

TOPGRADE 2022 PREDICTION



KCSE ALL SUBJECTS



SERIES 1

SUBJECTS PREDICTED;

Mathematics, English, Kiswahili, Biology, Chemistry, Physics, CRE, History, Geography, Business Studies, Agriculture, French, IRE, Homescience & Computer Studies.

1st Series of Well Analyzed Potential Viable Questions Most Likely to be Expected in the KCSE Final Examinations Scheduled for November 2022.

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PATHWAY TO SUCCESS

TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

SCHOOL..... SIGN.....

DATE.....

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

231/1

BIOLOGY

(THEORY)

PAPER 1

TIME: 2 HOURS

Instructions to candidates

1. Write your **name**, **index number** and the **name** of your school in the spaces provided above.
2. **Sign** and **write the date** of examination in the spaces provided above.
3. Answer **all** questions in this question paper.

For Examiner's Use Only

QUESTIONS	MAXIMUM SCORE	CANDIDATE'S SCORE
1-30	80	



Answer All the Questions in the spaces provided

1. State the function(s) of the following cell structures during cell division. (2mks)

(i) Centriole

.....
.....

(ii) Centromere

.....
.....

2. (a) State the function of **co-factors** in cell metabolism. (1mk)

.....
.....

(b) Give **one** example of a metabolic co-factor. (1mk)

.....
.....

3. Industrial wastes may contain metabolic pollutants. State how such pollutants may indirectly reach and accumulate in the human body if the wastes were dumped into rivers. (3mks)

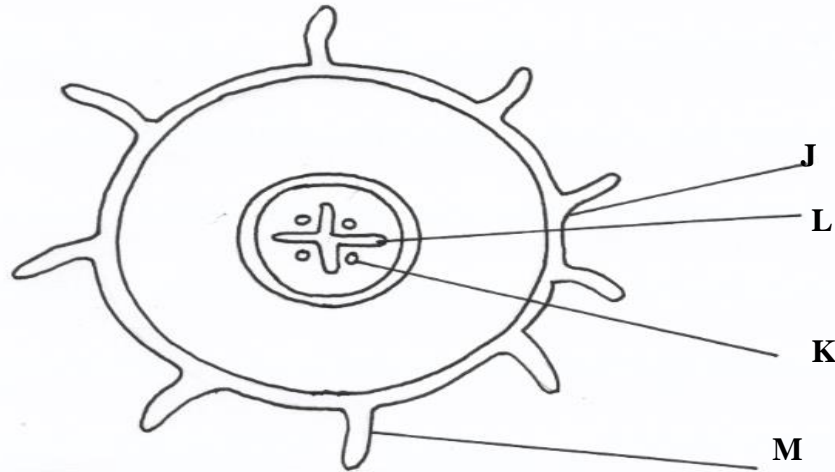
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4. In an investigation the pancreatic duct of a mammal was blocked. It was found that the blood sugar regulation remained normal while food digestion was impaired. Explain these observations. (2mks)

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.....



5. The diagram below represents a transverse section through a plant organ.



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

.....

.....

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

.....

.....

.....

6. State **two** structural differences between ribonucleic acid (RNA) and deoxyribonucleic acid (DNA). (2mks)

RNA	DNA

7. (a) Explain why glucose does not appear in urine of a healthy person even though it is filtered in the Bowman's capsule of a mammal. **(2mks)**

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.....
.....

(b) In a certain person, glucose appeared in urine. State the disease the person was suffering from. **(1mk)**

.....
.....

8. State the stage in cell division in which the following events occurs:-

(i) Replication of the genetic material. **(1mk)**

.....
.....

(ii) Exchange of genetic material **(1mk)**

.....
.....

9. In a blood test, a few drops of anti-B serum were added to two samples of blood. It was noted that agglutination occurred. What were the possible blood groups of the two blood samples. **(2mks)**

.....
.....

10. Explain what would happen when a marine amoeba is transferred to a fresh water environment. **(3mks)**

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11. A small amount of chemical M was put on one side of maize coleoptiles. After some days, it was noted that the coleoptiles curved away from the side to which the chemical was applied.

(a) Suggest the possible identity of chemical substance M (1mk)

.....
.....

(b) Explain how this chemical might have caused the coleoptiles to curve. (2mks)

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.....

12. Name the division of the Kingdom plantae with the following spore producing bodies. (2mks)

(i) Sori

.....
.....

(ii) Capsule

.....
.....

13. (a) Name two fins in a bony fish which perform the following functions:-

Changing direction, control pitching. (2mks)

.....
.....

(b) State the role of the swim bladder in a fish. (1mk)

.....
.....

14. (a) In which part of the spinal cord is the cell body of the motor neurone found. (1mk)

.....
.....



(b) Below are two features which make a neurone a specialised cell. State their roles. (2mks)

(i) Axon.

.....
.....

(ii) Dendrites.

.....
.....

15. (a) What is a natural selection? (1mk)

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.....
.....

(b) Distinguish between convergent and divergent evolution. (1mk)

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.....
.....

16. (a) Explain how the following parts of a mammalian reproductive system are adapted to their functions. (2mks)

(i) Testis

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.....

(ii) Uterus

.....
.....



(b) Explain why removal of the ovary after four months of pregnancy does not terminate pregnancy.

(1mk)

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

17. Active yeast cells were added to a dilute sugar solution in a container. The mixture was kept in a warm room. After a few hours bubbles of gas were observed escaping from the mixture.

(a) Write an equation to represent the chemical reaction above.

(1mk)

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.....

(b) What is the economic importance of this type of chemical reaction in industry.

(1mk)

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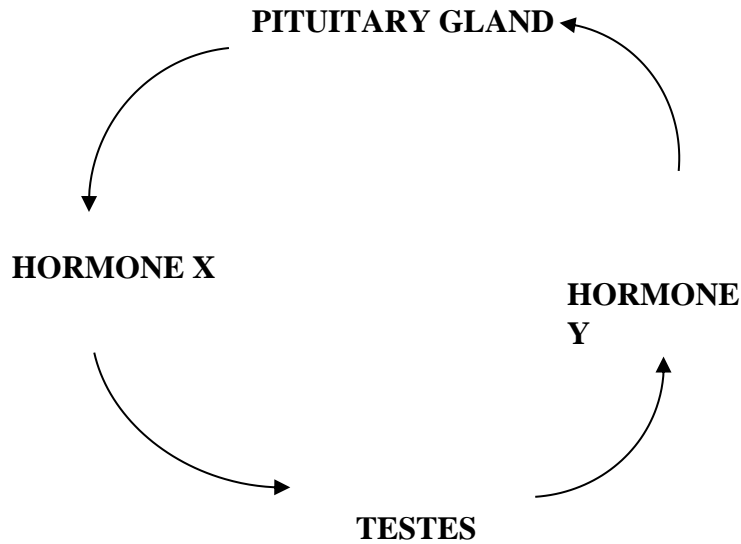
18. What are the functions of the odontoid process found on the axis bone of the cervical vertebra.

(2mks)

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19. The diagram below represents a simple endocrine feedback mechanism in a human male.





(a) Name the hormone labeled X (1mk)

.....
.....

(b) State two differences that may be observed between a normal male and one who is incapable of producing hormone labeled Y (2mks)

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.....

20. (a) What is meant by double fertilization in flowering plants? (2mks)

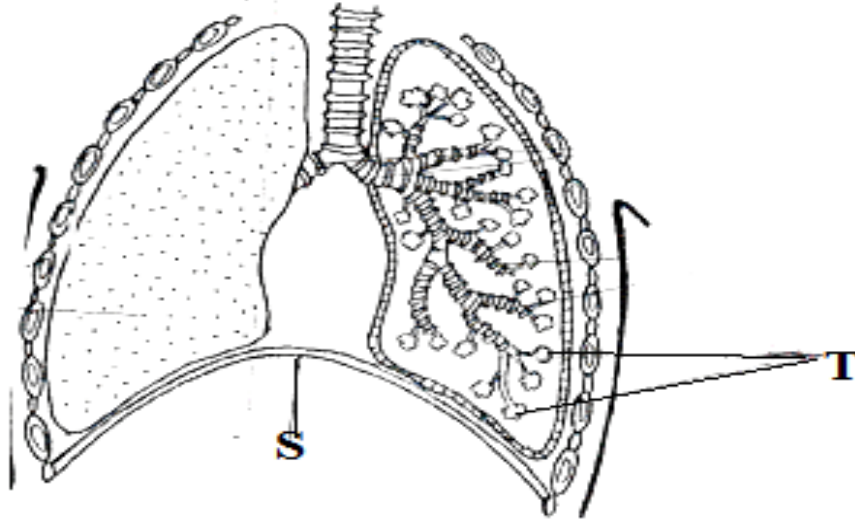
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(b) State two advantages of cross pollination in a flowering plant. (2mks)

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21. The diagram below shows part of a mammalian respiratory system.



(a) Explain **two** ways in which the part labeled T is adapted to its functions. (2mks)

.....

.....

.....

.....

(b) How does the part labeled S facilitate breathing in? (2mks)

.....

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.....

.....

22. Define the term alleles. (1mk)

.....

.....

23. (a) Explain why the body temperature of a healthy human being must rise upto 39°C on humid day. (2mks)

.....

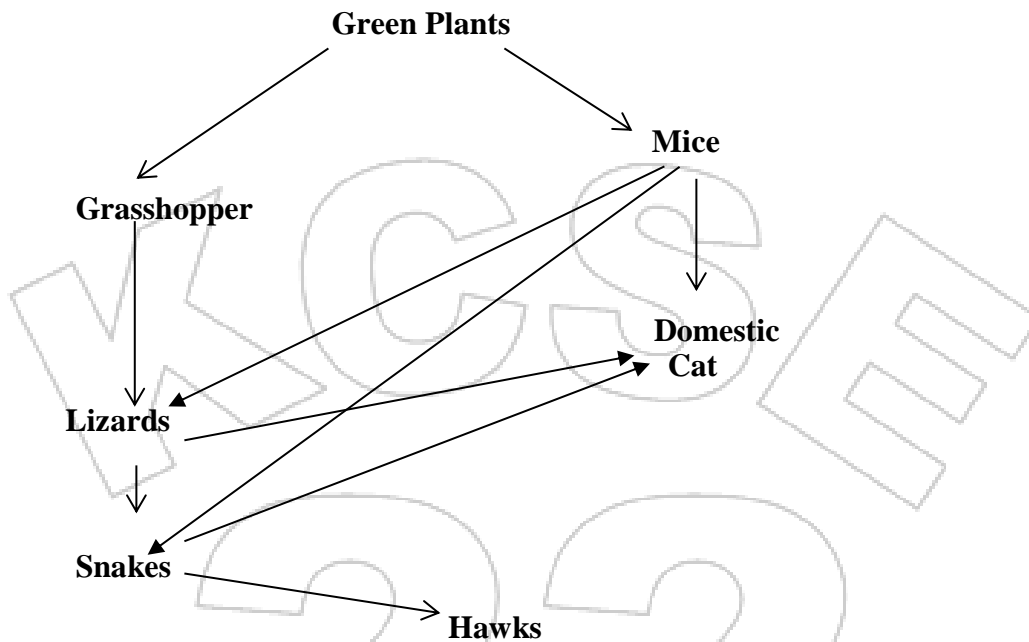
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(b) In an experiment a piece of brain was removed from a rat. It was found that the rat had large fluctuations of body temperature. Suggest the part of the brain that had been removed. (1mk)

.....

24. The chart below shows a feeding relationship in a certain ecosystem.



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

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.....

(b) Suggest **three** ways in which the ecosystem would be affected if there was prolonged drought. (3mks)

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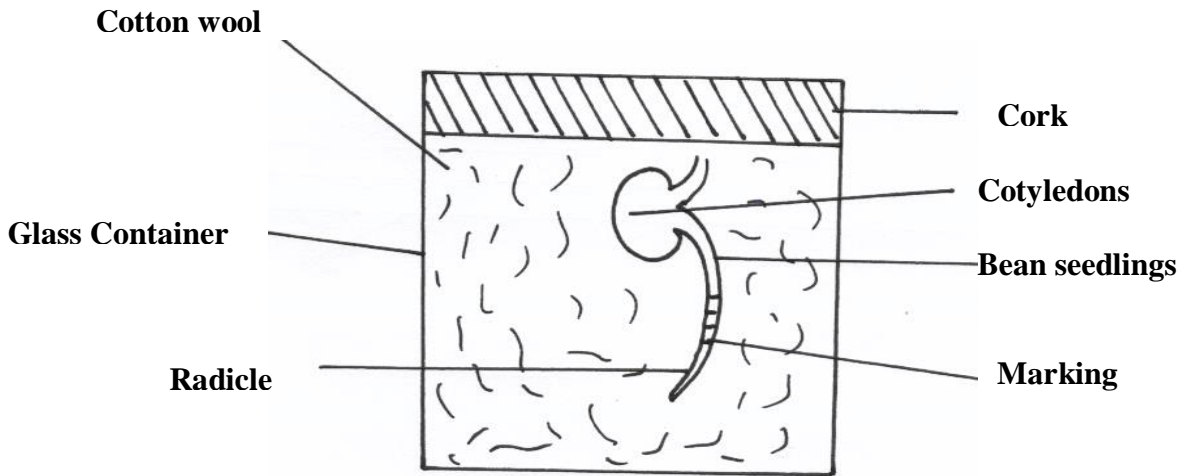
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25. A student set up an experiment as shown in the diagram below.

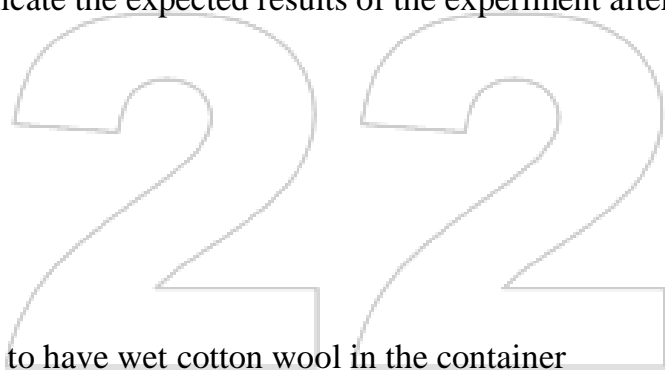


AT THE START

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

.....
.....

(ii) Draw a diagram to indicate the expected results of the experiment after three days. (1mk)



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

.....
.....

(b) What is the role of the following in a germinating seed.

(i) Oxygen (1mk)

.....
.....

(ii) Cotyledons

(1mk)

.....
.....

26. Give a reason why it is only mutations in genes of gametes that influence evolution. (1mk)

.....
.....

27. A person was able to read a book clearly at arms length, but not at normal distance.

(a) State the eye defect the person suffered from. (1mk)

.....
.....

(b) Why was he unable to read the book clearly at normal distance. (1mk)

.....
.....

(c) How can the defect be corrected. (1mk)

.....
.....

28. Some form three students took a germinating maize grain and placed it in a starch paste in a petri dish and put the Petri dish in a water bath maintained at 30°C. After 48 hours the starch paste was irrigated with iodine solution. The area around the maize grain changed to the colour of iodine solution while the rest turned blue –black.

(a) Account for the observation (2mks)

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



(b) Why was the Petri dish put in a water bath maintained at 30°C? **(1mk)**

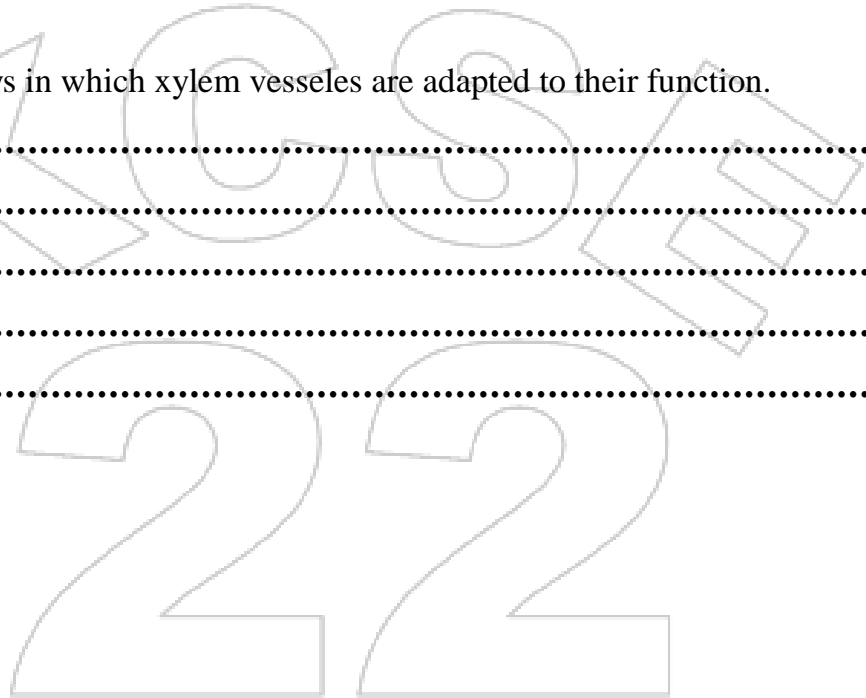
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29. State **two** functions of muscles found in the alimentary canal of mammals. **(2mks)**

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30. Explain **two** ways in which xylem vessels are adapted to their function. **(2mks)**

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TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

SCHOOL..... SIGN.....

DATE.....

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

231/2

BIOLOGY

PAPER 2

TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

- (a) Write *your name and index number* in the spaces provided.
- (b) Answer *all* the questions in Section A in the spaces provided.
- (c) In section B answer questions 6 (compulsory) and either question 7 or 8 in the spaces provided

For Examiner's Use Only:

SECTION	QUESTIONS	MAXIMUM SCORE	CANDIDATES SCORE
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8	20	
	TOTAL	80	



SECTION A (40 MARKS)

Answer all the questions in this section in the spaces provided

1. A couple has three children, the mother had **blood group A** and the father had **blood group B** while one of the children had **blood group 0**.

(a) (i) **What** were the genotypes of the parents? **(1mark)**

Father

.....
.....

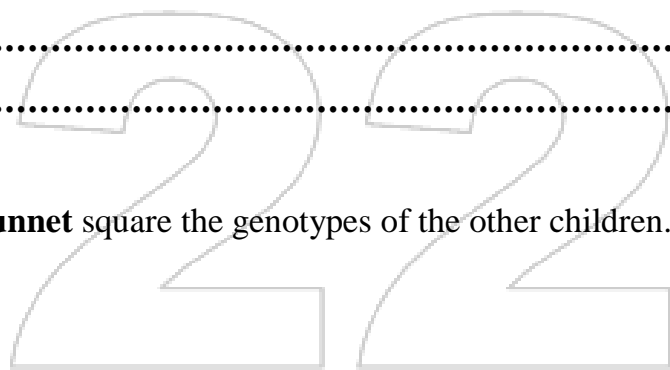
Mother

.....
.....

(ii) What was the genotype of the child with blood **group 0**? **(1mark)**

.....
.....

(b) **Work out** using a **punnet** square the genotypes of the other children. **(4 marks)**



(c) Which child can receive blood from any member of the family? (1mark)

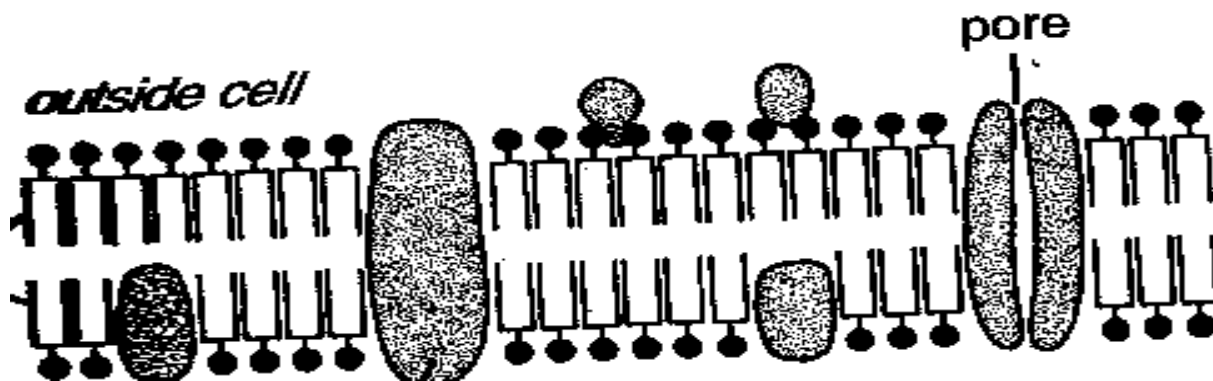
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(d) State the percentage of children who can donate blood to all blood groups. (1mark)

.....

.....

2. Below is a diagram of a structure found in Eukaryotic cells? Study it and answer the questions that follow



a) Identify the structure (1 mark)

.....

b) State two functions of the structure (2 marks)

.....

.....

.....

c) (i) Name one organelle found in animal cells but absent in plant cells (1 mark)

.....

ii) State one function of the organelle you have named in(c) above (1 mark)

.....

.....

d) Briefly **explain** cell biology as an evidence of evolution (3 marks)

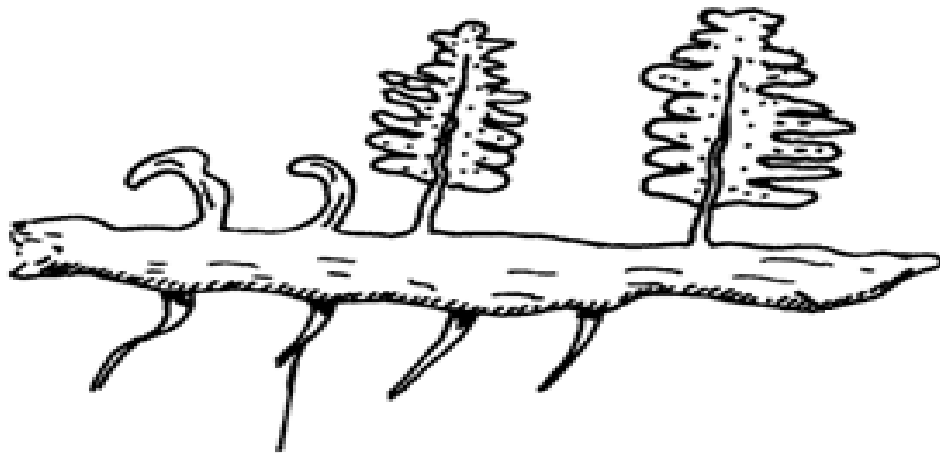
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3. Below is a diagram of a plant a form three student collected while carrying out an ecological study?



Adventitious root

(a) With reasons identify the division into which the students classified the plant.

Division (1mark)

.....

Reasons (2marks)

.....

.....

.....

b) (i) Name the structure that produces spores in this plant. (1mark)

.....

.....

(ii) State **two** differences between the plant division above and that of the division (2 marks)

<i>SPERMATOPHYTA.</i>	<i>SPERMATOPHYTE</i>

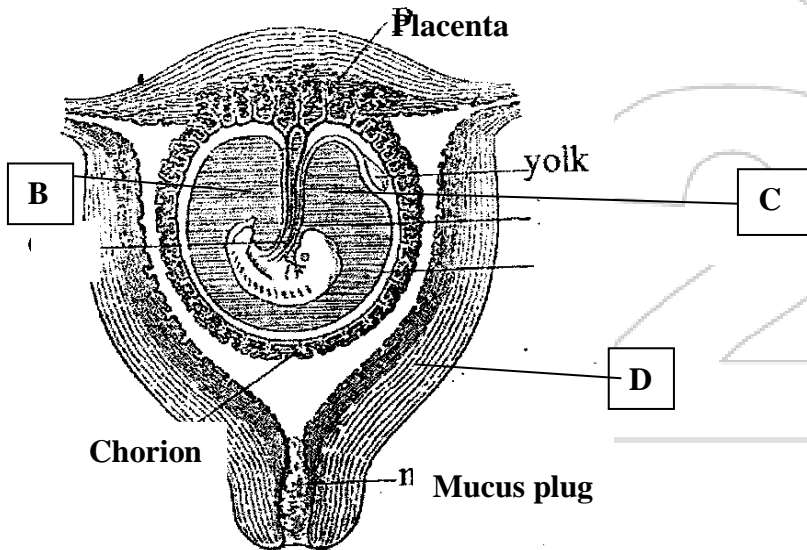
c) Give **two** distinguishing features of class *Amphibia* (2marks)

.....

.....

.....

4. The diagram below represents human foetus in a uterus.



a) Name the part labeled D. (1 mark)

.....

b) i) Name the types of blood vessels found in the structure labeled C. (2 marks)

.....

.....

ii) State the differences in composition of blood found in the vessels named in (b) (i) above. (2 mks)

iii) State two importance of the fluid found in part B (2 marks)

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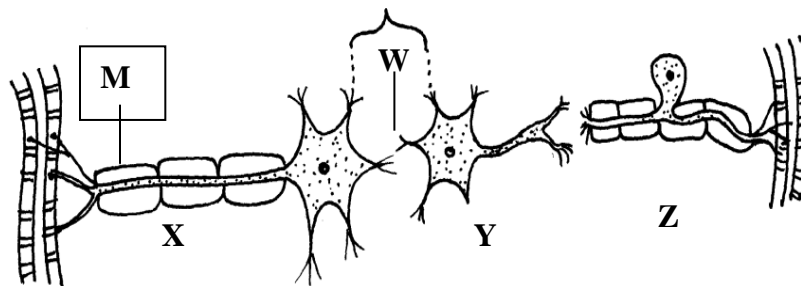
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iv) State the role of progesterone during pregnancy (1 mark)

.....

.....

5. The diagram below represents three types of neurons found in a mammalian body.



(a) Name the neurons X, Y and Z (3marks)

X.....

Y.....

Z.....

(b) Name the chemical substance responsible for the transmission of an impulse across the gap labelled W. (1mark)

.....

(c) State two functions of the part labelled M. (2marks)

.....

(d) In which part of the spinal cord is neurone Y located? (1mark)

.....

(e) Using arrows indicate on the diagrams the direction followed by nerve impulse leading to a response. (1mark)

SECTION B (40MARKS)

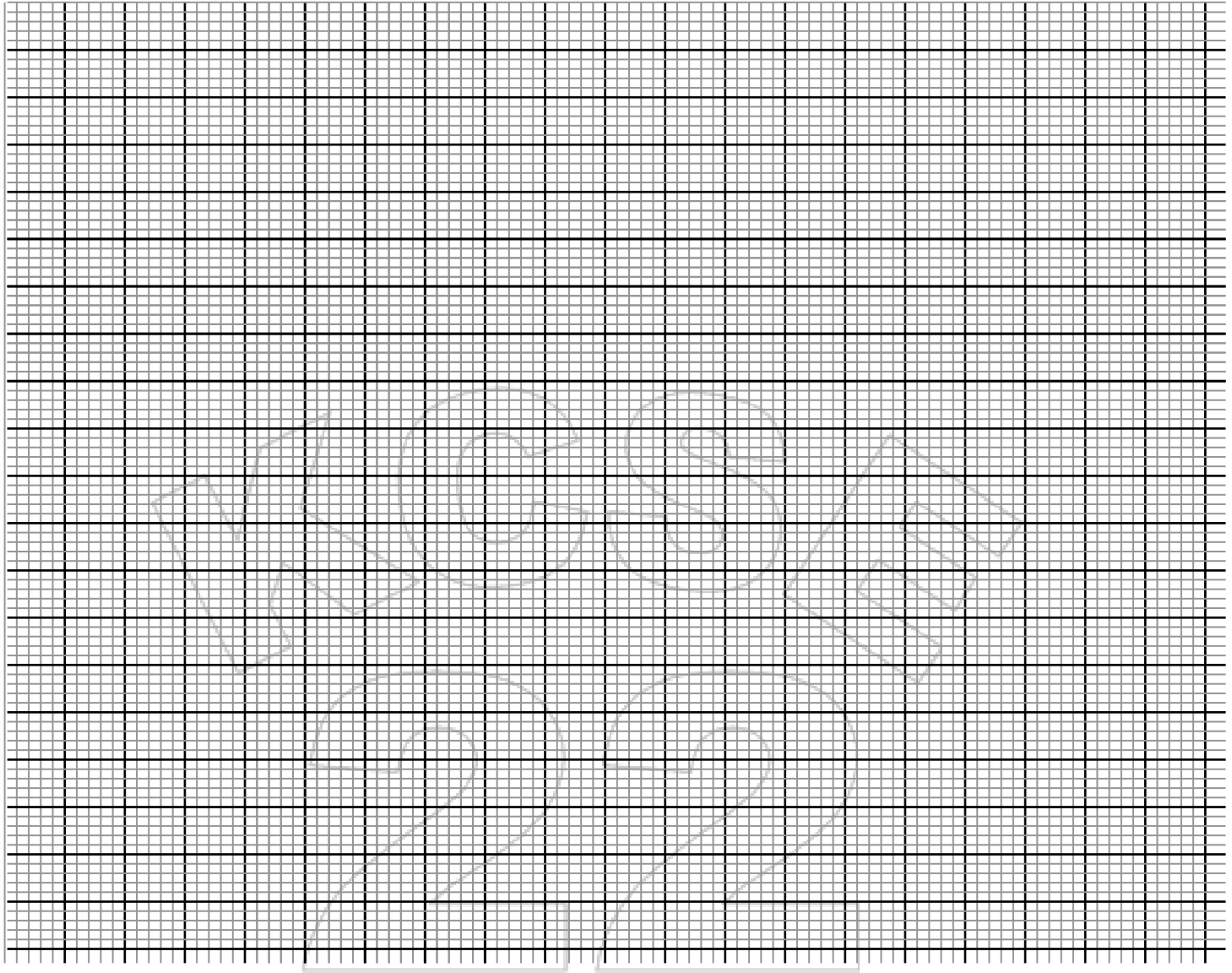
Answer questions 6(compulsory) and either questions 7 or 8 in the spaces provided

6. During germination and growth of a cereal, the dry weight of endosperm, the embryo and total dry weight were determined at two – day intervals. The results are shown in the table below.

Time after planting(days)	Dry weight of endosperm	Dry weight of embryo (mg)	Total dry weight (mg)
0	43	2	45
2	40	2	42
4	33	7	40
6	20	17	37
8	10	25	35
10	6	33	39



a) Using the same axes, draw graphs of dry weigh of endosperm, embryo and the total dry weight against time (8marks)



b) **What** was the dry weight of the endosperm and embryo on the **5th day**? (2marks)

Endosperm

.....
.....

Embryo

.....
.....



c) **Account** for:

i) Decrease in dry weight of endosperm from day 0 to 10 (2marks)

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

ii) Increase in dry weight of embryo from day 0 day 10 (2marks)

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

iii) Decrease in total dry weight from day 0 to day 8 (2marks)

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.....
.....

d) **State** the role of the following in germination (2marks)

i) Glucose

.....
.....

ii) Enzymes

.....
.....

e) **How** are the foliage leaves adapted to their function (2marks)

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



7 (a) **Describe** the role of hormones in blood sugar regulation (10 marks)

(b) **Explain** how halophytes are adapted to their habitat (10 marks)

8 (a) **Explain** the adaptations of thoracic, cervical and lumbar vertebrae to their functions

(12 marks)

(b) **Describe** the structural factors affecting transpiration (8 marks)

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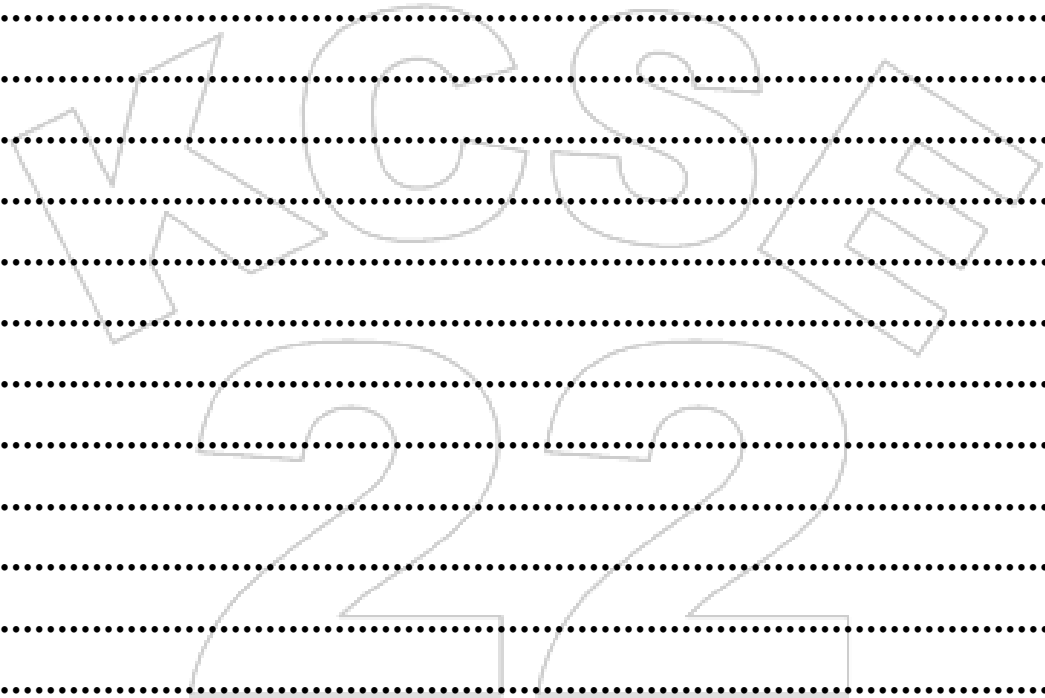
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KCSE
2022



TOPGRADE 2022 PREDICTION

KCSE SERIES 1

SCHOOL..... SIGN.....

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

BIOLOGY PRACTICAL

CONFIDENTIAL INSTRUCTIONS TO SCHOOLS

The information contained in this **KCSE Biology Prediction paper** is to enable the head of the school and the teacher in charge of Biology to make adequate preparations for the **231/3 Biology Practical** examination.

No one else should have access to this information either directly or indirectly.

REQUIREMENTS

Each KCSE candidate will require;

Question 1

1. 4 test tubes per rack
2. Solution R – 1% starch solution
3. Solution T – Distilled water
4. Solution H – 1 Molar HCl (aq)
5. 15cm string
6. 8 cm long visking tubing
7. Iodine solution
8. 50 ml beaker

Question 2 and Question 3

1. Print photos on coloured printer.



TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

SCHOOL..... SIGN.....

DATE.....

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

231/3

BIOLOGY

PAPER 3

PRACTICAL

1 ¾ HOURS

Instructions to candidates

- (a) Write your *name*, *index number* and the *name* of your school in the spaces provided above.
- (b) *Sign* and write the *date* of examination in the spaces provided above.
- (c) Answer *all* questions in this question paper.
- (d) Answers to *all* questions *must* be written in the spaces provided in this booklet.
- (e) Candidates should check to ascertain that all pages are printed as indicated and that no questions are missing.

FOR EXAMINER'S USE ONLY

QUESTION	MAXIMUM SCORE	CANDIDATES SCORE
1	12	
2	13	
3	15	
TOTAL	40	



Answer all the questions in the spaces provided.

Q1. You are provided with Four Test-tubes label as **A**, **B**, **C** and **D**. You are required to prepare the contents of test tube **A**, **B**, **C** and **D** as follows.

To test tube **A** add 2cm³ of solution **R** provided and test using the provided reagent.

To test tube **B** add 2cm³ of solution **T** provided and test using the provided reagent.

(a) (5 marks)

Test tube	Procedure	Observation	Conclusion
A			
B			

(b) To test tube **C** and **D**, prepare them as follows:

To test tube **C** add 2cm³ of **R** and 2cm³ of solution **H** provided boil it and allow it to stand for 5 minutes.



To test tube **D** add 2cm³ of **R** and 2cm³ of solution **T** boil and allow it to stand for 30 minutes. For both **C** and **D** test using the provided reagents and tabulate your results below. **(5 marks)**

Test tube	Procedure	Observation	Conclusion
C			
D			

(c) To the provided visking tubing tie one end with the provided string and add solution **R**. Tie the remaining end and immerse it in a solution of iodine solution in a beaker (50ml). After 2 minutes remove it from the beaker and observe.

(i) What was your observation of the contents of the visking tubing at the end of experiment?
(1 mark)

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.....



(ii) Account for your results in (i) above.

(3 marks)

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2. Study the kidney diagrams below:

FIGURE I

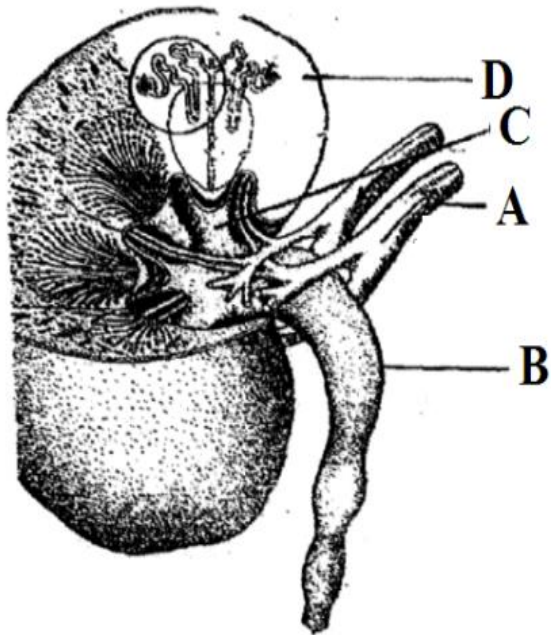
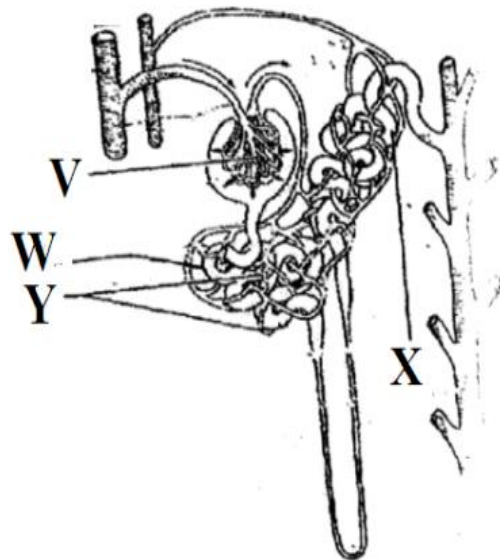


FIGURE II



a) i) Name the part labeled A in figure 1

(1mark)

A

ii) Name the process that takes place in the parts labeledV.

V

.....

(1 mark)

b) State two homeostatic functions of the organ in the diagram above. (2marks)

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

c) Explain what will happen to the process of urine formation in absence of ADH. (3marks)

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

d) Below are photographs labeled **B** and **C** of organs obtained from different animals. The organs perform similar functions. Examine them and answer the questions that follow.



(i) Name the parts labeled B1, B2 and B3 in photographs B (3marks)

B1

B2

B3

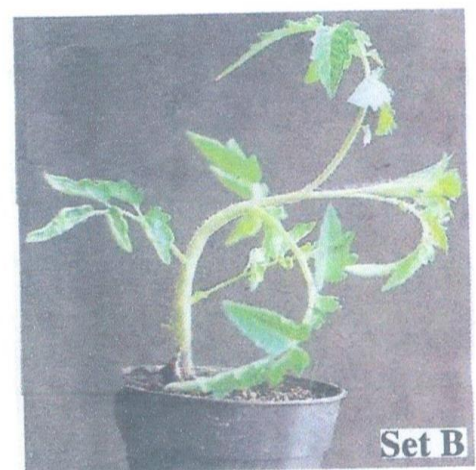
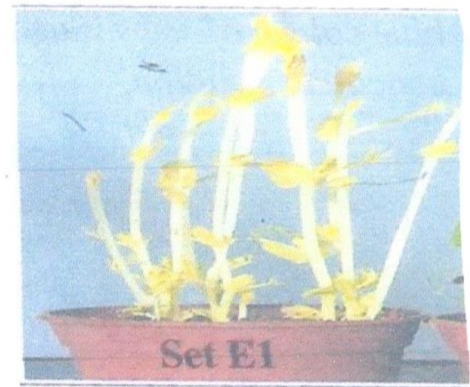
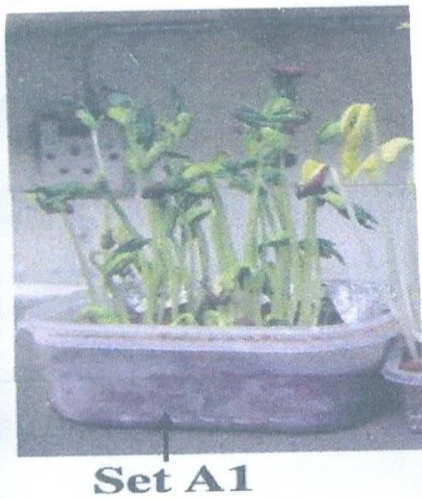
(ii) Identify the parts labeled K1, K2 and K3 in photograph C (3marks)

K1

K2

K3

3. Study the diagrams set **A₁**, set **E₁**, set **M₁** and set **B** carefully and answer the questions below



(a) State the conditions under which each set up was grown. (3mks)

Set A₁ _____

Set E₁ _____

Set B _____

(b) (i) Name the phenomenon exhibited by seedlings in set E₁ (1mk)

.....

