur.
(3 mks)

b. i. State and explain 4 factors that influence the occurrence and exploitation of minerals.(8 mks)

ii. Explain any two methods employed in underground mining. (4 mks)

c. i. State 4 effects of mining in the environment.
(4 mks)

ii. Highlight 4 problems facing mining in Kenya. (4 mks)

10. a. Name the minerals found in the following places in East Africa. (3 mks)

i. Ruhuhu valley

ii. Kariandusi

iii. Tororo

b. Describe the stripping method of open cast mining.
(3 mks)

c. Study the data below and answer questions that follow:-

Percentage of mineral production.

COUNTRY A	**COUNTRY B**
Lime stone - 10%	Iron ore - 50%
Coal - 20%	Bauxite - 10%
Iron ore - 50%	Tin - 10%
Trona - 20%	Others - 30%

i. Draw a dividend rectangle 10cm long to show the percentage of minerals mined in country A.

(5 mks)

ii. State three advantages of using dividend rectangles to represent geographical data. (3 mks)

d. i. Name two areas where diamond is mined in South Africa. (2 mks)

ii. Describe the stages involved in the processing of diamonds. (4 mks)

iii. State 5 economic contributions of diamonds to the economy of South Africa. (5 mks)

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FORM THREE SET 3 EXAMS 2020

FORM 3

HISTORY & GOVERNMENT PAPER 1

SECTION A: (25mks)

Answer all questions in this section

1. Give two branches in the study of History and Government in Kenya (2mks)

2. Name the pre-historic site in Kenya where the Kenyapithecus fossil was discovered (1mk)

3. Identify two original inhabitants that the Agikuyu came across in Central Kenya as they settled in the area (2mks)

4. Give two economic reasons why the Cushites migrated form their original homeland (2mks)

5. Name two Historical monuments built by the Portuguese along the Kenyan Coast (2mks)

6. Give two types of Human Rights (2mks)

7. Name the Executive head of the colony in colonial Kenya (1mk)

8. Identify one condition when one may be denied the right to life (1mk)

9. Which was the main reason that enabled the British to conquer Kenya? (1mk)

10. What is democracy? (1mk)

11. Name the type of constitution used in Kenya (1mk)

12. Identify two development rights of children (2mks)

13. Name two communities in Kenya that showed mixed reaction to colonial Kenya (2mks)

14. Name the person who mobilized the Agiriama resistance against the British (1mk)

15. Name the agreement that marked the end of the scramble and partition of East Africa (1mk)

16. Name the Agikuyu leader who led the raid against the British at Fort Smith (1mk)

17. Give two reasons why the Bukusu resisted British invasion (2mks)

SECTION B (45mks)

Answer any 3 questions from this section

18. a) Give the duties of Portuguese captains along the coast (3mks)

b) Explain the impact of Portuguese rule along the coast (12mks)

19. a) Give three ways in which the Luo interacted with the Abagusii in the 19th century (3mks)

b) Describe the social and political organization of the Luo (12mks)

20. a) State the causes of the Nandi resistance to British rule (5mks)

b) Explain the results of Nandi resistance (12mks)

21. a) State reasons why Nabongo Mumia of Wanga kingdom collaborated (5mks)

b) Explain the impact of Wanga collaboration (10mks)

SECTION C (30mks)

Answer any two questions

22. a) Give three symbols of National Unity (3mks)

b) Explain six factors which undermine National Unity in Kenya (12mks)

23. a) State three methods used by the British to establish their rule in Kenya (3mks)

b) Describe the organization of the central government in Kenya during the colonial period

(12mks)

24. a) Give five political duties of a Kenyan citizen (5mks)

b) Explain five reasons why national integration is important in Kenya (10mks)

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FORM THREE SET 3 EXAMS 2020

FORM 3

HISTORY & GOVERNMENT PAPER 2

SECTION A: (25mks)

Answer all questions in this section

1. Identify one specific tool invented by Homo Sapiens that greatly improved his way of life (1mk)

2. Identify the term used to refer to animal and plant remains found by Charles Darwin (1mk)

3. Identify two sub species of the Homo Sapiens (2mks)

4. Why is the period of early man referred to as Stone Age? (1mk)

5. Name the famous building in Athens built in honour of the goddess Athena (1mk)

6. Who discovered penicillin? (1mk)

7. State two advantages of using bicycles as a mode of transport (2mks)

8. State two factors responsible for the decline of Merowe as an urban centre (2mks)

9. Identify the title given to the state kings in the Asante Kingdom (1mk)

10. Give the main advantage of the cell phone (1mk)

11. Identify two treaties that Lewanika of the Lozi signed with the British (2mks)

12. Which European leader was responsible for convening of the Berlin conference 1884 – 1885? (1mk)

13. Give two strategies employed by Samori Toure in his war of resistance against the French (2mks)

14. Apart from river Congo, name the river that was declared free to all Europeans for navigation at the Berlin conference (1mk)

15. What was the main contribution of religion in the Maji maji uprising against German rule in Tanganyika? (1mk)

16. Give two reasons why the British adopted the system of indirect rule in Northern Nigeria (2mks)

17. Define the term the Egyptian question in the scramble and partition of Africa (1mk)

18. List two communes in Senegal where Assimilation was successfully applied (2mks)

SECTION B (45mks)

Answer any three questions

19. a) What factors led to the development of early agriculture in Mesopotamia? (5mks)
    b) Explain five factors that have led to shortage of food in Third World countries (10mks)

20. a) Give three stages of evolution of man (3mks)

    b) Describe six ways in which the discovery of fire improved man's way of life (12mks)

21. a) Identify three ways in which water was used in industries during the 18th century (3mks)

    b) Explain six social results of the Industrial revolution in Europe during the 18th century (12mks)

22. a) Identify five causes of Maji maji rebellion in 1905 – 1907 (5mks)

    b) Why were the African communities defeated by the Germans during maji maji rebellion? (10mks)

SECTION C (30mks)

Answer any two questions

23. a) Identify 3 European powers that acquired colonies in Africa. (3mks)

    b) Explain six reasons why the Lozi collaborated with the British during colonization (12mks)

24. a) Give three economic activities of the Baganda in the pre-colonial period (3mks)

b) Describe the political organization of the Buganda in the pre-colonial period (12mks)

25. a) Outline five reasons why Samori Toure's second empire was not suitable (5mks)

b) Explain five factors that led to the defeat of Samori Toure by the French (10mks)

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FORM THREE SET 3 EXAMS 2020

NAME ---------- INDEX NO----------

DATE_____ CANDIATES SIGNATURE _____

232/1

PHYSICS

PAPER 1

(THEORY)

INSTRUCTIONS TO CANDIDATES

- Write your name and index number in the spaces provided
- This paper consist of two section A and B
- Answer all questions in section A and B in the spaces provided
- All working must be clearly shown in the spaces provided in this booklet.
- Non- Programmable silent electronic calculators and KNEC mathematical tables may be used

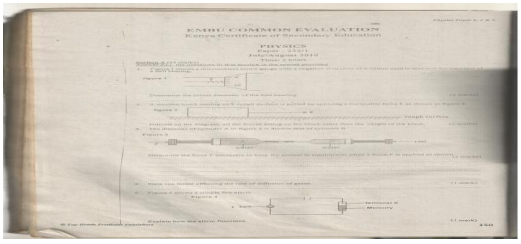
SECTION	QUESTION	MAXIMUM SCORE	CANDITATES SCORE
A	1-12	25	
B	13	11	
	14	8	
	15	11	
	16	9	
	17	13	
	18	3	
TOTAL SCORE		80	

This paper consist of 9 printed pages candidates should check the questions paper to ascertain that all the pages are printed as indicated and that no questions are missing

SECTION A 25MKS

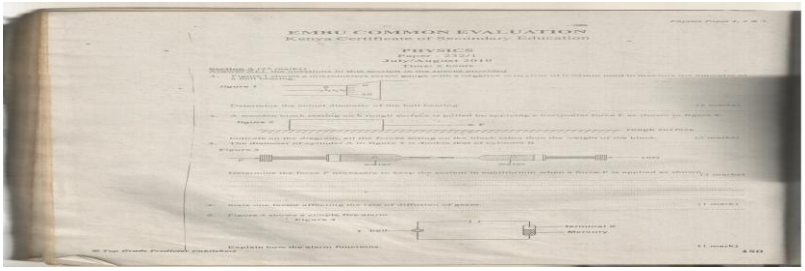
Answer all the questions in this section in the spaces provided.

1. Figure 1 shows a micrometers screw gauge with negative zero error of 0.02mm uses to measure the diameter of a ball bearing

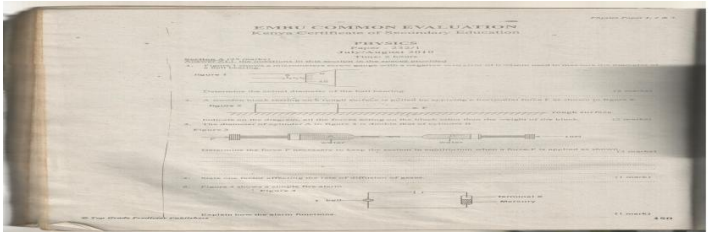


Determine the actual diameter of the ball bearing (2mks)

2. A wooden block resting on a rough surface is pulled by applying a horizontal force F as shown in figure 2
   Indicate on the diagram, all the forces acting o the block other than the weight of the block (2mks)



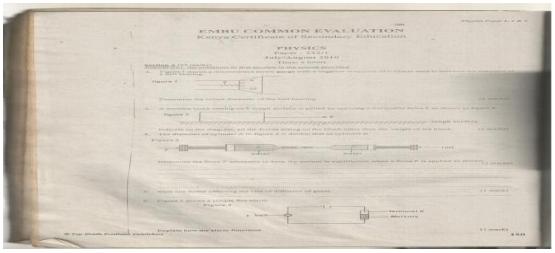
3. The diameter of cylinder A in figure 3 is double that of cylinder B



Determine the force F necessary to keep the system in equilibrium when a force F is applied as shown (3mks)

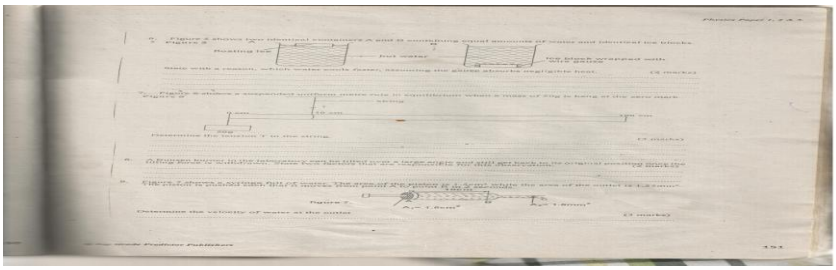
4. State one factor affecting the rate of diffusion of gases (1mk)

5. Figure 4 shows a simple fire alarm



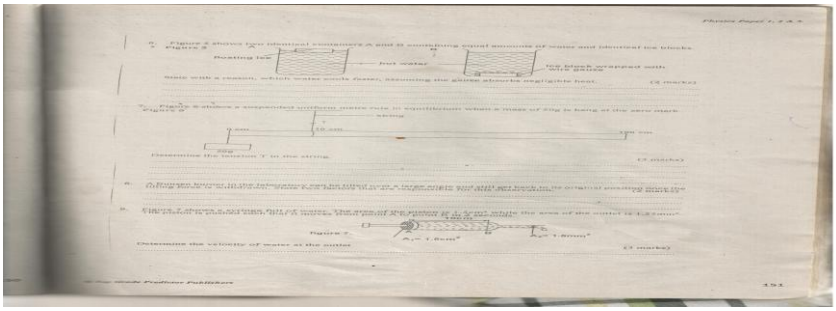
Explain how the alarm functions (1mk)

6. Figure 5 shows two identical containers A and B containing equal amounts of water an identical ice blocks



State with reason, which water cools faster, assuming the gauze absorbs negligible heat (2mks)

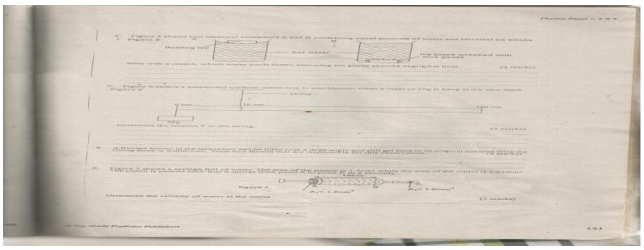
7. Figure 6 shows a suspended uniform meter rule in equilibrium when a mass of 50g is hang at the zero mark



Determine the tension T in the string (3mks)

8. A Bunsen burner in the laboratory can be tilted over a large angle and still get back to its original position once the tilting force is withdrawn. State two factors that are responsible for this observation (2mks)

9. Figure 7show a syringe full of water. The area of the piston is 1.5cm3 while the area of the outlet is 1.55mm2 The piston is pushed such that it moves from point B in 2 seconds



Determine the velocity of water at the outlet (3mks)

10. Sketch a velocity time graph for a body that is uniformly accelerated (1mk)

11. A high jumper loads on saw dust. Explain how the saw dust helps in reducing the force of impact (2mks)

12. A bullet of mass 20g moving with a velocity of 30m/s penetrates a sand bag and is brought to rest in 0.05s. Find the average retarding force of the sand (3mks)

SECTION B 55 MKS

13. a) State Hooke's law for a spiral spring (1mk)

b) In an experiment, a spiral spring was hung vertically from a stand and various weights attached in turn to its lower end. The extension of the spring for the various weight was noted. The results were recorded as shown in the following table.

Load(N)	0	0.2	0.4	0.6	0.8	1.0	1.1
Extension (cm)	0	0.95	1.9	2.9	3.9	5.5	7.25

i. Plot the graph of load (y-axis) against the extension of the spring (5mks)

ii. From the graph, determine the elastic limit of the spring (1mk)

iii. From the graph, determine the spring constant within Hooke's law (4mks)

14. State what is meant by streamline flow. (1mk)

b) The figure below shows the cross section of an aeroplane wing (aerofoil), with the aeroplane moving in the direction shown by the arrow.

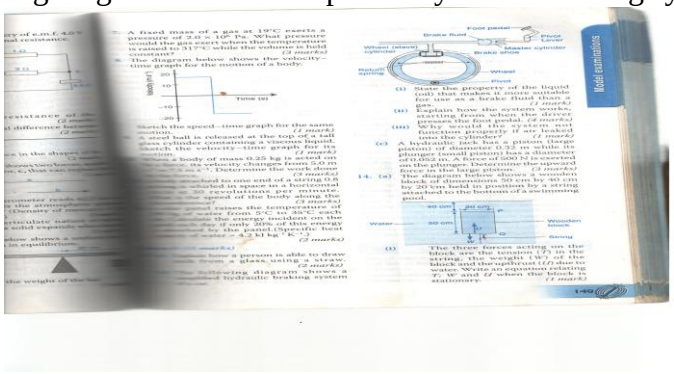
i. Sketch streamlines to show how air flow fast the with as the aeroplane moves (1mk)

ii. Explain how dynamic lift of the aeroplane is caused by the wing. (3mks)

c) A water pipe of diameter 5.2cm is connected to another pipe of diameter 1.3cm. The speed of the water in the smaller pipe is 3ms-1. What is the speed of the water in the larger pipe? (3mks)

15. a) Explain how a person is able to draw milk from a glass using a straw (2mks)

b) The following diagram shows a simplified hydraulic braking system of a car.



i. State the property of the liquid (oil) that makes it more suitable for use as a brake fluid than a gas (1mk)

ii. Explain how the system works, starting from when the driver presses the foot pedal (4mks)

iii. Why would the system not function properly if air leak into the cylinder? (1mk)

16. a) In an experiment to demonstrate Brownian motion, smoke was placed in an air cell and observed under a microscope, Smoke particles were observed to move randomly in the cell.

i. Explain the observation (1mk)

ii. Give a reason for those of smoke in this experiment (1mk)

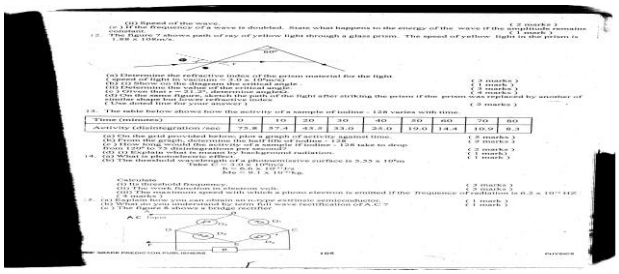
iii. What would be the most likely observation if the temperature in the smoke cell was raised? (1mk)

b) An oil drop of average diameter 0.7mm spreads out into a circular patch of diameter 75cm on the surface of water in trough.

i. Calculate the average thickness of a molecule of oil (4mks)

ii. State two assumptions made in (i) above when calculating the thickness of the oil molecule (2mks)

17. The figure below shows path of ray of yellow light through a glass prism. The speed of yellow light in the prism is 1.88 x 108m/s.



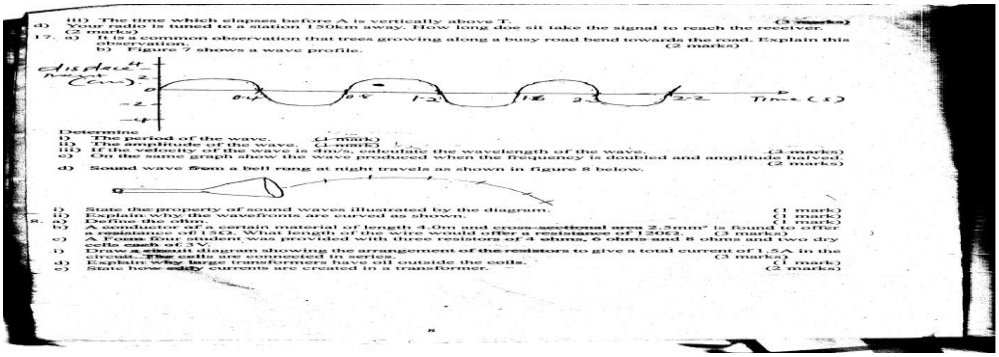
a) Determine the refractive index of the prism material for the light (speed of light in vacuum = 3.0 x 10^8m/s (3mks)

b) i) Show on the diagram the critical angle (1mk)

c) Given that r=21.2°, determine angle Θ (3mks)

d) On the same diagram sketch the path of the light after striking the prism if the prism was replaced by another of similar shape but lower refractive index (use dotted line for your answer) (2mks)

18. The figure below shows a wave profile



Determine

i. The period of the wave (½ mk)

ii. The amplitude of the wave (½ mk)

iii. If the velocity of the wave is 4m/s, calculate the wavelength of the wav (2mks)

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FORM THREE SET 3 EXAMS 2020

NAME ---------- INDEX NO----------

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232/2

PHYSICS

PAPER 2

(THEORY)

TIME; 2 HOUR

INSTRUCTIONS TO CANDIDATES

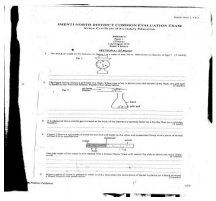
- Write your name and index number in the spaces provided
- This paper consist of two section **A** and **B**
- Answer all questions in section **A** and **B** in the spaces provided
- All working must be clearly shown in the spaces provided in this booklet.
- Non- Programmable silent electronic calculators and **KNEC** mathematical tables may be used