(ii) Give a reason why plants exhibit the phenomenon named in (b) (i) above (1mk)

.....
.....

(c) (i) Name the response exhibited by the seedlings in set B. (1mk)

.....

(ii) Explain how the response named in (c) (i) above occurred (2mks)

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

(d) (i) State the type of germination exhibited by seedlings in set A₁ and set M₁. (2mks)

Set A₁

.....
.....

Set M₁

.....
.....



(ii) Give a reason for your answer in (d) (i) above

(2mks)

Set A₁

.....
.....

Set M₁.....

.....
.....

(iii) State the mode of dispersal in set A above when mature.

(1 mk)

.....
.....

(iv) Name the type of fruit by M1 on maturity.

(1 mk)

.....
.....

22



TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

SCHOOL..... SIGN.....

DATE.....

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

233/1

CHEMISTRY

Paper 1

THEORY

Time: 2 hours

Instructions to Candidates

- Write your name and index number in the spaces provided above.
 - Sign and write the date of the examination paper.
 - Answer **ALL** the questions in the spaces provided in the question paper.
 - ALL** working **MUST** be clearly shown where necessary.
 - Mathematical tables and silent electronic calculators may be used.
- f) Candidates should check the paper to ascertain that all the pages are printed as indicated and that no questions are missing.

For Examiner's Use Only

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1-26	80	



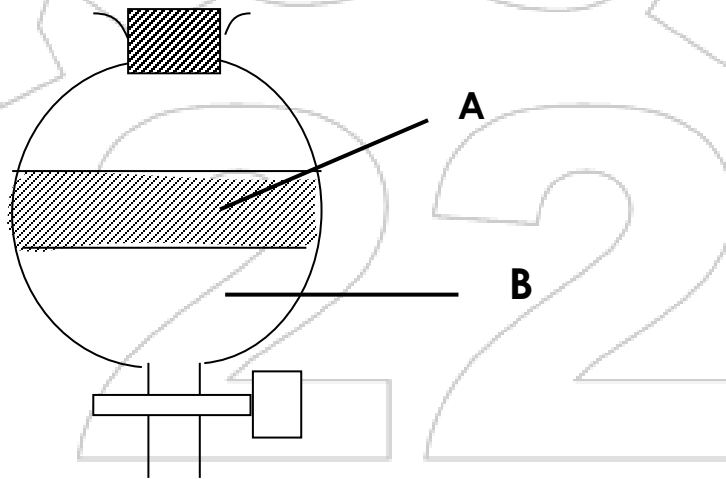
1. (a) Give *two* differences between luminous and non-luminous flames. (2 marks)

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

(b) How is the non-luminous flame produced? (1 mark)

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.....
.....

2. (a) The apparatus below were used to separate a mixture of liquid A and B.



State *two* properties of liquids that make it possible to separate using such apparatus. (2 marks)

.....
.....

(b) Give the name of the above apparatus. (1 mark)

.....
.....

3. (a) Explain why solid Carbon (IV) oxide is preferred over ordinary ice for use by ice cream venders. **(1 mark)**

.....

.....

(b) Name one piece apparatus used to measure volume of gases. **(1 mark)**

.....

.....

(c) Draw a diagram of a deflagrating spoon. **(1 mark)**

4. The table below shows the pH values of solutions P, R, Q and S.

Solution	P	R	Q	S
pH	2	7	6.5	13.5

(a) Which solution represent:

(i) Strong base -

(ii) Weak acid -

(b) Give an example of solution S. **(1 mark)**

.....

.....

.....



5. 6.95g of hydrated iron (II) sulphate $\text{FeSO}_4 \cdot n\text{H}_2\text{O}$ was dissolved in 250 cm^3 solution resulting into a 0.1M solution. Determine the value of n. (3 marks)

(Fe = 56, O = 16, S = 32, H = 1).

6. Rusting leads to fast wearing out of farm tools and equipment as well as buildings.

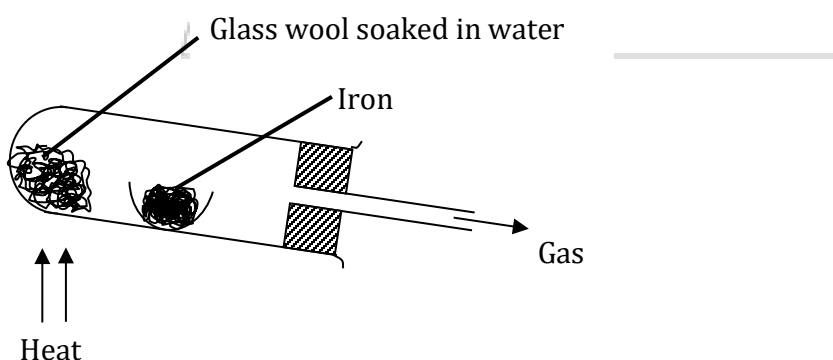
(a) Give the chemical name of rust. (1 mark)

.....

(b) What *two* conditions accelerate rusting process? (2 marks)

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

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



(a) Write an equation for the reaction that take place in the combustion tube. (1 mark)

.....
.....

- (b) Why would it not be advisable to use potassium in place of iron in the set-up (1 mk)

.....

- (c) Glass wool should be heated before heating iron. Explain. (1 mark)

.....

8. I. Name the following organic compounds.

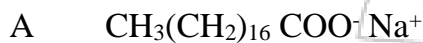
- (a) $\begin{array}{ccccccc} \text{CH}_3 & \text{CH} & \text{CH}_2 & \text{CH} & \text{CH}_3 & & \\ & | & & | & & & \\ & \text{CH}_3 & & \text{Br} & & & \end{array}$ (1 mark)

.....

- (b) $\text{HOCH}_2 - \text{CHOH} - \text{CH}_2\text{OH}$ (1 mark)

.....

II. Given



Identify detergent

- A (1 mark)

- B (1 mark)

9. In terms of structure and bonding, explain the following.

- (a) Graphite is used as a lubricant. (1 mark)

.....

- (b) Aluminium is better conductor of electricity than magnesium. (1 mark)



.....
.....

(c) Water is a liquid at room temperature while hydrogen sulphide is a gas. (1 mark)

.....
.....

10. (a) Define the term molar latent heat of fusion. (1 mark)

.....
.....

(b) The molar heat of fusion of ice at 0°C is 6kJ mol⁻¹. Calculate the heat change when 36g of ice is converted to 36g of water at 10°C. (3 marks)

(SHC = 4.2 J g⁻¹ K⁻¹, density = 1.0g/cm³, H = 1.0, O = 16.0)

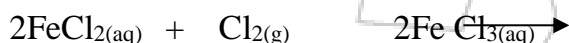
11. Draw a well labeled diagram showing how blister copper is purified. (3 marks)



12. Gas Q with a relative molecular mass of 48 took 50 seconds to diffuse through a porous diaphragm. How long will it take for the same amount of hydrogen Chloride (HCl) to diffuse through the same diaphragm under similar conditions? (H = 1.0, Cl = 35.5). (3 marks)

13. (a) Calculate the oxidation state of chromium in the ion Cr_2O^{2-} . (1 mark)

(b) Using oxidation numbers, determine from the equation below the species which undergoes oxidation and reduction.



Oxidation - (1 mark)

Reduction - (1 mark)

14. Given elements A, B and C with atomic numbers 11, 19 and 13 respectively.

(a) Compare the atomic radius of A and C. Explain. (2 marks)

.....

.....

.....

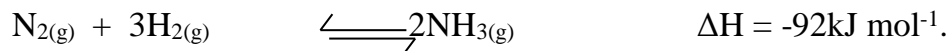
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(b) Compare reactivity of A and B. (1 mark)

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

15. Haber process (the manufacture of ammonia gas) is given by the following equation.



State and explain the effect of:

(a) Introducing some drops of water to the equilibrium. (1 mark)

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

(b) Pumping nitrogen gas to the equilibrium mixture. (1 mark)

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

(c) Lowering the temperature of the reaction. (1 mark)

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

16. Elements P and Q have the following atomic numbers 19 and 8 respectively.

(i) Using dot () and cross draw a diagram to show how the elements form bonds.

(1 mark)



17. Describe how sodium sulphate crystals can be prepared starting with 50cm³ of 2M sodium hydroxide and 1M sulphuric (VI) acid. (3 marks)

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

18. Write ionic equations to show how;

(a) (i) Excess ammonia solution reacts with a solution containing Copper II ions. (1 mark)

.....
.....

(ii) Excess sodium hydroxide added to a solution containing Al³⁺ ions. (1 mark)

.....
.....

(b) Give the name of the following ion [Zn(NH₃)₄]²⁺ (1 mark)

.....

19. (a) Define electrolysis. (1 mark)

.....
.....

(b) During the electrolysis of molten aluminium oxide, write the equations at the;

Anode -(1 mark)

Cathode - (1 mark)



20. (a) Give any *two* differences between alpha and beta particles. (2 marks)

.....

.....

.....

(b) A radioactive isotope T decays by emitting three alpha particles to form ${}_{83}^{214}\text{Bi}$
 what is the atomic number and mass number T?

Atomic number- (1 mark)

Mass number - (1 mark)

21. (a) Using acidified potassium dichromate (VI) solution, describe how you would differentiate between sulphur (IV) oxide and hydrogen sulphide. (2 marks)

.....

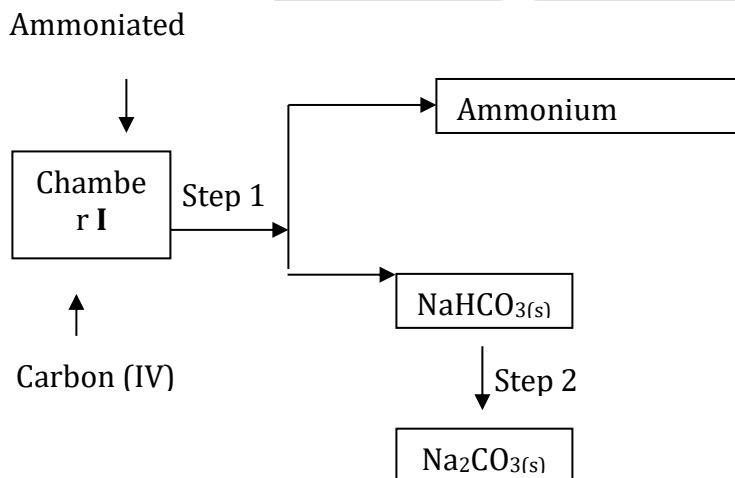
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.....

(b) Identify the catalyst preferred in contact process. Explain. (2 mark)

.....

22. Study the following part of the solvay process for the manufacture of sodium carbonate and answer the questions that follows:



(i) State the main source of Carbon (IV) oxide in the process. (1 mark)

.....

(ii) Write down the overall equation for the reaction in chamber I. (1 mark)

.....

(iii) Name process in step 1. (1 mark)

.....

23. (a) The following equation involve hydrochloric acid.



State the type of reaction taking place in the reaction. (1 mark)

.....

(b) State *two* contrasting chemical properties of hydrogen and chlorine. (2 marks)

.....

.....

24. (a) An element **O** has two isotopes $^{16}_8\text{O}$ containing 90% and Isotope $^{18}_8\text{O}$.

(i) What are isotopes? (1 mark)

.....

(ii) Find the R.A.M of **O**. (2 marks)



25. (a) When a hydrocarbon is completely burnt in oxygen 4.2g of Carbon (IV) oxide and 1.71g of water were formed.

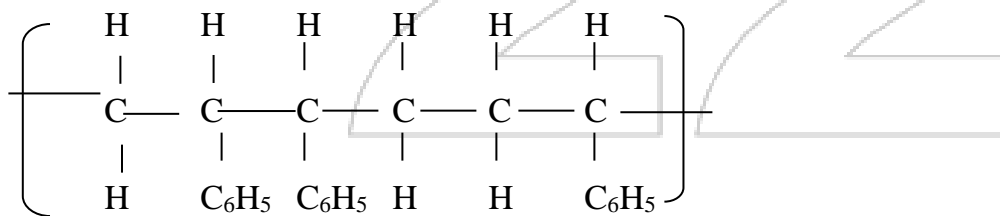
(i) Determine the empirical formular of the hydrocarbon. (3 marks)

(b) Given that formula mass of compound above is 28. Find the molecular formular. (1 mark)

26. (a) Name the *two* types of polymerization. (1 mark)

.....

(b) Study the section of the polymer below and answer the questions that follow.



(i) Give the name of the polymer above. (1 mark)

.....



TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

SCHOOL..... SIGN.....

DATE.....

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

233/2

CHEMISTRY

THEORY

2 Hours

INSTRUCTIONS TO CANDIDATES:

- Write your **name** and **index number** in the spaces provided above.
- **Sign** and write the **date** of examination in the spaces provided.
- Answer **all** the questions in the spaces provided.
- All working **must** be clearly shown where necessary.
- **Mathematical tables** and **electronic calculators** may be used.

For Examiner's Use Only:

Question	Maximum score	Candidate's score
1	12	
2	12	
3	14	
4	08	
5	13	
6	10	
7	11	
Total	80	



Answer *all* the questions in the spaces provided.

1. The grid below shows part of the periodic table. Use it to answer the questions that follow. The letters do not represent actual symbols.

						S	U	V
P	R					T	X	W
Q								

(a) Which of the elements has the highest atomic radius? Explain. (2 marks)

.....

.....

.....

(b) Identify the most reactive Oxidizing agent. Explain. (2 marks)

.....

.....

.....

(c) Compare the atomic radius of P and R. Explain (2 marks)

.....

.....

.....



(d) Give the formula of one stable ion with an electron arrangement of 2.8 which is:

(i) A Negatively charged divalent ion.

(2marks)

.....

(ii) A Positively charged monovalent.

.....

(e) Given that the mass number of W is 40. Write down the composition of its nucleus.

(2 marks)

.....

.....

(f) Write the formula of the compounds formed between.

(i) Element R and X.

(1 mark)

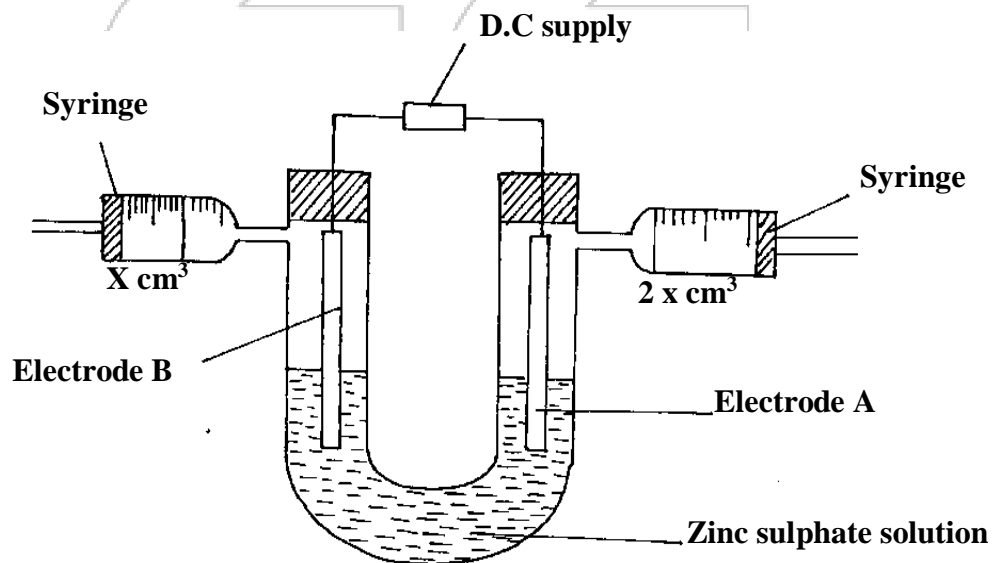
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(ii) Give one property of the structure formed when R and X bond.

(1 mark)

.....

2. An aqueous solution of zinc sulphate is electrolysed using platinum electrodes as shown in the set up below.



(a) (i) Write a half equation for the reaction taking place at electrode **A**. (1mark)

.....
.....

(ii) Identify electrodes A and B (2 marks)

.....
.....

(iii) State and explain the observation at electrode **B** if copper plate was used instead of platinum electrode. (2marks)

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

(b) 0.22g of metal **Q** is deposited by electrolysis when a current of 0.06A flows for 99 minutes.
(RAM of **Q** = 184, 1F = 96500c)

(i) Find the number of moles of **Q** deposited. (1mark)

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

(ii) Determine the value of n in the metallic ion Q^{n+} (3marks)

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

(c) Determine oxidation number of chlorine in ClO_3^- (1mark)

.....
.....



(d) An iron spoon is to be electroplated with silver. Draw a labelled diagram to represent the set-up that could be used to carryout this process. (2marks)

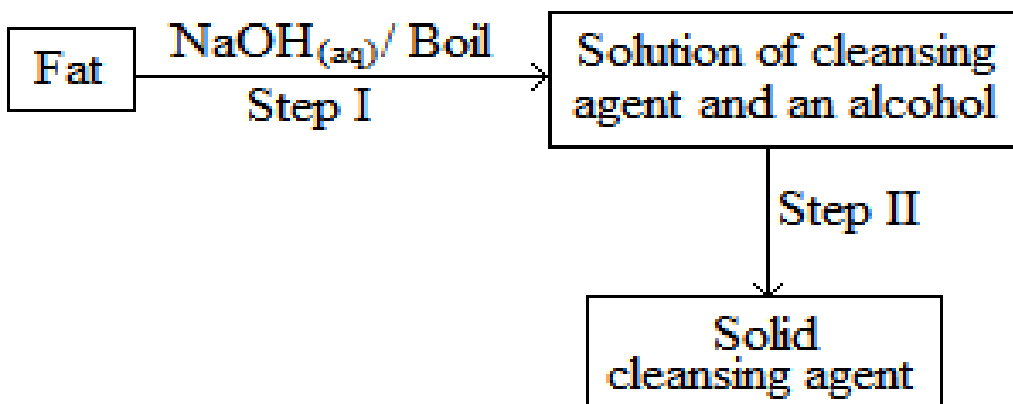
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3. (a)The scheme below was used to prepare a cleansing agent. Study it and answer the questions that follow.



(i)What name is given to the type of cleansing agent prepared by the method above? (1mark)

.....

(ii)Name one chemical substance added in step II (1mark)

.....

(iii)What is the purpose of adding the chemical substance named in a (ii) above? (1mark)

.....

(iv)Name any other suitable substance that can be used in step I (1mark)

.....

(v)Explain how an aqueous solution of the cleansing agent removes oil during washing (2marks)

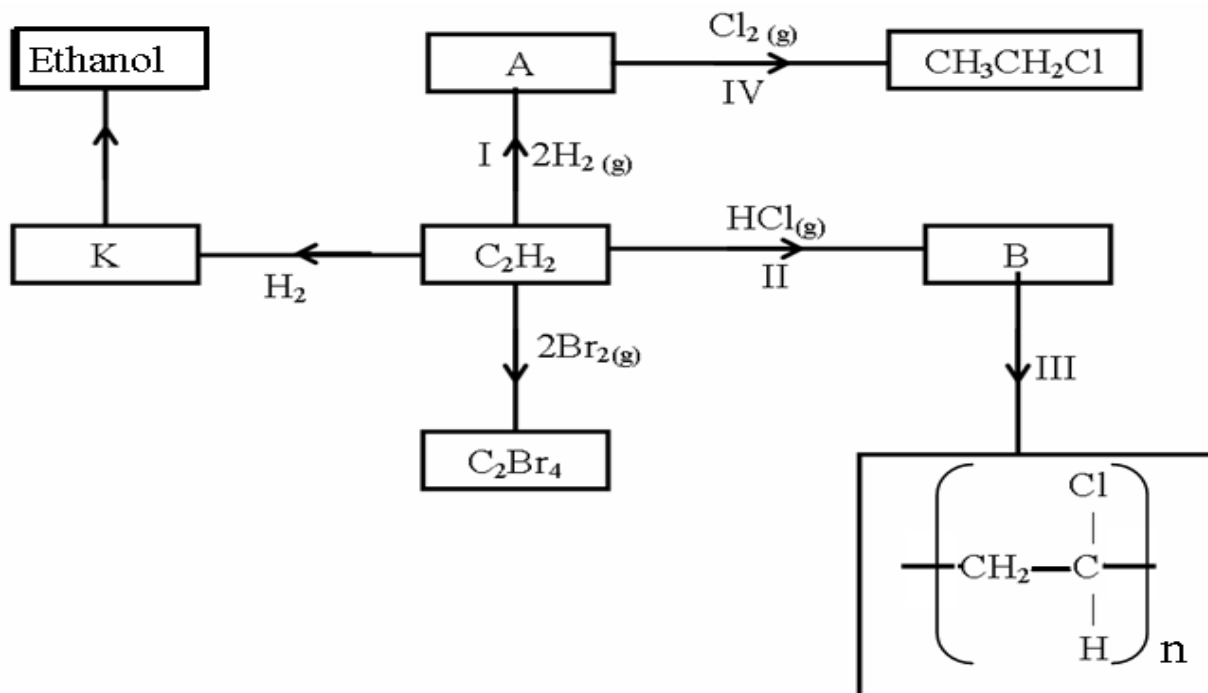
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(b). Study the scheme below and answer the questions that follow.



(i) Identify the catalyst used in step I (1mark)

.....

(ii) Name the compounds A and B (2 marks)

A.....

B.....

(iii) Give one disadvantage of compound formed in step III (1mark)

.....

.....

(iv) Name the reactions taking place at steps: (1mark)

I.....

IV.....

(v) Describe how substance K is converted to ethanol (2marks)

.....

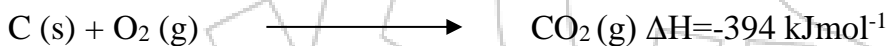


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4. (a) State the Hess' law. (1 mark)

.....
.....

(b) The enthalpies of combustion of calcium, carbon and decomposition of calcium carbonate are indicated below;



Enthalpy of decomposition of $\text{CaCO}_3 = +178 \text{ kJmol}^{-1}$

(i) Draw an energy cycle diagram that links the enthalpy of formation of calcium carbonate to enthalpies of combustion of calcium, carbon and decomposition of calcium carbonate. (2 marks)

.....
.....
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(ii) Determine the enthalpy of formation of calcium carbonate. (2 marks)

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.....
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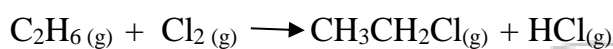


(c) Some average bond energies are given below.

Bond	Energy in kJ mol ⁻¹
C – C	348
C – H	414
Cl – Cl	243
C – Cl	432
H – Cl	340

Calculate the energy change for the reaction below.

(3 mks)



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5.(a) Define the term solubility.

(1 mark)

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.....

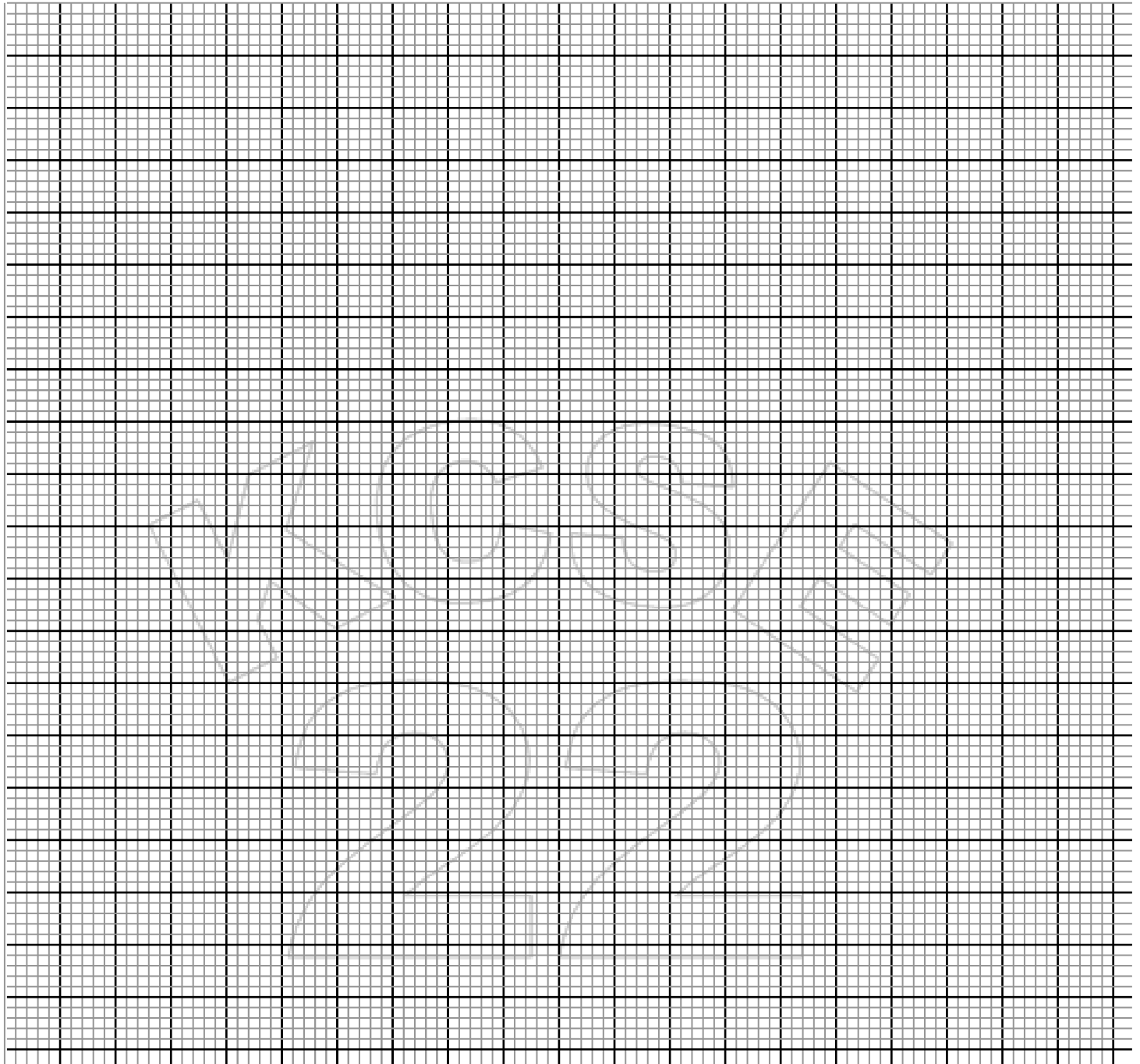
(b) In an experiment to determine the solubilities of two salts X and Y at different temperatures, a candidate recorded her observations as shown below.

Temperature (°C)	0	10	20	30	40	50	60	70	80	90
Solubility of X in g/100 g of H ₂ O	14.3	17.4	20.7	25.0	28.5	33.3	40.0	47.0	55.0	64.0
Solubility of Y in g/100 g of H ₂ O	25.0	27.5	30.0	32.5	35.0	37.6	40.1	42.4	45.0	48.0



(a) On the same axes plot the solubility curves of X and Y.

(4 marks)



(b) From your graph to determine;

(i) The solubility of X and Y at 47 °C

Solubility of X

(1 mark)

.....

Solubility of Y

(1 mark)

.....



(ii) The temperature at which the two salts are soluble in water. (1 mark)

.....

(c) If 60g of X is dissolved in 100 g of water and heated to 90°C, calculate the amount of salt that crystallized out if cooled to 20 °C. (1 mark)

.....

.....

(d) State what would happen if a mixture salt X in 100 g of water and 30 g of Y in 100 g of water were cooled from 90 °C to 70 °C. (3 marks)

.....

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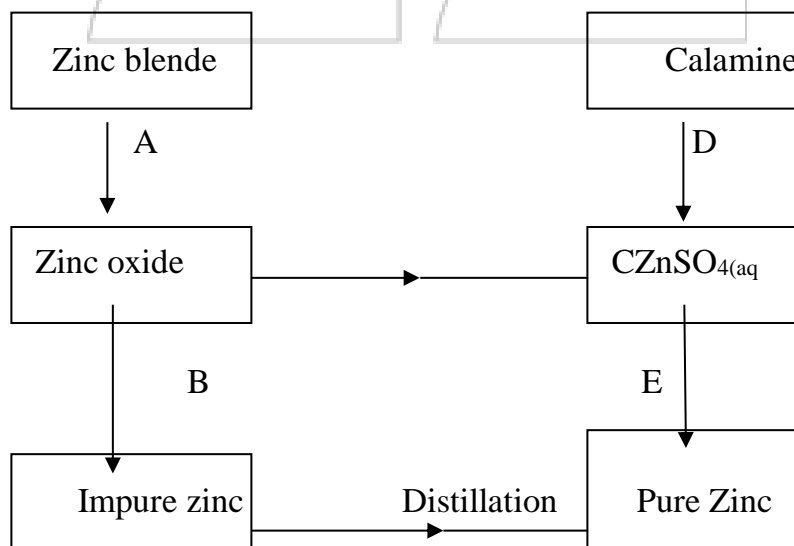
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(e) State one application of solubility. (1 mark)

.....

.....

6. The flow chart below shows some processes in the extraction of zinc. Study it and answer the questions that follow.



(a) Name the processes represented by A and E. (2 marks)

A.....

E.....

(b) State the reagents required for processes B, C and D. (3marks)

B.....

C.....

D.....

(c) Write a chemical equation of the reaction that occurs in process B. (1mark)

.....

.....

(d) With an aid of a diagram, explain how you would obtain a pure sample of zinc by process E

(3 marks)

222

(e) State two commercial uses of zinc metal. (1 mark)

.....

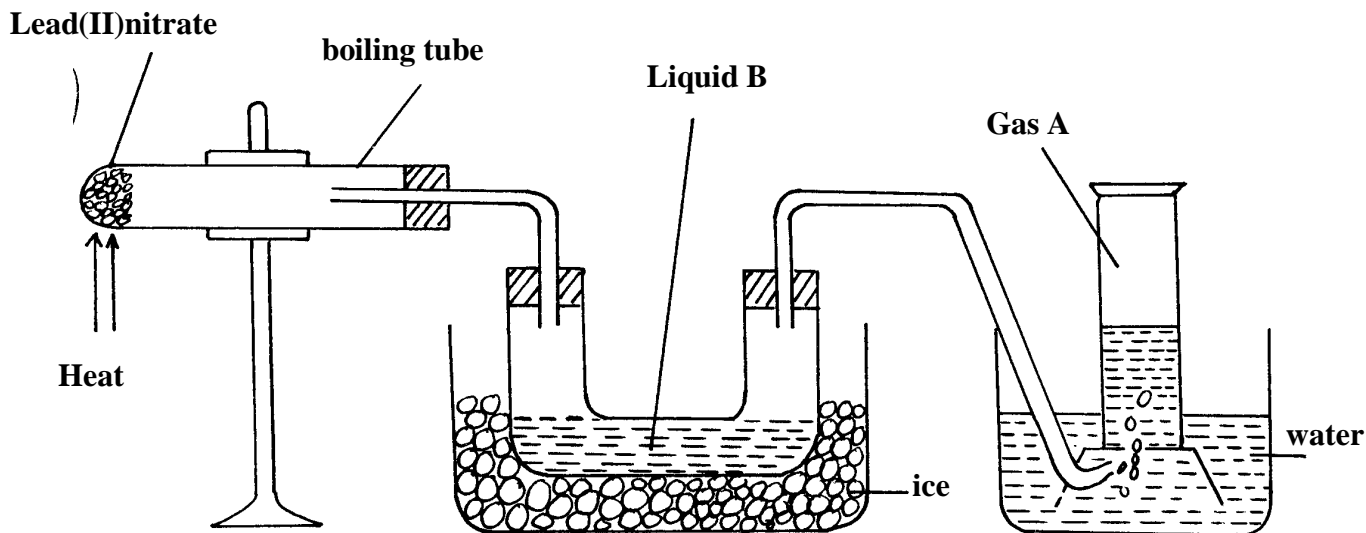
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7. The diagram below shows a set-up of apparatus that can be used to prepare nitrogen (IV) oxide.

Study it and use it to answer the questions that follow



(a) (i) Write the equation for the reaction that takes place in the boiling tube. (1 mark)

.....

(ii) State the observations made in the boiling tube. (2 marks)

.....

(iii) Explain why lead (II) nitrate is preferred over other metal nitrates in this experiment. (1 mark)

.....

(iv) Describe how gas A can be identified. (1 mark)

.....

(b) (i) Name liquid B (1 mark)

.....

(ii) Write a chemical equation to show how liquid B is formed in this experiment. **(1mark)**

.....
.....

(c) (i) In another experiment, excess aqueous lead (II) nitrate solution was reacted with a solution which contained 2.34g of sodium chloride. Calculate the mass of precipitate formed in this reaction. (Pb = 207, Cl = 35.5, Na = 23) **(3 marks)**

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

(ii) Write an ionic equation for the reaction that takes place when nitrogen (IV) oxide reacts with aqueous sodium hydroxide. **(1 mark)**

.....
.....

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TOPGRADE 2022 PREDICTION

KCSE SERIES 1

SCHOOL..... SIGN.....

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

233/3

CHEMISTRY PRACTICAL

CONFIDENTIAL INSTRUCTIONS TO SCHOOLS

The information contained in this **KCSE Chemistry Prediction paper** is to enable the head of the school and the teacher in charge of Chemistry to make adequate preparations for the **233/3 Chemistry Practical** examination.

No one else should have access to this information either directly or indirectly.

REQUIREMENTS

Each KCSE candidate will require;

Apart from the usual laboratory fittings, each student should have the following;

1. About 0.5g of Solid Q in a stoppered container
2. About 0.5g of Solid R in a stoppered container
3. 100cm³ of solution R
4. 100cm³ of solution Q
5. 100cm³ of solution P
6. Distilled water.
7. About a spatula end-full of solid Calcium hydroxide
8. Red litmus paper
9. Three 250ml conical flasks
10. One burette 0 – 50ml
11. One pipette 25ml
12. One 50ml measuring cylinder
13. One 10ml measuring cylinder
14. One 250cm³ volumetric flask
15. Phenolphthalein indicator
16. Labels (2)



17. Stop watch
18. Two boiling tubes
19. One metallic spatula
20. Five test tubes on a test-tube rack
21. Wooden splint
22. Test tube holder

The student should also get access to;

1. 10% Hydrogen peroxide (freshly prepared + dropper).
2. 2M Barium nitrate solution + dropper.
3. 0.5M Hydrochloric acid + dropper.
4. Source of heat.
5. Sodium hydrogen carbonate
6. Acidified Potassium manganate (VII)
7. Acidified Potassium dichromate (VI)

NOTES

Solid Q is Hydrated ferrous ammonium sulphate.

Solid R is Malleic acid

Solution R is prepared by weighing exactly 4.8g of sodium carbonate dissolve it to make 1dm³ of solution.

Solution Q is prepared by weighing exactly 172cm³ of hydrochloric acid (35-37% sp.gr 1.18) and dissolving to make 1dm³ of solution.

Solution P is prepared by weighing exactly 37.2g of sodium thiosulphate pentahydrate and dissolving to make 1dm³ of solution.



TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

SCHOOL..... SIGN.....

DATE.....

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

233/3

CHEMISTRY

PAPER 3
PRACTICAL

Instructions to candidates

- (a) Write your name, class, admission number, index number, signature and date in the spaces provided above.
- (b) Answer ALL the questions in the spaces provided in the question paper.
- (c) You are not allowed to start working with the apparatus for the first 15 minutes of the 2 ¼ hours allowed for this paper. This time is to enable you to read the question paper and make sure you have all the chemicals and apparatus that you may need.
- (d) All working MUST be clearly shown where necessary.
- (e) Mathematical tables and silent electronic calculators may be used.

For Examiner's Use Only

Question	Maximum Score	Candidate's Score
1	23	
2	10	
3	07	
Total Score	40	



Answer All the Questions in the spaces provided.

1. You are provided with:-
- Solution **Q**, 2M Hydrochloric acid.
 - Solution **P**, 0.15M Sodium thiosulphate
 - Solution **R**, Sodium carbonate
 -

Procedure 1

Measure 20cm³ of 0.15M Sodium thiosulphate (solution **P**) into a 250cm³ a conical flask. Place the beaker on a white piece of paper with **ink mark 'X'** on it. Measure 20cm³ of 2M hydrochloric acid solution **Q** using a 50cm³ measuring cylinder. Put the acid into the conical flask containing Sodium thiosulphate and immediately start off the stop watch. Determine the time taken for the **mark 'X'** to become invisible /obscured when viewed from above. Repeat the procedure by measuring different volumes of the acid and adding the volumes of the distilled water to complete Table I below.

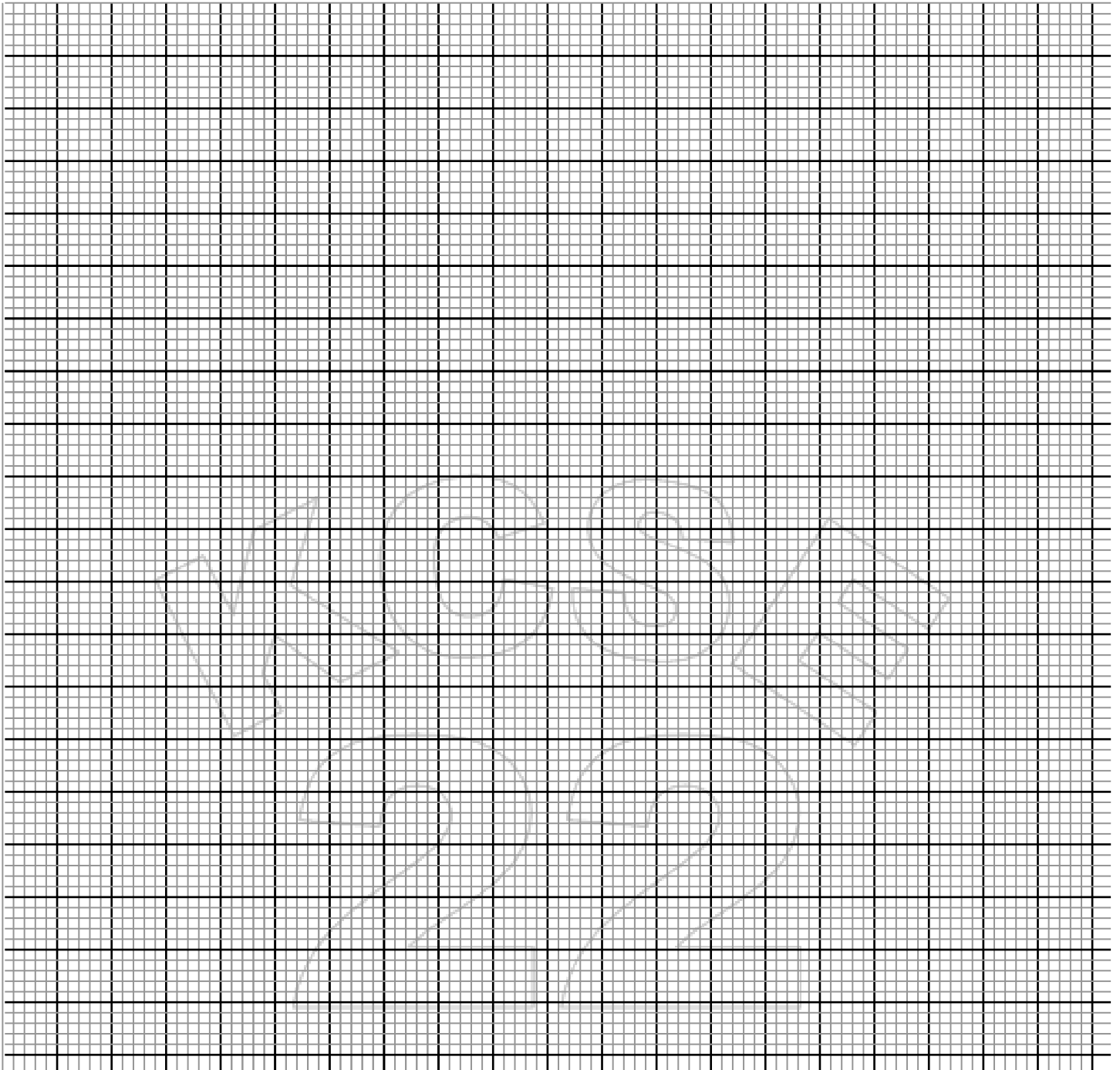
Table I

Volume of acid (cm ³)	Volume of water (cm ³)	Volume of sodium thiosulphate (cm ³)	Time taken for mark 'X' to be invisible/obscured (seconds)	Reciprocal of time (sec ⁻¹) $\frac{1}{t}$
20	0	20		
18	2	20		
16	4	20		
14	6	20		
12	8	20		
10	10	20		

a) Complete the table above (6 marks)

b) Plot a graph of 1/t (rate) against volume of acid used (3 marks)





c) Explain the shape of your graph

(1 mark)

.....

.....

.....



d) From the graph determine

(i) Time taken for the cross to be obscured/invisible when the volume of the acid is:

I) 15cm^3 (1 mark)

.....

II) 8cm^3 (1 mark)

.....

(ii) The volume of the acid used if the time taken for the cross to be obscured/invisible is:

I) 40 seconds (1 mark)

.....

.....

II) 43 seconds (1 mark)

.....

.....

.....

PROCEDURE 2

Using a 10 cm^3 measuring cylinder, place 10 cm^3 of solution Q into a 250 ml volumetric flask. Add about 200 cm^3 of distilled water. Shake well. Add more distilled water to top up to the mark. Label this solution T. Fill the burette with solution T. Using a pipette and pipette filler, pipette 25 cm^3 of solution R into a conical flask. Add 3 drops of Phenolphthalein indicator and titrate with solution T.

– Record your results in the table.

– Repeat the titration two more times and complete the table.



TABLE 2

	I	II	III
Final burette reading (cm^3)			
Initial burette reading (cm^3)			
Volume of solution T (cm^3) added			

(4 marks)

a) Determine the:-

(I) Average volume of solution T used.

(1 mark)

.....

.....

.....

(II) Moles of the acid in the average volume of solution T used.

(2 marks)

.....

.....

.....

.....

(III) Concentration of solution R in moles per litre.

(2 marks)

.....

.....

.....

.....



2. (a) Put a spatula end-full of solid A into a boiling tube and add about 10cm³ of distilled water. Shake the mixture well. Divide the resultant solution into 4 equal portions.

Observations	Inferences
(½ mark)	(1 mark)

- (b)(i) The solution is suspected to contain **ammonium ions**. Using **calcium hydroxide solid** and **red litmus paper** provided, describe how you would confirm presence of the **ammonium ions**.

Description	Expected observations
(1 mark)	(½ mark)

- (ii) Carry out the actual test as described in (b) (i) above.

Observations	Inferences
(1 mark)	(½ mark)



(c) To the second portion, add 4 drops of hydrogen peroxide solution. Test the gas produced using a glowing splint.

Observations	Inferences
(1 mark)	(1 mark)

(d) (i) The solution is also suspected to contain **sulphite ions**. Using **Barium nitrate solution** and **dilute hydrochloric acid** solution, describe how you would confirm presence of the **sulphite ions**.

Description	Expected observations
(1 mark)	(1 mark)

(ii) Carry out the actual test as described in (d) (i) above.

Observations	Inferences
(1 mark)	(½ mark)



3. You are provided with solid B. Carry out the tests below and record your observations and inferences in the spaces provided.

(i) Place one third of solid B on a metallic spatula. Burn it in a non-luminous flame of the Bunsen burner.

Description	Expected observations
(1 mark)	(1 mark)

(ii) Place the remaining solid in a test-tube. Add about 6cm³ of distilled water and shake the mixture well. Retain the solution for the next procedure.

Observations	Inferences
(½ mark)	(½ mark)

(I) To about 2cm³ of the solution, add 2 drops of acidified potassium manganate (VII).

Description	Expected observations
(1 mark)	(1 mark)



(II) To about 1cm³ of the solution, add 3 drops of acidified potassium dichromate (VI) and warm.

Observations	Inferences
(½ mark)	(½ mark)

(III) To about 2cm³ of the solution, add 1g of solid A; sodium hydrogen carbonate.

Observations	Inferences
(½ mark)	(½ mark)

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TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

SCHOOL..... SIGN.....

DATE.....

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

232/2

PHYSICS

Paper 1

Time: 2 hours

Instructions to Candidates

- a) Write your name and index number in the spaces provided above.
- b) Sign and write the date of examination in the spaces provided above.
- c) This paper consists of **two** sections: **A** and **B**.
- d) Answer **ALL** the questions in sections **A** and **B** in the spaces provided.
- e) **ALL** working **MUST** be shown clearly
- f) Mathematical tables and silent electronic calculators may be used.

For Examiner's Use Only

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
A	1 – 12	25	
B	13	10	
	14	12	
	15	13	
	16	9	
	17	11	
TOTAL SCORE		80	



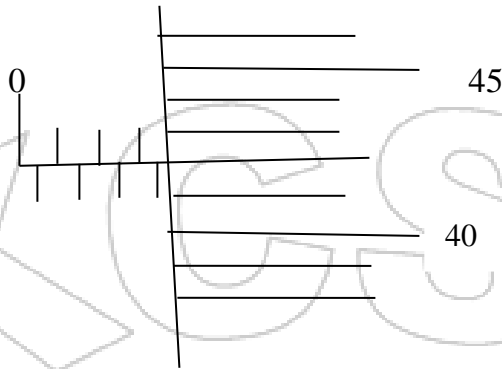
SECTION A (25 MARKS)

Answer ALL the questions in this section in the spaces provided

1. Thermodynamics is one of the branches of physics. What does it entail? (1mk)

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

2.(a) What is the reading in the following; (1mk)



(b) If the reading above was the diameter of a spherical ball; find its volume. (2mks)

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

3. State two factors which affect the spring constant. (2mks)

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

4. State the relationship between mass and weight. (1mk)

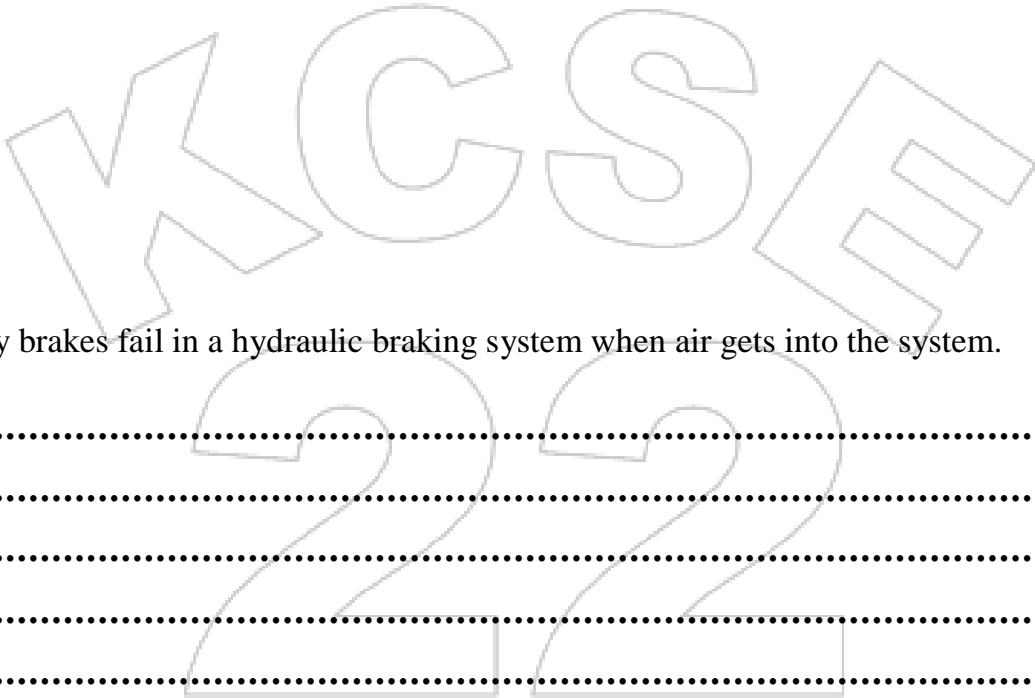
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5.(a) State how the pressure in a moving fluid varies with speed of the fluid. (1 mk)

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

(b) Water flows along a horizontal pipe of cross sectional area 60 cm^2 which has a constriction of cross sectional area 24 cm^2 at one place. If the speed of water at the constriction is 5 m/s , calculate the speed in the wider section. (2 mks)



6. Explain why brakes fail in a hydraulic braking system when air gets into the system. (2mks)

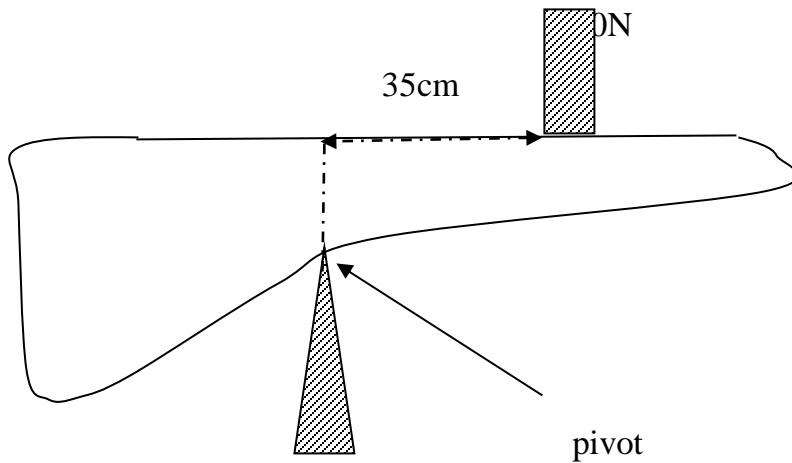
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7.(i) State the principle of moments (1mk)

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.....
.....



(ii) The figure below shows a non-uniform log of mass 1000g balanced on the pivot by a 20N weight as shown.



Determine the position of the centre of gravity from the pivot (2mks).

8. It is observed that a drop of milk carefully put into a cup of water turns the water white after sometime. Explain this observation (1mk)

.....

.....

9. A bullet hits a stationary block at the edge of a cliff 100m high and moves with a common velocity of 200 m/s. Determine the maximum horizontal distance covered. (take $g=10 \text{ m/s}^2$) (3 marks)

10. The figure below shows a beam balance made out of concrete and reinforced with steel



Use a diagram to explain the behaviour of the shape of the beam when heated up (2mks)

.....

.....

.....

11. When a Bunsen burner is lit below a wire gauze, it is observed that the flame initially burns below the gauze shown in figure (i). After sometime, the flame burns below as well as above the gauze as shown in figure (ii).



State the reason for this observation. (1 mk)

.....

.....

12. a) State Newton's 2nd Law of Motion (1mk)

.....

.....

.....

- b) A car of mass 1200kg moving at 90km/h is brought to rest over a distance of 20m. Calculate the braking force . (3mks)

SECTION II (55mks)

Attempt ALL the questions in this section in the spaces provided.

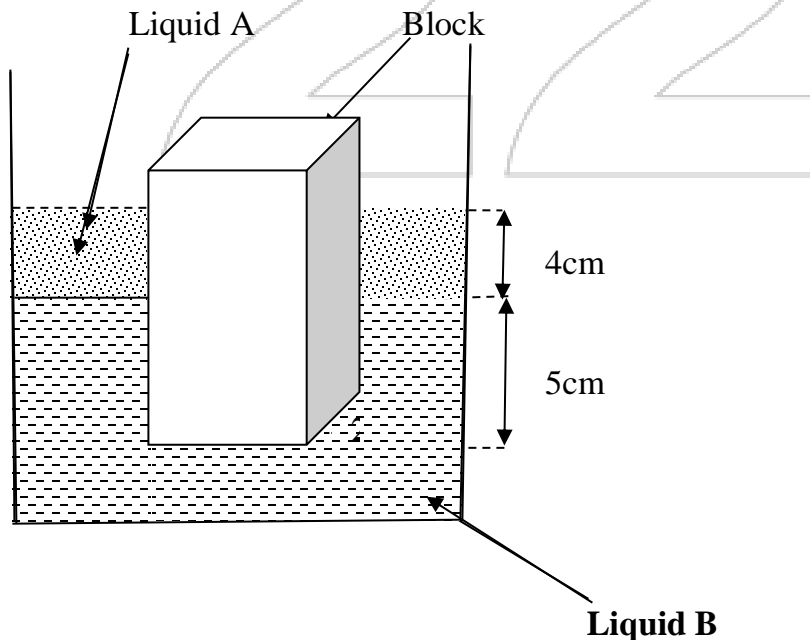
13. (a) State Archimedes Principle. (1mk)

.....

.....

.....

(b) The figure below shows a rectangular block of height 10cm floating vertically in a beaker containing two immiscible liquids A and B. The densities of the liquids are 0.8g/cm^3 and 1.2g/cm^3 respectively. The block is of dimensions 2cm by 3cm 10cm.



Determine;

(i) the weight of liquid A displaced by the block. (2mks)

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

(ii) weight of liquid B displaced by the block. (2mks)

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

(iii) mass of the block. (2mks)

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.....

(c) A hydrometer is one of the applications of Archimedes Principle and relative density. State the functions of the following parts of a hydrometer;

(i) wide bulb (1mk)

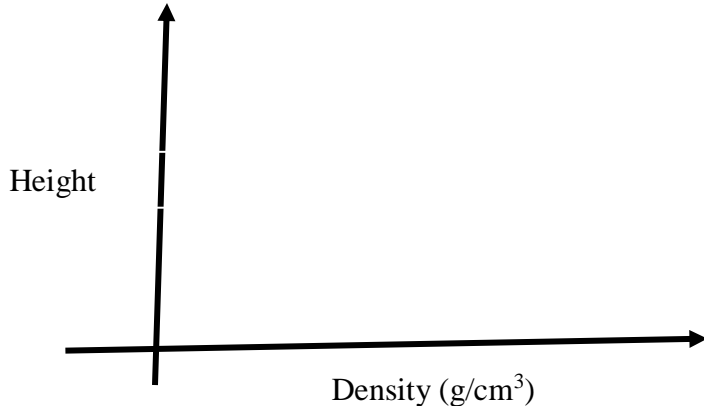
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(ii) lead shots (1mk)

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.....



(d) Sketch a graph of depth of immersion of a hydrometer against the density of a fluid. (1mk)



14. (a) Explain what you understand by each of the following;

(i) Angular velocity (1mk)

.....
.....

(ii) Centripetal force. (1mk)

.....
.....

(b) A car is moving in an unbanked circular path. State what provides the centripetal force. (1mk)

.....

(c) A bicycle wheel with radius 0.30m moves with a linear velocity of 9m/s. Determine;

(i) the angular velocity of the wheel. (3mks)

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

(ii) The centripetal acceleration at a point on the rim of the wheel. (3mks)

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



(d) A marble of mass 50g attached to a light string of length 0.8m is rotated in a vertical plane. The string cannot bear a load more than 2.5 Determine the velocity at which the string would break.

(3mks)

.....

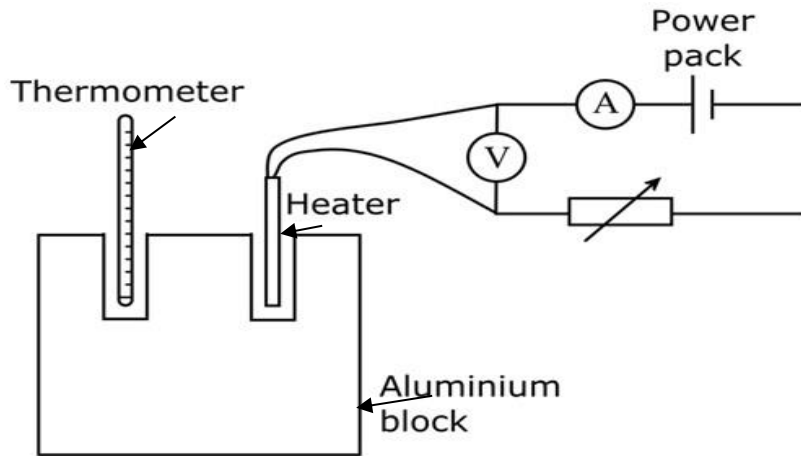
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15 (a) The Figure below shows a set up that can be used in an experiment to determine the specific heat capacity of a solid of mass m by electrical method.



(i) Why are the two holes for the heater and thermometer filled with light oil? (1mk)

.....

.....

(ii) State the measurements that should be taken from the above setup. (2 mks)

.....

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(iii) If the change in temperature of the block was recorded as θ . Write an expression that can be used to determine the specific heat capacity of the solid. (1 mk)

.....

.....

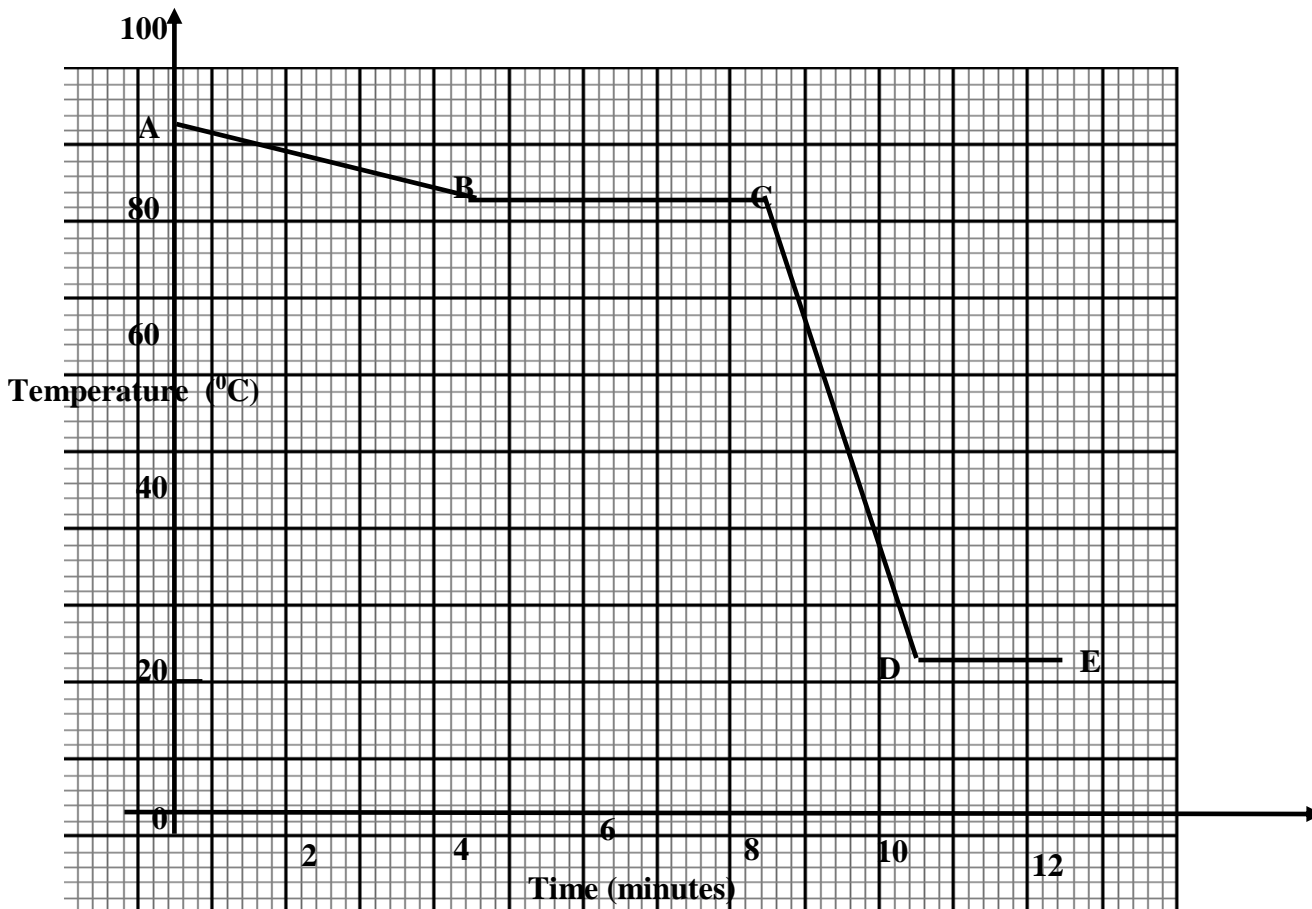
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(iv) From the above expression, state the assumption made. (1mk)

.....

.....

(b) The graph below shows a cooling curve for 50g of Naphthalene which was heated until it melted into a liquid then allowed to cool.



Explain the shape of the graph between the points:

(i)AB. (1mk)

.....
.....

(ii)BC. (1mk)

.....
.....

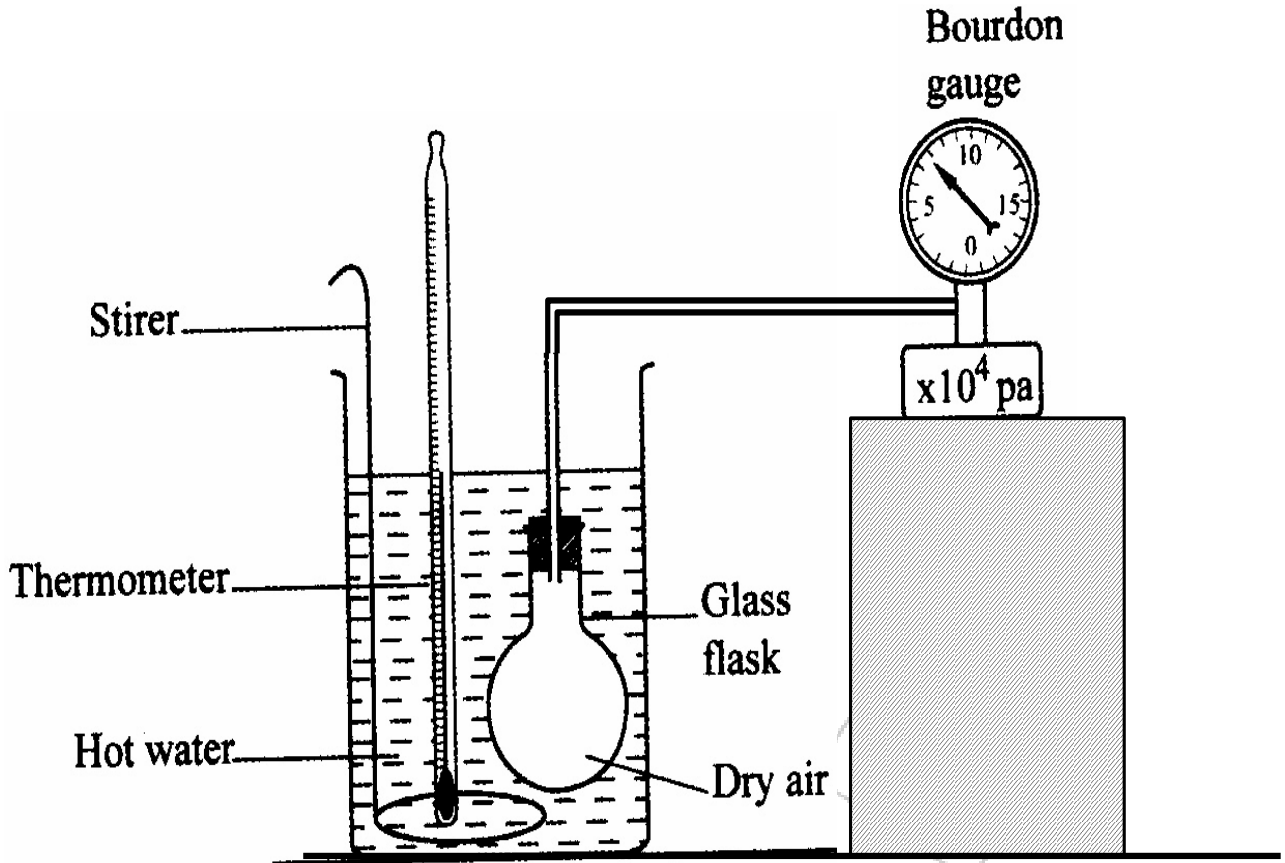
(iii) Given that the specific latent heat of fusion for Naphthalene is 19097.3J/kg. Calculate the heat evolved between the region BC of the 50g of Naphthalene. (3mks).

(iv) How much heat energy would be released by the 50g. of Naphthalene in region CD, if the specific heat capacity of Naphthalene is 1720J/kg K. (2mks)

16.(a) A gas has a volume of 20cm³ at 27⁰C and normal atmospheric pressure. Calculate the new volume of the gas if it is heated to 54⁰C at the same pressure. (3mks)



(b) The figure below shows a set up that may be used to verify one of the gas laws.



(i) State the law being investigated (1 mark)

.....

.....

(ii) State the measurements that may be taken in the experiment. (2 marks)

.....

.....

(iii) Explain how the measurement in (i) above may be used to verify the above law (4 marks)

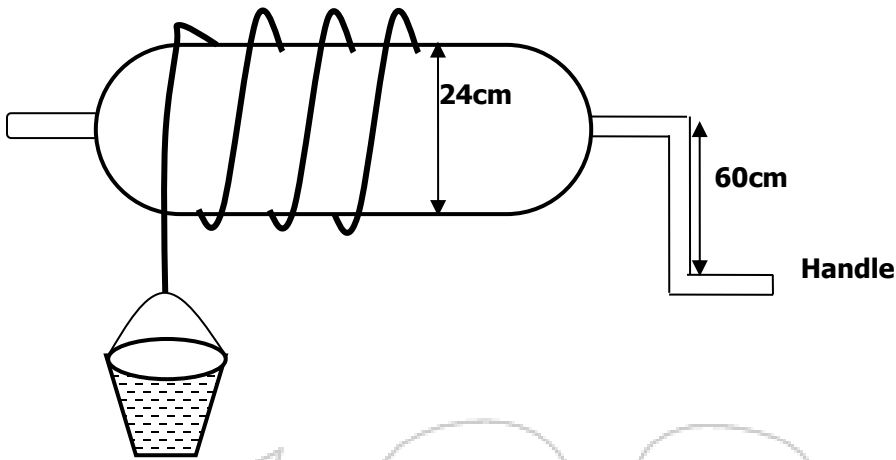
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17. The figure below shows a windlass. An effort is applied on the handle which is turned on a radius of **60 cm**. As the handle turns, a rope is wound around the drum of diameter **24 cm**, thus raising a bucket of water out of the well



a) If an effort of **20N** is needed to lift a bucket full of water of mass **8kg**, Calculate:

(i) The energy gained by the mass when the drum turns through one revolution (3mks)

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(ii) The work done by the effort during this revolution. (3mks)

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b) Suggest a reason why the two quantities in a(i) and (ii) are not equal

(1mk)

.....
.....

c) Calculate:

(i) The velocity ratio of the machine

(2mks)

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

(ii) The efficiency of the windlass

(2mks)

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TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

SCHOOL..... SIGN.....

DATE.....

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

232/2

PHYSICS

Paper 2

(Theory)

TIME: 2 HRS

INSTRUCTIONS

1. Write your name and your Index number in the spaces provided.
2. This paper consists of **two** sections, Section A and B.
3. Answer **ALL** the questions in both section in the spaces provided in this paper.
4. **ALL** working must be clearly shown.
5. Mathematical tables and electronic calculators **may be used**.

Take: Planck's constant = 6.6×10^{-34} Js

FOR EXAMINERS USE ONLY:

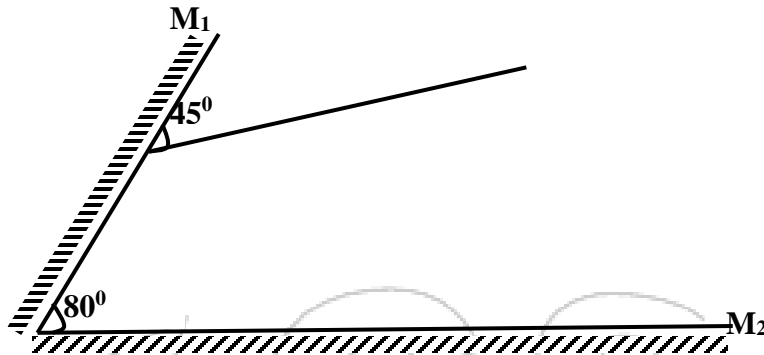
SECTION	QUESTION	MAXIMUM SCORE	STUDENTS SCORE
A	1-12	25	
B	13	11	
	14	10	
	15	11	
	16	10	
	17	13	
	TOTAL	80	



SECTION A (25 MARKS)

Answer ALL the questions in this section in the spaces provided

1. The **figure1** below shows two mirrors M_1 and M_2 placed at an angle of 80° . A ray of light incident to the mirror makes an angle of 45° with the mirror M_1



Find the angle the ray turns after reflection in the two mirrors (3marks)

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2. A dry cloth is used to dust a glass table. It is observed that as the glass is wiped the dust is retained on it explain. (2marks)

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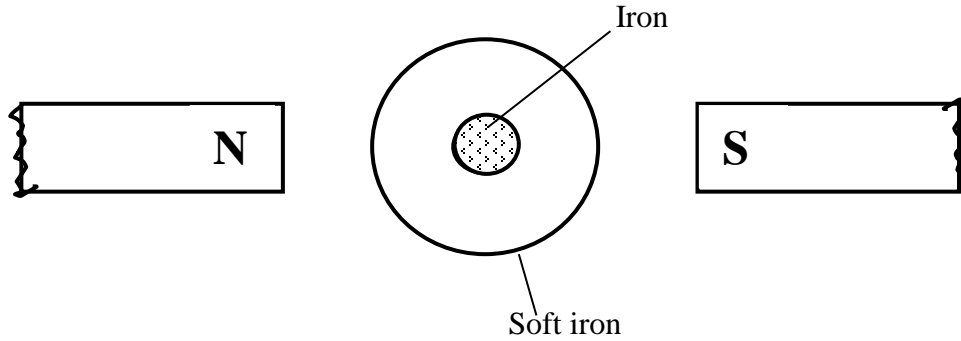
3. State what is meant by polarization in a simple cell (1mark)

.....

.....



4. The diagram below shows an iron ring between two opposite magnetic poles



Explain what happens to the iron fillings.

(2marks)

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.....
.....

5.

a) The half life of radioactive strontium 90 is 28 years. Determine the active mass left of a sample of 1.0 milligrams of strontium after 140 years

(1 mark)

.....
.....

b) A leaf electroscope can also be used as a detector of radiation. State **two** advantages of the diffusion cloud chamber over the leaf electroscope as a detector.

(2marks)

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

6. The following are electromagnetic waves and some of their characteristics.

- A - Have high penetrating power
 - Used to sterilize medical equipments
 - Used to detect flaws in metals in industry

B - Causes heating effect



-Used in cooking, heating and drying

-Used in heat seeking missiles

- C -High penetrating power
- Used to locate bone fractures
- Used to control germs and pests

a) Identify the waves (2marks)

B-

C-

b) Arrange the waves in order of increasing frequency (1mark)

.....

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7. An object of height 1cm is placed 120cm from a screen. A converging lens placed 35cm from the object forms a magnified image on the screen. Calculate the focal length of the lens. (3marks)

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8. The figure shows two ways of biasing a p-n junction diode

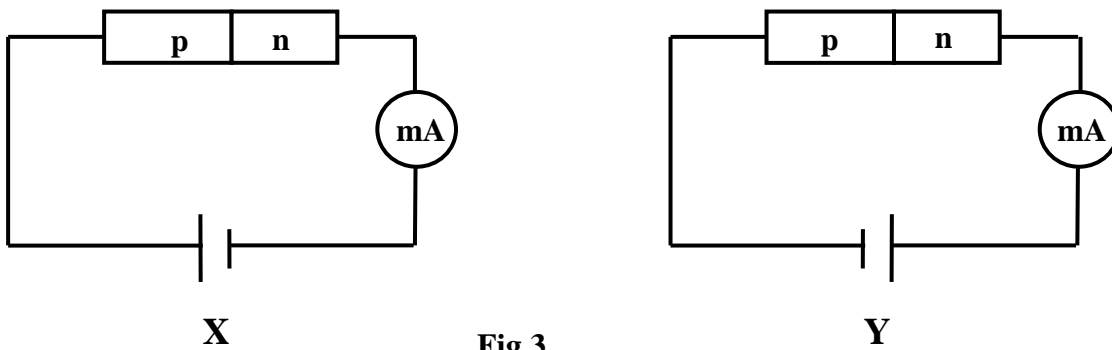


Fig 3

In which circuit will current flow? Explain this.

(2marks)

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.....

9. What determines the quality of X-rays produced in an X-ray tube

(1mark)

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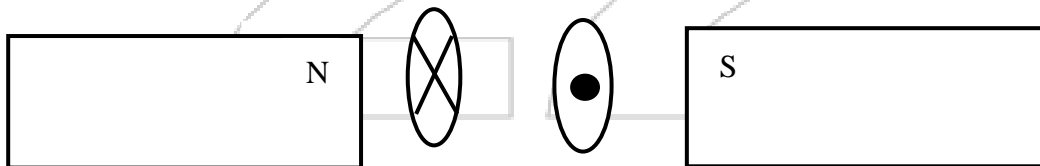
10. A pinhole camera forms an image of size 10cm. The object is 5m tall and 20m away from the pinhole. Find the length of the pinhole camera.

(2marks)

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11. Sketch the resultant field pattern around the following current carrying conductors and show the direction of the forces acting on the conductor

(2marks)



12. State how eddy currents are reduced in a transformer.

(1mark)

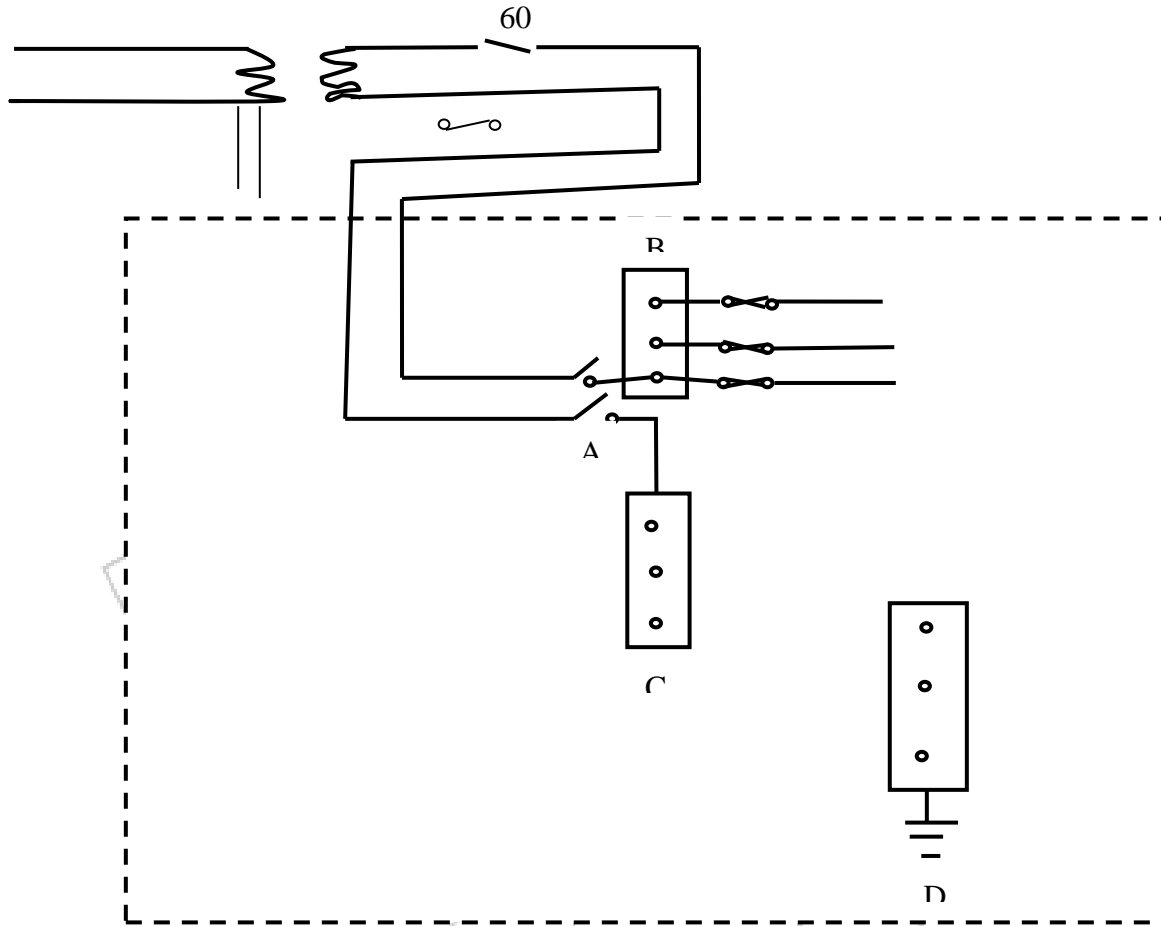
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SECTION B (55 MARKS)

Answer ALL the questions in this section in the spaces provided

13. a) The diagram below shows a consumers fuse box



Identify the parts

(2 marks)

- A-.....
- B-.....
- C-.....
- D-.....

b) Give two advantages of circuit breakers over fuses in domestic wiring

(2 marks)

.....

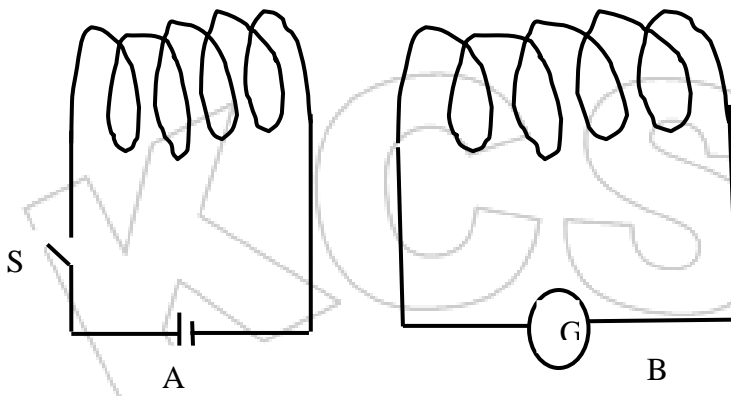
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c) What is the cost of using a 3KW electric fire and 60W bulb for six hours each every day for one week. The cost of electricity is ksh 9.50 per unit and a standing charge of ksh. 150.00 is charged. (2marks).

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d) The figure below shows two circuits close to each other



When the switch is closed the galvanometer shows a reading and then returns to zero. When the switch is then opened, the galvanometer shows a reading in the opposite direction then returns to zero.

Explain these observations. (2marks)

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.....

e) A transformer is designed to supply a current of 12A at a p.d of 80V. The inlet cable is to be connected to a.c mains of 240V. The efficiency of this transformer is 80%. Calculate

i. The power supplied to the transformer (1mark)

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.....
.....



ii. current in the primary coil of transformer

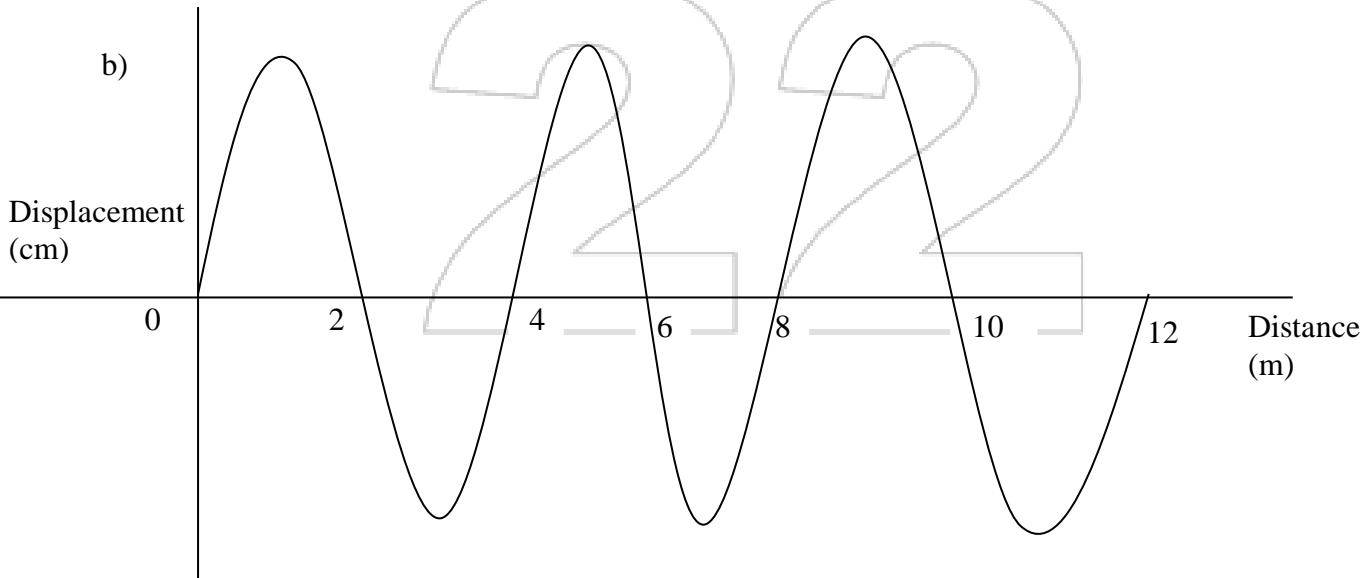
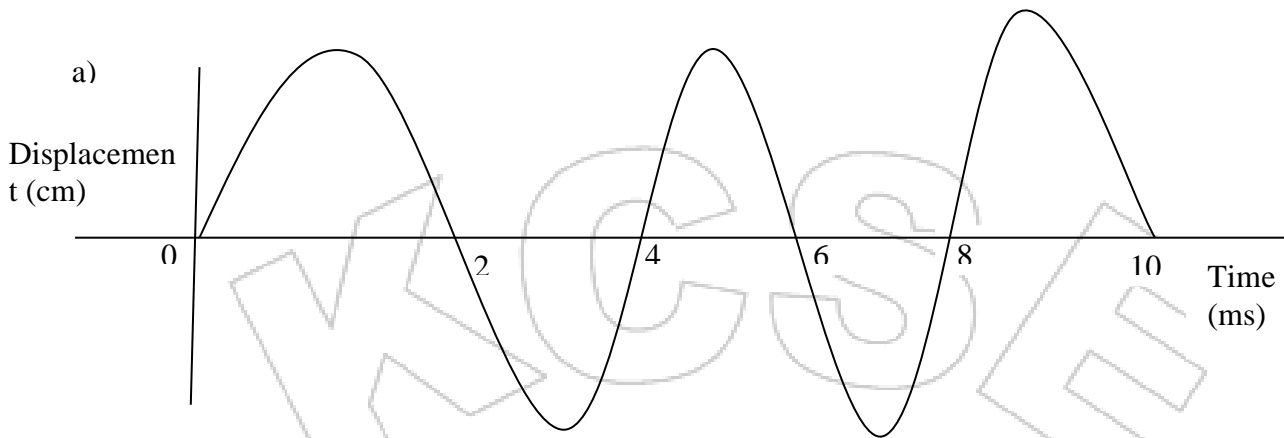
(2marks)

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14. a) The diagrams below shows the same wave form



Determine the;

i) Period

(1mark)

.....