SECTION	QUESTION	MAXIMUM SCORE	CANDITATES SCORE
A	1-12	25	
B	13	13	
	14	10	
	15	3	
	16	13	
	17	6	
TOTAL SCORE		80	

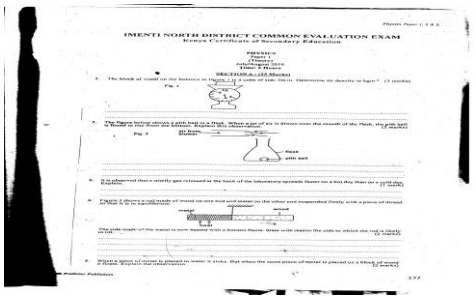
This paper consist of 9 printed pages candidates should check the questions paper to ascertain that all the pages are printed as indicated and that no questions are missing

SECTION A 25MARKS

1. The block of wood on the balance in the figure below is a cube of side 20cm Determine its density in kgm^{-3} (3mks)

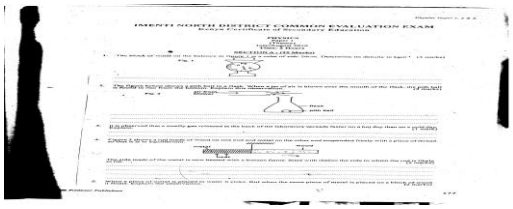


2. The diagram below shows a pith ball in a flask. When a jet of air is blown over the mouth of the flask, the pith ball is found to rise from the bottom. Explain this observation (2mks)



3. It is observed that a smelly gas released at the back of the laboratory spreads faster on a hot day than on a cold day. Explain (1mk)

4. The diagram below shows a rod made of wood on one end and metal on the other end suspended freely with a piece of thread so that it is in equilibrium



The side mad of the metal is now heated with a Bunsen flame. State with reason the side to which the rod is likely to fit (2mks)

5. When a piece of metal is place in water it sinks. But when the same piece of metal is placed on a block of wood it floats explain the observation (2mks)

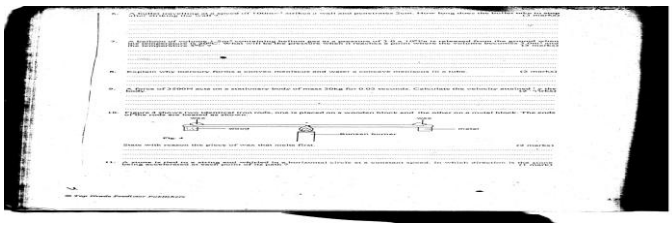
6. A bullet traveling at a speed of $100ms^{-1}$ strikes a wall and penetrates 2cm. How long does the bullet take to stop after striking the wall? (3mks)

7. A balloon of volume $1.5cm^3$ containing helium gas at a pressure of 3.0 x 106pa is released from the ground when the temperature is 20°C. What will be the pressure when it reaches a point where the volume becomes 3.0m and the temperature 5°C (3mks)

8. Explain why mercury forms a convex meniscus and water a concave meniscus in a tube (2mks)

9. A force of 3500N acts on a stationary body of mass 20kg for 0.02 seconds. Calculate the velocity attained by the body (2mks)

10. The diagram below shows two identical iron rods, one is placed on a wooden block and the other on a metal block. The ends of the rods are heated as shown.



State with reason the piece of wax that melts first (2mks)

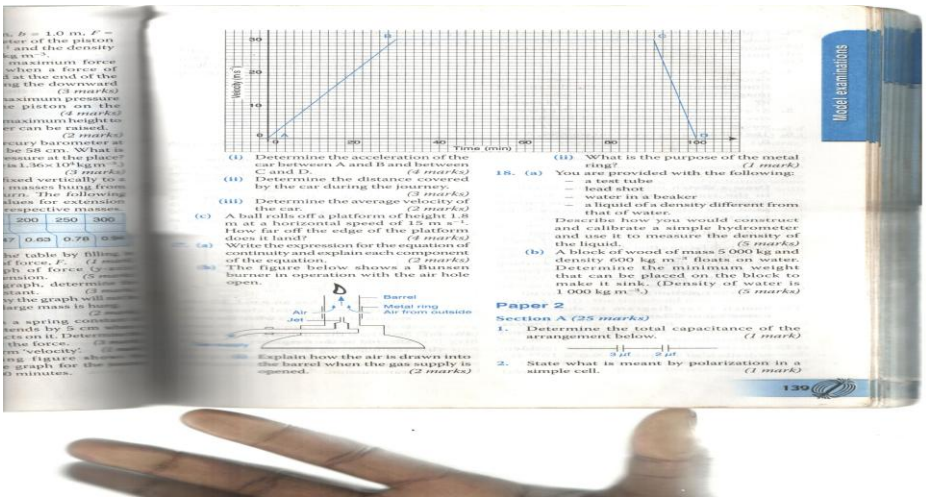
11. A stone is tied to a string and whirled in a horizontal circle at a constant speed. In which direction is the stone being accelerated at each point of its path? (1mk)

12. A force of 2.0N compresses a spring by 1.0mm. Determine the energy stored in the spring

SECTION B 55MKS

13. a) Define the term 'velocity'. (1mk)

b) The following figure shows velocity –time graph for the journey of a car in 100minutes.



i. Determine the acceleration of the car between A and B and between C and D (4mks)

ii. Determine the distance covered by the car during the journey (3mks)

iii. Determine the average velocity of the car (2mks)

c) A ball rolls off a platform of height 1.8m at a horizontal speed of 15 ms^{-1}. How far off the edge of the platform does it land? (4mks)

14. A car of mass 2000kg travelling at 5ms^{-1} collides with a minibus of mass 5000kg travelling in the opposite direction at 7ms^{-1}. The vehicles stick and move together after collision. If the collision lasts for 0.1seconds;

a) Determine the velocity of the system after collision of 3 decimal places. (3mks)

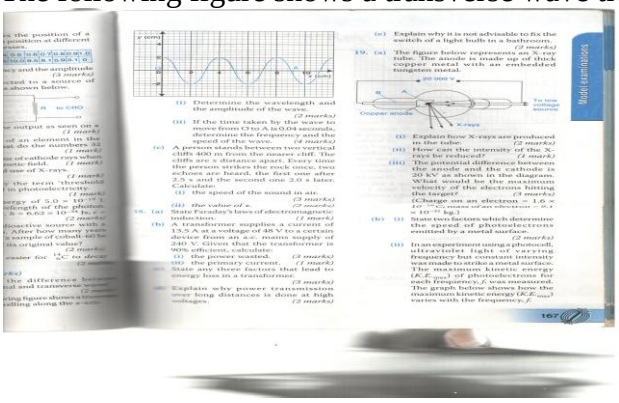
b) Calculate the impulsive force on the minibus (3mks)

c) Calculate the change in kinetic energy of the system (3mks)

d) Explain the change in kinetic energy of the system (1mk)

15. a) What is the difference between longitudinal and transverse waves? (2mks)

b) The following figure shows a transverse wave travelling along the x-axis.



i. Determine the wave length and the amplitude of the wave. (2mks)

ii. If the time taken by the wave to move from O to A is 0.04 seconds, determine the frequency and the speed of the wav (4mks)

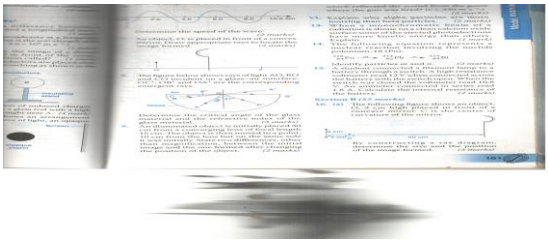
c) A person stands between two vertical cliffs 400m from the nearer cliff. The cliffs are x distance apart.

Every time the person strikes the rock once, two echoes are heard, the first one after 2.5s and the second one 2.0 s later. Calculate

i. the speed of the sound in air (3mks)

ii. the value of x (2mks)

16. a) The following figue shows an object, O, 3cm high placed in front of a concave mirror. C is the centre of curvature mirror. C is the centre of curvature of the mirror.



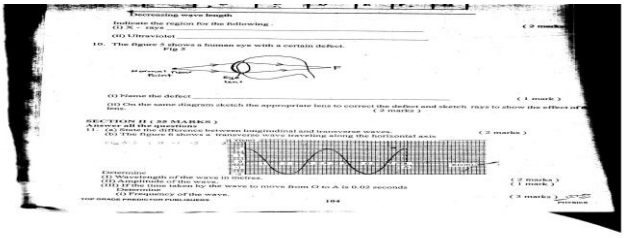
By constructing a ray diagram, determine the size and the position of the image formed. (3mks)

b) The table shws the object distance, u, and the corresponding image distance v, for an object placed in front of a concave mirror.

u (cm)	20	25	30	40	50	70
v(cm)	20	16.7	15	13.3	12.5	11.6
(cm^{-1})						
(cm^{-1})						

i. Complete the table by filling in the values of and (2mks
ii. plot a graph of (y-axis) against (5mks)
iii. From the graph, determine the focal length of the mirror. (3mks)

17. The figure 6 shows a transverse wave travelling along the horizontal axis



determine

i. Wave length of the wave in metres (2mks)

ii. Amplitude of the wave (1mk)

iii. If the time take by the wave to move from O to A IS 0.02seconds Determine frequency of the wave (3mks)

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FORM THREE SET 3 EXAMS 2020

NAME_____ADM_____CLASS_____

101/1
ENGLISH
Paper 1
(Functional writing, cloze test and oral skills.)
2 Hours.
Form 3

1. You are the secretary of Umoja Faith Church Youth Group. The group is planning to hold a meeting on 16th August 2015 whose main agenda will be the Mission Outreach and initiating income generating activities. The constitution stipulates that there must be a 21-day notification of the meeting.
   i) Write a notice of the meeting that will be sent to the members. 6 marks
   ii) During the meeting, 8 members were present, 3 including the treasurer sent apologies and the whereabouts of 2 members were unknown. The youth pastor attended the meeting. Apart from the main issues, members raised some matters from the previous meeting. There were also some personal issues raised by some members.
   Write down the minutes of the meeting. 14 marks

2. *Read the passage below and complete each blank space with an appropriate word 10 marks*

Citizens used to i)…….. that political leaders would observe the principles of good governance simply ii)……they were expected to. iii)……; it appears most leaders on the continent have replaced integrity with reckless impunity that has iv)…….. Africa in chaos. v)…….office are also supposed to be vi)…… to the people that entrusted them with the vii)……..of leading them. viii)……, the political elite in the continent see people as a means to an end. In many countries these days, Kenya included, politics has become the easiest way to make money. Electioneering is seen as an ix)……..with extremely lucrative returns when campaign loyalties are x)…….with appointments in the government of the day.