.....



ii) The frequency

(1 marks)

.....
.....

iii) The speed

(1 mark)

.....
.....

b) Sound waves cannot travel through a vacuum explain

(1 marks)

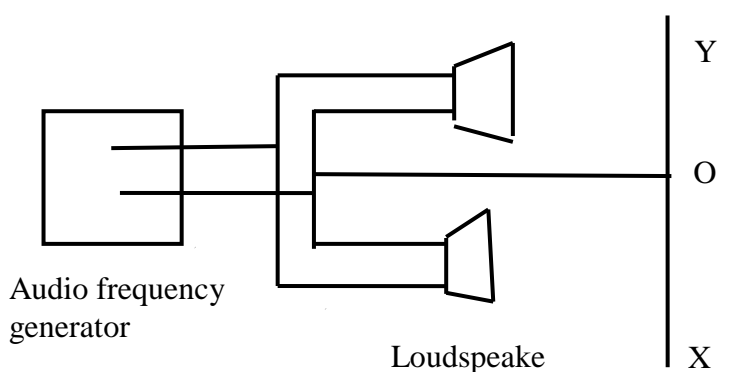
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c) A man standing between two walls claps his hands once and two echoes are heard; one after 1.0 seconds and another 1.8 seconds later. If the nearer wall is 170 m away from the man, calculate the distance between the two walls

(3 marks)

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d) Fig. below shows two speakers connected to an audio- frequency generator



i. State and explain the observation made by an observer moving along the path XY (2marks)

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ii. State the observation made if the frequency of the signal generator was increased (1mark)

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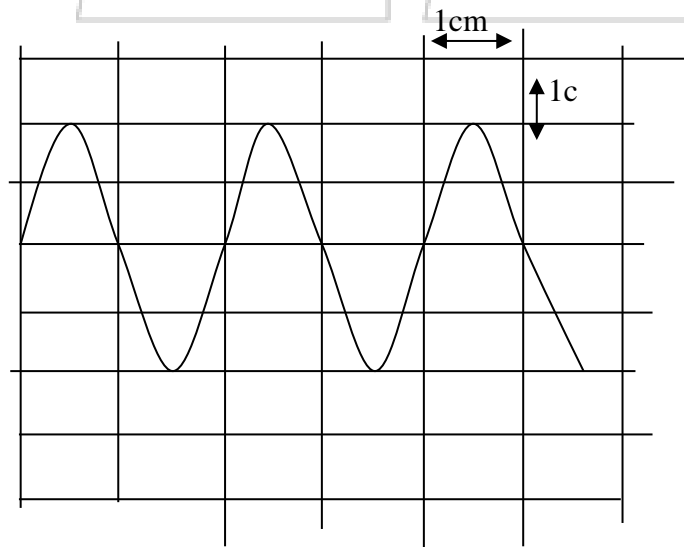
15. a) Explain why a cathode ray tube is evacuated (1 mark)

.....
.....

b) State four properties of cathode rays (2 marks)

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.....

c) The figure shows the waveform displayed on the cathode ray oscilloscope screen when an alternating voltage is applied on the Y-input. The time- base is set at 1ms/cm and the Y-gain at 10v/cm



Calculate;

- i. The amplitude of the ac input voltage (2marks)

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

- ii. The frequency of the ac input voltage signal (2 marks)

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

d) The threshold frequency of sodium is 5.6×10^{14} Hz .Find

- i. Work function of sodium (2marks)

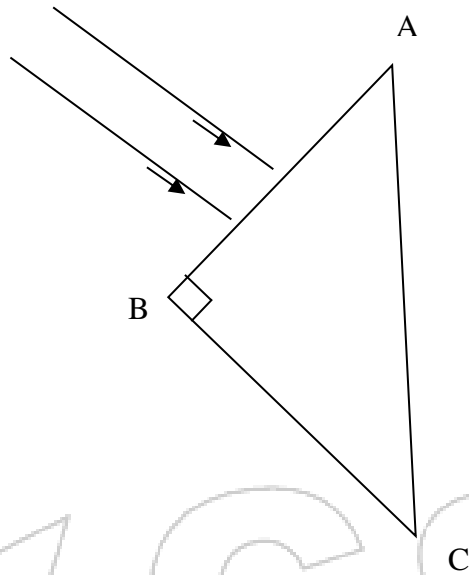
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- ii. The kinetic energy of the ejected electrons when sodium is shone with light of frequency 8.6×10^{14} Hz (2 marks)

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16. a) A 45° right-angled prism, made of glass of $n=1.5$ is used to turn light through 90°
Rays



- i) Continue the paths of the two rays until they emerge into air again. **(1 mark)**
ii) Why does no light emerge from face AC? **(1 mark)**

.....

- iii) Why are the rays which leave face CB slightly fainter than those which enter face AB **(1mk)**

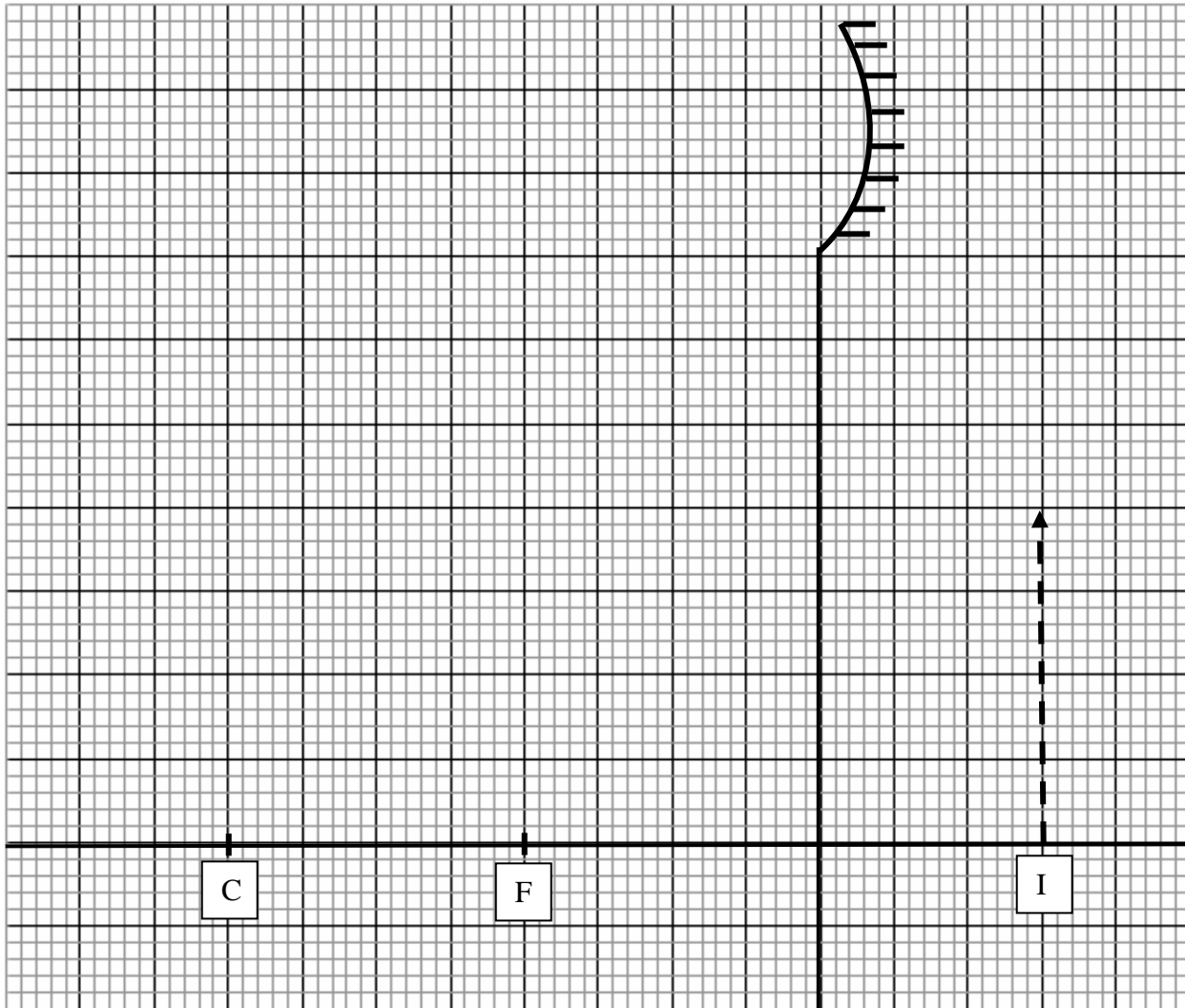
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- b) You are provided with the following apparatus. A white screen, a metre rule and a convex lens .
Using the apparatus describe an appropriate method of determining the focal length of the lens
(3 marks)

.....

c) The diagram below (drawn to scale) shows an image formed by a concave mirror

By using ray diagrams determine;



i. The focal length of the mirror (1mark)

.....

ii. Locate the object (2marks)

.....

iii. Determine the magnification (1mark)

.....

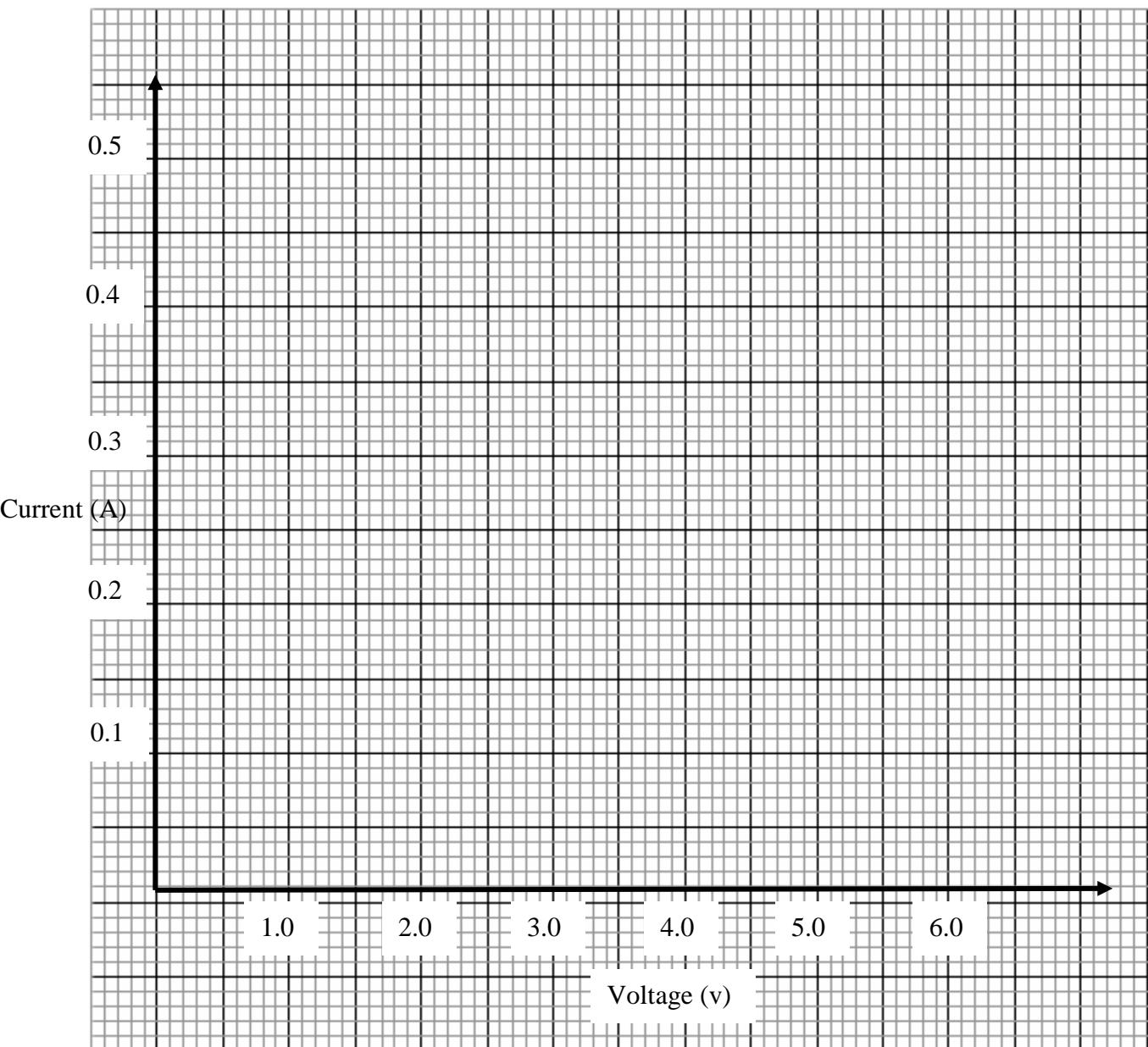


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17. a) State Ohm's law (1mark)

.....
.....

c) The graph below was obtained from an experiment to determine the effective resistance of two resistors connected in parallel. The value of one resistor is 50Ω .



Determine the value of the other resistor

(3marks)

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.....
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.....

c) A dry cell can deliver 0.5A when connected to a 2.5Ω resistor. When connected to another 3.0Ω which is connected in series with the first (2.5Ω), the cell can deliver 0.25A to the combination. Use this information to calculate:

i. The internal resistance of the cell.

(2marks)

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

ii. The e.m.f of the cell

(1mark)

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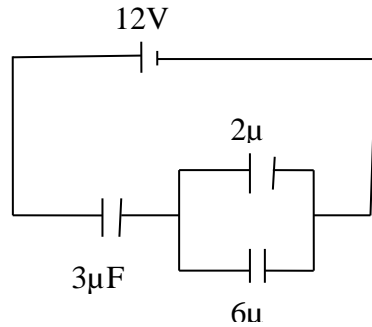
d.) Explain briefly how a dielectric material affects the capacitance of parallel plate capacitor.

(1mark)

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e) The figure below shows three capacitors of capacitance $3\mu\text{F}$, $2\mu\text{F}$, $6\mu\text{F}$ and 12V supply connected in a circuit



Calculate:

i) The total capacitance of the circuit. (2marks)

.....

.....

.....

ii) The charge stored in the circuit. (1mark)

.....

.....

.....

iii) The potential difference across the $2\mu\text{F}$ capacitors. (2marks)

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.....

.....

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TOPGRADE 2022 PREDICTION

KCSE SERIES 1

SCHOOL.....

SIGN.....

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

PHYSICS

PAPER 3

Confidential

The information contained in this **KCSE Physics Prediction paper** is to enable the head of the school and the teacher in charge of Physics to make adequate preparations for the **232/3 Physics** Practical examination.

No one else should have access to this information either directly or indirectly.

The following apparatus should be provided for the Physics practical paper

Provide the following apparatus to the candidates.

Question one

- (a) Nichrome wire SWG 28 mounted on a mm scale
- (b) 2 new dry cell (size D)
- (c) A cell holder
- (d) A switch
- (e) An ammeter (0 – 1 A)
- (f) A voltmeter (0 – 5 V)
- (g) Six connecting wires three with crocodile clips
- (h) A micrometer screw gauge (to be shared)



Question 2A

- (i) A metre rule
- (j) Knife edge (at least 20cm high)
- (k) One 50g mass and one 100g mass
- (l) Some two pieces of threads (at least 30cm long)
- (m) 100cm^3 of water in a 250cm^3 beaker
- (n) 100cm^3 of kerosene in a beaker labeled L
- (o) Some tissue paper

Question 2B

- Rectangular glass block ($9.6\text{cm} \times 6.0\text{cm} \times 2.3\text{cm}$)
- Four optical pins
- A soft board
- A plain sheet of paper
- Some cellotape
- A complete mathematical set



TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

SCHOOL..... SIGN.....

DATE.....

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

232/3

PHYSICS

Paper 3

(PRACTICAL)

TIME: 2 ½ hours

Instructions

- Write your name and index number in the spaces provided above.
- Sign and write the date of examination in the spaces provided above.
- Answer ALL questions in the spaces provided in the question paper.
- You are supposed to spend the first 15 minutes of the 2 ½ hrs allowed for this paper reading the whole paper carefully before commencing your work.

For Examiner's Use Only

Question 1	b	d	e	f	g	h (i)	(ii) I	I	TOTAL	
Maximum Score	1	4	1	5	3	2	2	2	20	
Candidate's Score										
Question 2	Part A	a	b	c	d	Part B	c	g (i)	g (ii)	TOTAL
Maximum Score		1	2	5	2		3	5	2	20
Candidate's Score										



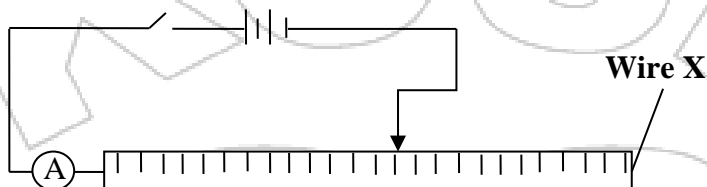
Question one

You are provided with the following:

- 1) 2 new dry cells size D
- 2) A cell holder
- 3) A switch
- 4) An ammeter
- 5) A voltmeter
- 6) 6 connecting wires at least three with crocodile clips
- 7) Nichrome wire mounted on the metre rule labeld X
- 8) A micrometer screw gauge (to be shared)

Proceed as follows

- (a) Connect the circuit as shown in the figure below



- (b) Measure the voltage, E of the dry cell before closing the switch

E=..... V

(1mark)

- (c) Adjust the length L of the wire 0.2m, close the switch S and read the value of current and record in the table below.

Length L(m)	0.2	0.3	0.4	0.5	0.6	0.7
Current , I(A)						
$\frac{1}{I} (A^{-1})$						

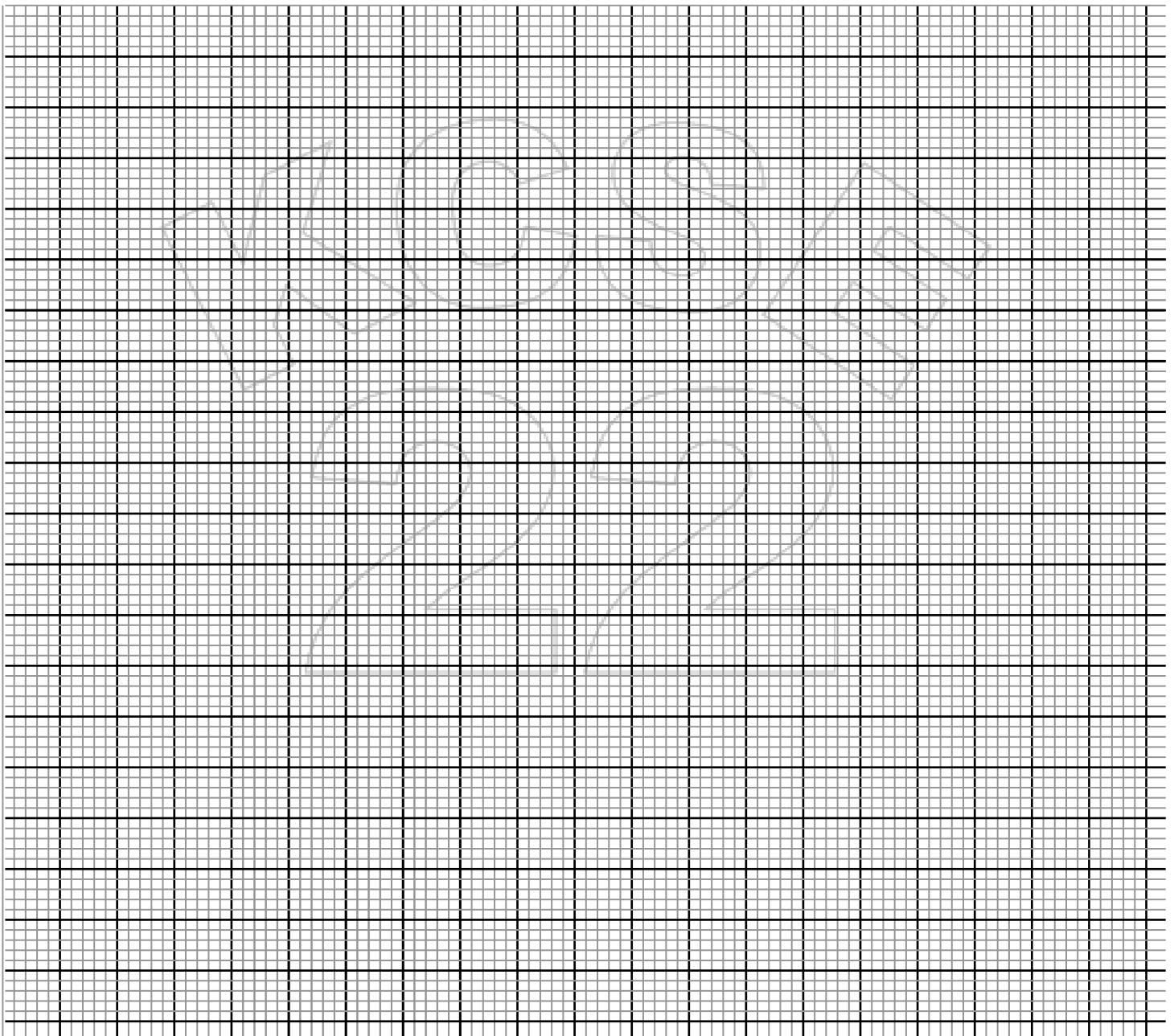
- (d) Repeat the procedure in (c) above for the value of lengths given in the table

(3mks)



(e) Calculate the values of $\frac{1}{I}$ and record in the table above. **(1mk)**

(f) On the grid provided plot a graph of $\frac{1}{I}$ (y axis) against L **(5mks)**



(g) Determine the gradient of a graph (3mks)

(h) (i) Measure the diameter of the wire in three points used and find the average diameter.

$d_1 = \dots\dots\dots d_2 = \dots\dots\dots d_3 = \dots\dots\dots$ mm (1mk)

Average $d = \dots\dots\dots$ m (1mk)

(ii) Determine the cross section area, A of the wire (2mks)

Form the equation

$$\frac{1}{l} = \frac{kl}{AE} + \frac{Q}{E} \quad :$$

determine

i) The value of k (2mks)

ii) The value Q (2mks)



Question 2

Part A

You are provided with the following

- 1) A metre rule
- 2) Knife edge raising 20cm above bench
- 3) One 50g mass and one 100g mass
- 4) Some thread
- 5) Some water in a beaker
- 6) Liquid L in a beaker
- 7) Tissue paper

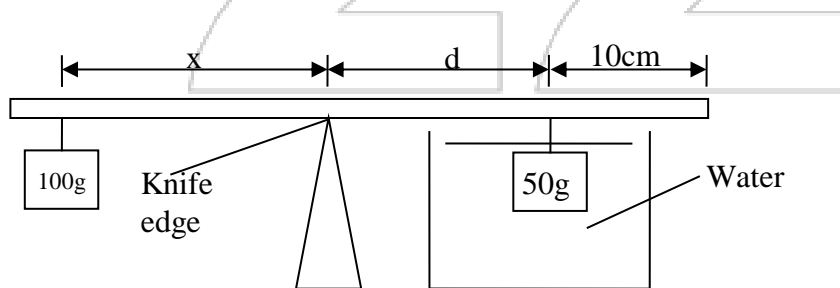
Proceed as follows:

- a) Balance the meter rule on the knife edge and record the reading at this point.

Balance point =m (1mk)

For the rest of this experiment the knife edge must be placed at this position.

- b) Set up the apparatus as shown in figure below. Use the thread provided to hang the masses such that the positions of support can be adjusted.



The balance is attained by adjusting the position of the 100g mass. Note that the distance x and d are measured from the knife edge and the 50 mass is fully submerged in the water. Record the values of x and d .

i) $x_1 = \dots\dots\dots$ cm (1mk)

d = $\dots\dots\dots$ cm (1mk)

ii) Determine W_1 (weight of the object in water) (2mks)

iii) Determine the upthrust U_w in water of the 50g in water (1mk)

c) Now balance the metre rule when the 50g mass is fully submerged in the liquid L.

$x_2 = \dots\dots\dots$ cm (1mk)

Apply the principle of moments to determine the weight W_2 of 50g mass in the liquid L and hence determine the upthrust U_L in the liquid.

W_2 (2mks)

U_L (1mk)

d) Determine the relative density R.D of the liquid L, given that (1mk)

$$R.D = \frac{U_L}{U_w}$$



Part B

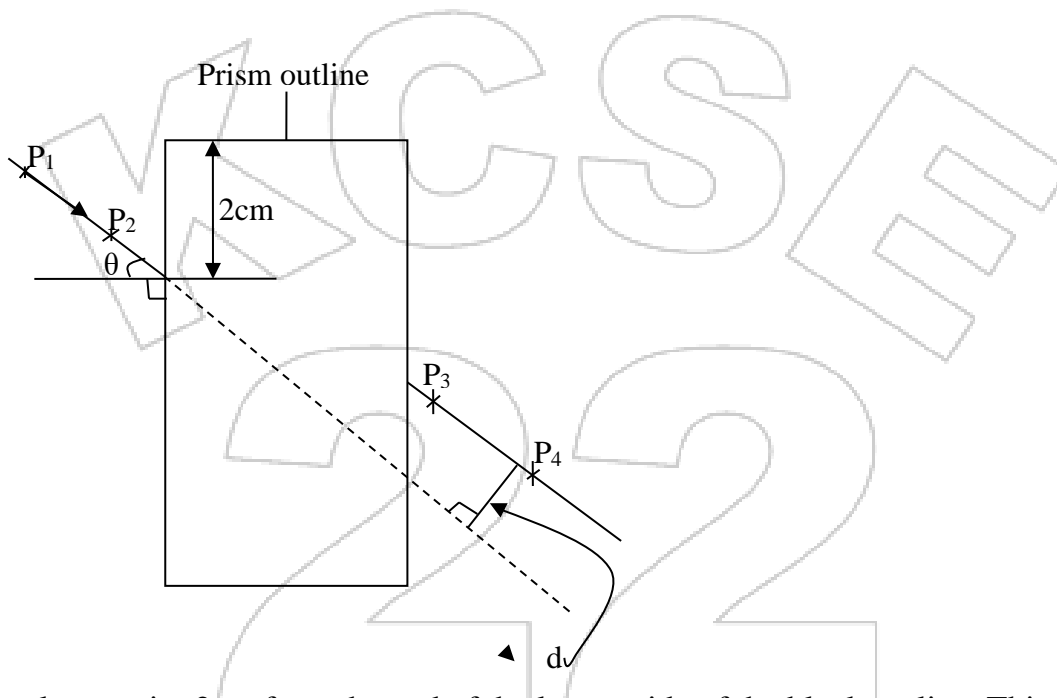
You are provided with the following

- (a) A rectangular glass block
- (b) Four optical pins
- (c) A piece of soft board
- (d) A plain sheet of paper
- (e) Cellotape

You are also required to have your complete mathematical set.

Proceed as follows:

- a) Place the plain sheet of paper on the soft board and fix it using the cellotape provided. Place the glass block at the centre of the sheet, and draw its outline. Remove the glass block.
- b) See the figure below



Draw a normal at a point 2cm from the end of the longer side of the block outline. This normal line will be used for the rest of the experiment.

- c) By viewing through the glass from the opposite side stick two other pins P_3 and P_4 vertically such that they are in line with the images of the first two pins. Draw a line through the marks made by P_3 and P_4 to touch the outline.

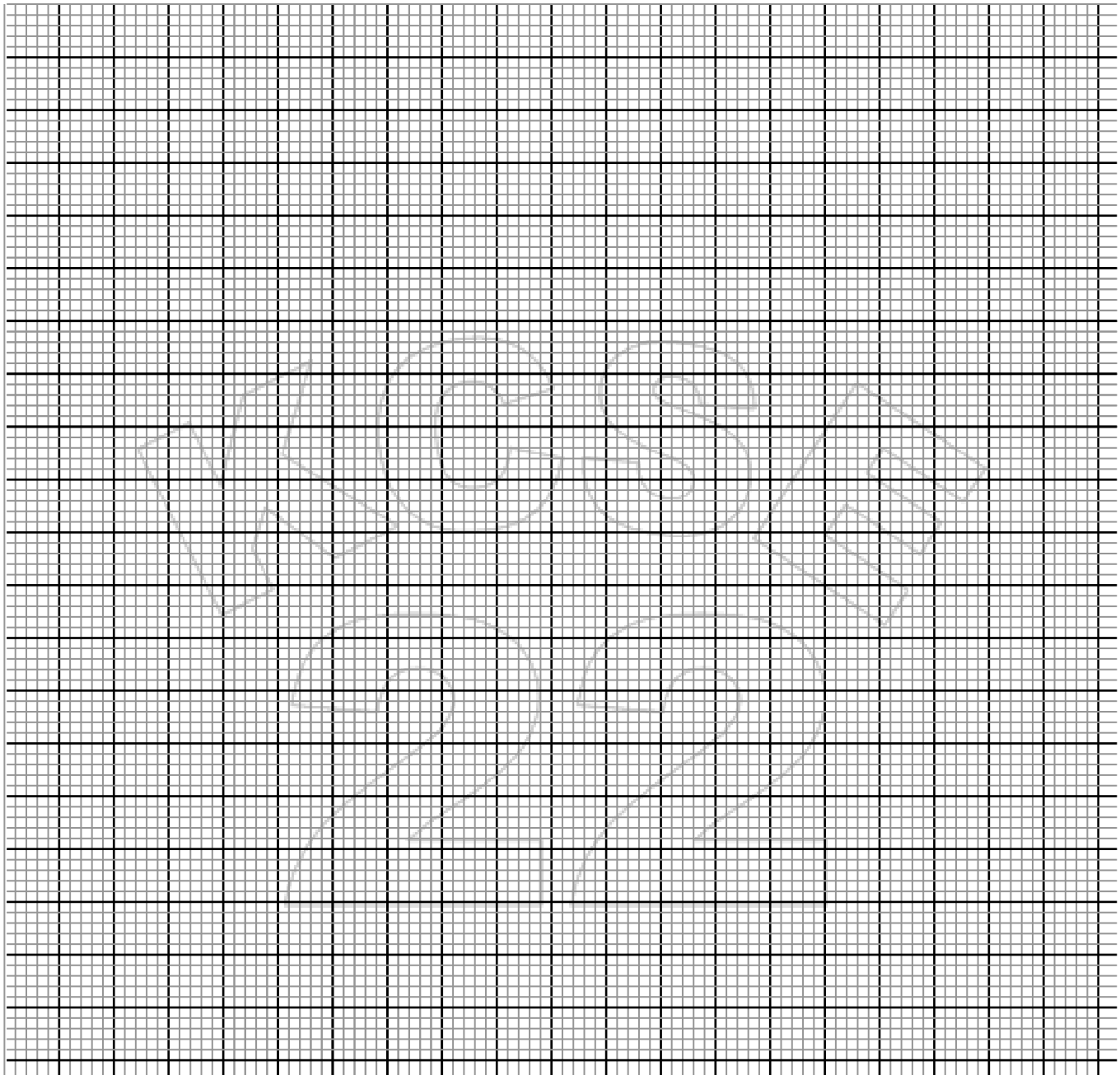
Measure and record in the table below the perpendicular distance d between the extended line and the line, P_3P_4 . See figure above.

- d) Record this value in the table below and repeat the process for other angles shown in the table.

NB: The sheet of paper with the drawing must be handed in together with this question paper. Ensure you write your name and index on the sheet paper. (3mks)

Θ (deg)	25	35	40	45	55	60	65
d(cm)							

f(i) On the grid provided, plot a graph of d (y –axis) against Θ (5mks)



(ii) Using the graph, estimate the value of d when $\Theta = 0^\circ$ (2mks)

TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

SCHOOL..... SIGN.....

DATE.....

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

443/1

AGRICULTURE

2 HOURS

PAPER 1

INSTRUCTIONS TO CANDIDATES

- [a] Write your name and index number in the spaces provided above.
- [b] Sign and write the date of examination in the spaces provided above.
- [c] This paper consists of three sections A, B, and C.
- [d] Answer all the questions in sections A and B.
- [e] Answer any two questions in section C.
- [f] The answers should be written in the spaces provided.

FOR EXAMINERS USE ONLY

SECTION	QUESTIONS	MAX. SCORE	CAND. SCORE
A	1---17	30	
B	18---21	20	
C	22 ,23 ,24	20	
	22 ,23 ,24	20	
TOTAL SCORE		90	



SECTION A [30 MARKS]

Answer ALL the questions in the spaces provided.

1. Give *four* methods of applying fertilizers to crops. [2marks]

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2. State *four* beneficial biotic factors that influence agriculture. [2marks]

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3. Give *four* branches of Agriculture. [2marks]

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4. State *four* advantages of co-operative land tenure system. [2marks]

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5. State *four* benefits of organic mulch in crop production. [2marks]

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6. State *four* conditions under which shifting cultivation is practiced. [2marks]

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7. Give *four* effects of mass wasting. [2marks]

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8. Give *four* factors that affect the rooting of cuttings. [2marks]

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9. Name *four* details that are included in a farm marketing record. [2marks]

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10. Give *four* examples of product-product relationship in the management of agricultural enterprises. [2marks]

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11. State *three* benefits of tissue culture in crop propagation. [1.5 marks]

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12. Give *two* reasons for cutting back pyrethrum. [1 mark]

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13. State *three* methods of classifying herbicides. [1.5 marks]

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14. State *four* symptoms of viral diseases in crops. [2 marks]

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15. Give *four* reasons for draining land as part of land reclamation. [2 marks]

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16. State *two* reasons for topping a pasture. [1 mark]

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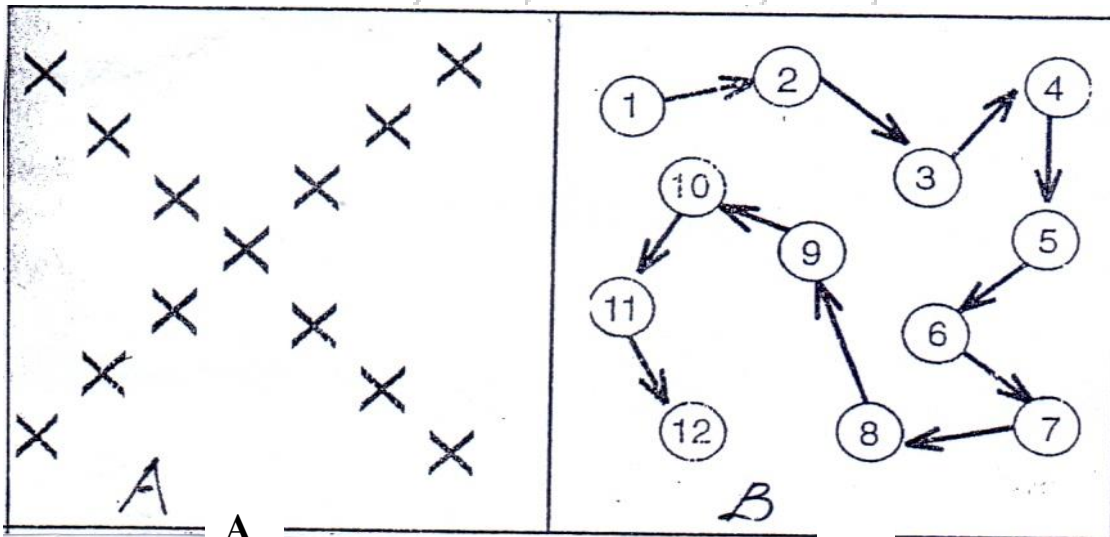
17. State *two* advantages of metal pipes over plastic pipes in piping water in the farm. [1 mark]

.....

SECTION B [20 MARKS]

Answer ALL the questions in the spaces provided.

18. The following diagrams illustrate two methods of soil sampling .Study them and answer questions that follow .



[a] What do diagrams A and B represent? [2 marks]

A.....

B.....



[b] Describe the procedure of soil sampling. [3 marks.]

.....

 [0.5 x 6 = 3 marks]

19. Study the following weeds and answer questions that follow .



[a] Give the identity of weeds J a [2 marks]

J.....

K.....

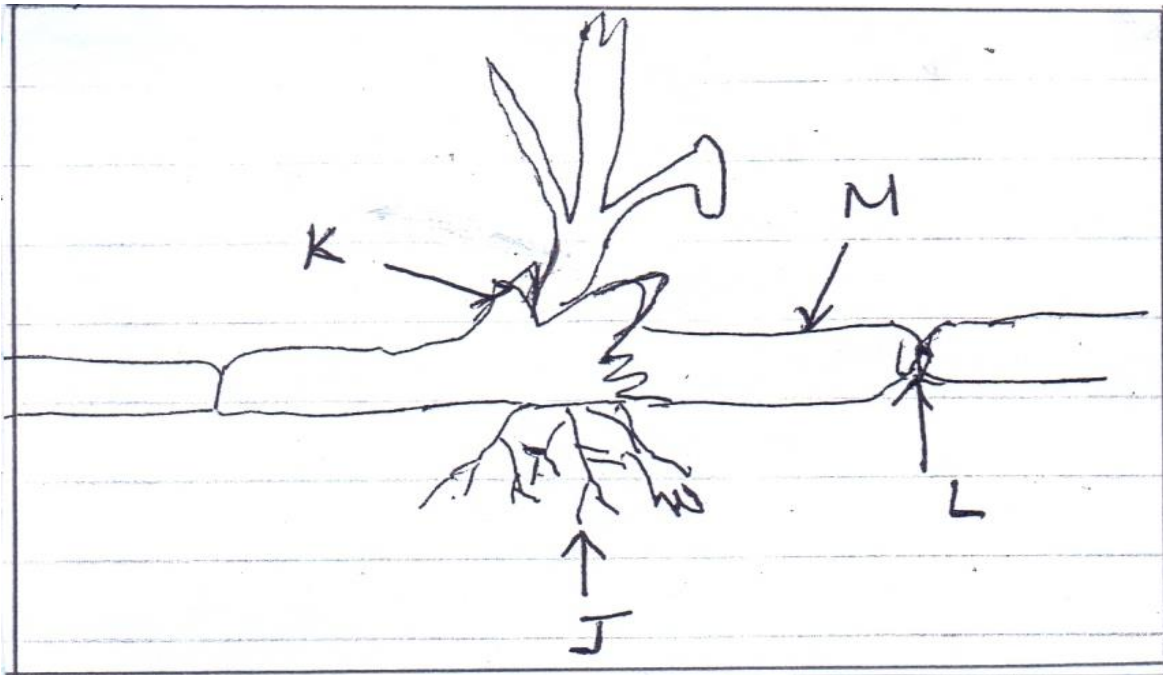
[b] What makes weed K difficult to control. [1 mark]

.....

[c] Give the economic importance of weed J [1 mark]

[d] State *one* reason that makes weeds excellently adapted to various environments. [1 mark]

20. Study the diagram below of a planting material of sugar cane and answer questions that follow.



[a] Identify the parts J, K, L and M. [2 marks]

J.....

K.....

L.....

M.....

[0.5 X 4 = 2 Marks.]

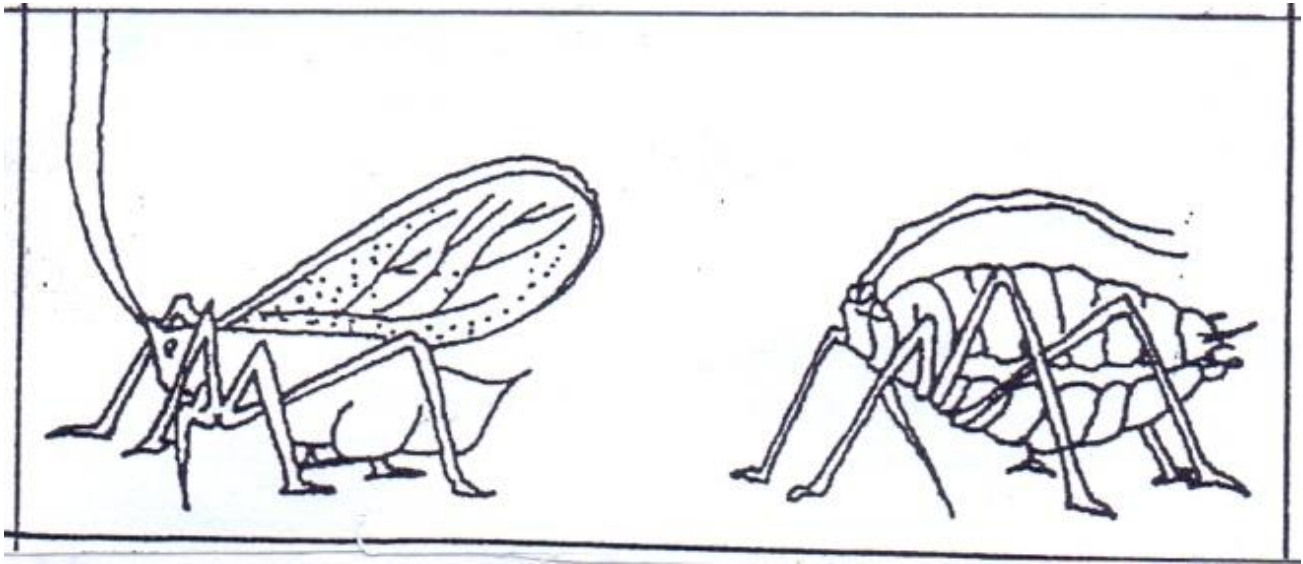
[b] State the functions of the parts labeled J, K and L. [3 marks]

J.....

K.....

L.....

21. Study the crop pest below and answer questions that follow.



[a] Give the identity of the pest above. [1 mark]

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[b] State *two* effects that are caused by the above pest to crops. [2 marks]

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[c] Give *two* control measures of the pest. [2 marks]

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SECTION C [40MARKS]

Answer any two questions from this section in the spaces provided after question 24 .

22. [a] Describe the growing of dry bean seeds under the following sub headings .

- Selection and preparation of planting materials. [3 marks]
- Planting. [4 marks]
- Weeding. [3 marks]

[b] Describe the environmental conditions that may lead to low crop yields [10 marks]



- 23. [a]** Explain seven ways in which farmers adjust to risks and uncertainties in farming . **[7 marks]**
- [b]** Explain five qualities of a good farm manager. **[5 marks]**
- [c]** The following are expenses of Pioneer Farm in the year 2014.
- Concentrates shillings 5500
 - Seeds shillings 4500
 - Fertilizer shillings 7000
 - Fuel shillings 2000
 - Disc harrow 175000
 - The farmer sold wheat to millers for shillings 120000
 - Sold cabbages to the market for shillings 40000
 - Sold milk to school for shillings 30000
 - Sold poles to a saw mill for shillings 25000
 - The opening valuation was shillings 150000
 - The closing valuation was shillings 250000
- Prepare a profit and loss account for Pioneer farm for the year ending 2014 **[7 marks]**
- Did the farm make a profit or a loss and of how much? **[1 mark]**
- 24. [a]** Describe seven cultural or biological methods of soil and water conservation. **[7 marks]**
- [b]** Describe agro forestry under its importance to the country. **[7 marks]**
- [c]** Explain six objectives of the million acre scheme of land settlements. **[6 marks]**



KCSE
2022



TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

SCHOOL..... SIGN.....

DATE.....

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

443/2

AGRICULTURE

PAPER 2

TIME: 2 HOURS

INSTRUCTIONS TO CANDIDATES:

- (a) Write your *name, index number*, in the spaces provided.
- (b) Sign and write the date in the spaces provided above.
- (c) This paper consists of three sections *A, B and C*.
- (d) Answer all questions in section *A, B* and any *two* questions from section *C*
- (e) Answers should be written in the spaces provided.

For Examiner's Use Only:

SECTION	QUESTIONS	MAXIMUM SCORE	CANDIDATES SCORE
A	1-20	30	
B	21-23	20	
C		20	
		20	
	TOTAL SCORE	90	



SECTION A (30 Marks)

Answer all the questions in this section in the spaces provided

1. Name **two** bloodless methods of castration in lambs. **(1 mark)**

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2. Name the strokes in a four stroke cycle engine. **(2 marks)**

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3. Give the appropriate term that refers to each of the following:

(a) castrated chicken **(½ mark)**

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(b) young one of a rabbit **(½ mark)**

.....

4. Distinguish between the following terms as used in livestock health:

(a) isolation and quarantine; **(1 marks)**

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.....

(b) curative drug and prophylactic drug **(1 marks)**

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5. State four practices that immediately come after complete milking in a milking shade (2marks)

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6. Name two practices that are carried out when preparing ewes for mating (1mark)

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7. State **three** factors that would determine the amount of concentrate fed to dairy cattle. (1 ½ mks)

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8. Give **three** reasons why calves should be housed in individual pens. (1 ½ marks)

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9. Name **two** plumbing tools. (1mk)

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10. State three advantages of embryo transplant in dairy cattle (1 ½ mks)

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11. Name the breed of sheep which has lambing percentage of 125 – 140 (½ mk)

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12. Give three signs that would indicate a cow has died of anthrax. (1½ mks)

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13. Give three reasons for feeding bees (1½ marks)

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14. Give two reasons why identification of farm animals is important (1 marks)

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15. Name two larval stages in the life cycle of a liver fluke (1 mark)

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16. Outline four types of fence that can be used in mixed farm (2marks)

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

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18.(a) Give **four** methods of administering vaccines in poultry. (2marks)

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(b) State three characteristics of an effective acaricide (1 ½ mks)

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19.Give **four** reasons for treating timber used in construction of farm store. (2 marks)

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20.State **two** factors that influence the daily water intake in a dairy cow (1 marks)

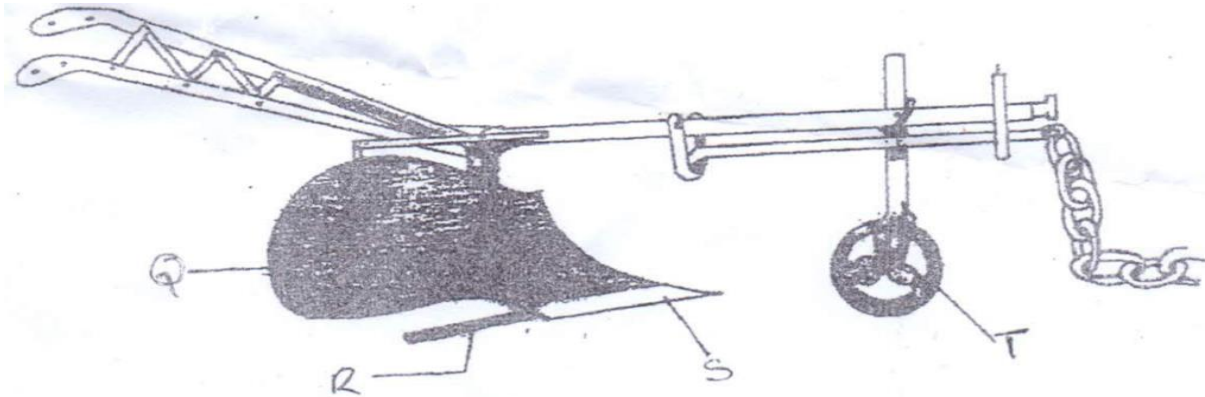
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SECTION B (20Marks)

Answer all the questions in this section in the spaces provided

21. The diagram below shows a farm implement. Study it and answer questions that follow



(a) Identify the farm implement illustrated above. (1mk)

.....

(b) (i) Name the parts labeled **Q** , **R** , **S** and **T**

Q.....(½ mk)

R.....(½ mk)

S.....(½ mk)

T.....(½ mk)

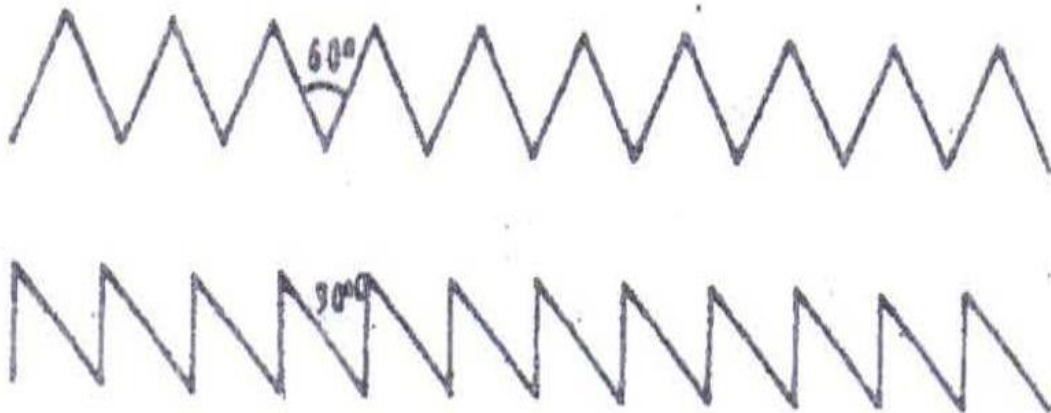
(ii) Give the function of the part labeled **R**. (1mk)

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.....

(c) Give two functions of the implement illustrated above. (2mks)

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22. (a) The diagram labeled A illustrated show the teeth arrangement of a hand workshop saw. Study it and answer questions that follow.



(a) Name the type of saw represented by the teeth arrangement **A** and **B**. (1mk)

A.....

B.....

(ii) Give the functional difference between tools **A** and **B** represented above. (2mk)

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(b) Give two maintenance practices for the tools represented by the teeth illustrated above. (2mks)

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23. (a) Below is an illustration of an activity carried out in poultry management. Study it and answer questions that follow.



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

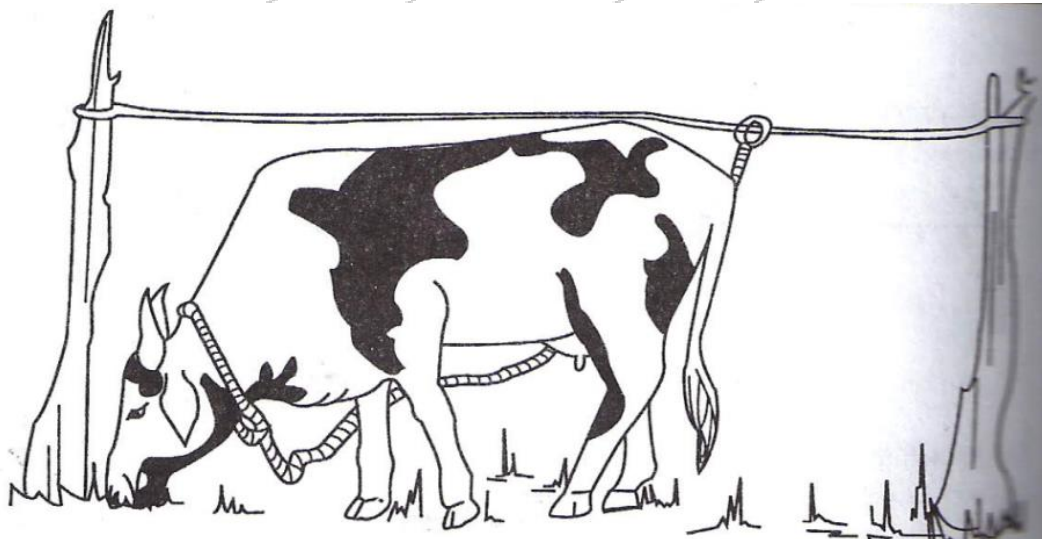
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(ii) Give two reasons for carrying out the practice illustrated above. (2mks)

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b) Study the illustration showing a method of grazing



(i) Identify the method of grazing illustrated above. (1mk)

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(ii) Give three disadvantages of the method named in (i) above. (3mks)

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(C) Give two reasons for raddling in sheep management. (2mks)

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SECTION C (40 MKS)

Answer any two questions from this section in the spaces provided.

24.(a) (i) State the factors that determine the choice of a poultry rearing system by farmer (6mks)

(ii) Outline the factors to consider in sorting and grading eggs (4mks)

(b) (i) Describe five practices that would ensure clean milk production (5mks)

(c) Describe the processing of honey using heat method. (5mks)



25.(a) Discuss milk fever disease under the following subheadings

- (i)** Cause **(1mk)**
- (ii)** Livestock attacked **(2mks)**
- (iii)** Symptoms **(5mks)**
- (iv)** Control measures **(2mks)**

(b) State the major difference in the digestion of food between ruminants and non- ruminants in the following parts of the digestive systems.

- (i)** Mouth **(3mks)**
- (ii)** Caecum **(2mks)**
- (c)** Describe five methods of controlling cannibalism in a flock of layers **(5mks)**

26.(a) State five non – chemical methods of controlling ticks in cattle **(5mks)**

(b) Explain five construction features necessary in a fish pond **(5mks)**

(c) (i) State five maintenance practices of a tractor battery **(5mks)**

(ii) Explain five possible causes of overheating in an engine **(5mks)**



TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

SCHOOL..... SIGN.....

DATE.....

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

565/1

BUSINESS STUDIES

Paper 1

Time: 2 hours

Instructions

❖ Answer ALL the questions in the spaces provided.

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

16	17	18	19	20	21	22	23	24	25

TOTAL

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Answer ALL the questions in the spaces provided.

1. Giving an example in each case, outline the difference between renewable and non-renewable resources (4 marks)

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2. State **four** reasons why diagonal communication needs to be encouraged in an organization. (4 marks)

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3. Mention **four** benefits enjoyed by a member of a producer cooperative society (4 marks)

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4. State **four** measures that the government can use to encourage increase in the country's volume of exports. (4 marks)

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5. Highlight **four** positive impacts of the physical environment on the operations of a business.

(4 marks)

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6. Highlight **four** problems associated with monopoly market structure.

(4 marks)

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7. Outline **four** role of the mass media in promoting consumer protection.

(4 marks)

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8. Outline **four** services offered in agency banking as a trend in the banking sector.

(4 marks)

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9. State the best type of machine one would use to perform the following tasks (4 marks)

	Functions	Name of machine
i)	Used to trim papers into desired sizes	
ii)	To post information to ledgers and to prepare payrolls	
iii)	To transmit printed messages such as letters, maps, diagrams and photographs	
iv)	To destroy sensitive but unwanted documents	

10. The following balance sheet belongs to Nyakwar Atiyo during the period ended 30th June 2000.

Nyakwar Atiyo Traders
Balance sheet
As at 30.06.2000

<u>Assets</u>	<u>Kshs</u>	<u>Capital + Liabilities</u>	<u>Ksh</u>
Machinery	45,000	Capital	65,000
<u>Current assets</u>		Creditors	45,000
Stock	7,750	<u>Short term liability</u>	
Debtors	1,375	Bank loan	10,000
Bank	<u>25,375</u>		
	<u>79,500</u>		<u>79,500</u>

The following transactions took place on July 1 2000.

- (i) Paid creditors Sh 2000 by cheque.
- (ii) Nyakwar Atiyo took stock worth Shs 7500 from the business for his son's birthday.
- (iii) Motor vehicle previously owned by Nyakwar Atiyo values at sh 200,000 was converted into business vehicles.

Required: Prepare the balance sheet of Nyakwar Atiyo traders as at 2nd July 2000.



11. Highlight **four** roles of advertising agencies in product promotion (4 marks)

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12. Distinguish between the following categories of government expenditure. (4 marks)

a) Recurrent expenditure

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b) Capital expenditure

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13. Highlight **four** differences between hypermarkets and departmental stores. (4 marks)

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14. The information below was extracted from the books of Lemayian Traders for the year ended

31. 12. 2015

Opening stock	45,000
Closing stock	15,000
Turnover	340,000
Margin	25%

Required:

(i) Gross profit **(2mks)**

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(ii) Purchases **(2mks)**

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15. Distinguish between the following terms as used in National **Income** **(3mks)**

a) Gross Domestic Product

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b) Gross National Product

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c) Per capita Income

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16. Highlight **four** ways in which the government of Kenya promotes entrepreneurial development **(4mks)**

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17. State **four** channels of distribution for importation of agricultural produce. **(4mks)**

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18. Outline **four** trends in transport sector. **(4mks)**

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19. Outline **four** benefits of indirect production. **(4mks)**

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20. Enter the following transactions in the relevant ledger accounts **(4mks)**

2015

- April 1 Janet Cosmetics started a business with Ksh. 150,000 cash
- „ 3 Bought stock of goods for Sh. 40,000 and paid in cash
- „ 6 Opened a bank account and deposited Sh. 60,000 from the cash till
- „ 9 Purchased an office machine for Sh. 25,000 and paid by cheque

21. Give **four** reasons why a producer may need to have their own warehouse **(4mks)**

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22. State the name of the source document used to record the following transactions **(4mks)**

Transaction	Source Document
a) Received goods returned by a buyer who bought them earlier on credit	
b) Making of payment to a casual workers at the end of the week	
c) Bought goods for sale from Gilanis Supermarkets on credit	
d) A customer, Adhiambo, send a cheque for goods she bought earlier on credit	



23. Define the following terms as used in business studies (4mks)

(i) Annuity

.....

(ii) Proposer

.....

(iii) Speculative risk

.....

(iv) Grace period

.....

24. In the table below fill in the missing figures S,T,U and V. (4 marks)

Business	Assets(shs)	Capital(shs)	Liabilities(shs)
A	20,000	S	5,000
B	42,000	32,000	T
C	U	17,000	53,000
D	18,000	V	6,000

S.....

T.....

U.....

V.....



25. Compute the consumer price index (CPI) from the following data giving explanation of your outcome **(4mks)**

Year	Price
2010	300
2011	375

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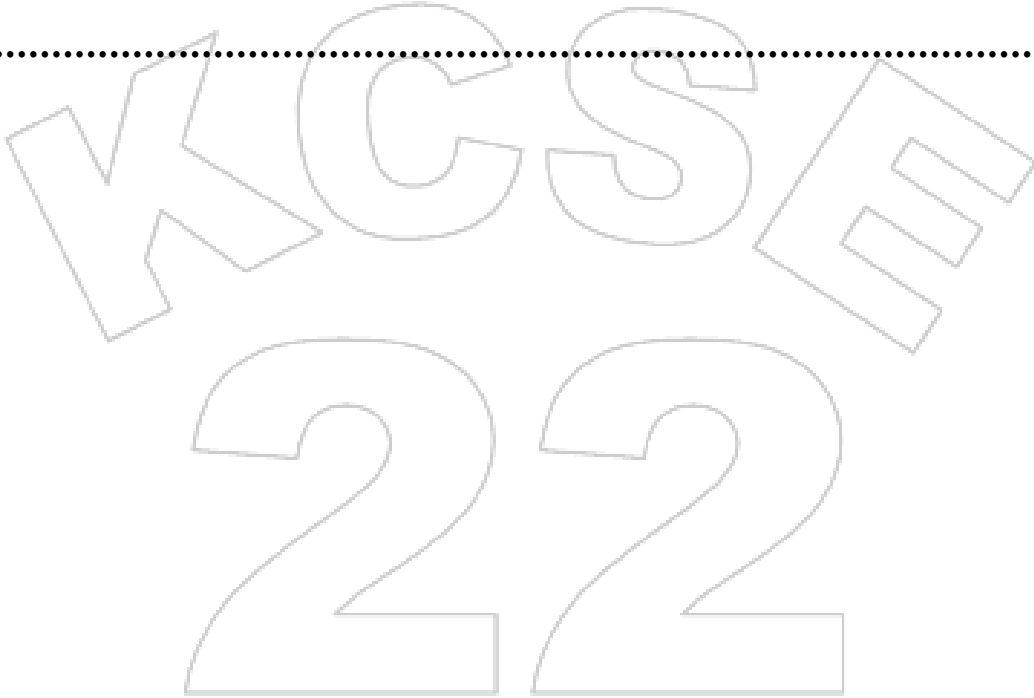
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TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME.....

INDEX NO.....

SCHOOL.....

SIGN.....

DATE.....

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

565/2

BUSINESS STUDIES

PAPER 2

2 ½ HOURS

Instructions to candidates

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

FOR EXAMINER'S USE ONLY

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



1. (a) Explain five principles of insurance.
- (b) Study the following table of the demand and supply of product x.

Period 2010	Price / units	Qtn dd / units
July	Shs 300	500
August	Shs 300	400
September	Shs 300	200
October	Shs 300	80
November	Shs 300	50

Explain five factors that may have led to the trend above.

2. (a) Giving the types of unemployment, state the causes of the remedies.
- (b) You are a sales executive with a local bank. Describe five steps that you must follow when sent to the field to promote the products of the bank. **(10 marks)**
3. (a) Discuss five reasons why a country's economy is showing slow increase in their National Income **(10 marks)**
- (b) Explain five problems that are likely to face the process of implementation of well-prepared economic development plans **(10 marks)**
4. (a) On 1st June 2015, Ndovu Traders had cash in hand of sh.25,000 and sh.56,200 at bank. During the month, the following transactions took place:
- 2015**
- June 2 Cash sales, sh.42,000.
- June 5 Received a cheque of sh.70,500 from Kiptala Traders after deducting a6% cash discount.
- June 8 Paid salaries, sh24,000cash.
- June 9 Yegon settled his account of sh.45,000 in cash and was allowed sh.l,800cash discount.
- June 12 Cash sales sh46,500.
- June 18 Paid Tuitoek's debt of sh.100,000 by cheque after deducting 5% cash discount.
- June 24 Withdrew sh.26,000 from the bank for office use.
- June 30 Banked all the cash except sh.25,000.
- Prepare a 3-column cashbook and balance it off on 30th June, 2015. **(10 marks)**
- (b) Explain **five** factors that may hinder effective communication in an organization. **(10 marks)**



5. (a) Explain **five** factors that influence the choice of a product to produce. **(10 marks)**

(b) Discuss **five** errors that may not be noticed in a trial balance. **(10 marks)**

6. (a) Discuss **five** canons of public expenditure. **(10 marks)**

(b) The following information was extracted from the books of Umeme Traders as at 31st December 2009.

	<u>Shs</u>
Bank loan	567,000
Bank loan interest	1,440
Capital	1,680,000
Closing stock	87,000
Creditors	272,400
Debtors	140,280
Discount allowed	170,400
Electricity	30,240
Furniture	489,804
Furniture repairs	86,436
Gross profit	624,720
Maintenance on premise	72,000
Motor vehicle	1,080,000
Motor vehicle maintenance	360,000
Premise	648,000
Rent received	144,000
Sundry expenses	122,520

Prepare:

(i) Profit and loss account for the year ended 31st December 2009.

(ii) Balance sheet as at 31st December 2009. **(10 marks)**



TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME.....

INDEX NO.....

SCHOOL.....

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DATE.....

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

313/1

CHRISTIAN RELIGIOUS EDUCATION

PAPER 1

TIME: 2½HOURS

INSTRUCTIONS TO CANDIDATES

❖ Answer any *five* questions in this paper in the answer booklet provided

Questions	1	2	3	4	5	6	Total
Score							



Answer any five questions in this paper

1. (a) Outline **seven** importance of CRE to a secondary school student in Kenya. (7mks)
(b) Describe the second account of creation in Genesis 2:4b-25. (7mks)
(c) Give **six** traditional African views of creation. (6mks)
2. (a) Describe the call of Moses in Exodus 3:1-22. (8 mks)
(b) Give reasons why Moses was reluctant to go back to Egypt. (6 mks)
(c) What do Christians learn about God from the call of Moses? (6 mks)
3. (a) Outline seven ways in which King Jeroboam promoted the spread of idolatry in Israel. (7 mks)
(b) Give seven reasons why Elijah was uncompromising in his attitude to the worship of Baal. (7 mks)
(c) State six reasons why Christians should fight against the spread of devil worship in the society. (6 mks)
4. (a) State **six** titles given to prophets in the Old Testament. (6mks)
(b) Explain the evils committed by other nations that were to be punished by God according to Prophet Amos. (7mks)
(c) Mention **seven** ways how Christians can avoid God's punishment today. (7mks)
5. (a) Describe how the people of Judah renewed their covenant with God under the leadership of Ezra. (8 mks)
(b) Give **five** reasons why Nehemiah carried out religious reforms in Judah. (5 mks)
(c) In what ways do Christians renew their covenant faith with God? (7 mks)



- 6. (a)** Identify **seven** occasions when prayers were conducted in Traditional African societies. **(7 mks)**
- (b)** Outline **seven** roles of kinship system in traditional African society. **(7 mks)**
- (c)** What changes have taken place in property ownership in Traditional African communities. **(6 mks)**

KCSE
222



TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

SCHOOL..... SIGN.....

DATE.....

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

313/2

CHRISTIAN RELIGIOUS EDUCATION

Paper 2

2 ½ hrs

Instructions to candidates

- a) Write your name, admission number and class in the spaces provided above.
- b) This paper consists of six questions.
- c) Answer any five questions in the answer booklet provided.
- d) Each question carries 20 marks.
- e) Candidates should answer questions in English

For Examiner's Use Only

Question	1	2	3	4	5	6	Candidate's Total Score
Candidate's score							



Answer any five questions

1. (a) Explain the Jewish expectations of the Messiah. (7 marks)
- (b) Explain **four** differences between the annunciations of the birth of John the Baptist and Jesus Christ. (8 marks)
- (c) State **five** ways in which Christians should respond to childlessness in Kenya. (5 marks)
2. (a) Describe the feeding of 5000 people as narrated in Luke 9:10-17. (7 marks)
- (b) State **seven** impacts of the miracles of Jesus in his ministry. (7 marks)
- (c) Show how Christians carry on with the work of Jesus today. (6 marks)
3. a) Describe the **three** incidents that Jesus used to teach on duties and privileges of discipleship in Luke 9: 57-62. (6marks)
- b) Outline **seven** lessons that Christians learn from the parable of the dishonest steward in Luke 16:1-18. (7marks)
- c) List **seven** signs that have been fulfilled today from Jesus' teaching on eschatology (7marks)
4. (a) Explain the gifts of the Holy Spirit as taught by Saint Paul. (7 marks)
- (b) Explain the New Testament teaching on the people of God. 1 Peter 2:9-10. (5 marks)
- (c) State **seven** causes of disunity in the church in Kenya today. (7 marks)
5. (a) State **seven** ways in which self-employment is important in Kenya today. (7 marks)
- (b) Outline **seven** factors that may lead to the misuse of leisure. (7 marks)
- (c) What is the role of the church in promoting self-employment? (6 marks)



6. a) Identify **eight areas of co-operation between the Church and the State in Kenya.(8marks)**

b) Explain the Christian view on organ transplant. (6marks)

c) State **six ways how Christians help in transforming the Kenyan social life. (6marks)**

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TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

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

311/1

HISTORY AND GOVERNMENT

PAPER 1

2½ hours

Instructions to candidates

- (a) This paper consists of **three** sections; **A, B and C**.
- (b) Answer **all** the questions in section **A**, **three** questions from section **B** and **two** questions from section **C**.
- (c) Answers to all the questions must be written in the answer booklet provided.
- (d) This paper consists of **3 printed pages**.
- (e) Candidates should check the question paper to ascertain that all the pages are printed as indicated and that no questions are missing

For Examiner's Use Only

SECTION	MAXIMUM SCORE	CANDIDATE'S SCORE
A	25	
B	45	
C	30	
TOTAL SCORE	100	



SECTION A (25 marks)

Answer all the questions in this section

1. Identify the **main** source of information on Pre-history. (1 mark)

.....
.....

2. State **two** reasons for the migration of the Borana from their cradleland into Kenya.(2 marks)

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

3. Give **one** step the Kenya Government has taken to solve food shortages. (1 marks)

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.....

4. What was the **main** importance of age set systems among the Kenyan communities during the pre-colonial period? (1 mark)

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.....

5. Give **two** special rights of the older members of the society as provided for in the New Kenya constitution. (2 marks)

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.....

6. Identify **two** main groups that offered education in Kenya during the colonial period.(2 marks)

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.....



7. What was the **main** reason why Africans were not allowed to grow cash-crops in colonial Kenya? **(1 mark)**

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.....

8. Give the **main** outcome of the Lyttelton constitution of 1954. **(1 mark)**

.....
.....

9. Identify the representative of Africans in the Legco before the appointment of Eliud Mathu. **(1 mark)**

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.....

10. Give **two** laws that regulate elections in Kenya. **(2 marks)**

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.....

11. Give the **main** function of the National Police Service Commission. **(1 mark)**

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.....

12. State **one** role of the Supreme Court of Kenya. **(1 mark)**

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.....

13. Identify **two** social contributions of Daniel Arap Moi in the history of Kenya. **(2 marks)**

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.....



14. Identify **one** characteristic of African socialism that promotes national development in Kenya. (1 mark)

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.....

15. Identify **two** agricultural schemes established in Kenya after independence. (2 marks)

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.....
.....

16. Name **two** members of the county executive committee. (2 marks)

.....
.....

17. Identify **one** fund established by the constitution of Kenya 2010. (1 mark)

.....
.....

SECTION B (45 marks)

Answer any **three** questions in this section

18. (a) Identify **three** groups of Eastern Cushites in Kenya. (3 marks)

(b) Describe the social organization of the Cushites. (12 marks)

19. (a) What were the terms of Anglo-German Agreement of 1886? (3 marks)

(b) Explain **six** reasons why the British applied indirect rule in Kenya. (12 marks)

20. (a) Name **three** early political movements in Kenya (3 marks)

(b) Explain **six** challenges faced by the early political movements in Kenya. (12 marks)



21. (a) Give **five** characteristics of independent movements in Kenya. (5 marks)
(b) Explain **five** achievements of KAU. (10 marks)

SECTION C (30 marks)

Answer any *two* questions in this section

22. (a) State **five** resolutions reached after the Second Lancaster Conference of 1962. (5 marks)
(b) Describe the features of the independence constitution. (10 marks)
23. (a) State **three** functions of cabinet secretaries. (3 marks)
(b) Explain **six** functions of the Independent Electoral and Boundaries Commission. (12 marks)
24. (a) Identify **three** members of the County Assembly. (3 marks)
(b) Explain **six** roles of the County Assembly. (12 marks)



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

311/2

HISTORY AND GOVERNMENT

PAPER 2

2½ hours

INSTRUCTIONS TO CANDIDATES

- (a) This paper consists of **three** sections; **A, B and C**.
- (b) Answer **all** the questions in section **A**, **three** questions from section **B** and **two** questions from section **C**.
- (c) Answers to all the questions must be written in the answer booklet provided.

FOR EXAMINER'S USE ONLY

SECTION	MAXIMUM SCORE	CANDIDATE'S SCORE
A	25	
B	45	
C	30	
TOTAL SCORE	100	



SECTION A (25 marks)

Answer all the questions in this section

1. State **one** feature of a government. (1 mark)

.....
.....

2. Give **two** reasons why early man moved from the forest to settle in the grasslands. (2 mks)

.....
.....

3. Identify the earliest method of trade used during the Trans-Saharan trade. (1 mark)

.....

4. State **two** forms of picture writing during the early civilization. (2 marks)

.....
.....

5. Name **two** countries that pioneered space exploration in the world. (2 marks)

.....
.....

6. Give **one** way in which poor transport network hinders industrialization in the Third World countries. (1 mark)

.....
.....

7. Identify the contribution of Dr. Christian Bernard in the field of medicine. (1 mark)

.....
.....



8. State **one** way in which centralization of power contributed to success in the Buganda Kingdom. **(1 mark)**

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.....

9. Identify **two** ways in which the Industrial Revolution in Europe promoted European colonization of Africa. **(2 marks)**

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.....
.....

10. Name **one** fighting technique that Samouri Toure employed against the French. **(1 mark)**

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.....

11. Give **two** reasons why the Schlieffen plan failed during the First World War. **(2 marks)**

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.....
.....

12. State **two** permanent members of the Security Council. **(2 marks)**

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.....

13. Identify the head of the Commonwealth of Nations. **(1 mark)**

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.....



14. Give **two** roles played by Dr. Kwame Nkrumah in the Pan-African Movement. (2 marks)

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.....

15. Identify **two** ways in which the Organisation of African Unity contributed to the liberation of the Southern African countries. (2 marks)

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.....

16. State **one** political challenge faced by the Democratic Republic of Congo since Independence. (1 mark)

.....
.....

17. Name the Act of Parliament which marked the beginning of parliamentary control of the Monarchy in Britain. (1 mark)

.....

SECTION B (45 marks)

Answer any three questions in this section

18. (a) Identify **three** irrigation methods used in Egypt. (3 marks)
(b) Explain six similarities in Early agriculture in Egypt and Mesopotamia. (12 marks)

19. (a) State **five** factors for early urbanization in Africa. (5 marks)
(b) Explain how industrial and agrarian growth contributed to urbanization. (10 marks)



20. (a) Identify **three** features of macadamized roads. (3 marks)
(b) Explain **six** advantages of railway transport. (12 marks)
21. (a) Identify **three** types of nationalism in South Africa. (3 marks)
(b) Explain **six** roles of Nelson Mandela in the struggle for independence in South Africa. (12 marks)

SECTION C (30 marks)

Answer any two questions in this section

22. (a) Identify **three** types of spirits in Shona. (3 marks)
(b) Describe the political organization of the Shona. (12 marks)
23. (a) State **five** causes of the Second World War. (5 marks)
(b) Explain **five** reasons why the Axis were defeated during the Second World War. (10 marks)
24. (a) How can one become a member to the House of Lords in Britain?(3 marks)
(b) Explain **six** roles of the Prime Minister in Britain. (12 marks)



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

312/1

GEOGRAPHY

Paper 1

Time: 2 ³/₄ Hours

Instructions to Candidates

- This paper has two sections A and B
- Answer ALL the questions in section A. In section B, answer question 6 and any other two questions.

SECTION A	
QUESTION 6	
QUESTION 7	
QUESTION 8	
QUESTION 9	
QUESTION 10	



SECTION A

Answer All the questions in this section

1. (a) State three effects of revolution of the earth. (3marks)

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(b) The local time at Tema on 0° longitude is 12.00 noon. Calculate the local time at Hola 40°E. (2marks)

.....

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.....

2. (a) What is temperature? (2marks)

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.....

.....

(b) Give three factors that determine the amount of solar isolation received on the earth's surface. (3marks)

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3. (a) What are extrusive volcanic features? (2marks)

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(b) Apart from basic lava domes, name three other vent eruption volcanic features. (3marks)

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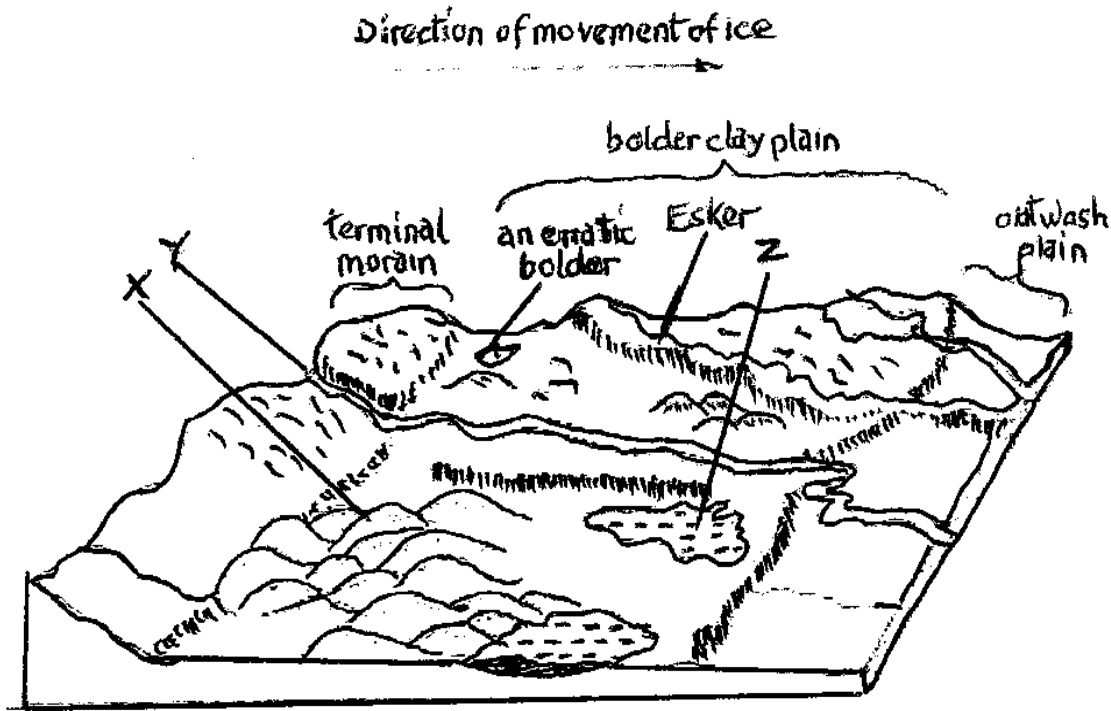
4. (a) State two conditions that may lead to glacial deposition. (2marks)

.....

.....

.....

(b) The diagram below shows some features formed from glacial deposition in lowland areas. Name the features marked X, Y and Z. (3marks)



5. (a) Give two processes through which wind erodes the desert surface. (2marks)

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(b) Describe how a mushroom block is formed.

(3marks)

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.....

SECTION B

Answer question 6 and any other Two from the remaining.

6. Study the map of Busia 1:50,000 (sheet 101/1) provided and answer the following questions.

- (a) (i) What is the vertical interval of the area covered by the map? (1mark)
- (ii) Give the six figure grid reference of the chief's house, (2marks)
- (iii) What was the magnetic variation of the area when the map was drawn? (1mark)
- (iv) What is the height of Odhiado hill? (2marks)

- (b) (i) Measure the distance of the international boundary from point where it crosses northing 41 to Northing 50 (Give your answer to the nearest 100 meters) (2marks)
- (ii) Calculate the area enclosed by river sio, south of Northing 50, west of all-weather road. Loose surface (B8/3) and East of the international boundary. (2marks)

- (c) (i) Using a vertical scale of 1cm to represent 40 meters, draw a cross section along Northing 37 from Easting 24 to Easting 31. On the cross-section mark and name;
 - All weather road; loose surface
 - River
 - Swamp
 - Hill
 - Riverine trees
- (ii) Calculate the vertical exaggeration of the cross section (2marks)
- (iii) Determine the intervisibility of the cross section you have drawn. (2marks)
- (d) Describe the drainage of the area covered by the map. (5marks)

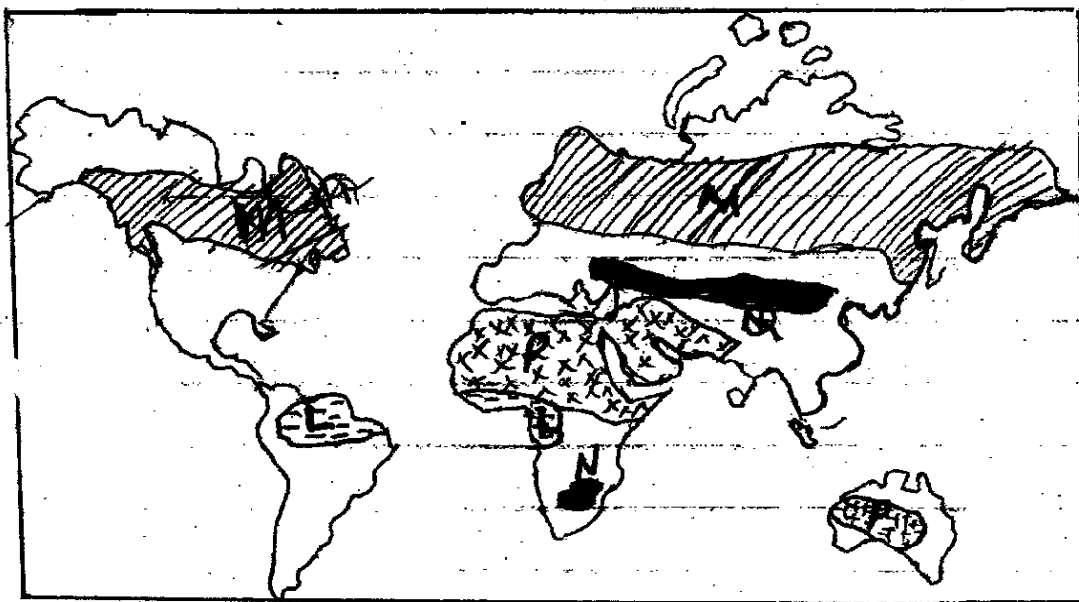


7. (a) Identify four causes of earth movements. (4marks)
- (b)(i) Name three types of tectonic plate boundaries. (3marks)
- (ii) Give four reasons why it is necessary to study the plate tectonic theory. (4marks)
- (c)The map below shows the location of some fold mountains ranges.