3. *a) Read the following Ankole song and answer the questions that follow.*

Suck and I hide you, my gentle one Suck and I hide you, my beloved

I dreamt that the hunt was at Buganga I dream that the hunt was at Ngarama

Where, oh where, shall I put, my little baby? Where, oh where, shall I put you, my lovely little lips? If I put you in a clump of grass, my gentle one The hunters' rough dog will come sniffing around

The hunters' thick club tears up the back

Suck and I hide you, gentle one Suck and I hide you, for whom the drum sounds

Where, oh where, shall I put you, my lovely little lips? Where, oh where, shall I put you, my beloved?

If I put you by the wayside, gentle one Passers-by will take you with them, my beloved If I put you in an anthill, my little baby The ants will enclose you in their nest, lovely little lips Suck and I hide you, little baby

Suck and I hide you, my gentle one

When I am dead and gone, gentle one Feed on little blades of grass like cow, my belovedAnd wash them down with a little water, my little baby That's what raises orphans, you for whom the drum sounds

If I do not die, my little baby

Good things will be ours to enjoy, you for whom the drum sounds

i) Identify aspects of oral performance that make this song easy to remember? 2 marks

(ii)In what ways would this song be made interesting to listen to? 2 marks

(iii)How would you perform the last two lines of the above song? (2 marks)

b) *Study the genre below and answer the questions that follow*

I have a wife everyone she bears has a bead

i) Identify the genre under which the above item falls. 1 mark

ii) Assuming you were to perform this genre, what will you do before the presentation?
1mark

iii) How will (ii) above assist you as a presenter?
1mark

c) *Identify the silent letters in the words below*
3marks

i) Shepherd …….

ii) Rendezvous ……

iii) Epistle ……

d) *Write another word that has the same pronunciation as the following words* 3marks

i) Mark ……..

ii) Broach ……

iii) Proof ……..

e) *Underline the stressed the syllables in the highlighted words* 2 marks

i) We have to *relocate* these people

ii) The security officer will *punish* you if you come late.

f) *Indicate whether the following sentences have a falling or a rising intonation.* 2 marks

i) A stitch in time saves nine
ii) Do you like tomatoes or not.

g) Jaramba's son, Mariapa, was really enthusiastic to go for a party with his friends at Carnivore. He had been invited to a friend's birthday party. He had to get permission from the father first in order to attend. However, Mariapa failed to convince his father because of his approach and language. What could have been the weaknesses in his negotiation skills? 5 marks

h) *Read the conversation below between Audrey, a student, and the school secretary then answer the questions that follow.* 6 marks

Audrey: Hallo. Good morning.

Secretary: Hallo. Who is on the line and what do you want?

Audrey: I am a Form 4Y student and I have been away from school for three days now. May I speak to the Principal?

Secretary: The Principal is not in the office now.

Audrey: Could I please leave a message for him?

Secretary: Oh, please, don't you have his cellphone number?

Audrey: No madam, since it is official, kindly take down the…

Secretary: Excuse me, young girl, I am too busy for this idle chat.

Audrey: I am sorry but it is very urgent, madam.

Secretary: (*without a pen or paper)* Go ahead and you better be quick.

Audrey: Thanks for the attention

i) *Identify the weaknesses in the secretary's telephone conversation skills.* *3marks*

(ii)What should she do to improve on this?

3marks

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FORM THREE SET 3 EXAMS 2020

NAME_____ADN_____CLASS_____

ENGLISH PAPER 2

FORM 3

TIME 2hrs 30 mins

Attempt all the questions

1. ***Read the passage*** below ***and answer the questions that follow.*** **(20mks)**

One good thing about music, Bob Marley sang in Trenchtown Rock, is when it hits you, you feel no pain – but for South Africa's apartheid regime, the opposite was true as it felt the wrath of musicians who composed protest songs against its oppressive policies.

During the apartheid years, music was more than a solace – it was a "weapon of struggle" used against the aggressor whose only recourse was to ban it from the airwaves, but never from the hearts of the millions who were oppressed.

Music had always been used to soothe souls during sufferance and it is said that it is slavery that gave birth to (heavy metal) rock when slaves used their shackles or tools to make music either to entertain themselves or to irk their captors.

The separatist system that saw people like Nelson Mandela and other black South African leaders jailed for dissidence gave rise to more protest music than ever before.

And South Africa's anti-apartheid musicians were so influential that their songs were not only banned, but they were also forced into exile. Mandela believes that these protest songs, together with those of non-South Africans, played a significant role in the collapse of apartheid and, indeed, his February 11, 1990 release from Robben Island.

"Artistes reach areas far beyond the reach of politicians. Art,especially entertainment and music, is understood by everybody, and lifts the spirits and the morale of those who hear it," Mandela admitted after his release.

South Africa's musicians like Hugh Masekela and the MirimaMakeba started the protest campaign back in the late '50s and early '60s after leaving South Africa for the United States, where they used music to highlight the desperate situation of their compatriots who were living under oppressive rule in the townships back home.

The Musical campaigns against apartheid intensified internationally throughout the'70s and '80s and saw the composition, production and performance of many a political song by musicians who had never even set foot in African but were inspired to join the anti-apartheid bandwagon- with some, like Paul Simon, even stirring controversy when he was accused of breaking the cultural boycott against South Africa by touring the country and utilizing contributions from local acts.

But the beat never stopped. In the UK, The Specials released Free Nelson Mandela while in the US, Gil Scott-Heron and Brian Jackson released protest classic Johannesburg off the album From South Africa to South Carolina. Little Steven (and the Disciples of Soul), together with Artists United Against Apartheid, conceived and produced Sun City Resort in one of South Africa's so-called homelands where international Musical concerts were frequently held.

Adopted from Sunday Nation December 8th 2013.

(a) What type of music is the author referring to in the passage (1 mark)

……

……

(b) According to the passage what were the contributions of the anti-apartheid musicians.

(2 marks)

……

……..

……

(c) Who are the international singers who joined the musical campaigns against apartheid. (3mark)

……

……..

……...

(d) Artistes reach areas far beyond the reach of politicians (add a question) (1 mark)

……

……..

(e) Make notes on the titles of songs sung against the apartheid regime (4marks)

……

……..

……..

……

……..

……...

(f) Identify the setting of the passage (2 marks)

……..

……

(g) ***Paraphrase the following sentence***

"artists reach areas far beyond the reach of politicians. Art, especially entertainment and music is understood by everybody, and it lifts the spirits and the morale of those who hear it " (3 mark)

……

……..

……...

……

(h) Give this passage another title (1 mark)

……

(i) ***Explain the meaning of the following words and phrases*** (3 marks)

(i) irk their captors

……

(ii) dissidence

……

(iii) stirring controversy

……

2.BLOSSOMS OF THE SAVANNAH (25mks)

Read the following excerpt and answer the questions that follow

They were silent as they climbed the hill on their way back from Nasila to draw water .The water containers that they carried on their backs were now heavy. The straps that supported the containers pressed down their heads with a painful exhaustion.
As they walked, each one of them allowed her mind to fleeting roam the fanciful land of wishful thinking.

Resian thought how wonderful it would be, had she had a chance to enroll at the Egerton University and after graduation had a chance to work with her role model ,MinikeneNkoitoi ,the Emakererei at the sheep ranch that she managed .She imagined herself already there driving a large flock of sheep .And when she thought of sheep , her mind flew back to fifteen years or so earlier and **reminisced**the first time she saw a sheep.It was a childhood memory ,a memorable picture from the swirling scene around her which had been captured and preserved by her mind when she and Taiyo accompanied their father to the Nakuru Agricultural show.She could still see in her mind a group of big,docile tawny woolly animals that stood panting drowsily in a green pasture ,with the sun beaming down brightly from a clear blue sky .She had then admired the white long overcoats that the handlers wore.

Taiyo also thought of Emakererei .She would ask Joseph Parmuat , to assist her compose a song in her praise .She had already put words to a tune she had composed to ridicule the three women who she thought **collaborated** with men to oppress the women folk .They were Nasila's three blind mice who , she

thought , did not seem to know that the world was changing .Those were the *enkasakutoni*who threatened to curse *intoiyenemengalana*and ensured they did not get husbands nor children;the midwife Enkaitoyoni who threatened to spy on the young women as they gave birth to ensure that any who was among intoiye-nemengelana had her status altered there and then;and the **dreaded** Enkamuratani,who will never tire of wielding her olmurunya**menacingly.**

QUESTIONS

1. place the excerpt in its immediate context. (4 marks)

2. identify and illustrate two aspect of style in this excerpt (4marks)

3. discuss two themes evident in this excerpt (4 marks)

4. discuss one character trait of Resian and Taiyo in the excerpt (4 marks)

5. The straps that supported the containers pressed down their heads with a painful exhaustion. Rewrite beginning: with…… (1 mark)

6. How does Resian's thoughts come to be fulfilled in future ?briefly explain(4marks)

7.Explain the meaning of the following words as used in the excerpt. (4 marks)

i. Reminisced.

ii. Collaborated

iii. Dreaded

iv. Menacingly

3.***Read the poem below and answer the questions that follow***

The earth does not get fat.