- (i) Name the mountains ranges marked W, X Y and Z (4marks)
- (ii) Apart from Fold Mountains, name two other features associated with folding. (2marks)
- (iii) Explain four positive effects of Fold Mountains to human activities. (8marks)

8. Use the map below to answer question (a) and (b)



(a)(i) Name the:

- Vegetation marked L,M (2marks)
- Grasslands marked N,Q (2marks)

(ii) Identify the type of climate marked P. (1mark)

(b) Explain four ways in which vegetation in the region marked P has adapted to the climatic conditions. (8marks)

(c)(i) Describe the characteristics of the equatorial climate. (5marks)

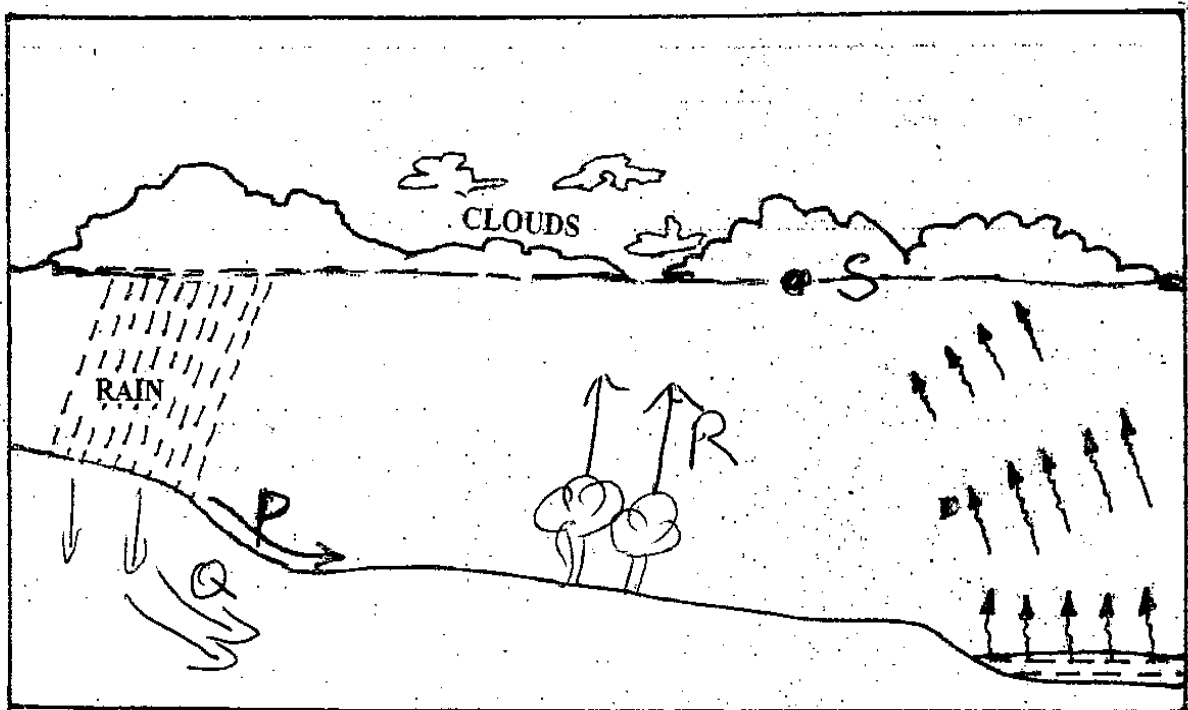
(ii) What is climate change? (2marks)

(iii) State two natural causes of climate change. (2marks)

(e) State four consequences of climate change on the physical environment. (4marks)

9. (a)(i) Distinguish between a river divide and interfluvies. (2marks)

(ii) The diagram below shows the processes of hydrological cycle. Name the processes marked P,Q,R and S (4marks)



(iii) Explain two significance of the hydrological cycle. (4marks)

(b) Describe two processes by which a river transports its load. (4marks)

(c) Describe the following drainage patterns:

- (i) Superimposed (3marks)
- (ii) Dendritic (2marks)
- (d) Your class is planning to carry out a field study on a river in its old stage.
- (i) Apart from flood plain, name two other features you are likely to identify (2marks)
- (ii) State three activities students would engage in during the field study. (3marks)
- (iii) Describe three characteristics of the flood plain they would identify. (3marks)
-
- 10.** (a)(i) Define the term soil profile. (2marks)
- (ii) Outline three factors that contribute to the development of soil catena. (3marks)
- (b) Explain how the following factors influence the formation of soil.
- Parent rock (3marks)
 - Biotic factors (3marks)
- (c) You intend to carry out a field study on the management and conservation of soil in the area near your school.
- (i) Explain how the following influences the characteristics of the soil.
- Irrigation (4marks)
 - High temperature (2marks)
- (ii) Give three reasons why you are likely to rely on observation as a method of data collection. (3marks)
- (d) Describe laterisation as soil forming process. (5marks)



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KCSE SERIES 1

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

312/2

GEOGRAPHY

Paper 2

Time: 2¾ hours

INSTRUCTIONS TO STUDENTS

- This paper has **two** sections **A** and **B**
- Answer **ALL** the questions in section **A**. In section **B** answer questions **6** and any other **TWO** questions.

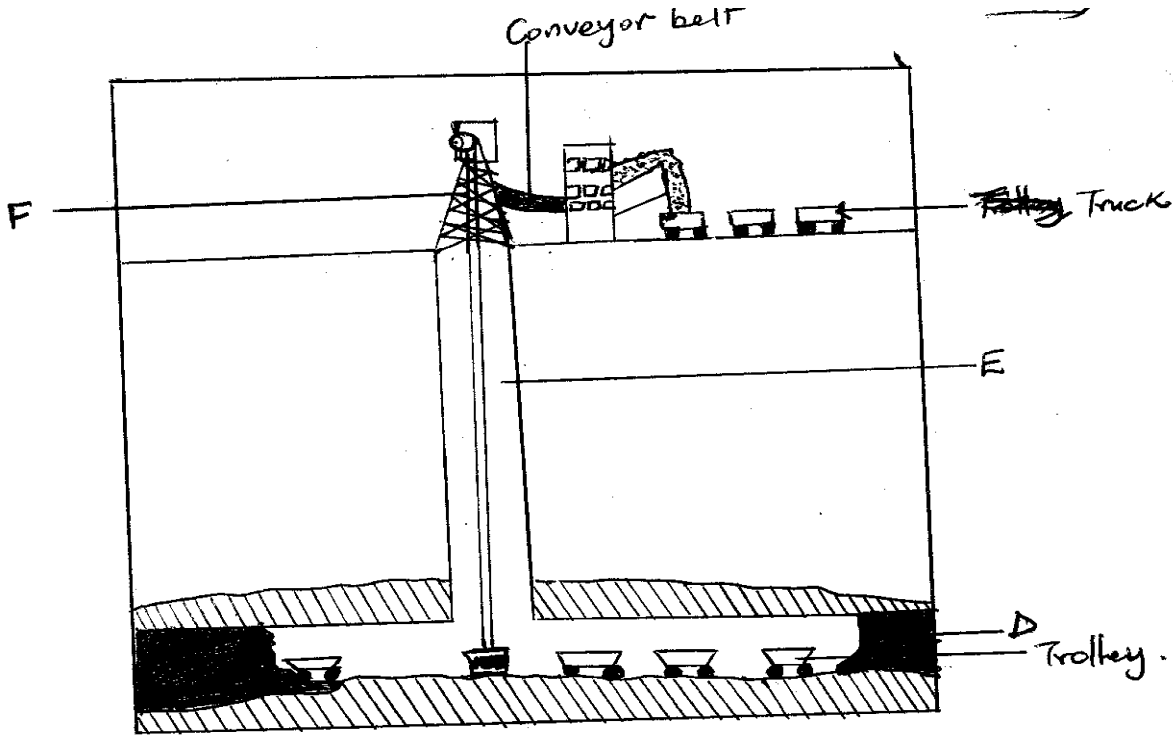
QUESTION	MARKS
SECTION A	
QUESTION 6	
QUESTION 7	
QUESTION 8	
TOTAL	



SECTION A

Answer ALL the questions in this section.

1. (a) The diagram below shows a mining drill. Name the parts marked D, E & F. (2 mks)



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.....

- (b) State two factors necessary for the occurrence of oil. (2 mks)

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2. (a) Give two characteristics of softwood forests in Canada. (2 mks)

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(b) State three problems that affect forestry in Canada. **(3 mks)**

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3. (a) State three physical conditions necessary for the growing of cocoa. **(3 mks)**

.....

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(b) Outline two problems which are experienced in cocoa farming in Ghana. **(2 mks)**

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4. (a) Distinguish between balance of trade and balance of payment. **(2 mks)**

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.....

(b) State three efforts made by the Kenya government to promote external trade. **(3 mks)**

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5. (a) Identify three causes of lightening. (3 mks)

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.....
.....

(b) State two advantages of windstorms. (2 mks)

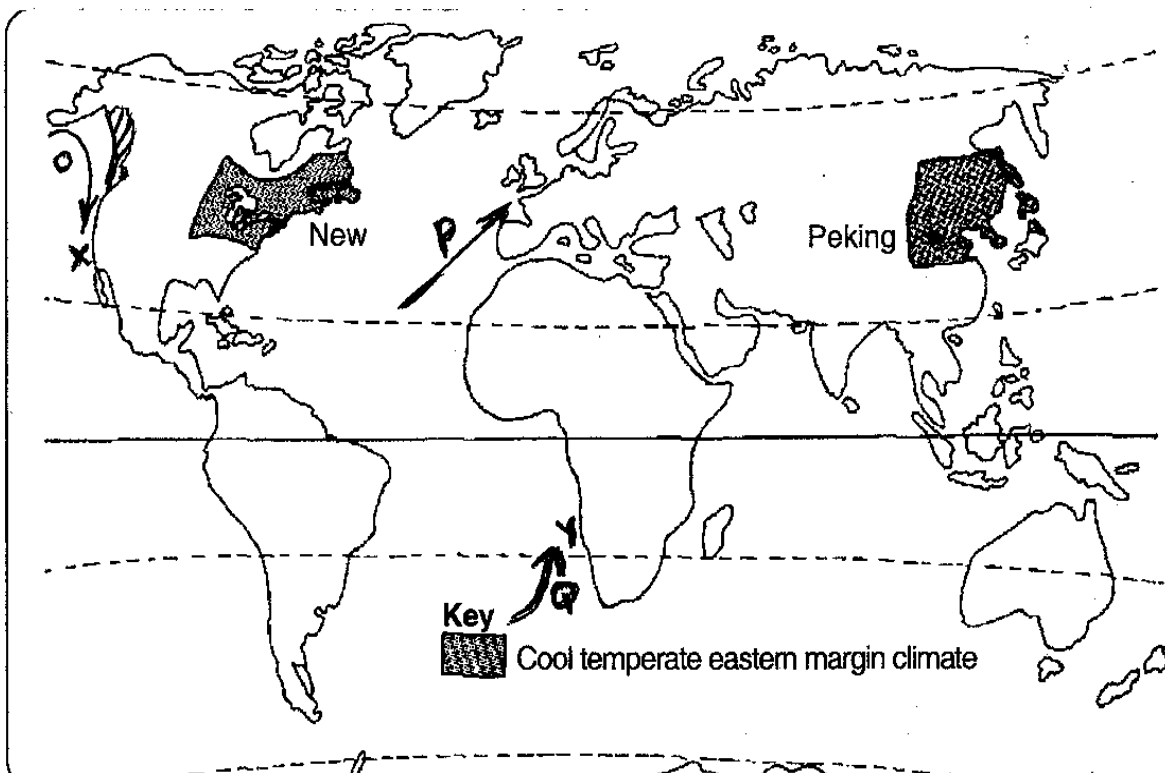
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SECTION B

6. The photograph below shows beef farming in Kenya. Use it to answer question (a).



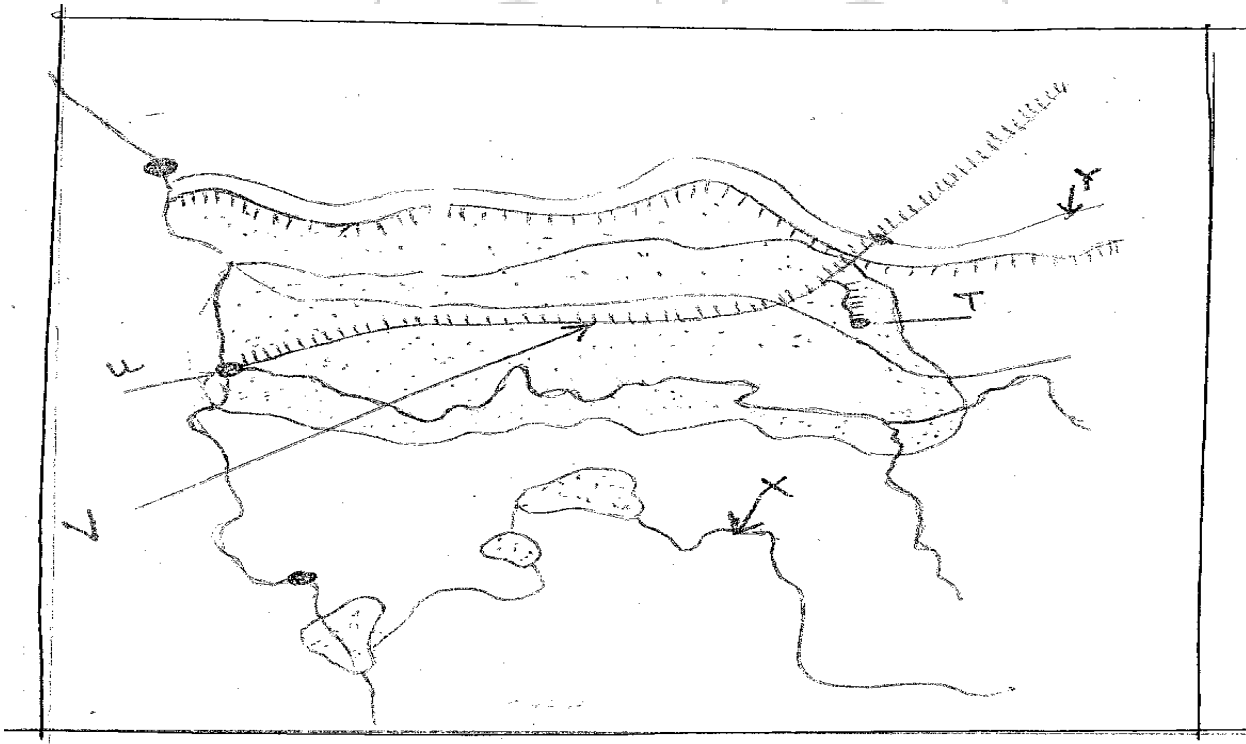
- (a) (i) Identify the type of photograph. (1 mk)
 (ii) Describe the features shown on the photograph. (3 mks)
 (iii) What indicators show that the area is suitable for beef farming. (3 mks)
- (b) Explain four measures taken by the Kenyan government to improve beef farming in Kenya. (8 mks)
- (c) (i) Name two exotic beef cattle kept in Argentina. (2 mks)
 (ii) List two areas in Argentina where beef cattle rearing is practised. (2 mks)
 (iii) Explain three physical favouring beef farming in Argentina. (6 mks)
7. (a) (i) Name three types of fish. (3 mks)
 (ii) State three conditions for the growth of planktons in the ocean. (3 mks)
 (b) Study the world map provided and answer the questions that follow.



- (i) Name the fishing grounds marked X & Y. (2 mks)
 (ii) Identify the Ocean currents marked O,P, Q. (3 mks)
- (c) Describe three major physical conditions that favour development of fishing ground X. (6 mks)
- (d) (i) Apart from Purse seine method, name three modern methods of fishing. (3 mks)
 (ii) Describe how purse seine method is used to catch fish. (5 mks)

8. (a) (i) What is geothermal power? (2 mks)
- (ii) Mention three locational sites of geothermal power production in Kenya. (3 mks)
- (iii) State four problems facing geothermal power development in Kenya. (4 mks)
- (b) (i) Give three reasons why Kenya must develop wind energy. (3 mks)
- (ii) Name three areas in Kenya where wind mills have been installed. (3 mks)
- (c) (i) What is management of energy. (2 mks)
- (ii) Explain four measures taken by the Kenya government to manage and conserve energy. (8 mks)
9. (a) Define the term cottage industry. (2 mks)
- (b) Outline four reasons why the county government of Nakuru should encourage foreign investors to establish jua-kali industries in the county. (4 mks)
- (c) Explain three factors which may lead to industrial inertia. (6 mks)
- (d) The map below represents the Ruhr industrial region of Germany. Use it to answer the questions that follow.

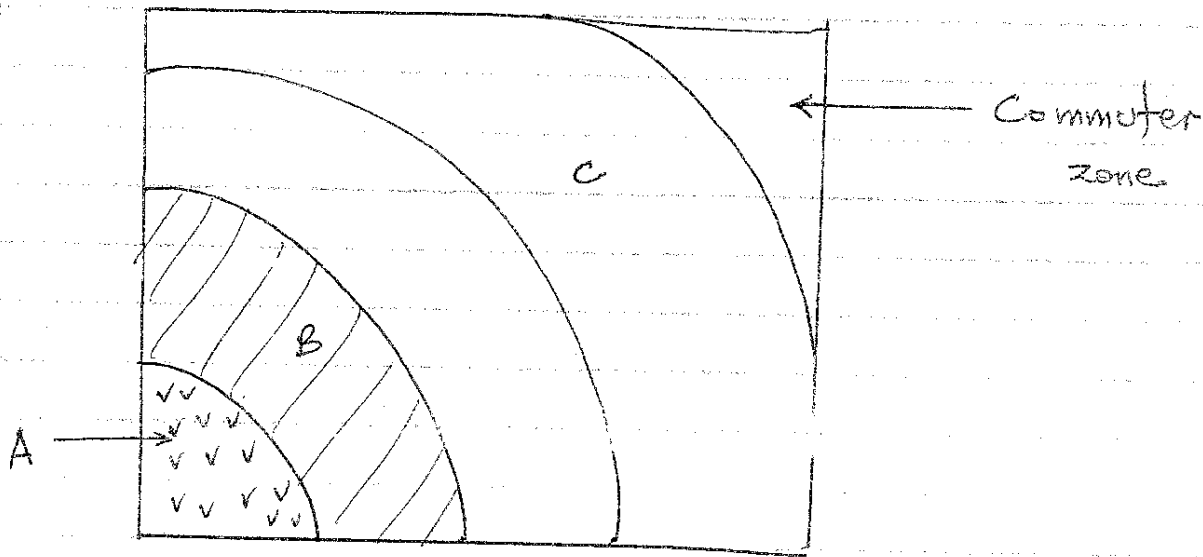
Ruhr – industrial Region and Transportation Lines



- (i) Name the rivers marked X and Y. (2 mks)
- (ii) Identify the towns labeled T and U. (2 mks)
- (iii) Name the canal labeled V. (1 mk)

- (iv) Name any two forms of power used in the Ruhr region apart from coal. (2 mks)
- (v) Explain three factors that led to the growth of industries in the Ruhr region. (6 mks)

10. (a)(i) What is urbanization? (2 mks)
- (ii) State three physical factors which influence the location of settlement. (3 mks)
- (b) Give three social problems experienced in Kisumu city. (3 mks)
- (c) The diagram below represents the functional zones of an urban centre. Use it to answer questions (i) and (ii).



- (i) Name the zone marked B. (1 mk)
 - (ii) Give four characteristics of the zone A. (4 mks)
- (d) Explain three factors that led to the growth of growth of Eldoret Town.

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KCSE SERIES 1

NAME..... INDEX NO.....

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

101/1

ENGLISH

PAPER 1

(FUNCTIONAL WRITING, CLOZE TEST AND ORAL SKILLS)

2 HOURS

Instructions to students

1. Write your name, admission number and class in the spaces provided above.
2. Answer **all** questions in this question paper.
3. All your answers **must** be written in the spaces provided in this question paper.

For Examiner's use only

QUESTION	MAX. SCORE	STUDENT'S SCORE
1	20	
2	10	
3	30	
Total	60	



KCSE
2022



CLOZE TEST (10 MARKS)

2. Fill each of the blank spaces in the passage below with the most appropriate word.

Ngugi wa Thiong’o, original name James Thiong’o Ngugi was in Limuru on January 5, 1938. He is East Africa’s (1).....novelist, (2).....popular *Weep Not Child* was (3).....first major novel in English by an East African. As he became sensitized (4).....the effects of colonialism in Africa, he adopted his traditional name and wrote in the Bantu language of Kenya’s Kikuyu people.

Ngugi (5).....bachelor’s degrees from Makerere University, Kampala, Uganda, in 1963 and from Leeds University, Yorkshire, England, in 1964 (6).....doing graduate work at Leeds, he (7).....as a lecturer in English (8).....University College, Nairobi, Kenya, and as a visiting professor (9).....English at Northwestern University, Evanston, Illinois, U.S. From 1972 to 1977 he was senior lecturer and chairman of the (10).....of literature at the University of Nairobi.

(Adapted from: *Weep Not Child* by Ngugi Wa Thiongo: Nairobi: Heinemann, 1964)

ORAL SKILLS

(30 MARKS)

3. A: Read the story below and answer the questions that follow. (10 marks)

There lived two men who were good friends. One of them was very wise one the other very foolish. One day, they agued between themselves, and one said, “I am the wisest man in the country.” The other said, “No, I am the wisest.” As there was no way of measuring wisdom, the two men did not know who was wiser than the other.

One day they were discussing the ill-behaviour of their wives and one of them said, “If we want them to behave well we must beat them up. Women are like children, beat them up and they will behave well.”

The other said, “No! If you beat your wife, she will become worse.” After arguing for a long time, they kept quiet and went home. On reaching his house, the man who was in favour of beating wives began to beat an ox-skin vigorously. When the other heard this, he thought the sound came from his friend beating his wife and he took a stick and beat his wife severely until she fell sick and later died.

When the two men met later, it was now clear who between them was wiser than the other.

(Adopted from: *The Hyena and The Rock* by B. M. Lusweti: Nairobi: the Macmillian Press Ltd. 1992))



(i) Suppose you are the one narrating this story, what would you do first before the narration to capture the attention of the audience? **(2 mks)**

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.....
.....

(ii) How would you deliver the speech by the 2nd speaker? “No! I am the wisest.” **(2 mks)**

.....
.....

(iii) If you are listening to this story, what would you expect the story teller to do so as to make the story interesting? **(4 mks)**

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.....
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.....

(iv) As the performer how would you know that your audience is paying attention to your performance. **(2 mks)**

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.....

B: You are a radio presenter and you are scheduled to interview a prominent politician about the current debate on IEBC commissioners.

(i) What preparations would you carry out before the interview? **(2 mks)**

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



(ii) What strategies would you employ during the interview session? (2 mks)

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

C: As the school captain, you are part of the reception committee that is receiving the guest of honor who has just arrived for the Annual Prize Giving day. Complete the conversation below using the most appropriate language. (6 mks)

Guest: Good morning. I guess you are the school captain, am I right?

You:.....
.....
..... (3 mks)

Guest: Thank you. I have heard a lot about you. It's my pleasure to meet you.

You: (2 mks)

Guest: I hope the current class will do as well as last year's class. Have you set a target?

You: Yes sir. We have set a higher target.

Guest: (1 mk)

You: Actually sir, that class was first of all very motivated and secondly they were determined to break a record.

Guest: I am glad to hear that. Keep up the good work.

D: Which intonation would you use at the end of each line of the following verse: (3 mks)

And behold in walked the groom.

But wait, is that the bride?

Without her wedding gown?

E: Underline the part you would stress in the **bolded** words. (2 mks)

(i) You need to **appreciate** my efforts

(ii) I gave her a **surprise**.



F: Give a homophone for each of the following words.

(3 mks)

(i) Barren

(ii) Bore

(iii) Mean

G: Using the pronunciation of the vowel sounds highlighted in the following sets of words, pick the odd one out. **(2 mks)**

(i) Slow honk plot

(ii) Fend hen mere



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KCSE SERIES 1

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

101/2

ENGLISH

PAPER 2

2 ½ HOURS

Instructions to candidates

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

FOR EXAMINER'S USE ONLY

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



1. COMPREHENSION (20MKS)

Read the passage below and answer the questions that follow.

At the start of this week, 1.3 million people had officially died on account of Covid-19 world-wide. According to the World Health Organisation, another 55 million people had contracted the virus. It was a bitter-sweet week as far as efforts to battle the virus are concerned. On one hand was the great news of a second vaccine with a 95 per cent **efficacy** rate. We also saw leading capitals tighten travel, school ban and other containment measures as the second wave of the pandemic batters many regions

Locally, the situation seems to mirror the global positions, albeit on a less scale, but the numbers of fatalities and infections are rising. We have lost 1,300 compatriots, with 73,000 more having encountered the virus. A casual glance on our neighbourhoods, social media and obituary pages back this, suggesting the official tally might be conservative due to unreported cases. The occasional infection of a public figure reminding us that we are not out of the woods yet. Medics and scientist continue burning the midnight oil to understand Covid-19 better and its symptoms, or lack of them witnessed in different people.

Though clear patterns of symptoms in fever, fatigue, breathing difficulty and loss of taste and smell were identified early, the last few months have seen some patients report a wide range of unexplained signs like longer infection periods and mental challenges such as anxiety, memory problems even depression. Even more intriguing has been the **asymptomatic** cases and cases of certain people in a family contacting the illness while others remain healthy. Add that to the fact that, Africa appears to suffer disproportionately lower rates of infection and mortality, its dilapidated health systems notwithstanding.

It is going to take time before someone can explain this incongruent picture. What is clear in the interim is that our world has dramatically changed, perhaps for the better. Traditionally, countries have spent **colossal** amounts of money building armies to deter global bullies. Now it appears potential threats to humanity must be re-assessed and budgets adjusted. It might be an unknown virus and not a nuclear bomb that will bring the world to its knees. The most secure nations are likely to be those with highly diversified risk registers and commensurate investment to build capacity to confront such.

The early travel bans and overflowing hospitals in the developed world was another rebuke to developing nations to prioritise health. The fact that some regions have been affected more than others is another sobering lesson. With the 21st century having experienced its fair share of protectionist tendencies and inward-looking policies, the pandemic has highlighted the need for concerted effort to ensure no part of the globe is left behind in modernising its health systems. Who knows, a future pandemic, may see the less affected regions serving as refuge centres and provide manufacturing hubs for drugs.



Perhaps it is time to build longer bridges and not towering walls. The pandemic has shone the spotlight on the place and role of global information systems and co-operation among nations. The future will likely be more secure if pandemics and other threats are reported early and containment measures quickly activated. Covid-19 has painfully reminded us of the dividend of tackling a problem early and at source, before it grows wings.

Questions

a) Why are the efforts to battle the virus bitter-sweet? **(2mks)**

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

b) What measures were put in place to contain the 2nd wave of infection? **(2mks)**

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

c) Explain these expressions as used in the passage; **(2mks)**

... not out of the woods yet

.....
.....

d) Burning the midnight oil.

.....
.....

e) In note form what are the symptoms of Covid-19. **(3mks)**

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



f) Identify 2 instances of irony in the passage.

(4mks)

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

g) In about 40 words, summarise the lessons the pandemic has highlighted.

(4mks)

Rough draft

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

Final copy

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

h) Explain the meaning of the following words as used in the passage;

(3mks)

Efficacy

.....
.....

Asymptomatic

.....
.....



Colossal

.....
.....
Read the excerpt below and answer the questions

He was very helpful and he agreed to accompany them to the village where the girl was, and help them rescue her. They were about to give up the rescue mission after several attempts to distract the guards had failed. But the man from Nasila was able to lure the whole team of guards to a beer party at a nearby village, leaving the girl unguarded.

It was then that the rescue team stuck! Amidst screams of terrified women, the barking of fierce dogs, braying donkeys and mowing of cattle, they entered the hut where the weak and sickly girl lay. They carried her and scampered away fast, like men fleeing from a burning village for three kilometres, to the spot where they had left the vehicle. And they were lucky to have escaped, for immediately they put her onto the vehicle and they themselves had jumped into it, the fierce-looking guards arrived, breathless, but fuming furiously and brandishing all sorts of deadly weapons.

On seeing that they had been outsmarted, they resorted to throwing stones at them, but by then the four-wheel drive vehicle had shot past the range of their missiles.

Regrettably, they learnt later that the man who assisted them so much and enabled them to rescue the girl, was speared to death by those thugs who accused him of tricking them so the girl could be stolen. The girl had, however, arrived safely and she was in fair condition although she was shocked, traumatised and terribly emaciated. She said the girl still found it difficult to walk, for the injuries inflicted to her by the *enkamuratani's olmurunya* had not yet healed.

Minik was thinking of how best to broach the matter in her mind. For a moment she wondered if it was the right time to bring out in the open the matter which she knew would be very painful to the girl who was just recovering from her own trauma. But she knew she could not hide the truth for long. It had to be revealed sooner so that counselling sessions could be put into place soon. Bracing herself appropriately, she quietly and coolly dropped the bombshell.

Questions

- a) Place this excerpt in its immediate context. (4mks)

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



b) In which place did the rescue team find the weak and sickly girl? (1mk)

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

c) ‘bracing herself appropriately, she quietly and coolly dropped the bombshell.’ What was the bombshell? (2mks)

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

d) Describe the relationship of the man who assisted the rescue team with the weak and sickly girl. (2mks)

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

e) Discuss two outstanding themes in the excerpt. (4mks)

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

f) How is Minik portrayed in this excerpt. (4mks)

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



g) What is the role of Minik as shown in the rest of the text. (3mks)

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

h) How has hyperbole been used in the excerpt? (2mks)

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

i) 'but the man from Nasila was able to lure the whole team of guards to a beer party at a nearby village, leaving the girl unguarded.' Rewrite this sentence beginning with a participle phrase.

(1mk)

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

j) Explain the meaning of the following words as used in the excerpt. (2mks)

Scampered

.....
.....

Outsmarted

.....
.....



POETRY (20 MARKS)

Read the poem below and answer the questions that follow

CIVIL WAR

In this land
Graveyards have no markers
For blood flows freely
Into the gutter
Where corpses abide
In restless sleep

In this land
Kinship is long dead
And the insiders prevail
A neighbours hand
In darkness hidden
Stifles yet another victim's light.

In this land
The window blows across the neglected fields
Promising yet another spectacle
Of hollowed eyes and pinched skins
Trudging and falling to the unyielding trains
Of self-destruction

In the air
The whiter dove
Flutter with change
And perhaps
It would be better if this symbol of peace
Were established in the souls of the people
In this land

QUESTIONS

What is the poem about?

(2mks)

.....
.....



Who is the persona in this poem?

(2mks)

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

Identify any two features of style used in the poem and explain their effectiveness.

(6mks)

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

Describe the tone of the poem.

(2mks)

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

Explain the significance of the last stanza in relation to the title of the poem.

(2mks)

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

Give the meaning of the following lines as used in the poem.

(2mks)

kinship is long dead
stifles yet another victims light.

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



What is the attitude of the persona towards the subject matter? **(2mks)**

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

What is the mood of the poem? **(2mks)**

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

GRAMMAR (15 marks)

a) Rewrite the sentence below filling in the gap with the correct form of the word in brackets.

Annah was scolded for the (order) in her room. **(1mk)**

b) Punctuate the following sentences appropriately **(1mk)**

In case of any disagreement the teacher said consult the principal

.....
.....

c) Underline the adjective in the sentence below and state whether it has been used predicatively or attributively. **(1mk)**

Your watch looks expensive

.....
.....

d) Choose the correct word from those in brackets. **(1mk)**

(All over sudden/ all of a sudden)

..... there was a loud bang on the door.

e) Rewrite the following sentence replacing the underlined idiomatic expression **(1mk)**

Advertising revenue in the new financial year has got off to a flying start.

.....
.....



f) Rewrite the following sentence using one word to replace underlined (1mk)

The workers jobs may be put at risk if you purchase the machine

.....

.....

g) Supply a question tag to the following statements. (1mk)

John hardly ever studies

.....

.....

h) Explain the ambiguity in this sentence. (1mk)

“Did you see the girls with a telescope?”

.....

.....

i) Combine the following sentence using a participle phrase (1mk)

I had seen the photographs of the place. I had no desire to go there.

.....

.....

j) Replace the phrasal verb underlined in the sentence below with one word that means the same. (1mk)

They fell out over the decision and hardly speak to each other anymore.

.....

.....

k) Rewrite the following sentence according to the instructions. (do not alter the meaning) (1mk)

This is the singer. Her songs are beautiful (join into one sentence using a relative pronoun)

.....

.....

l) Rewrite the following sentence using substitution. (1mk)

Neema passed with flying colours. Her sister Kinya passed with flying colours too.

.....

.....



m) Complete the following sentences with the correct order of adjectives in brackets. **(1mk)**

I used to drive.....
..... car. (blue, old, German, expensive, saloon)

n) Fill the gaps with a suitable preposition. **(1mk)**

I am vexed..... her for stealing my books.

o) Fill in the blank spaces with the correct article. **(1mk)**

What is..... ewe?



TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

SCHOOL..... SIGN.....

DATE.....

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

101/3

ENGLISH

PAPER 3

2 ½ HOURS

Instructions to candidates

- (a) Write your **name**, **index number** and the **name** of your school in the spaces provided above.
- (b) **Sign** and write the **date** of examination in the spaces provided above.
- (c) Answer **all** questions in this question paper.
- (d) Answers to **three** questions **must** be written in the spaces provided in this booklet.
- (e) **Candidates should check to ascertain that all pages are printed as indicated and that no questions are missing.**
- (f) **Candidates should answer three questions in English**

For Examiner's Use Only

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



QUESTIONS

1. Imaginative Composition (Compulsory)

(20 marks)

Either

(a) Write a story to illustrate the saying:

Do not judge a book by its cover.

Or

(b) Write a story ending: I realized that the shortest way home is not always the quickest.

2. Compulsory Set Text

(20 marks)

Henrik Ibsen, A Doll's House

'The price of great sacrifice and love in a marriage is the risk it won't be paid.' Using illustrations from Henrik Ibsen's play A Doll's House, write an essay in support of this statement.

3. The Optional Set Texts

(20 marks)

Answer any *one* of the following three questions.

Either

(a) **The Short Story**

Chris Wanjala (Ed.), *Memories We Lost*

Drawing examples from Rolf Schmid's short story 'No Need to Lie' write a composition on the topic: "Living with cancer does not have to be a death sentence."

Or



(b) Drama

David Mulwa, *Inheritance*

Illustrating your answer with examples from ‘*Inheritance*,’ write an essay entitled:
‘The effects of greed.’

Or

(c) The Novel

John Steinbeck, *The Pearl*

Write an essay supporting the proposition that: ‘Juana is the embodiment of reason in Steinbeck’s novel, ‘**The Pearl.**’

KCSE
222



TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

SCHOOL..... SIGN.....

DATE.....

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

102/1

KISWAHILI

Karatasi ya 1

(INSHA)

Muda: saa $1\frac{3}{4}$

Maagizo

- Andika insha **mbili**.
- Insha ya kwanza ni ya **lazima** kisha chagua insha nyingine moja kati ya hizo tatu zilizobakia
- Kila insha isipungue maneno **400**
- Kila insha ni alama 20
- Kila insha **lazima** iandikwe kwa lugha ya Kiswahili

Kwa matumizi ya mtahini pekee

Swali	Upeo	Alama
1	20	
	20	
Jumla	40	



MASWALI.

1. *Insha ya lazima*

Shirika la Utangazaji la Jicho Pevu limetangaza nafasi ya kazi ya mhariri mkuu wa kitengo cha habari za Kiswahili .Umealikwa kushiriki mahojiano. Andika tawasifu utakayowasilisha kwa jopo tathmini.

2. Fafanua changamoto zinazokumba muumano na mshikamano wa kitaifa.

3. Kuinamako ndiko kuinukako.

4. Andika insha itakayokamilikia maneno haya: Alipofika hapo alielewa fika kwamba ingebidi aukate mkono uliokuwa ukimlisha tangu hapo, mradi hakukubaliana naye katika njama hiyo.

KCSE
222



TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

SCHOOL..... SIGN.....

DATE.....

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

102/2

KISWAHILI

Karatasi ya 2

LUGHA

MUDA: Saa 2 ½

Maagizo

1 Andika jina lako na namba yako katika nafasi ulizoachiwa hapo juu

2 Tia sahihi yako na tarehe ya mtihani katika nafasi ulizoachiwa hapo juu

3 Jibu maswali yote. Andika majibu yako katika nafasi zilizoachwa katika kijitabu hiki cha maswali

Kwa matumizi ya mtahiniwa pekee.

Swali	UPEO	ALAMA
1	15	
2	15	
3	40	
4	10	
	80	



UFAHAMU (Alama15)

Soma makala yafuatao kisha ujibu maswali yanayofuata.

Miaka 15 iliyopita, Umoja wa Mataifa uliitangaza August 12 kila mwaka, kuwa ‘Siku ya Vijana Duniani’ ambapo kauli mbiu ya mwaka huu inasema ‘Vijana na Afya ya Akili’.

Kwa mujibu wa andiko kutoka Umoja wa Mataifa, asilimia 20 ya vijana duniani kote hupata tatizo linalohusiana na afya ya akili kila mwaka. Hatari zaidi hutokea katika kipindi cha kuhama kutoka utoto kuingia utu uzima.

Kutengwa pamoja na aibu mara nyingi huongeza zaidi tatizo kwa kuwa vijana wengine hushindwa kutafuta msaada wanaohitaji. Hivyo mwaka huu, Umoja wa Mataifa umeazimia kuitumia siku hii kukuza uelewa kuhusu afya ya akili kwa vijana.

“Wakati tunaadhimisha Siku ya Vijana Duniani 2014, tuwawezeshe vijana wenye matatizo ya afya ya akili kubaini umuhimu wao, na tuoneshe kuwa afya ya akili inatuhusu sote,” amesema Katibu Mkuu wa Umoja wa Mataifa, Ban Ki Moon kwenye maelezo yake.

Miongoni mwa sababu kubwa zinazochangia tatizo la afya ya akili ni umaskini unaochangiwa kwa kiasi kikubwa na ukosefu wa ajira. Asimilia kubwa ya vijana walio chini ya miaka 25 au wale wanaohitimu masomo yao nchini hawana ajira.

Wanachuo wengi wameendelea kuzunguka huku na kule kuomba kazi bila mafanikio. Wengi wamekaa zaidi ya miaka mitatu nyumbani tangu wamalize masomo yao bila kuwa na ajira inayowaingizia kipato.

Na pia wachache wanaopata kazi, wamekuwa wakilipwa ujira mdogo na hivyo kuendelea kuishi maisha magumu. Ukosefu wa ajira na kukosa fedha za kujikimu, umewafanya vijana wengi kuwa na msongo wa mawazo, tatizo kubwa linalohusiana na afya ya akili.

Tatizo ni kubwa zaidi pale ambapo takwimu zinaonesha kuwa kwa wastani soko la ajira nchini lina uwezo wa kuzalisha ajira zipatazo 300,000 kwa mwaka katika sekta rasmi ukilinganisha na wastani wa wahitimu 600,000 hadi 800,000 wanaoingia katika soko la ajira nchini.

Kwa kijana ambaye hana mahali pa kuishi, hajui atakula nini kesho, hana fedha za kununua nguo, kukata tamaa na kuamua kufanya lolote si kitu anachoweza kukifikiria mara mbili.

Kwa vijana wa kiume wapo wanaoamua kuwa wezi au matapeli huku wengine wakijikuta wakiwa walevi wa kutupwa au kuvuta unga kama njia ya kupunguza msongo wa mawazo unaotokana na maisha magumu. Utumiaji wa vilevi hivyo, umechangia kwa kiasi kikubwa kuongeza tatizo la afya ya akili kwa vijana wengine.



Kwa wasichana, ukosefu wa ajira, huwaingiza wengi katika wimbi la kutumia miili yao kujipatia kipato kutoka kwa wanaume. Wengine hujikuta wakiolewa mapema na hivyo kupoteza ndoto za kujiendeleza kielimu ili kujitegemea.

Mbaya zaidi katika maeneo ya vijijini kwakuwa wasichana wadogo huzalishwa katika umri mdogo na wengine kukumbana na unyanyasaji wa nyumbani kutoka kwa waume zao. Katika maeneo ya vijijini ambako shughuli kubwa ya kiuchumi ni kilimo, ufugaji au uvuvi, baadhi ya wasichana waliolewa, hujikuta wakiachiwa familia zao kwa muda mrefu na waume zao wanaoenda kutafuta maisha. Baadhi ya wanaume hao huondoka kimoja na kuwaachia wake mzigo wa ulezi wa familia.

Hivyo, tatizo kubwa la ajira kwa vijana lipo kwa wale ambao hawana elimu ya kutosha kustahili kuajiriwa katika ajira rasmi. Kwa mujibu wa survey iliyofanywa na Restless Development, Tanzania ina takriban watu milioni 25 walio chini ya miaka 25 nchini. Hiyo ina maana kuwa karibu nusu ya watu wote nchini ni vijana.

Dunia nzima, vijana wamekuwa wakitambulika kwa kuwa na mchango mkubwa kuanzia katika upatikanaji wa uhuru enzi za ukoloni hadi katika kuvumbua teknolojia mpya na kugundua njia mpya za sanaa na muziki. Vijana ndio wanaolisukuma zaidi gurudumu la maendeleo kwa uchapakazi wao kutokana na miili na akili zao kuwa na uchangamfu zaidi.

Hata hivyo Tanzania ni nchi iliyo na matabaka yanayotokana na umri na jinsia huku vijana wakioneana kutopewa fursa katika mchakato wa maamuzi katika hatua za kijamii na hata katika serikali.

Ili kuwapa nafasi zaidi vijana katika nafasi za juu za maamuzi, vijana wanapaswa kutambua kuwa huu ndio wakati wao na sio kesho. Vijana wanatakiwa kwanza kujiamini wao wenyewe kuwa hakuna nafasi ya baadaye kwakuwa huu ndio wakati unaowaruhusu kuwa wabunifu zaidi kushawishi maendeleo.

Mawazo yao mapya na njia zao tofauti za kukabiliana na mambo, yataleta utofauti mkubwa wa sera, maamuzi na muelekeo wa serikali au taasisi mbalimbali.

“Uongozi wa kizazi kipya upo tayari kushika hatamu za uongozi na kuijenga Tanzania mpya, kwa fikra mpya na maarifa mapya. Mabadiliko, kokote yalikotokea, yalidaiwa na kuongozwa na vijana. Vijana wa Tanzania washike usukani wa kuleta mabadiliko wanayoyataka. Ukiona kijana anamwambia kijana mwenzake hana uzoefu, basi kazi ya kuleta mabadiliko ni kubwa zaidi. Kutokuwa na uzoefu ni sifa ya kijana. Tusi kubwa kwa Obama mwaka 2008 lilikuwa ni kukosa uzoefu, kukosa rekodi. Tusi hilo lilikuwa muziki kwa wapiga kura wa Marekani. Tanzania mpya inahitaji viongozi wapya, mazoea mapya, fikra mpya na maarifa mapya. Inahitaji kuthubutu mambo makubwa sio kulinda uzoefu wa nyuma. Tunaweza,” aliandika January Makamba kwenye mtandao wa Facebook.

Ni kweli muda wa vijana ni sasa na sio kesho tena.



Maswali

(a)Ipe makala hii anwani mwafaka. **(alama 1)**

.....

(b)Ni wakati gani ambapo vijana huwa hatarini sana kukumbwa na tatizo la afya ya akilini.

(alama 1)

.....

.....

c) Ni nini lengo la Umoja wa Mataifa mwaka huu kuhusu vijana? **(alama 1)**

.....

d) Taja changamoto zinazowakumba vijana wenye matatizo ya afya ya akili. **(alama 2)**

.....

.....

.....

.....

e) Eleza mambo ambayo huchangia matatizo ya afya ya akili miongoni mwa vijana. **alama 4)**

.....

.....

.....

.....

f)Taja mambo ambayo huchangia kutamauka kwa vijana. **(alama 3)**

.....

.....

.....

.....



g) Ukosefu wa ajira umechangia uozo upi miongoni mwa vijana?

(alama 3)

.....

.....

.....

.....

.....

2. UFUPISHO

Soma taarifa ifuatayo kisha jibu maswali yanayofuata kulingana na maagizo.

Utoaji wa Huduma ya Kwanza.

Inaaminika kuwa majeruhi wengi katika mikasa ya ajali huaga au huathirika vibaya zaidi kutokana na hali mbaya ya uokoaji. Watu wengi ambao hujitolea kuokoa majeruhi baada ya ajali kama za barabarani, maporomoko ya ardhi au nyumba huwa hawang'amui hata chembe jinsi ya kukabiliana na uokoaji. Hatima ya juhudi zao ambazo hulenga kutenda mema ni kuathirika zaidi kwa majeruhi.

Hali ya ukoaji inaweza kurekebishwa kwa kutoa elimu ya huduma ya kwanza kwa umma. Elimu hii yahitajika na kila Mkenya kwani mikasa ya ajali za barabarani na nyinginezo inaendelea kutokea kila siku. Ajali zinapotokea, si ajabu kuona makundi ya waokoaji yakibeba majeruhi hobelahobela bila kuzingatia madhara yanayoweza kuwaongezea kutokana na ubebaji wao. Kutojua namna ya kumbeba majeruhi kunaweza kumhatarisha na hata kusababisha kifo.

Kuna mambo mbalimbali ambayo makundi ya waokoaji yanatakiwa kuzingatia wakati yanatoa huduma ya kuokoa. Kwanza, ni muhimu kuchunguza kama kuna hatari yoyote inayoweza ikatokea na kuwatia majeruhi na waokoaji hatarini zaidi. Makundi ya waokoaji yameweza kuhatarisha majeruhi kwa kuliingilia eneo la ajali mbumbumbu kama mzungu wa reli.

Hatua ya pili ni kutafuta idadi ya majeruhi. Pana uwezekano wa majeruhi kutupwa mbali na eneo la ajali. Vivyo hivyo, kuna majeruhi ambao huweweseka baada ya ajali na kuanza kutembea wasijue wanakoelekea. Wengi wao huanguka karibu na eneo la ajali au wakaenda mbali.

Hatua ya tatu ni kuchunguza kama majeruhi amezimia, moyo unapiga na jinsi anavyopumua. Ili kuhakikisha kuwa majeruhi anapumua, mwokoaji atazame kama kifua kinapanda na kushuka. Halikadhalika, mwokoaji anaweza kusikiliza au kuguza kifua na kuona kama kuna ishara za kupumua. Iwapo majeruhi anapumua, mwokoaji amweke katika hali ambayo itaimarisha kupumua kwake. Anaweza akamlaza chali au kumgeuza kwa pamoja na kichwa chake ili kufungua mkondo wa hewa. Pia, mwokoaji ahakikishe hamna chochote kinywani kinachoweza kumsakama. Ikiwa hapumui,



mwokoaji anaweza kujaribu kumfanya apumue kwa kupuliza hewa mdomoni mwake. Fauka ya hayo, upulizaji wa hewa utahakikisha kuwa damu inazunguka mwilini vizuri.

Hatua nyingine ni kuchunguza vile amejeruhiwa. Chunguza kama majeraha ni vidonda tu au kuna kuvunjika kwa mifupa na kubainisha ni mfupa upi. Haya yataamwezesha mwokoaji kujua jinsi ya kumbeba majeruhi. Pakiwa na kuvunjika kwa mfupa, ni muhimu kutotumia kiungo kilichovunjika anapobebwa.

Pia, kuchunguza vile majeruhi amejeruhiwa, humwezesha mwokoaji kujua huduma ya dharura atakayotumia. Majeruhi akiwa anavuja damu sana, ni muhimu kuzuia uvujaji huu. Iwapo ni kidonda kidogo, kinahitaji kufungwa ili kuzuia uambukizaji. Mwokoaji anaweza kutumia kifaa chochote kilicho karibu kutolea huduma hizi. Kwa mfano, anaweza kupasua nguo ya majeruhi ili apate kitambaa cha kusaidia kuzuia kuvuja kwa damu au kumfunga kidonda.

Hatua inayofuata ni kumhamisha majeruhi kutoka eneo la ajali hadi hospitalini. Mwokoaji anaweza kuwatumia watu wengine kutafuta msaada. Wanaweza kupiga simu wakitumia nambari za simu za dharura kama zile za polisi, wazimamoto au makundi ya wataalamu wa shughuli za uokoaji. Nambari hii ya simu huwa 999 popote na huwa haina malipo. Wanaopiga simu ni vyema kutoa maelezo ya mahali ambapo ajali imetokea, aina ya ajali na huduma za dharura zinazohitajika pamoja na idadi ya majeruhi. Iwapo makundi haya ya uokoaji yameahidi kufika, ni bora kuyasubiri.

Ikiwa makundi ya wataalamu wa uokoaji hayakupatikana, ni jukumu la mwokoaji kuhakikisha majeruhi wamehamishwa na kupelekwa hospitalini. Majeruhi wakiwa wengi, ni bora kuanza na wale waliozimia au wenye matatizo ya kupumua kisha kuwaendea wanaovuja damu sana. Baadaye, mwokoaji awasaidie waliiovunjika mifupa huku akimalizia na wenye majeraha yasiyohatarisha maisha. Ni muhimu kuwabeba majeruhi kwa kutumia machela. Hii hupunguza kuathirika zaidi kwa majeruhi. Iwapo hamna machela karibu, mwokoaji anaweza kuunda moja kwa kutumia vipande viwili vya mbao, blanketi, shuka au makoti. Ujuzi wa huduma ya kwanza ni mojawapo ya mambo muhimu ambavo kila mtu anapaswa kuwa nayo.

MASWALI :

- (a) Fupisha aya mbili za kwanza kwa maneno **55 – 65.** (alama 6, 1 utiririko)

Nakala chafu

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Nakala safi

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(b) Eleza kwa kutumia maneno 90-100, hatua zinazotakiwa kufuatwa wakati wa uokoaji.
(alama 8, utiririko 1)

Nakala chafu

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Nakala safi

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SARUFI

(a) Eleza maana ya neno changamano huku ukitolea mfano. (alama 2)

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(b) Andika sentensi ifuatayo katika kauli iliyo mabanoni. (alama 2)

Paka analamba mchuzi (kutendwa)

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(c) Akifika sentensi ifuatayo kwa kutumia alama ya kibainishi kisha eleza matumizi yake. (al 2)

Ntakwenda Unguja mwezi wa Disemba

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(d) Bainisha aina ya neno lililopigiwa mstari katika sentensi ifuatayo. (alama 1)

Kuimba kwa Yusufu kunaudhi

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(e) Andika sentensi ifuatayo katika umoja. (alama 2)

Manukato haya yananukia vizuri

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.....

(f) Eleza matumizi ya ku katika jozi zifuatazo za sentensi. (alama 3)

(i) Kuchora kwao kulikuwa kwa uangalifu mkubwa

(ii) Nilikuita lakini hukuitika

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(g) Maneno yafuatayo yako katika ngeli gani. (alama 2)

Kero.....

Nywele.....

(h) Tambua viambishi awali na tamati katika neno ajaye (alama 3)

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(i) Ikarabati sentensi hii: (alama 2)

Mpira yangu amepotea

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(j) Tambua aina ya chagizo katika sentensi ifuatayo. (alama 2)

Walimu wataenda Mombasa Ijumaa ijayo.

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(k) Tambua na ueleze aina za vivumishi katika sentensi zifuatazo.

(alama 2)

(i) Viatu vyangu vimepotea

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(ii) Viatu vyenyewe vinapendeza

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(l) Badilisha sentensi iwe katika hali ya kuamuru.

(alama 1)

Rutto fagia chumba.

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(m) Andika sentensi ifuatayo kulingana na maagizo.

(alama 1)

Mwanasiasa huyu alishinda kura. (Tumia kiashiria kisistizi)

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(n) Onyesha hali katika sentensi zifuatazo.

(alama 2)

(i) Huenda mvua isinyeshe msimu huu.

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(ii) Waislamu huenda msikitini kuomba kila Ijumaa.

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(o) Changanua sentensi ifuatayo kwa njia ya matawi.

(alama 4)

Aliyetujengea nyumba ni Omari

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(p) Andika kwa usemi wa taarifa. (alama 2)

“Nitakuja kwenu kesho,” Mwalimu alisema.

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(q) Tambua na ueleze virai katika sentensi hii. (alama 2)

Kisichana kile kimejirembesha kwa manukato mazuri ajabu

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(r) Eleza tofuati baina ya sentensi hizi; (alama 2)

(i) Ngingekuwa na pesa ningesafiri kwenda Pwani.

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(ii) Ngingalikuwa na pesa ningalisafiri kwenda Pwani.

.....

.....

(s) Tunga sentensi moja iliyo na shamirisho kitondo, kipozi na ala. (alama 3)

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ISIMU JAMII

a) ...ya leo ni kuwapa pole wanaofuata na kuenzi makala ya Burudani, toleo la kila

Ijumaa. Mwanamziki huyu aliteka nyoyo za wapenzi wa mtindo huu wa mziki. Kwa kweli ya

Muumba hufumbwa tu! Mnapoyasoma wakumbukeni jamaa na wapenzi wa nyimbo zake.

i. Tambua sajili hii na utoe Ushahidi. (alama 2)

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ii. Fafanua sifa zozote za sajili hii.

(alama 4)

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b) Taja mambo yoyote manne yanayofanywa na Serikali yetu kuimarisha lugha ya Kiswahili.

(alama 4)

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KISWAHILI

Karatasi ya 3

FASIHI 102/3

Muda: Saa 2 ½

Maagizo

- Andika jina lako, shule na nambari yako ya mtihani katika nafasi ulizoachiwa hapo juu.
- Tia sahihi kisha uandike tarehe ya mtihani katika nafasi ulizoachiwa hapo juu.
- Jibu maswali manne pekee.
- Swali la kwanza ni la lazima.
- Maswali hayo mengine yachaguliwe kutoka sehemu nne zilizobaki ; yaani ; Tamthilia, Riwaya, Hadithi fupi na Fasihi Simulizi.
- Usijibu maswali mawili kutoka sehemu moja

Kwa matumizi ya mtahini pekee

<u>Swali</u>	<u>Upeo</u>	<u>Alama</u>
1	20	
2	20	
3	20	
4	20	
<u>Jumla</u>	<u>80</u>	



SEHEMU A : USHAIRI

1. Soma shairi lifuatalo kwa makini kisha ujibu maswali.

Niokoa Muokozi, uniondolee mashaka

Kuyatukua siwezi, mjayo nimedhikika

Nimekithiri simanzi, ni katika kuudhika

Mja wako nasumbuka, nipate niyatakayo

Mja wako nasumbuka, nataka kwao afua

Nirehemu kwa haraka, nami nipate pumua

Naomba hisikitika, na mikono hiinua

Mtenda ndiwe Moliwa, nipate niyatakayo

Mtenda ndiwe Moliwa, we ndiwe Mola wa anga

Mazito kuyaondoa, pamoja na kuyatenga

Ukauepusha ukiwa, ya pingu zilonifunga

Nikundulia muwanga, nipate niyatakayo

Muwanga nikundulia, nipate toka kizani

Na huzuni n'ondolea, itoke mwangu moyoni

Mambo mema niegheshea, maovu nisitamani

Nitendea we Manani, nipate niyatakayo

Igeuze yangu nia, dhaifu unipe mema

Nili katika dunia, kwa afia na uzima

Moliwa nitimizia, yatimize yawe mema

Nifurahike mtima, nipate niyatakayo

(a) Shairi hili ni bahari gani ? Eleza.

(alama 2)

(b) Taja madhumini ya shairi hili.

(alama 3)

(c) Eleza muundo wa shairi hili.

(alama 4)



- (d) Thibitisha namna uhuru wa kishairi unaibuka katika shairi. (alama 4)
- (e) Andika ubeti wa pili katika lugha nathari. (alama 4)
- (f) Toa maana ya :
- i) Nimedhikika
- ii) Muwanga nikundulia
- iii) Nifurahike mtima (alama 3)

SEHEMU B : RIWAYA

Assumpta K. Matei : Chozi la heri

Jibu swali la 2 au la 3 2.

“Vipi, binadamu anavyoweza kuyazoa maji yaliyomwagika?”

- a) Eleza muktadha wa dondoo hili. (alama 4)
- b) Tambua mbinu ya lugha iliyotumika. (alama 2)
- c) Jadili sifa tatu za msemaji. (alama 3)
- d) Hakiki jinsi binadamu alivyomwagikiwa na maji katika riwaya. (alama 11)

Au

3. Fafanua changamoto zinazoikabili jinsia ya kike katika riwaya ya Chozi la Heri. (alama 20)

SEHEMU C : TAMTHILIA

Pauline Kea : Kigogo

Jibu swali la 4 au la 5

4. “Ukitaka kuwafurusha ndege, kata mti. Hawa wangukuwa sasa wametuliza nafsi zao.
- a) Eleza muktadha wa kauli hii. (alama 4)
- b) Tambua mbinu mbili za uandishi zilizotumika. (alama 4)
- c) Onyesha jinsi wahusika kadhaa walivyofurushwa kama ndege. (alama 12)

Au

5. Tamthilia ya Kigogo ni taswira kamili ya matatizo yanayokumba mataifa mengi barani Afrika. Fafanua ukirejelea tamthilia nzima. (alama 20)



SEHEMU D

Alifa Chokocho na Dumu Kayanda: Tumbo Lisiloshiha na Hadithi nyingine

Jibu swali la 6 au la 7

6. Ukirejelea hadithi zifuatazo, eleza jinsi maudhui ya mapenzi na asasi ya ndoa yanavyojitokeza.

(alama 20)

- a) Mapenzi ya Kifaurongo
- b) Masharti ya Kisasa
- c) Ndoto ya Mashaka
- d) Mtihani wa Maisha

Au

Shibe inatumaliza : Salma Omar Hamad

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

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

SEHEMU E : FASIHI SIMULIZI

- 8. a) Miviga ni nini ? **(alama 2)****
- b) Fafanua sifa zozote sita za miviga. **(alama 12)****
- c) Miviga ina majukumu yapi katika jamii ? **(alama 6)****



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KCSE SERIES 1

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121/1

MATHEMATICS

PAPER I

2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

1. Write your name, admission number, class and index number.
2. The paper contains two sections: Section I and II
3. Answer ALL questions in section I and ANY FIVE questions from section II.
4. Non-programmable silent electronic calculators and four figure mathematical tables are allowed for use.

FOR EXAMINER'S USE ONLY

SECTION 1

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

GRAND TOTAL

SECTION II

17	18	19	20	21	22	23	24	TOTAL



SECTION A 50 MARKS

1. Evaluate $\frac{3}{4} + 1\frac{5}{7} \div \frac{4}{7}$ of $2\frac{1}{3}$ (3marks)

$$\left(1\frac{3}{7} - \frac{5}{8}\right) \times \frac{2}{3}$$

2. Solve for x in $\sin(x-15) - \cos(x+5) = 0$ (2marks)

3. The LCM of two numbers is 328,600 and the GCD is 20. If one of the numbers is 1240, use prime factorization method, find the other number. (3 marks)



4. A spherical solid lead of diameter 12cm weighs 6.4kg. How much would a similar solid of a diameter 10cm weigh? **(3marks)**

5. Without using a calculator or mathematical tables evaluate,

$$\frac{\left(\frac{1}{81}\right)^{\frac{1}{4}} \times (256)^{\frac{1}{2}} \times 3^5}{(729)^{\frac{1}{3}} \times 72^2}$$

(3marks)

6. On arrival to Kenya a Canadian tourist exchanged his Canadian dollars for Ksh 199 690. Given that the currency exchange rate was 1 Canadian dollar = Ksh 52.55 and that the bank charged him 5% commission, find the number of dollars he exchanged. **(3 marks)**



7. By using completing square method, solve for x in $4x^2 - 3x - 6 = 0$

(3marks)

8. Simplify the following.

(3 Marks)

$$\frac{2x-4}{12-3x^2} - \frac{1}{3x+6}$$

9. The matrix $\begin{bmatrix} x & 1 \\ x+5 & x+5 \end{bmatrix}$ maps a triangle ABC onto a straight line. Determine the possible values of x .

(3 marks)

10. Using the tables of squares, square roots and reciprocal $3.0452 \times \frac{6}{\sqrt{49.24}}$

(4marks)



11. Find the percentage error in the quotient in $9.16\text{cm} \div 2.0\text{cm}$ (4marks)

12. The position vectors $\mathbf{a} = \begin{pmatrix} -1 \\ 5 \\ 2 \end{pmatrix}$, $\mathbf{b} = \begin{pmatrix} 2 \\ 1 \\ -3 \end{pmatrix}$ and $\mathbf{c} = \begin{pmatrix} -8 \\ 7 \\ 13 \end{pmatrix}$. Find the scalars S and T such that $S\mathbf{a} + T\mathbf{b} = \mathbf{c}$ (3 marks)

13. The following data represents the enrolment of students in 12 colleges

64	53	66	54	63	63
57	56	53	54	51	59

Calculate the quartile deviation

(3 marks)



14. The density of a sphere of diameter p cm is 2.68 g/cm^3 and that of another sphere is diameter Q cm is 14.23 g/cm^3 . Determine the volume of sphere Q that would have the same mass as 80cm^3 .

(3marks)

15. Solve and represent the integral values of the linear inequalities given below on a number line.

$$\frac{4}{3} - \frac{x-2}{x} \geq 1$$

$$, \quad -2 - \frac{2}{3}x < x + 8$$

(3marks)

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

(3marks)



SECTION B (50 MARKS)

17. A straight line L_1 has its x-intercept and y-intercept as -6 and 4 respectively.

a) Write its equation in the form $ax + by + c = 0$ where a, b, and c are integers **(3marks)**

b) Another line L_2 which is parallel to L_1 in (a) above passes through $(2,3k)$ and $(-k,8)$. Find the value of k. **(2marks)**

c) Find the equation of the perpendicular bisector to the line L_1 **(3marks)**

d) Calculate the angle which L_1 makes with the x-axis **(2marks)**



18. A man spent $\frac{1}{9}$ of his salary on food and $\frac{1}{4}$ of the remainder on electricity and water bills. He paid fees with 20% of his salary and invested 16% of what was left into a business. After taking a game drive on which he spent Ksh 2000, he saved Ksh 5350. Calculate:

(a) His total monthly earnings. **(4 marks)**

(b) How much he spent on fees. **(2 marks)**

(c) How much he invested. **(2 marks)**

(d) The percentage of the salary saved. **(2 marks)**



19. Every Sunday Alex drives a distance of 80km on a bearing of 074° to pick up his brother John to go to church. The church is 75km from John's house on a bearing of $S50^{\circ}E$. After church they drive a distance of 100km on a bearing of 260° to check on their father before Alex drives to John's home to drop him off then proceeds to his house.

(a) Using a scale of 1cm to represent 10km, show the relative positions of these places.

(4 marks)



(b) Use your diagram to determine:

(i) the true bearing of Alex's home from their father's house.

(1 mark)

(ii) the compass bearing of the father's home from John's home.

(1 mark)

(iii) the distance between John's home and the father's home.

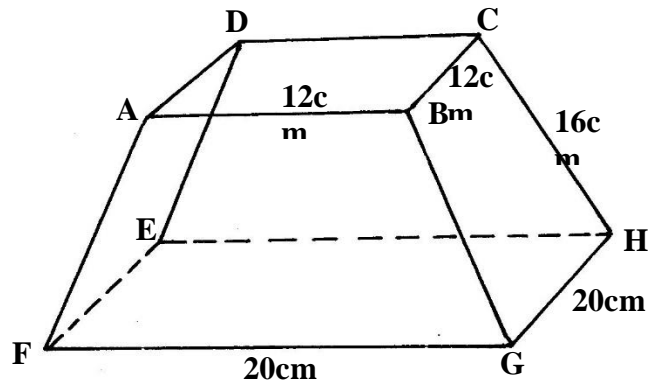
(2 marks)

(iv) the total distance Alex travels every Sunday.

(2 marks)

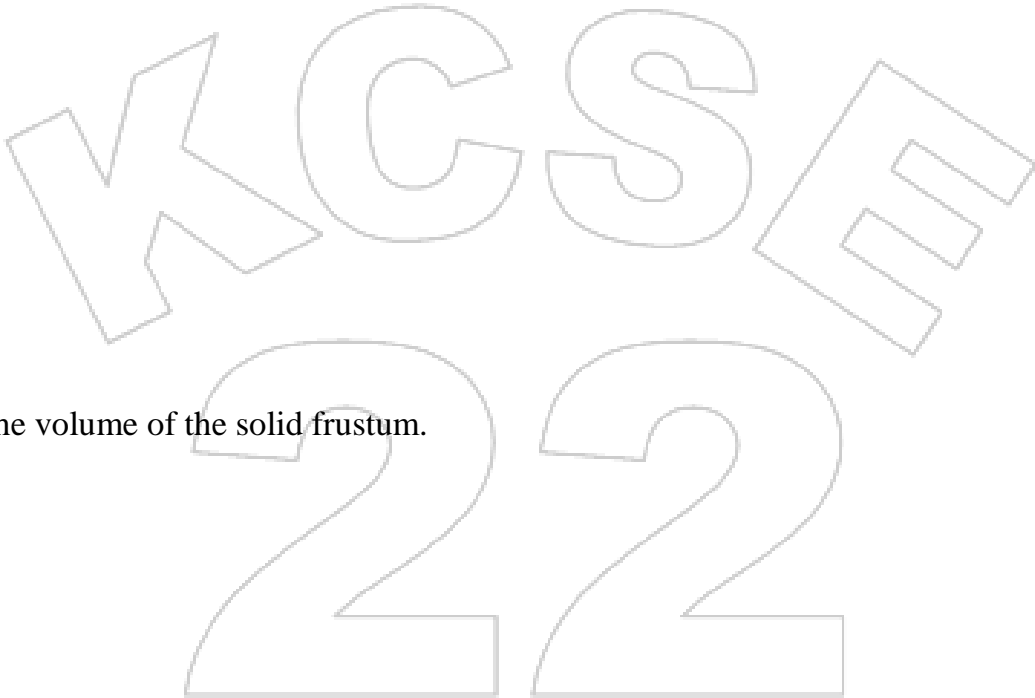


20. The figure below shows solid frustum of a pyramid with a square top of side 12cm and a square base of side 20cm. The slant edge of the frustum is 16cm.



a) Calculate the total surface area of the frustum

(4marks)



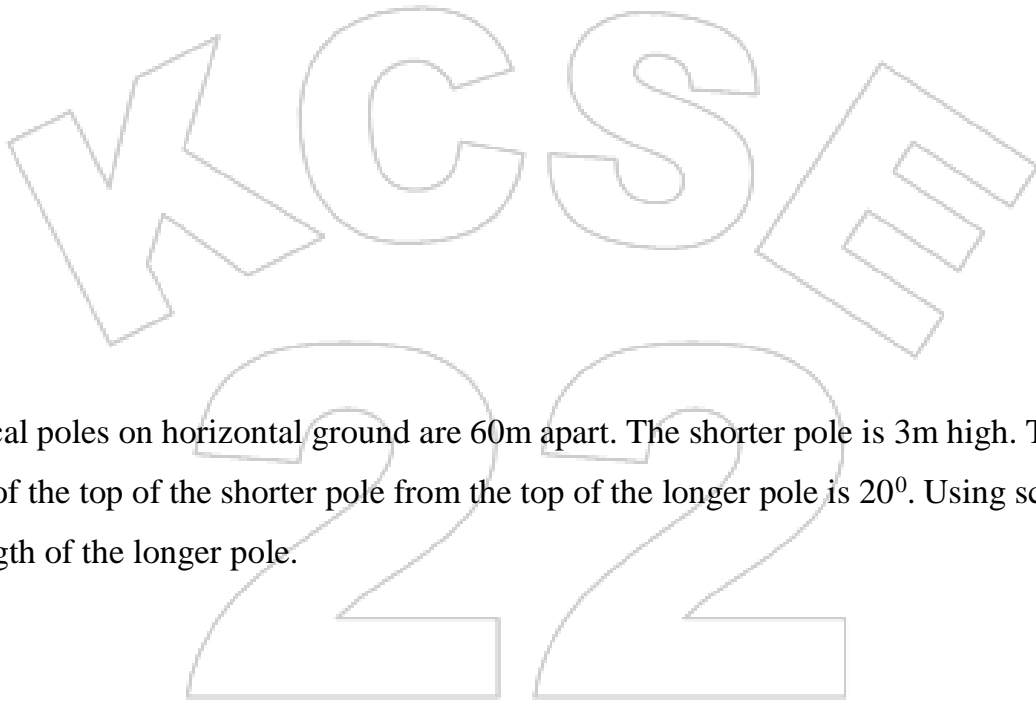
b) Calculate the volume of the solid frustum.

(4marks)

c) Calculate the angle between the planes **BCHG** and the base **EFGH**.

(2marks)

- 21. (a)** A radio station tower was built in two sections. From a point 870m from the base of the tower, the angle of elevation of the top of the first section is 25° and the angle of elevation of the top of the second section is 40° . What is the height of the top section of the tower? **(5marks)**



- (b)** Two vertical poles on horizontal ground are 60m apart. The shorter pole is 3m high. The angle of depression of the top of the shorter pole from the top of the longer pole is 20° . Using scale drawing, find the length of the longer pole. **(5 marks)**

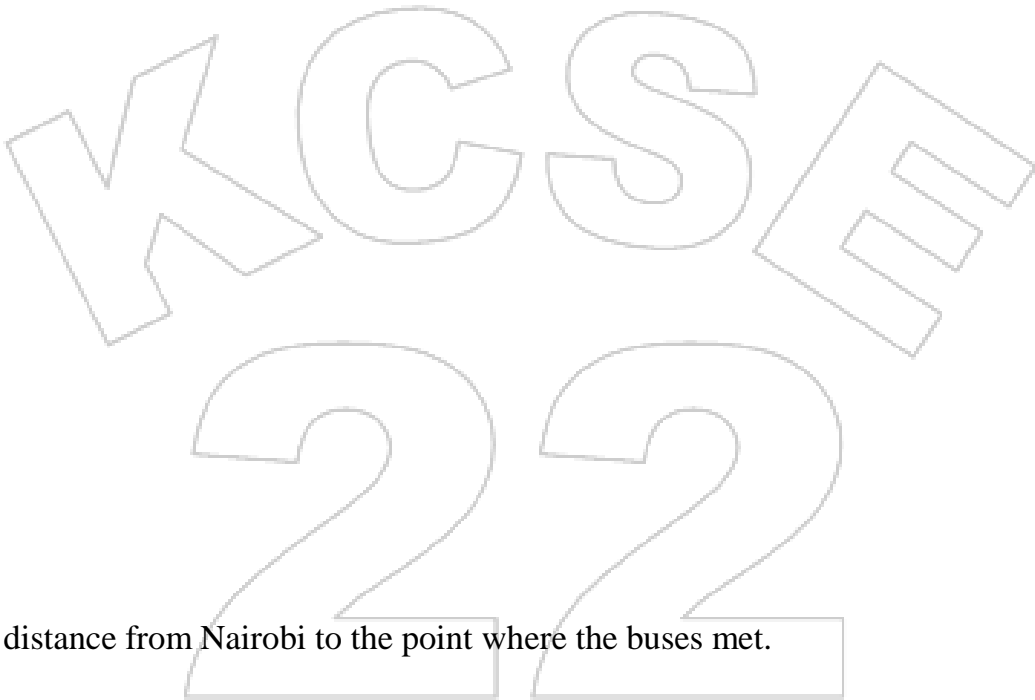
22. Coast bus left Nairobi at 8.00a.m. and traveled towards Mombasa at an average speed of 80km/hr. at 8.30am, Lamu bus left Mombasa towards Nairobi at an average speed of 120km/h. Given that the distance between Nairobi and Mombasa is 400km; determine:

(i) The time Lamu Bus arrived in Nairobi. **(2marks)**

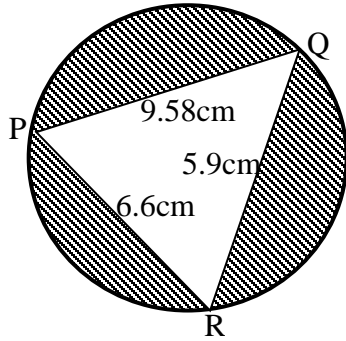
(ii) The time the two buses met. **(4marks)**

(iii) The distance from Nairobi to the point where the buses met. **(2marks)**

(iv) How far Coast Bus is from Mombasa when Lamu bus arrives in Nairobi. **(2marks)**



23. Triangle PQR is inscribed in the circle. $PQ = 7.8\text{cm}$, $PR = 6.6\text{cm}$ and $QR = 5.9\text{cm}$.



Find;

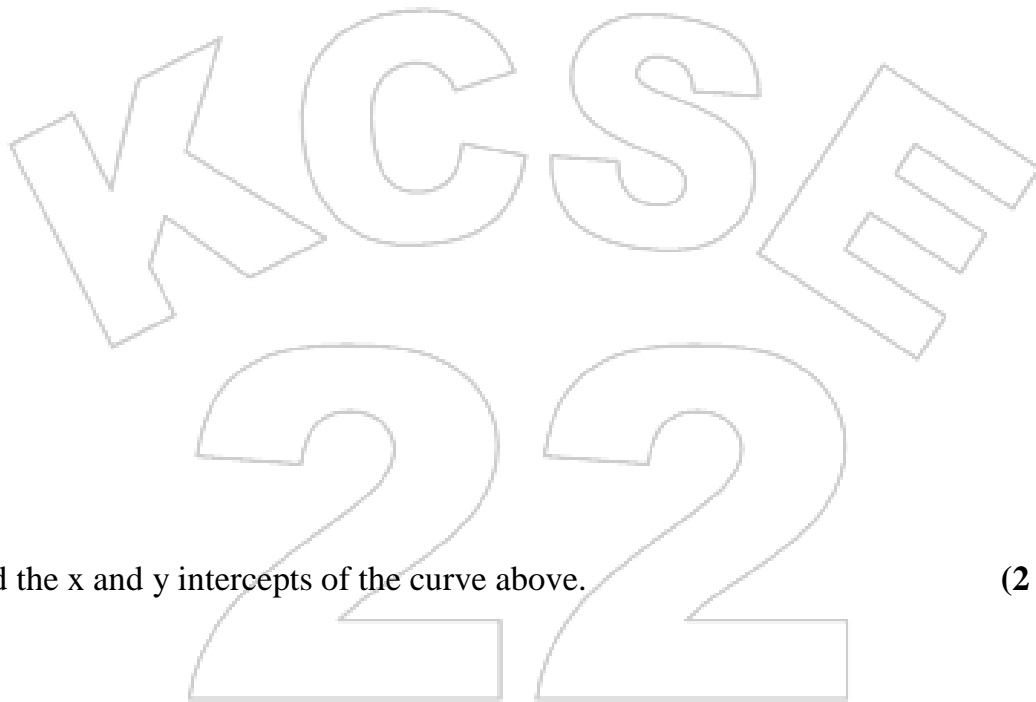
(a) size of angle QPR (3 Marks)

(b) the radius of the circle. (3 Marks)

(c) the area of the shaded region. (4Marks)

- 24. (a)** Find the stationary points of the curve to (1 d.p) **(6 marks)**

$$y = \frac{(x+2)(x-1)}{(x-4)^{-1}}$$



- (b)** Find the x and y intercepts of the curve above. **(2 marks)**

- (c)** Sketch the curve. **(2 marks)**



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MATHEMATICS

PAPER 2

2 ½ HOURS

INSTRUCTIONS TO CANDIDATES

1. Write your name, Admission Number, Class and Index Number.
2. The paper contains two sections: Section I and II
3. Answer ALL questions in section I and ANY FIVE questions from section II.
4. Non-programmable silent electronic calculators and four figure mathematical tables are allowed for use.

FOR EXAMINER'S USE ONLY

SECTION I

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

GRAND TOTAL

SECTION II

17	18	19	20	21	22	23	24	TOTAL

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SECTION A 50 MARKS

1. Use logarithm tables to evaluate; $\sqrt[3]{\frac{648 \times 0.0079}{(968 - 94) \div 0.0046}}$ (3mks)

2. The middle digit of a number between 100 and 1000 is zero, and the sum of the other digits is 11. If the digits are reversed the number so formed exceeds the original by 495. Find the number. (3 mks)

3. Without using mathematical tables or a calculator evaluate

$$\sqrt{\frac{0.3 - 0.098 \div (0.84 - 0.14)}{(0.28 + 0.12) \div 0.8 \times 0.5}}$$

Leaving the answer as a decimal (3 marks)



4. Expand $(0.07)^5$ using binomial theorem giving your answer to four significant figures

(3marks)

5. Solve for θ in the equation $\sin(3\theta + 120^\circ) = \frac{\sqrt{3}}{2}$ in the range $0 \leq \theta \leq 180^\circ$.

(3 mks)

6. Rationalize the denominator leaving your answer in the form $a + b\sqrt{c}$ where a , b and c are

constants

$$\frac{5 - 2\sqrt{3}}{2 + 3\sqrt{3}}$$

(3marks)



7. A farmer bought a machine at a current price of Ksh 224,000. If the depreciation rate is 5% in every 3 months. Calculate the sum of its value in 3 years ago and 3 years' time. **(3mks)**

8. Without using logarithm table or calculators, find the value of p in the equation.

$$\text{Log } n^3 + \log 4n = 10 \log 2 - \log (2/g)$$

(3mks)

9. Using mid-ordinates rules, estimate the area under the curve $y = \frac{1}{2}x^2 - 2$, using six strips between $x=2$ and $x=8$ and x-axis **(3mks)**



- 10.** (a) Using a pair of compass and a ruler only Construct a triangle PQR in which $PQ=QR=4\text{cm}$ and angle $QPR=30^\circ$. (2mks)
- (b) A point T is always on the same side of PQ as R and angle $PRQ=\text{angle } PTQ$. Construct the locus of T and describe it. (2mks)

- 11.** R is partly constant and partly varies as the square of q. when $R = 5$, $q = 4$ and $R = 21$, when $q = 3$. Find the value of R when $q = 5$. (3mks)

- 12.** The first, the third and the seventh term of an increasing arithmetic progression are three consecutive terms of a geometric progression. If the first term of the arithmetic progression is 10, find the common difference of the arithmetic progression (3mks)

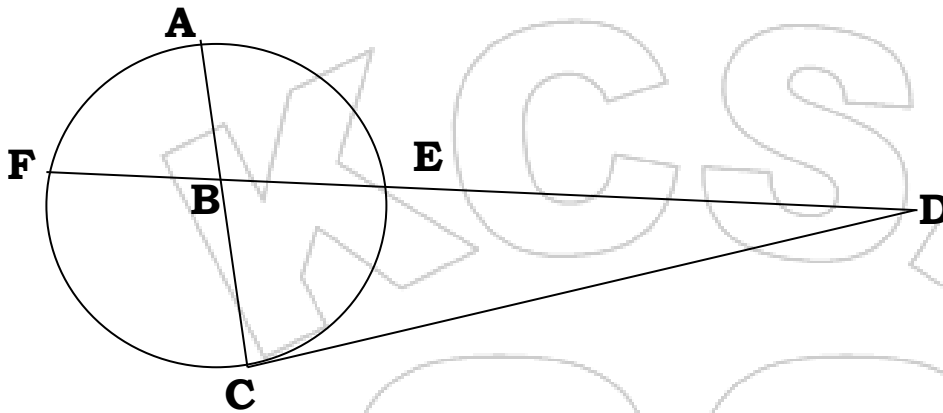


13. The equation of a circle is $x^2 - 8x + y^2 + 12y + 16 = 0$

Determine the coordinates of the Centre of the circle and its radius.

(3 Marks)

14.



In the diagram above CD is a tangent to the circle at C . AC and FD intersect at B . FED is a straight line. Given that $CD = 10$ cm, $AB = 2$ cm $AC = 8$ cm, $FB = 3$ cm. Find the length ED .

4mks

- 15.** The cost of 2 brands of coffee A and B per kilogram are 59.40 and Sh.72 respectively. The two brands are mixed in the ratio x:y and sold at a profit of 20% above the cost. If the selling price per kilogram mixture is Ksh.72. find the value of x and y **(3mks)**

16. Evaluate

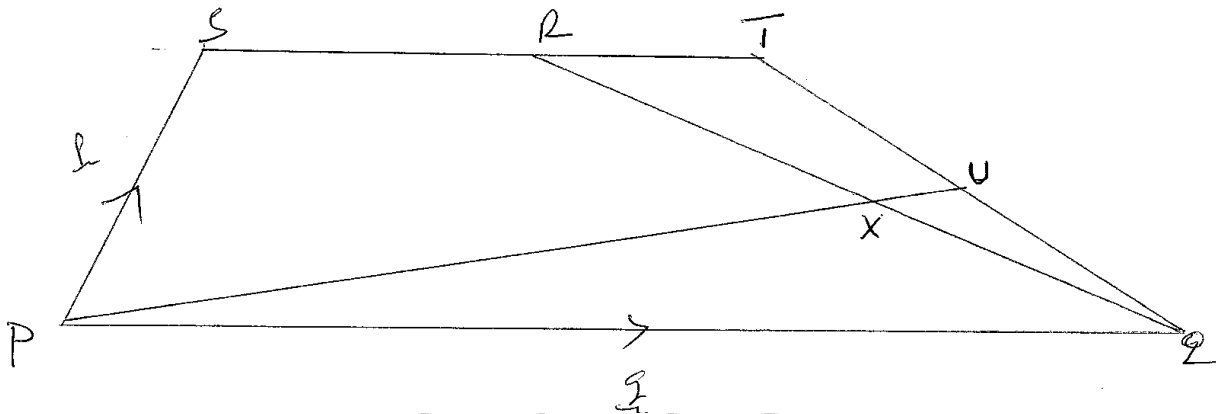
$$\int_{-1}^3 \frac{2x^3 - 3x^2 - 8x + 12}{x^2 - 4} dx$$

(3mks)



SECTION B 50 MARKS

17. In the trapezium shown below $\overrightarrow{PQ} = 3\overrightarrow{ST}$. T divides SR in the ratio 4 : 1 and U is the midpoint of QT. PU and QR intersect at X. $PX = hPU$ and $QX = kQR$.