It makes an end of those who wear the head plumes.

We shall die on the earth.

The earth does not get fat. It makes an

end of those who act swiftly as heroes

Shall we die on the earth?

Listen O earth. We shall mourn because of you.

Listen O earth. We shall die on the earth?

The earth does not get fat. It makes and an end of chiefs.

Shall we die on the earth?

The earth does not get fat.

It makes an end of the women chiefs

Shall we die on the earth?

The earth does not get fat. It makes an

end of the royal women

Shall we die on the earth?

Listen O earth. We shall mourn because of you.

Listen O earth. We shall die on the earth?

The earth does not get fat. It makes an end of the beast

Shall we die on the earth?

Listen you who are asleep, who are

left tightly closed in the land.

Listen you who are asleep, who are

Left tightly closed in the land.

Shall we all sink into the earth?

Listen O earth, the sun is setting tightly

We shall all enter into the earth.

(a). Identify the genre above
(2 marks)

……

……

(b). Explain the functions of the above genre
(4 marks)

……

……

……

……

(c). Explain the meaning of the words, "The earth does not get fat" (2 marks)

……

……

……

(d). Identify **two** aspects of style and comment on their effectiveness (6 marks)

……

……

……

……

……

……

……

(e). What is the speaker's attitude towards the subject. (2 marks)

……

……

……

(f). ExplainTwo characteristics of the genre above (2 marks)

……

……

……

……

(g) Under what circumstances is the genre likely to be performed and for what purpose? (2 marks)

……

……

……

……

2. ***Rewrite the following sentences according to the instructions after each*** (3 marks)

(a) You can do better than this. (Begin: This ……..)

……

(ii) Having failed once, I do not want to fail again. (Begin. As……)

……
……

(iii) The teacher asked Kamau if he would go home that day or the following day. (Change to direct speech)

……
……

(b) ***Using the verbs in brackets, replace the underlined words and phrases with correct phrasal verbs***

(3 marks)

(i) The two friends met each other accidentally……..(run) in town

(ii) The city council askariesdemolished …….kiosks in the city Centre (bring)

(iii) Otienovisited ……..us on his way to town (call)

(c) ***Complete each of the following sentences with the appropriate prepositions*** (3 marks)

(i) Many people think that manual labour is……their dignity

(ii) The judge was prejudiced……the accused from the beginning.

(iii) John has retired……private life.

(d) ***Supply one word which means the same as the underlined phrases in the following sentences***

(2 marks)

(i) The man who broke into the house was finally arrested……..

(ii) The kitchen was filled with a pleasant smell from the day's recipe ……..

(e)***Explain the differences in meaning between the sentences in each of the pairs given below***

(4 marks)

I. I saw parents in the school library
II, I saw "parents" in the school library

……

……

……

I. His brother who lives in Lamu is a mechanic
II. His brother, who lives in Lamu, is a mechanic

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FORM THREE SET 3 EXAMS 2020

NAME_____ADN_____CLASS_____

101/3 - ENGLISH

PAPER 3

(CREATIVE COMPOSITION AND ESSAYS BASED ON SET TEXTS)

TIME: 2 ½ HOURS

Instructions

(a) Answer three questions only.

(b)Question one and two are compulsory

(c)In question one, choose one composition either a or b. In question 2, all the questions are compulsory.

1. **Imaginative composi** (20marks)

Either:

a) Write a composition beginning:

Looking at my father, I knew my brother and I were in hot soup.....

Or

Write a story to illustrate the saying

"All that glitters is not gold"

2. **The compulsory set text**

BLOSSOMS OF THE SAVANNAH

(a)'Women are their own enemies .'Write an essay exemplifying the truth of this statement using Blossoms of the Savannah .(20mks)

(b)'Not all aspects of culture and traditions are bad.' Drawing your illustrations from the novel Blossoms of the Savannah ,validate the above assertion .(20mks

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FORM THREE SET 3 EXAMS 2020

JINA: .....**NAMBA YAKO :**.....

SHULE .....**TAREHE :**.....

102/1

KISWAHILI

KARATASI YA 1

INSHA

MUDA: SAA 1¾

MAAGIZO

(a) Andika insha mbili. Insha ya kwanza ni ya lazima.

(b) Kisha chagua insha moja nyingine kutoka hizo tatu zilizobakia

(c) Kila insha isipungue maneno 400

(d) Kila insha ina alama 20

Kila mtahiniwa lazima aangalie kama kurusa zote za karatasi hii zimepigwa chapa sawasawa na kuwa maswali yote yamo

1. Wewe ni katibu wa chama cha waandishi habari chipukizi shuleni mwako. Andika kumbukumbu za mkutano uliofanyika mnamo MACHI 7, 2018.

2. Fahali wawili wapiganapo ziumiazo ni nyasi.

3. Anza kisa kwa maneno haya:

   Mtoto aliletwa mbele yangu akiwa anatiririkwa damu usoni. Singeweza kumtambua hadi pale…….
   ……..……
   ……
   ……

4. Mvua husababisha madhara mengi. Jadili

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FORM THREE SET 3 EXAMS 2020

KISWAHILI KWA KIDATO CHA 3

Jina …….. Nambari……

102/2

LUGHA

Jibu maswali yote.

Majibu yatolewe kwenye nafasi zilizoachwa.

Alama jumla – 80

Muda saa 2½

Kwa matumizi ya mtahini pekee

	Upeo	Alama
1. Ufahamu	15	
2. Ufupisho	15	
3. Matumizi ya lugha	40	
4. Isimujamii	10	
Jumla	80	

Kila mtahiniwa lazima aangalie kama kurusa zote za karatasi hii zimepigwa chapa sawasawa na kuwa maswali yote yamo

1. ***Soma taarifa ifuatayo kisha ujibu maswali.***

Habari kuwa watoto chini ya miaka mitatu 'huwindwa' kitandani na kuraushwa na wazazi wao waende shuleni mwendo wa saa kumi na moja asubuhi ni za kusikitisha.

Kwa mujibu wa ripoti za wataalamu wa elimu ya watoto wachanga (ECD), watoto hao hutakikana kuwa darasani kabla ya saa kumi na mbili asubuhi.

Wanapowasili wao huanza kufukuza ratiba ya masomo ambayo huwapatia muda mfupi mno wa kula, kucheza, kupumzika na hata kuchunguza afya na usalama wao.

Badala ya kuondoka mapema kuelekea nyumbani, wengi wao hufika saa za usiku pamoja na wazazi wao wakitoka kazini. Wanapowasili nyumbani wanapaswa kuoga na kupata chakula cha jioni kwa pupa ili wafanye mazoezi waliyopewa na walimu wao.

Mazoezi hayo huwa ya masomo yote matano huku kila somo likiwa na zaidi ya maswali thelathini. Badala ya kupumzika mwishoni mwa juma, watoto hao huhitjika kuhudhuria shule siku nzima ya Jumamosi. Jumapili wanatakiwa Kanisani na hali hii hujirudia mpaka muhula umalizike. Ikiwa ulidhani watapewa nafasi ya kupumzika wakati wa likizo , umekosea kwa sababu watoto hao huhitajika kuhudhuria shule. Hili limekuwa likiendelea hata baada ya Wizara ya Elimu kupiga marufuku kusomesha wakati wa likizo.

Wazazi-hasa wale wanaofanya kazi mijini- wamekuwa wakiunga mkono mtindo huu kwa sababu unawaondolea mzigo wa malezi na gharama ya kuwaajiri walezi.

Wataalamu wanasema matokeo ya hali hii ni watoto **wakembe** wenye afya na **maadili** mabaya kutokana na kuchanganyishwa akili na walimu wanaowataka wajue kila kitu wakiwa na umri mdogo.

Kuwashinikiza watoto wakembe wahudhurie shule na zaidi ya hayo wajue kila kitu kuna madhara mengi. Kwanza kabisa, kuraushwa kwa watoto macheo waende shule kunawanyima fursa ya kulala na kupumzika. Utafiti unaonyesha kuwa watoto wanahitaji kulala na kupumzika kwa zaidi ya saa 12 kwa siku. Hii ina maana kuwa mbali na muda mfupi wanaolala na kupumzika mchana kutwa, watoto wanapaswa kutumia usiku mzima kwa usingizi.

Hii huwasaidia kukua wakiwa na afya nzuri hasa kiakili. Matokeo ya kuwarausha watoto hao waende shule saa hizo huwafanya wakose furaha mbali na kuwafanya wachanganyikiwe kiakili.

Pili, kuwalazimisha watoto wakae darasani kuanzia saa kumi na mbili asubuhi hadi saa kumi na mbili jioni huwa kunawanyima fursa ya kucheza na kutangamana. Wataalamu wa afya ya watoto wanapendekeza kuwa watoto wachanga wanapaswa kucheza ili viungo vya miili yao kama moyo, akili, mapafu na kadhalika vifanye kazi vizuri.

Kinyume na watu wazima ambao hufanya kazi nzito nzito na kuwawezesha kufanya mazoezi, watoto huwa hawafanyi kazi hizo. Wazazi na walimu wanapaswa kufahamu kuwa kazi ya watoto ni mchezo na wana kila haki ya kupewa furaha ya kucheza wakiwa shuleni na hata nyumbani.

Tatu, wazazi wengi ambao hufurahia kuwaachia walimu jukumu la kuwalea watoto wao huku wao wakiwa kazini huwa wanasahau kuwa sio kila mwalimu ana maadili yanayopaswa kuigwa na mwanawe. Ingawa tunawatarajia walimu wawe mifano bora ambayo inaweza kuigwa na kila mtu, ukweli ni kwamba baadhi ya walimu hawajui maana wala hawana maadili. Hatari ni kwamba watoto **wakembe** husoma kwa kuiga wakubwa wao na ikiwa walimu wanaoshinda nao shule wamepotoka kimaadili, kuna uwezekano mkubwa wa watoto hao kupotoka pia. Hii ndiyo sababu wazazi wengi wamekuwa wakilalamika kuwa wanawao tabia mbaya ambazo hawaelewi zilipotoka.

Kila mzazi anayejali maisha ya mwanawe anapaswa kutekeleza jukumu lake la kumlea na kumwelekeza jinsi anavyotaka akue. Ni kinaya kuwa wanawatarajia wanawao wawe na tabia na maadili kama yao ilhali hawachukui muda wa kukaa nao na kuwaelekeza.

Nne, kuwawinda, kuwaamsha, kuwaosha na kuwalazimisha watoto waende shule kila siku hata ingawa hawataki huwa kunawafanya wawe wategemezi wasioweza kujipangia na kutekeleza mambo kivyao.

MASWALI.

(a) Ipe taarifa anwani mwafaka. (alama 2)

(b) Mwandishi anatoa maoni gani kuhusu ratiba ya masomo? (alama 2)

(c) Eleza athari za mfumo wa elimu unaoangaziwa hapa. (alama 3)

(d) Ni ushauri upi unaotolewa kwa wazazi ? (alama 2)

(e)Taja mbinu zozote **mbili** za lugha alizotumia mwandishi (alama 2)

(f) Eleza **maana** ya maneno haya kama yalivyotumiwa katika taarifa. (alama 4)

(i) '**huwindwa' kitandani**

(ii) **Maadili**

(iii) **Kuwashinikiza**…

(iv) **Wakembe**…

1. Soma taarifa kisha fupisha kwa mujibu wa maswali yafuatayo.

Uwezo wa kuyakumbuka mambo ni hazina kuu kutoka kwa mtu yeyote yule aliye hai. Uwezo huu wa kukumbuka ni mojawapo ya shughuli changamano za ubongo. Ubongo wa mwanadamu hutekeleza shughuli hii kwa namna tatu. Kwanza ubongo hunasa jambo kisha huliihifadhi. Baadaye huanzisha mfumo wa kutoa kilicho hifadhiwa. Ubongo ukiathirika kwa namna yeyote katika moja wapo ya njia hizi, basi uwezo wa kuyakumbuka mambo huvurugika.

Ingawa inaaminika kuwa uwezo wa kukumbuka hurithishwa toka kizazi kimoja hadi kingine, wataalamu wa maswala ya kiakili wanabaini kuwa uwezo huu unaweza kuimarishwa. Uimarishaji huu huhitajika mikakati madhubuti.

Njia mojawapo ya kustawisha uwezo wa kukumbuka ni kupitia kwa lishe. Vyakula vilivyosheheni vitamini B vyenye amino asidi husaidia kuimarisha uwezo wa kukumbuka. Vyakula kama hivi ni mboga, nyama (hasa maini), bidhaaa za soya, matunda, maziwa, ,bidhaa za ngano, samaki, pamoja na mayai. Vyakula vingine muhimu katika ustawishaji huu ni vile vyenye madini ya chuma. Madini haya huwezesha usambazaji wa hewa katika ubongo kwa wepesi. Vyakula ambavyo vina madina haya ni mboga za kijani, mawele, ndengu, soya, matunda kama maembe, ufuta (simsim) pamoja na nyama, hasa maini na mayai.

Ubongo wa mwanadamu aliye hai hufanya kazi kila wakati awe macho au amelala. Utendaji

kazi wake huendeshwa na glukosi mwilini. Kwa hivyo, vyakula vyenye sukari hii ni muhimu kuliwa. Hata hivyo, lazima mtu awe mwangalifu na kuhakikisha kuwa mwili una kiwango cha sukari kisicho hatarisha maisha. Haya yanawezekana kwa kula vyakula vyenye nyuzinyuzi kama vile mboga na matunda.

Njia ya pili ni kupiga marufuku vileo kama pombe na nikotini. Vileo hivi huathiri utaratibu wa kunasa, kuhifadhi na kutoa yaliyo ubongoni.

Iwapo mtu ana tatizo la kuyakumbuka majina ya watu, ni muhimu kufanya mazoezi ya

kusikiliza kisha kurudia majina hayo wakati wa mazungumzo. Ni bora kulihusisha

jina na sura

ya mtu. Kwa njia hii ubongo utanasa jina na kile kinacholengwa.

Woga na kuvurugika kiakili ni mambo mengine tunayopaswa kuepuka kila wakati. Ni kawaida mtu kupata woga wakati anapokabili jambo asilokuwa na uhakika na matokeo yake kama mtihani au mahojiano. Lakini anapaswa kuwa makini. Woga huo usikiuke mpaka na kumvuruga kiakili. Vurugu hizi huathiri kilichohifadhiwa ubongoni na pia namna ya kukitoa.

Halikadhalika, mwili wenye siha nzuri huhakikisha kuwa ubongo ni timamu. Wataalamu wengi wa siha wanakubali kuwa na mazoezi ya kunyoosha viungo hustawisha ubongo na hivyo kuhakikisha kuweko kwa uwezo wa kukumbuka mambo. Ni muhimu kuwa na taratibu ya kunyoosha viungo kila wakati. Fauka ya hayo, mazoezi ya kiakili, kama vile kusoma makala yanayovutia, kujaza mraba na michezo mingine kama mafumbo, vitenzi ndimi ni muhimu katika kustawisha uwezo wa kukumbuka.

Jamii ya watu wenye uwezo kuyakumbuka mambo ni ya jamii iliyopiga hatua kimaendeleo. Ni jukumu la kila mmoja wetu kuimarisha uwezo wa kukumbuka kila wakati.

Maswali:

a) Kwa maneno 60 – 65 fupisha mchango wa chakula katika uimarishaji wa uwezo wa kukumbuka.(alama 6 , 2 mtililiko) **Matayalisho**

Nakala safi

b) Fupisha aya tatu za mwisho kwa maneno 80 – 90 (alama 7)
Matayarisho

Nakala safi

3. MATUMIZI YA LUGHA

. (a) **Andika sifa bainifu za sauti.** (alama 2)

(i) e:-

(ii) n:-

.

(b) **Eleza maana ya :-** (alama 2)

(i) Kiimbo.

(ii) Shadda.

(c) **Tunga sentensi moja moja kudhihirisha ngeli zifuatazo**:- (alama 2)

(i) U-U

\

(ii) Pokomo /Pa-ku-mu

(d) **Unda kitenzi kimoja kutokana na nomino** '**Mtubia**" (alama 2)

(c) Eleza matumizi mawili ya kiambishi '**ku**' (alama 2)

(f) Tunga sentensi ya maneno manne ambayo ina sehemu zifuatazo. Kielezi cha namna, kivumishi,kitenzi na jina
(alama 2)

(g) **Yakinisha sentensi ifuatayo;** (alama 2)

Mvua haijanyesha vizuri msimu huu.

(h) **Onyesha matumizi mawili mawili ya alama zifuatazo:-** (alama 2)

(a) Alama ya mshangao

(b) Mshazari

(i) **Tunga sentensi sahihi ukitumia –wa- katika kauli ya kutendeana** (alama 2)

(j) **Andika udogo wa sentensi:-** (alama 2)

Ndama wa ng'ombe yule ameuzwa.

(k) **Onyesha tofauti ya vitate vifuatavyo kwakuvitungia sentensi** (alama 2)

(i) Dhamani

(ii) Thamani

(l) **Kanusha sentensi ifuatayo katika wingi**
(alama 2) Ningalikuwa na pesa ningalinunua gari

[m] **Tumia neno "shujaa" katika sentensi kama**:- (alama 2)

(i) Kivumishi

(ii) Kielezi.

(n) Huku ukitumia mifano mwafaka, eleza tofauti ya sentensi sahili na ambatano (alama 4)

(o) **Onyesha aina za viambishi katika sentensi hii**: (alama 2)
Nitajisomea

(p) **Andika katika usemi wa taarifa:-**
(alama 2) Tutaanza mashindano kesho, Mwalimu alimwambia mwanafunzi.

(q) **Eleza maana mbili ya sentensi**:- (alama 2)

Tumetengeneza barabara

(r) **Tumia mifano mwafaka kueleza aina za mofimu** (alama 2)

(s) **Changanua kwa njia ya mishale**

Mama analima shambani.

4. ISIMU JAMII

Soma mzungumzo yafuatayo kisha ujibu maswali *:*

A : Ohh, dada Naomi

B : Dada Ruth (anamsogea kwa bashasha wanakumbatiana). Ahh Mungu asifiwe!

A: Asifiwe sana

B: Ehh dadangu, miezi ...mingi...sijakuona

A: dada wee...Nilitumwa huko kusini ...Kuwahubiria watu injili (mtuo mdogo)singeweza kukata...

B: Ehh, usiwe kama Yona

A: Habari ya siku nyingi?

B; Nzuri Mungu bado ameendelea kunibariki

A: Amen!

B: Nimeendelea kuiona neema yake

A: Amen! Asifiwe Bwana

B: Halleluya

A: Ni Mungu wa miujiza!

B : Amen. Hata nami nimeona neema yake

Bado niko imara katika wokovu katika siku hizi za mwisho

A : Amen !

B : Ni Mungu wa ajabu kweli !

A : Nilikumbana na matatizo lakini nikategemea sala

Kama Paulo na sila… Na nikashinda (anatua). Sikuweza kumpa

shetani nafasi…maana ameshindwa

B : Ameshindwa kabisa

<u>Maswali</u>:-

(i) Hii ni sajili ya wapi ? Fafanua [alama 2]

(ii) Taja na ueleze sifa za sajili hii [alama 6]

(iii) Taja mambo **mawili** muhimu yaliyosaidia katika maenezi ya Kiswahili

Afrika mashariki na kati. [Alama 2]

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FORM THREE SET 3 EXAMS 2020

JINA: …….. NAMBARI: ……. KIDATO: …….
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KISWAHILI FASIHI
KARATASI YA 3
KIDATO CHA TATU

MAAGIZO:
Jibu maswali yote kwenye nakala ulizopewa.

Ushairi

1. SHAIRI 'A'.

Umekata mti mtima

Umeangukia nyumba yako

Umeziba mto hasira

Nyumba yako sasa mafurikoni

Na utahama

Watoto Wakukimbia

Mbuzi kumkaribia chui

Alijigeuza Panya

Akalia kulikuwa na pala

Kichwani

Mchawi kutaka sana kutisha

Alijigeuza Simba

Akalia na risasi kichwani

Jongoo kutaka sana kukimbia

Aliomba miguu elfu

Akaachwa na nyoka

Hadija wapi sasa yatakwenda

Bwanako kumpa sumu ?

Hadija umeshika nyoka kwa mkia

Hadija umepitia nyuma ya punda

SHAIRI 'B'

Piteni jamani, Piteni haraka

Nendeni, nendeni huko mwendako

Mimi haraka, haraka sina

Mzigo wangu, mzigo mzito mno

Na chini sitaki kuweka

Vijana kwa nini hampiti ?

Kwa nini mwanicheka kisogo ?

Mzigo niliobeba haupo.

Lakini umenipinda ngongo na

Nendako

Haya piteni ! Piteni haraka ! Heei !

Mwafikiri mwaniacha nyuma !

Njia ya maisha ni moja tu.

Huko mwendako ndiko nilikotoka

Na nilipofikia wengi wenu

Hawatafika.

Kula nimekula na sasa mwasema

Niko nyuma ya wakati

Lakini kama mungepita mbele

Na uso wangu kutazama

Ningewambia siti miaka

Mingi.

(a) Haya ni mashairi ya aina gani ? Toa sababu

(b) Washairi hawa wawili wanalalamika. Yafafanue malalamishi yao

(c) Onyesha jinsi kinaya kinavyojitokeza katika tungo hizi mbili

(d) Ni vipi Hadija :-

(i) Amekata mti mtima ?

(ii) Amepita nyuma ya Punda
(al.2)

(e) Toa mifano 2 ya uhuru wa mashairi kwa kurejelea mashairi haya

(f) Kwa kurejelea shairi '**B**' eleza maana ya:-

(i) Mzigo

(ii) Siri

(iii) Kula nimekula

(iv) Niko nyuma ya wakati

2. ***Soma hadithi hii halafu ujibu maswali .***

Hapo zamani za kale, Mungu alituma wajumbe wawili waende duniani. Wajumbe hawa ni Kinyonga na Mjusi. Kwanza alimtuma Kinyonga na kumwagiza akaseme “wanadamu hamtakufa.” Kinyonga alienda kwa mwendo wa kuduwaa, akasimama hapa na pale akila matunda ya miti. Kwa sababu ya hali hii alichelewa sana kufikisha ujumbe kwa binadamu.

Baada ya muda kupita, Mungu alimtuma Mjusi na ujumbe akaseme, “Mwanadamu sharti kufa.” Mjusi aliunyanyua mkia akafyatuka pu! Mbio akawahi duniani kabla ya kinyonga kuwasili. Kwa haraka alitangaza agizo kuu, “Wanadamu sharti kufa!” Akarejelea haraka kwa Mungu. Baada ya muda kinyonga naye akafika duniana na kutangaza, “Wanadamu hamtakufa!” Wanadamu wakapinga mara na kusema, “La! Tumeshapata ujumbe wa Mjusi, wanadamu sharti kufa! Hatuwezi kupokea tena neno lako! Basi kulingana na neno la mjusi, wanadamu hufa.

Maswali

(a) (i) Hadithi hii huitwaje?

(ii) Toa sababu zako

(b) Eleza **sifa tatu** zinazohusishwa na ngano za fasihi simulizi katika hadithi hii

(c) Kinyonga ni mhusika wa aina gani?

(d) Hadithi hii ina umuhimu gani?

(e) Taja njia zozote **nne** za kukusanya kazi za fasihi simulizi

(f) **Tambulisha vipera hivi**:-

(i) Kula hepi

(ii) Sema yako ni ya kuazima

(iii) Baba wa Taifa

3. "**Nilijua ni utoto tu"**

   (a) Fafanua muktadha wa dondoo hili
   (alama 4)

   (b) Eleza sifa na umuhimu wa mnenaji
   (alama 20)

4. Onyesha jinsi uongozi mbaya unavyojitokeza katika tamthilia ya Kigogo.
   (alama 20)

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FORM THREE SET 3 EXAMS 2020

FORM 3 MATHEMATICS PAPER 1

TERM 1 FORM THREE

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INSTRUCTIONS

1: This paper consists of two sections 1 and 2. Answer all the questions in section 1 and any **5** questions in section 2.

2: KNEC mathematical tables and electronic non- programmable calculators may be used where necessary.

3: Answer all the questions in the spaces provided

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

Section 2	17	18	19	20	21	23	24	total	

Grand total

SECTION 1

Answer all questions in this section

1.Find without using tables or a calculator the value of

(3mk|)

2. The ratio of the size of the exterior angle to the interior angle of a regular polygon is 1:3. Determine the number of sides of the polygon and name it.

(3mk)

3. Given that $2x^2–kx+18$ is a perfect square, find k and hence solve the equation $2x^2–kx+18=0$ by factorization.

(4mk)

4. Work out using logarithms to 4 s.f

$$\sqrt{(6.225 \log 1.001)}$$

$$(56.7 \times 0.031)^3$$

(4mk)

5. Mr. Kanja,Miss Kanene and Mrs Nyaga have to mark a form three math contest for 160 students. They take 5mins, 4mins, and 12mins respectively to mark a script. If they all start to mark at 9.00 am non-stop, what is the shortest time they can take to complete the marking?

(3mk)

6. Jackie takes 5minutes to run a distance of 1km in a race. Express her speed in

a) km/hr

b) m/s

(2mk)

7. Use reciprocal tables to find the value of f given that (3mk)

8. A man left of his estate in Kerugoya to his wife and to each of his two sons .The remainder was to be shared equally among his six brothers. If the estate was worth sh 3 456 000, how much did each of those people get?

(3mk)

9. A distance of 12km is represented by a length of 4cm on a map. Given that the scale of the map is 1:n, find the

a) value of n

b) actual area in hectares of a field on the map with an area of $32cm^2$

(3mk)

10. Solve the equation $\frac{1}{3}(x+4)-\frac{1}{2}(2x-4) = 2$

(2mk)

11. The sides of a right angled triangle measured to the nearest cm are 5cm, 12cm and 13cm

Determine the

a) limits within which the measured dimensions lie

(1mk)

b) percentage error in the area of the triangle.

(3mk)

12. Form a quadratic equation in the form $ax^2+bx+c=0$ whose roots are b and twice the negative reciprocal of b.

(3mk)

13. The coordinates of points A and B are A (2, 3).B (4,–5). M is the midpoint of vector AB.

Determine the coordinates of point M and the magnitude of vector BM.
(3mk)

14. The equation of line L is y=3x–4 and is perpendicular to line H. They cross each other at the y-intercept of line L. Find the equation of line H.
(3mk)

15. In a circle radius 10cm, an arc PQ subtends an angle of radians at the centre of the circle. Calculate the radius of another circle whose circumference is equal to the length of arc PQ

(4mk)

16. Solve for a in 2187
(3mk)

SECTION 2

Answer any 5 questions in this section

17. Four towns are situated in such a way that town Q is 500km on a bearing of 120º from P. Town R is 240km on a bearing of 210º from town P, while town S is due north of town Q and due east of town P.

a) Draw a sketch diagram showing the relative positions of P, Q, R and S.
(2mk)

b) Find by calculation

i) the distance QR
(2mk)

ii)the distance QS
(2mk)

iii)the angle PRQ
(2mk)

iv)area of triangle PQS
(2mk)

18. a) Represent the following inequalities graphically by shading the unwanted region

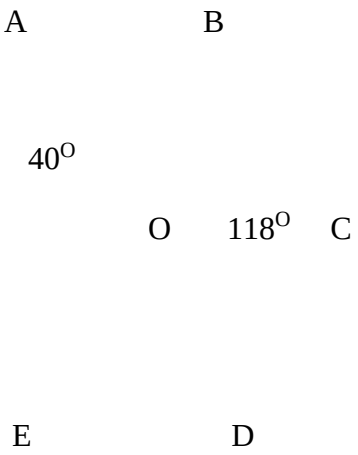
$x \geq 0$, $y \geq 0$, $x+y \geq 5$, $x+y \leq 10$, $y \leq 7$, $x \leq 7$
(6mk)

b) write down the coordinates of one point that is inside the wanted region (1mk)

c) Name the figure formed by the unshaded region
(1mk)

d)measure and find the sum of all the angles in the figure formed in c) above.
(2mk)

19. In the figure below, O is the centre of the circle and $\angle EAD=40^{o}, \angle BCD=118^{o}$



Find giving reasons

a) $\angle ADE$
(2mk)

b) reflex ∟EOD
(2mk)

c) ∟EBD
(2mk)

d) ∟EAB
(2mk)

e) ∟DAB
(2mk)

20. The marks scored in a form three maths exam were recorded as follows

69 70 72 40 52 60 22 31 78 53 28 67 63 54 57 48 47 56 55 62

75 38 37 44 62 64 58 39 45 48 65 50 85 46 47 57 35 34 58 64

62 37 41 42 36 54 82 48 53 57 56 72 56 48 44 55 78 59 50 45

a) Make a grouped frequency table with classes 20—29,30—39,40—49,etc
(2mk)

b) What is the modal distribution of the test
(1mk)

c) Calculate the mean of the data
(4mk)

d) Calculate the median mark
(3mk)

21. The velocity(v)of a vehicle measured at intervals of time(t) were recorded as follows

t(s)	0	2	4	6	8	10	12
v(m/s)	0	20	40	40	30	8	0

a) Represent this motion on a graph
(3mk)

b) Calculate the acceleration
(2mk)

c) Calculate the total distance travelled by the vehicle
(3mk)

d)Calculate the average velocity of the vehicle
(2mk)

22. A wooden stool is in the form of a frustum of a cone with slant edge 40cm,top diameter 30cm and bottom diameter 50cm.

a) calculate the perpendicular height of the stool
(3mk)

b)calculate the total surface area of the stool in terms of
(3mk)

c)calculate the volume of wood used to make the stool in terms of
(3mk)

d)given that the density of the wood used to make the stool is 0.8g/cm³, calculate the mass of the stool in kg
(1mk)

23. Using ruler and compasses only,

a) construct triangle ABC in which AB=5cm,BC=6cm and angle ABC=120º.
(3mk)

b)measure angle ACB
(1mk)

c)drop a perpendicular from C to cut AB produced at P. Measure CP.
(2mk)

d)hence calculate area of triangle ABC to 1dp
(2mk)

e)calculate the radius of a circle that passes through the vertices of triangle ABC
(2mk)

24. The distance between two towns A and B is360km.A minibus left town A at 8.15a.m and travelled towards B at an average speed of 90km/hr. A matatu left town B at 10.35a.m on the same day and travelled towards A at an average speed of 110km/hr.

a)i)how far from A did they meet?
(4mk)

ii)at what time did the two vehicles meet?
(2mk)

b) A motorist left his home at 10.30a.m on the same day and travelled at an average speed of 100km/hr. He arrived at B at the same time as minibus. Calculate the distance from B to his home.

(4mk)

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FORM THREE SET 3 EXAMS 2020

FORM THREE MATHEMATICS PAPER 2

121/2

INSTRUCTIONS

1. This paper consists of two sections. Answer all the questions in section 1 and any **5** questions in section 2.

2. KNEC mathematical tables and non-programmable calculators may be used when necessary

3. Answer all the questions in the spaces provided.

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

Section 2	17	18	19	20	21	22	23	24	total

Grand total

SECTION 1

Answer all the questions in this section

1.Evaluate $36 - 8 \times -4 - 15 \div -3$

$-3 \times -3 - 8(-6 + -2)$

(3mk)

2.Simplify $\frac{a+b}{2} - \frac{2a-b}{3}$

(3mk)

3.Find the greatest number which divides 181 and 236 and leaves a remainder of 5 in each case

(2mk)

4.A rectangle measures 20cm by 15cm.If each dimension is increased by 2.5cm, by what percentage is

a) the perimeter of the rectangle increased

(2mk)

b)the area of the rectangle is increased
(2mk)

5.The angle of elevation of the top of a tree from a point P on horizontal ground is 30^o. From another point Q 8 metres from the base of the tree, the angle of elevation of the top of the tree is 48^o.

a) Calculate to one decimal place the height of the tree.
(1mk)

b) Calculate the distance between P and Q
(2mk)

6.Given that $\cos \theta = -0.8070$, find θ for $0 \leq \theta \leq 720$
(3mk)

7.A piece of wire 40cm is bent to form a right-angled triangle whose hypotenuse is 17cm long. Find the lengths of the other two sides of the triangle
(4mk)

8.Solve for x in $\log 5 - 2 + \log(2x+10) = \log(x-4)$
(3mk)

9. Solve the quadratic equation by completing of squares giving your answer to 3sf

$11x^2 - 13x + 3 = 0$
(4mk)

10. Rationalize the denominator and simplify

$\frac{4\sqrt{5}+3\sqrt{2}}{2\sqrt{2}-\sqrt{5}}$
(4mk)

11.Use a calculator to work out

a)

(1mk)

b)

(1mk)

12. A tourist from Kenya left for Ethiopia. He exchanged sh 9898 into Ethiopian Birr at the rate of 1 Eth.Birr=ksh7.95. He spent ¾ of the money he got and converted the balance back to Kenyan money at the rate of 1Eth.Birr=ksh7.98 Calculate what he finally got to 2dp (3mk)

13. Simplify the expression

$$\frac{9t^2-25a^2}{6t^2+19at+15a^2}$$

(3mk)

14. Three types of tea costing sh203,sh146 and sh197 per kg are blended in the ratio of 2:5:k. Find the value of k,if the blend when sold at sh221 per kg gives 30% profit

(3mk)

15. A two digit number is such that 4 times the units digit exceeds the tens digit by1. If the digits are reversed, the number formed is decreased by 45. Find the number.

(3mk)

16. A triangular field has dimensions 21m by 52m by 47m.

a) calculate the area of the field to the nearest m^2.

(2mk)

b)calculate the length of a straight ditch dug from the largest angle meeting the opposite side at right angles.

(1mk)

SECTION 2

Answer any 5 questions in this section

17. A bookseller bought a number of cartons of books at a cost of ksh 57600 from Kagumo bookstore. Had he bought the same books from Kerugoya bookstore, it would have cost him ksh 480 less per carton. This would have enabled him to buy 4 extra cartons of books for the same amount of money. By taking x to be the number of cartons of books he actually bought;

a) write an expression in x

i) for the cost of each carton he bought at Kagumo bookstore (1mk)

ii)for the cost of each carton had he bought from Kerugoya bookstore
(1mk)

b)find the value of x
(6mk)

c)the bookseller later sold all the books he had bought each carton at ksh 720 more than he had paid for it. Determine the percentage profit he made
(2mk)

18. A cylindrical metal bar of diameter 14cm and length 2m is melted and moulded into spherical balls. In the process, 5% by volume of metal is lost and what remains makes balls of radius 3.5cm.

a)calculate the volume of metal used to make the balls.
(3mk)

b)find to the nearest whole number the number of balls made
(3mk)

c)find the total surface area of the metal bar
(2mk)

d)find the total surface area of the balls made
(2mk)

19.a) Draw the graph of $y=(2x-3)(x-1)$ for the interval $-2 \leq x \leq 4$
(6mk)

b)use your graph to solve

i)$2x^2-5x+3=0$
(1mk)

ii)$2x^2=3x+2$

(3mk)

20. a)Plot triangle ABC with coordinates A(1, 1), B(3, 1) and C(1,3) (1mk)

b)Plot A′B′C′ the image of ABC under an enlargement scale factor 2 centre A and write down it's coordinates

(2mk)

c)Plot A″B″C″ the image of A′B′C′ under a reflection in the line x+y=0 and write down it's coordinates

(3mk)

d)A″B″C″ is then reflected in the line y=0 to give A‴B‴C‴. Give the coordinates of A‴B‴C‴

(2mk)

e)Describe fully a rotation that maps A‴B‴C‴ onto A′B′C′

(2mk)

21Three businessladies Wanjiku, Muthoni and Njoki decided to buy a lorry. The .marked price of the lorry was 2.8million shillings. The dealer agreed that the ladies could pay a deposit of 60% of the marked price and the rest to be paid within a year.The ladies raised the deposit in the ratio of 3:2:5 respectively. At the end of the year the lorry had realized 2.08million shillings which the three shared in the ratio of their contribution. However, they were required to contribute for the balance of the lorry from these earnings again in the ratio of their original contributions.

a)calculate amount to be paid as deposit
(1mk)

b)how much did each contribute to pay for the deposit?
(3mk)

c)how much did Njoki receive at the end of the year?
(1mk)

d)calculate the total amount Muthoni and Njoki contributed to pay for the balance. (3mk)

e)how much money did Wanjiku remain with after paying her share of the balance? (2mk)

22.a)Make a table and draw the graph of y= sinx–cosx for x in the range 0, with y values to 2dp and x intervals of 30

(6mk)

b)use the graph to find the value of y when

i) x=75

(1mk)

ii) x=255

(1mk)

c)find the values of x for which y= –0.9

(2mk)

23.The figure below is a segment of a circle centre O radius r units.CM is the perpendicular bisector of AB .

B

C

M

A

Given that CM=1cm and AB=2cm,

a)calculate the radius of the circle centre O from which the segment was cut
(3mk)

b)calculate the angle that chord AB subtends at the centre of the circle
(2mk)

c)hence calculate

i)the length of arc ACB
(2mk)

ii)the area of the segment AMBC
(3mk)

24.A rectangular sheet of metal which measures 120cm by 0.8m is 1.5mm thick and is made of material whose density is 2.2 g/cm^3. From each of the four corners of the rectangle, a square of side 10cm is cut off and the remaining part folded to form an open cuboid.

a)calculate

i) the capacity of the cuboid in cm^3 to the nearest whole number
(3mk)

ii)the mass of the empty cuboid in kg to the nearest whole number
(3mk)

b)the cuboid is filled with a liquid whose density is $0.75g/cm^3$. Calculate the mass in kg of the cuboid when full of the liquid
(2mk)

c)calculate the mass of metal lost in kg
(2mk)

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