Given that $PQ = \mathbf{q}$ and $PS = \mathbf{p}$

- (a) Express QR in terms of \mathbf{P} and \mathbf{q} (1mk)
- (b) Express PX in terms of \mathbf{P} , \mathbf{q} and h . (2mks)
- (c) Express PX in terms of \mathbf{P} , \mathbf{q} and k . (3mks)
- (d) Hence; obtains the values of h and k . (3mks)
- (e) Determine the ratio in which X divides QR. (1mk)



18. The table below shows the distribution of marks of 40 candidates in a test

Marks	1-10	11-20	21-30	31-40	41-50	51-60	61-70	71-80	81-90	91-100
Frequency	2	2	3	x	12	5	2	3	1	1

(a)(i) Find the value of x **(1mk)**

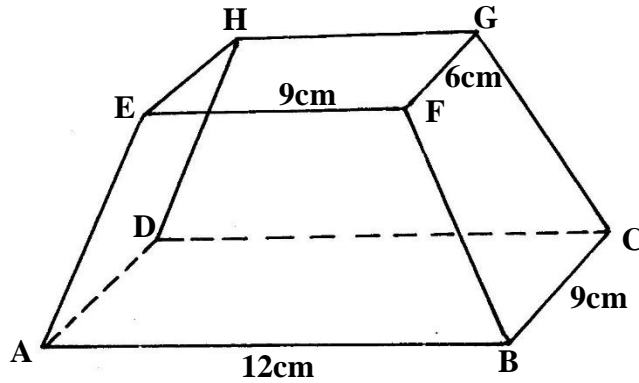
(ii) State the modal class **(1mk)**

(iii) Calculate the median **(4mks)**

(iv) Calculate the mean. **(4marks)**



19. The figure below is a frustum of a rectangular pyramid with $AB=12\text{CM}$, $EF=8\text{CM}$, $BC=9\text{CM}$ and height of 6 CM



Calculate:

a) the full height of the pyramid 2 marks

b) angle that the plane ABFE makes with the base ABCD 2marks

c) angle that AG makes with the base ABCD 3marks

d) angle that AC makes with line AE 1mark

e) angle that plane BCGF makes with the base ABCD 2marks

20. (a) A point a (35° N, 40° W) and b (40° S, 40° W), Calculate the distance between A and B in Kilometers. Take earth radius o be 6370 km. answer to 1 d.p. **(3mks)**

(b) A and B are points on latitude 70° C. Their longitudes are 62° W and 118° E respectively. Find the distance from A to B along a parallel of latitude. **(4mks)**



(c) Peter was in Mombasa 39° E and Mary was in Banju 17° W. Calculate the time difference between the two. **(3mks)**

21. ABCD is a quadrilateral with vertices as follows: **A** (3, 1), **B** (2, 4) **C** (4, 3) and **D** (5, 1)

- (a) (i) On the grid provided draw the quadrilateral **ABCD** and the image **A'B'C'D'** under a transformation

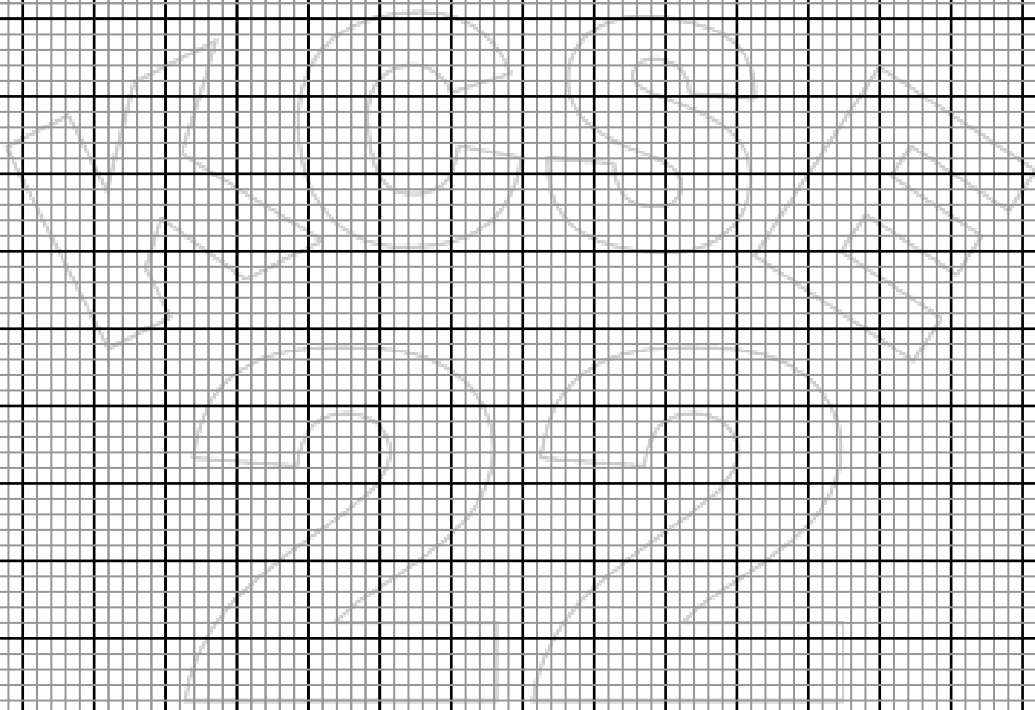
With matrix $\begin{bmatrix} 0 & -1 \\ 1 & 0 \end{bmatrix}$. Find the co-ordinates of **A'B'C'D'** (3mks)

Describe the transformation that maps **ABCD** onto **A'B'C'D'** fully (1mk)

- (b) A transformation represented by the matrix $\begin{bmatrix} 1 & 0 \\ 0 & -1 \end{bmatrix}$ maps **A'B'C'D'** onto **A''B''C''D''** find the co-ordinates of **A''B''C''D''**. Plot **A''B''C''D''** on the same grid. (3mks)

- (c) Determine a single transformation that maps **A''B''C''D''** onto **ABCD**. Describe this transformation fully. (3mks)





22. The table below shows the income tax rates in Kenya.

Income in K£ per month	Rate in Ksh / K£
1 - 325	2
326 - 975	3
976 - 1300	5
1301 - 1625	6
Over 1625	7.5

(a) Mr. Sigei is a public servant who lives in a government house and pays a nominal rent of Ksh. 1220 per month. He earns a basic salary of Ksh. 24,800 and taxable allowances of Ksh. 13,380 per month. He is entitled to a monthly tax relief of Ksh. 1120. Calculate his monthly

i) Taxable income in K£. **(2mks)**

ii) Gross tax. **(3mks)**

iii) Tax due **(2mks)**

(b) Apart from income tax, the following monthly deductions are made from his salary.

i) HELB loan repayment Ksh. 2400

ii) NHIF Ksh 320

iii) 2% basic salary as union dues.

Calculate Mr. Sigei's monthly net salary.

(3mks)



23. An airline has to fly 1000 passengers and 35000 kg of luggage from Nairobi to Kampala. Two types of aircrafts are available. Type A takes 100 passengers and 2000 kg of luggage. Type B takes 60 passengers and 3000 kg of luggage. The airline must not use more than 16 aircrafts altogether.

(a) if the airline hires x type A aircrafts and y type B aircrafts, write down 3 inequalities to represent the information above. **(3mks)**

(b) Draw the inequalities on a grid. **(3mks)**

(c) Find the minimum number of aircrafts the airline could use. **(1mk)**

(d) **If** the cost of hiring charges for each aircraft is sh 100,000 and sh 120,000 for type A and b respectively, find:

(i) The number of planes of each type that should minimize the cost **(2mks)**

(ii) Minimum cost **(1mk)**



24. In a mathematics test, the probability of 3 students, Kamau, Otieno and Mwala passing are $\frac{2}{3}$, $\frac{3}{4}$ and $\frac{5}{6}$ respectively

(a) Draw a tree diagram to represent this information **(3 marks)**

(b) Use the tree diagram to find the probability that:

(i) All the three students will fail **(2 marks)**

(ii) At least two students will pass. **(3 marks)**

(iii) Only one student will pass **(2 marks)**



TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

SCHOOL..... SIGN.....

DATE.....

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

451/1

COMPUTER STUDIES

**Paper 1
(THEORY)**

2½ hours

INSTRUCTIONS TO CANDIDATES

- (a) Write your name and index number in the spaces provided above.
- (b) This paper consists of **TWO** sections; **A** and **B**.
- (c) Answer **ALL** the questions in section **A**.
- (d) Answer question **16** and any other **THREE** questions from section **B**.
- (e) All answers should be written in the spaces provided on the question paper.

For official Use Only

Section	Question	Candidates Score
A	1-15	
B	16	
	17	
	18	
	19	
	20	
TOTAL SCORE		



SECTION A (40 MARKS)

Answer All Questions From This Section

1. State THREE factors to be considered when setting up a computer laboratory. (3marks)

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2. A mobile phone is regarded as a computer. Give two reasons why. (2marks)

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3. What is the difference between a Gas Plasma Display and Liquid Crystal Display (2marks)

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4. In reference to CPU explain **fetch-execute** cycle (3marks)

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5. Give anyTHREE reasons why magnetic Ink Character recognition are too popular in banking industry for processing cheques (3marks)

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6. Mention any THREE parameters that makes up the access time of storage media (3marks)

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7. Highlight the use of the following keys found on a standard keyboard. (2marks)

a) Esc

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b) Home

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8. a) Define a candidate key (1 mark)

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b) Describe anyTHREE data integrity constraints in a database. (3 marks)

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9. MrMatano is a teacher at Kassu High school and wishes to use Spreadsheet to process the marks obtained by his students during the term. The worksheet below shows the details used.

A	B	C	D	E	F	G	H	I
1	NAME	CAT-1	CAT-2	CATTOTAL	EXAM	TOTAL	GRADE	RANK
2	Susan M.	14	06		56			
3	Peter K.	13	08		34			
4	Mary Ann. N	10	04		59			
5	Paul P.	11	07		57			
6	Janet F.	06	09		48			
7	Justin G.	08	07		50			



NB:CAT -1 and CAT -2 are out of 15 marks each and EXAM is out of 70 marks

a) Write a function that displays “PASSED” when the total marks is >60 otherwise display “FAIL”. (2 marks)

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b) Write a function that arranges the students according to their performance (2marks)

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10. State any TWO duties of a database administrator (2marks)

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11. A student in Mwalimu High School was working with computer using windows operating system. After sometime he started experiencing the following problems.

- The computer failing to load the operating system during the booting process.
- The computer hangs (stops responding) now and then.
- Abnormal restarting.
- Displays a blue screen with the message such as fatal exception error has occurred.

State any TWO possible causes of the above problems? (2marks)

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12. List any **THREE** ways in which ICT can be used to enhance security in a supermarket. **(3marks)**

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13. Mention any **TWO** components of an expert system **(2marks)**

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14. State any **TWO** negative impacts of ICT on the environment **(2marks)**

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15. State what should be considered when carrying out requirement analysis for selecting a computer system? **(3marks)**

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SECTION B (60 MARKS)

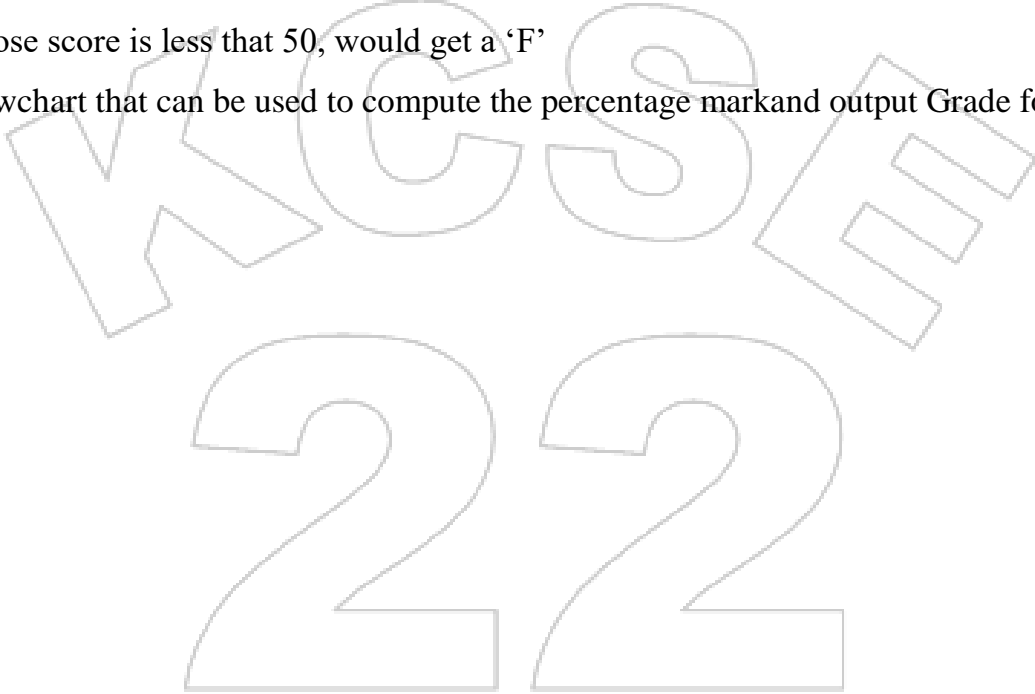
Answer Question 16 (compulsory) and any other THREE questions from this section.

16. A lecturer is in need of calculating the percentage mark for individual students who took two CATs that were marked out of 30 marks each, for a class of 150 students and grade the student as follows.

- Marks from 95 and above, one would get grade 'A'
- Marks from 80 and above, one would get grade 'B'
- Marks from 60 and above, one would get grade 'C'
- Marks from 50 and above, one would get grade 'D'
- Anyone whose score is less than 50, would get a 'F'

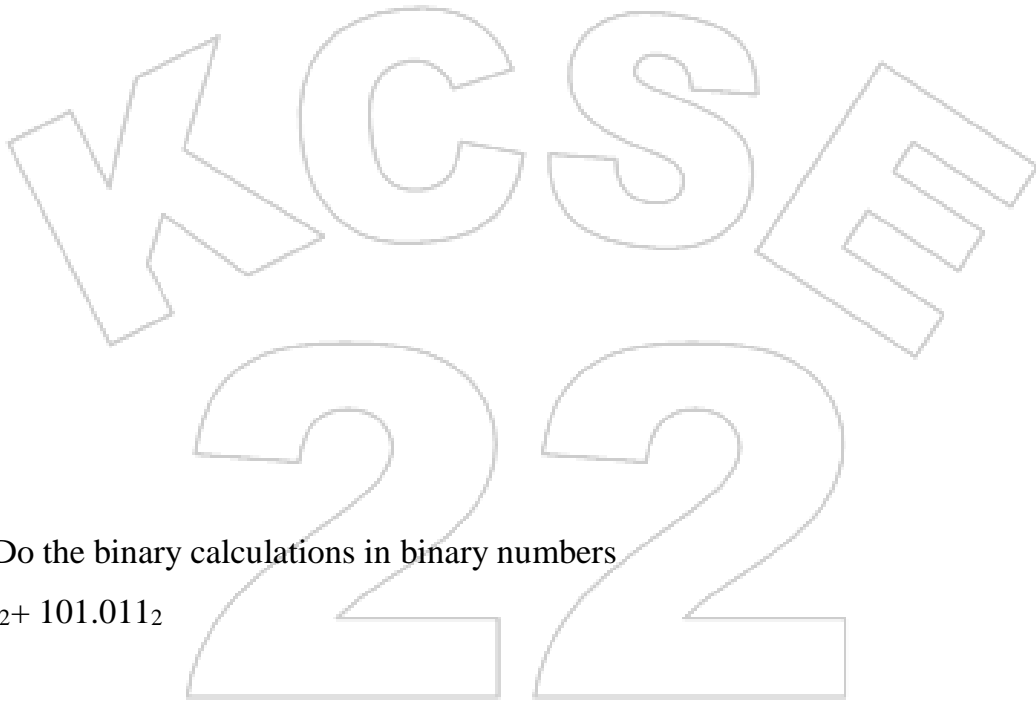
a. Draw a flowchart that can be used to compute the percentage mark and output Grade for each student.

(8marks)



b. Write a pseudo code for the above flow chart.

(7marks)



17. (a) Do the binary calculations in binary numbers

(2marks)

i. $11101.0011_2 + 101.011_2$

ii. $101001.10101_2 - 110.01101_2$



iii. Using twos complement, perform the following calculation leaving your answer in decimal number.

(4marks)

$$23_{10} - 41_{10}$$

iv. Determine the BCD representation of (-890_{10})

(2marks)

(a) With a relevant example Distinguish between the following terms as used in data processing.

(i) Online processing and real time processing. (2marks)

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(ii) Backup file and Archive file. (2marks)

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(b) (i) During manual data entry, the data entry clerks need to verify and validate their data to ensure that it is free from errors. Define the term error as used in this context **(1 mark)**

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(ii) In an exam, where the subject marks for each student was summed and the mean calculated from the sum, the students realized that their marks were inaccurate by a fraction of the mean mark. Likewise a great difference between the actual class mean and the sum of the recorded mean mark.

Describe any two types of errors that may have caused the difference between the recorded mean marks and the actual mean marks. **(2 marks)**

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18. (a) Prime systems Ltd. is a record label company. It wishes to introduce a computerized system, so it has asked a team of consultants to investigate the possibility.

i. The consultants first carried out an initial study and produced a feasibility report. Explain the purpose of a feasibility report **(2marks)**

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ii. Give TWO reasons why some clerical staff at Prime systems Ltd. might have been worried with the prospect of computerization. **(2marks)**

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(b) State the stage at which the following activities are performed in system development lifecycle **(3marks)**

(i) Flowcharting.

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(ii) Staff training

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(iii) Changeover

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(c) (i) What is pilot running in system development? **(1mark)**

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(ii) State TWO circumstances under which pilot strategy may be used during system changeover. **(2marks)**

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(d) (i) State THREE disadvantages of observation method of information gathering **(3marks)**

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(ii) Explain the importance of using automated methods of fact finding

(2marks)

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19. a) Describe the following wireless communication devices

(6 marks)

i. Access point (AP)

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ii. Wireless Antenna

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iii. PCMCIA cards

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b) Explain the following

(4marks)

i. Search engine

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ii. Web browser

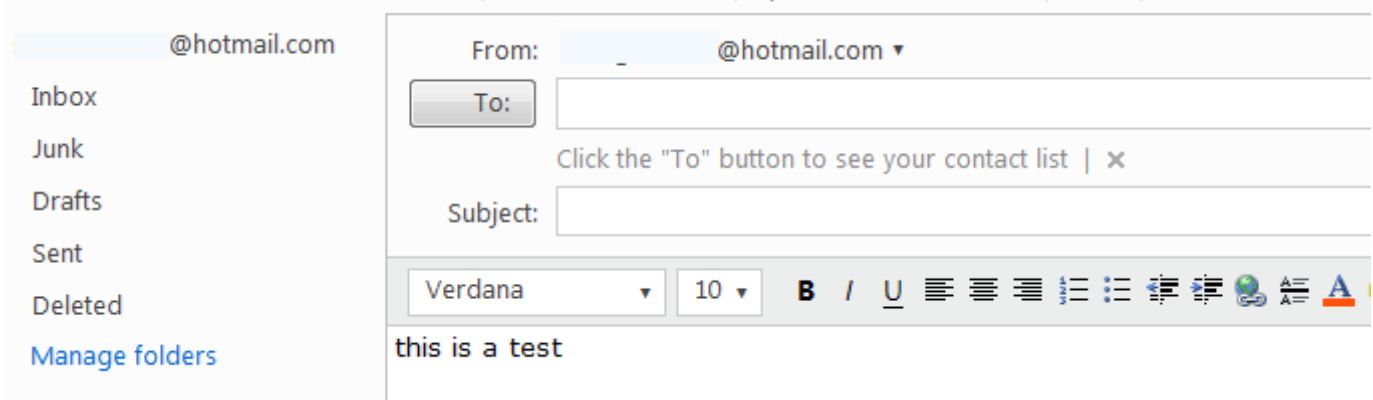
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c) The diagram below shows an e-mail extract.



What is purpose of the following folders? (2 marks)

a) Junk

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b) Drafts

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d) Differentiate between Pasteboard, master page and printable area as used in desktop publisher. (3marks)

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20. a) Explain each of the following type of operating systems (4marks)

i. Distributed

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ii. Multi-user.

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b) List any TWO types of embedded operating systems used in modern cell phones (2marks)

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c) Most operating systems provide a file system. Mention any TWO file systems used in windows environment. (2 marks)

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d) (i) Mwangi an IT expert would like to create *table of contents* for his 50 page dossier. Explain to him how he could do this. (3marks)

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(ii) As an IT expert, explain how a 20 page document can be formatted to have first five pages numbered i,ii,iii,iv,v while the remaining pages numbered from 1,2,3,4....15. (4marks)

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TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

SCHOOL..... SIGN.....

DATE.....

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

451/2

COMPUTER STUDIES

PAPER 2

2 ½ HOURS

Instructions to candidates:

- 1) This paper has **TWO** questions.
- 2) Answer all the questions.
- 3) Type your name and index number at the right-hand corner of each printout.
- 4) Write your name and index number on the CD – ROM provided.
- 5) Write the Name and version of software used in each question attempted in the answer sheet.
- 6) Passwords **should not be used** while saving your work.
- 7) Make a printout of the answers on the answer sheets provided.
- 8) Arrange your print outs and stable them together.
- 9) Hand in all the **printouts** and the CD – ROM provided.
- 10) This paper consists of **4** printed pages.
- 11) Candidates should check the question paper to ascertain that all pages are printed and no questions are missing



1.(a) Create and enter the data as in the following spreadsheet for form3N students in Bright Star School in Baringo County and save it as BSSBC. **(14marks)**

	A	B	C	D	E	F	G	H	I
1	Name	English	kiswahili	maths	Biology	pyhsics	C/Studies	Total	Average
2	Sally	60	76	42	76	66	77		
3	Jane	56	45	53	65	45	72		
4	Philip	65	58	47	64	65	46		
5	George	56	66	30	85	48	60		
6	Mary	74	68	59	83	36	57		
7	James	80	72	45	74	54	70		
8	Tina	78	55	37	71	63	56		
9	Subject average								

Using the above information,

(b)Enter appropriate formulas to compute the Average mark in each subject **(3 marks)**

(c)Enter the total marks for each student **(3 marks)**

(d)Enter the Average marks for each student **(3 marks)**

(e) Format the table as follows:

. Set the direction of the labels to 45 degrees **(2marks)**

.Centre vertically all the records **(2 marks)**

(f)Create an embedded bar chart for average mark per subject **(8 marks)**



- (g) Add a column of marks for Chemistry and enter the following data for each student
:78,56,67,81,72,68,53 starting from Sally down to Tina **(4 marks)**
- (h) Filter the data using the Biology column and display only those rows with marks less than 80 **(6 marks)**
- (i) Rank the students starting from those with the highest total mark **(3 marks)**
- (j) Print the worksheet, and the graph **(2 marks)**

2. (A) Type the following passage using a word processing package and save as Network software.
Answer the questions that follow. **(26 marks)**

NETWORK SOFTWARE

Computer network is a group of computers and other devices connected together by a suitable media. The computer networks have evolved from simple linking of computers on a common transmission media to highly managed and optimized data and information transfer systems. This means that apart from data communications, the focus is now squarely on how best to utilize network resources.

Network software can be classified into two main groups namely:

1. Network operating systems
2. Network protocol

Advantages of computer Networks

- Multiple users can communicate, exchange and share information
- Resource sharing including program, data base, hardware etc. is possible



By definition communications refers to the transfer of information from one place to another between two individuals using agreed symbols, signs or even human behavior such as nodding. Exchange of information relies on a communication system to convert, amplify and send signal through a common medium. Message, Sender, Medium and Receiver are the essential components of communication systems.

If a system is extended by cascading more communication systems, it is called networked systems. In case communication involves the sending of information over a significant distance, it must use telecommunications as an aid. By definition, telecommunications refers to the transmission of information between distant locations by some electromagnetic means.

Data communications is defined as the interchange and processing of encoded (digital that is, 1s and 0s) information between distant locations using telecommunications.

Data communications is regarded as the collection and distribution of the electronic representation of information which can be text, voice, graphics or image, from and to remote computing facilities. As information can only be carried to the remote site provided that the information carrier supports that particular type of data transmission, information may undergo data conversion processes if the nature of data signal is incompatible with the characteristics of the signal carrier.

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PROTOCOLS

This are set of rules and procedures that govern communication between two different device or people . In computer networking, protocols refer to the rules and technical procedures that govern communication between different computers.

How protocol work

The data transmission process over network has to be broken down into discrete systematic steps. At each step certain action takes place and each steps has its own procedures as defined by network protocol. The co-ordination of protocols must be co-ordinated so that there are no conflicts.

COMPARISON AMONG DIFFERENT TOPOLOGIES

Below are the advantages and disadvantages of various LAN topologies.

Type	Advantage	Disadvantage
Star Topology	Simple and easy to identify fault	Failure of central node causes disaster
Mesh Topology	Immunity to bottleneck and failure problems	Expensive to provide an alternative routing
Bus Topology	Simple to control traffic flow	Only a single communications channel required to service all the nodes
Ring Topology	Simple to implement	One channel is required to service all

(B) :

- i. Centre and double underline the title Computer Software (2 marks)

- ii. Convert the paragraphs beginning with “By definition communications.....” to the end Into hanging indent. (4 marks)

- iii. Move the paragraph under protocols and paste after the table (2 marks)



KCSE Predictions Marking Schemes - 0746 222 000

- iv.** Insert and center your name, index number and the name of your school as a footer so as to appear © *name ,index number, and the name of your school.* (4 marks)

- v.** Find and telecommunications and replace with Telephones. (3marks)

- vi.** Insert a picture of a computer and wrap the picture behind the table (4 marks)

- vii.** Spell check your data for grammatical errors (1 mark)

- viii.** Save the data as computer communication (2 mks)

- ix.** Print the document network software and computer communication (2marks)

KCSE
222



TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

SCHOOL..... SIGN.....

DATE.....

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

441/1

HOME SCIENCE

Paper 1
(THEORY)

2½ hours

INSTRUCTIONS TO CANDIDATES

- This paper contains 3 sections: A, B and C
- Answer **ALL** questions in section A and B and **ANYTWO** questions from section C
- Write your name and index number in the spaces provided above.
- Sign and write the name of examination in the spaces provided above.
- Answer **ALL** the questions in section A.
- All answers should be written in the spaces provided on the question paper.

For official Use Only

SECTIONS	QUESTION	MAX. SCORE	ACTUAL SCORE
A	1 – 37	40 MARKS	
B	38	20 MARKS	
C	39 – 41	40 MARKS	
TOTAL			



SECTION A (40 Marks)

1. Give **four** reasons for preserving food. (2mks)

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2. State **two** aspects of development brought about by child play. (1mk)

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3. Mention **two** desirable qualities of baking flour. (1mk)

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4. Identify **two** pattern symbols that need not to be transferred after cutting out. (1mk)

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5. Give **two** ways of disinfecting towels. (1mk)

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6. Give **two** reasons for dry cleaning clothes. (1mk)

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7. Give **two** reasons why corners of a bed are mitred. (1mk)

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8. Identify **two** preparations done on fabric before cutting out (1mk)

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9. Give **two** reasons for covering food during cooking. (1mk)

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10. Give **two** reasons why aluminum is commonly used to make kitchen utensils (1mk)

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11. Give **two** reasons why it is preferable to include whole grain cereals in the diet.

(1mk)

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12. List **two** stitches used in embroidery.

(1mk)

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13. State **four** factors which affect the efficiency of laundry soap.

(2mks)

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14. Differentiate between **fastenings** and **opening**.

(1mk)

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15. Define **glazing** as used in cookery.

(1/2mk)

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16. Give **two** ways of preventing scalds. (1mk)

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17. Write down **two** desirable properties of acrylic fibres. (1mk)

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18. Differentiate between **thin batter** and **thick batter**. (1mk)

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19. List **two** examples of grease solvents used in laundry. (1mk)

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20. Cleaning a **wooden table** with hot water is discouraged .Give two reasons for this (1mk)

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21. Give **two** uses of eggs in cookery. (1mk)

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22. Give any four factors that affect normal foetal development. (2mks)

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23. Differentiate between **sponging** and **spotting**. (1mk)

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24. State **two** ways of preventing hypertension. (1mk)

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25. Give **two** reasons for coating food. (1mk)

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26. Identify **two** points to observe when buying fish. (1mk)

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27. Give **four** reasons for including fruit salad in a meal. (2mks)

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28. Give **two** reasons for needles breaking during stitching. (1mk)

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29. Give **one** use of a bodkin (1mk)

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30. What is a **Bunion**? (1/2mk)

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31. Give **two** essential functions of phosphorous in the body. (1mk)

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32. Identify **two** ways of managing kwashiorkor. (1mk)

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33. State **two** factors that make electricity the preferred source of light. (1mk)

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34. Identify **two** points to bear in mind when mending garments. (1mk)

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35. Give **two** reasons why knots should not be used during stitching. (1mk)

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36. Give **two** importance of “basting” in cookery. (1mk)

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37. State **two** desirable qualities of a kitchen floor. (1mk)

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SECTION B (20MARKS)

38. Using the knowledge you have acquired in home science explain how to launder and clean the following items.

(a) A Nylon dress (7mks)

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40. (a) Outline the steps followed when making a **budget**. (5mks)

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(b) Identify **five** points to consider when selecting a laundry soap (5mks)

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(b) Identify **five** points to consider when serving an invalid

(5mks)

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(c) Explain the working of a **machine fell seam**

(6mks)

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(d) **Consumer education** is important. Give five reasons why this is so.

(5mks)

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TOPGRADE 2022 PREDICTION

KCSE SERIES 1

SCHOOL.....

SIGN.....

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

HOME SCIENCE

PAPER 2

CLOTHING CONSTRUCTION

PRACTICAL

2 ½ HOURS

CONFIDENTIAL

CONFIDENTIAL

Each school is required to provide every candidate with the following items;

1. Light weight plain cotton fabric 90cm x 50cm
2. Cotton thread to match the fabric
3. Zip 15cm
4. Press-stud
5. Elastic 28 cm
6. Bodkin or safety pin
7. One large A4 envelope



TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME.....

INDEX NO.....

SCHOOL.....

SIGN.....

DATE.....

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

HOME SCIENCE

PAPER 2

CLOTHING CONSTRUCTION

PRACTICAL

2 ½ HOURS

A pattern of a pair of short is provided. You are advised to study the sketches, instructions and the layout carefully before you begin the test.

MATERIALS PROVIDED

1. Pattern pieces

A Short front

B Short back

C Front waistband

D Back waistband

2. Plain light weight cotton fabric 90cm wide by 50cm long.

3. Cotton thread to match the fabric

4. Zip 15cm

5. Press – stud

6. Elastic 28 cm

7. Bodkin or safety pin

8. One large A4 envelope



THE TEST

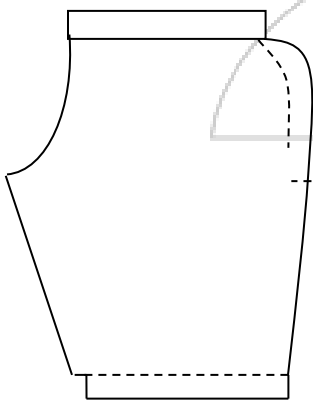
Using the materials provided cut out and make the **LEFT LEG** of the shorts to show the following processes;

- a) Making of the back dart
- b) Working of the inner leg seam using double stitched seam
- c) Working of the side seam using an open seam
- d) Fixing the zip using semi-concealed method
- e) Preparation and attachment of the waistband
- f) Finishing the waistband using hemming stitches
- g) Fixing the press- studs using buttonhole stitches
- h) Preparation of the casing and inserting the elastic onto the lower edge of the short. **Do not seal the opening**

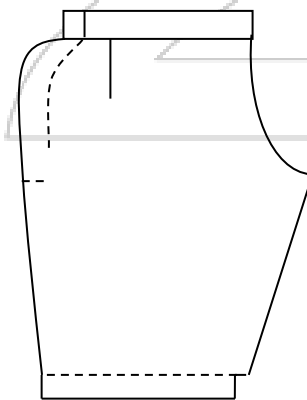
At the end of the examination, firmly sew your work, on a single fabric, a label bearing your name and index number. Remove the needle and pins from your work, then fold your work neatly and place it in the envelope provided. Do not put scraps of fabric in the envelope.

VIEW OF THE PAIR OF SHORTS

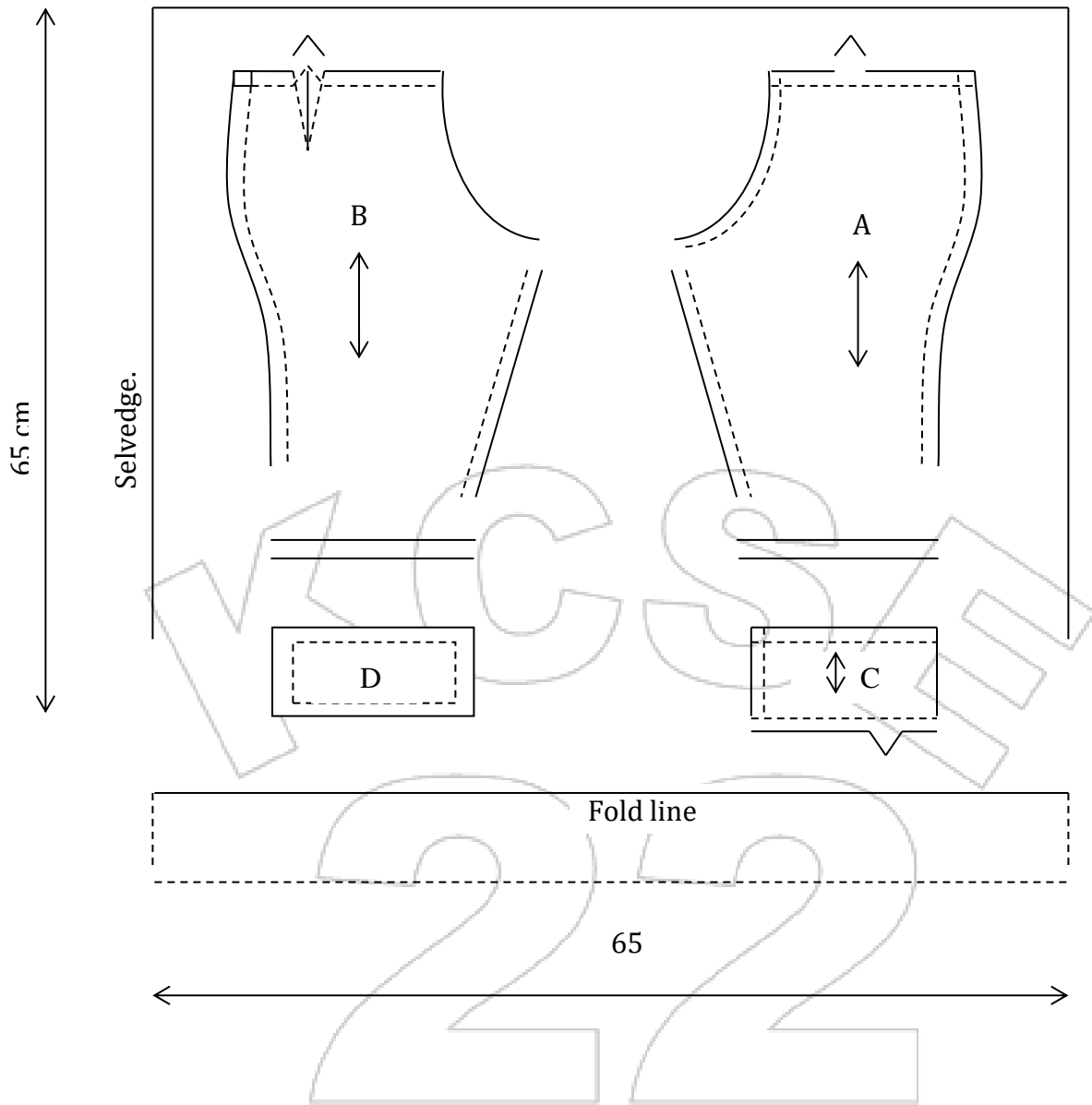
FRONT VIEW



BACK VIEW



LAYOUT (NOT DRAWN TO SCALE)



TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

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DATE.....

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

441/3

HOME SCIENCE

FOODS AND NUTRITION

PRACTICAL

Paper 3

Time: 1 ¾ Hours

PLANNING SESSION : 30Minutes

PRACTICAL TEST SESSION : 1 ¼ Hours

INSTRUCTIONS TO CANDIDATES

1. Read the test carefully.
2. Write your name and index number on every sheet of paper used.
3. Text books and recipes may be used during the planning session as reference materials.
4. You will be expected to keep to your order of work during the practical session.
5. You are only allowed to take away your reference materials at the end of the planning session.
6. You are not allowed to bring additional notes to the practical session



You are at home for your half- term holiday and your Uncle who is a manual worker pays a visit with a 2 ½ years old child. Using the ingredients listed below, prepare and serve a suitable mid- day meal to include a boiled item, fried item and a nutritious drink for the three of you.

Ingredients

- Beef / poultry.
- Green bananas/potatoes.
- Wheat flour/sifted maize flour.
- Green leafy vegetables.
- Fruit in season.
- Tomatoes
- Dhania
- Carrots
- Milk
- Sugar
- fat / oil
- Seasonings.

PLANNING SESSION: 30 MINUTES

Use separate sheets of paper for each task listed below and a carbon paper to make duplicate copies.

Then proceed as follows:-

1. Identify the dishes and write down their recipes.
2. Write down your order of work.
3. Make a list of the foodstuffs and equipment you will require.



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KCSE SERIES 1

NAME..... INDEX NO.....

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

501/1

FRENCH

Paper 1

Time: 2 ¾ Hours

INSTRUCTIONS:

- (a) This paper consists of **three** sections
- (b) Section **I** is listening comprehension
- (c) Section **II** Dictation
- (d) Section **III** is composition: Choose one composition from Question 1 and one from Question 2.
- (e) Answer **all** questions in the spaces provided.

For examiners use ONLY.

SECTION	MAX. SCORE	CANDIDATE SCORE
I	15	
II	5	
III	25	
TOTAL	45	



SECTION 1 (15mks)

LISTENING COMPREHENSION

Write answers to Questions 1-6 in the spaces provided.

1. (a) Il s'agit d'une émission de télévision pour des(1/2)
- (b) On parle de combien d'émissions ?(1/2)
- (c) A quelle heure peut-on suivre l'émission de la condition féminine ?(1/2)
- (d) Michel Kamara est connu pour ses(1/2)
2. (a) Dans cette annonce on parle de la compétition de qui est ouverte (1/2)
- (b) Qu'est-ce qu'on doit donner avant le 30 novembre ? (1/2)
- (c) Pour avoir plus d'informations, il faut aller à (1/2)
3. (a) Où est-ce qu'on fait cette annonce ? (1/2)
- (b) Elle s'adresse aux (1/2)
- (c) Selon l'annonce, on recevra(1/2) pour avoir dépensé euros. (1/2)
4. (a) Qu'est-ce que Mathilde fête ? (1/2)
- (b) Combien de personnes y aura-t-il pour sa fête ? (1/2)
- (c) Que faisait Nathalie quand Mathilde a appelé ?(1/2)
- (d) Nathalie n'a pas pu rejoindre Mathilde au téléphone parce que la ligne (1/2)



(e) Donnez 2 détails sur le cousin de Nathalie

(i) (1/2)

(ii) (1/2)

5. (a) Où se trouve Francine ?

..... (1/2)

(b) (i) Quel moyen de transport utilisera-t-elle ?

..... (1/2)

(ii) Avec qui ? (1/2)

(c) A quelle heure arrive-t-elle ?

..... (1/2)

6. (a) Où se passe la visite ?

..... (1/2)

(b) Le /La guide s'appelle

..... (1/2)

(c) Il y a étages dans la nouvelle section. (1/2)

(d) (i) Le café se trouve au étage. (1/2)

(ii) On peut y acheter (1/2)

(e) (i) On peut acheter au magasin du musée. (1/2)

(ii) Ce magasin est la sortie. (1/2)

SECTION II (DICTATION)

(5mks)

7. Listen to the instructions before you start writing.

.....

.....

.....

.....

.....

.....

.....

.....



.....

.....

.....

.....

.....

.....

.....

.....

SECTION III (COMPOSITION) (15mks)

Imaginative writing

In this section choose ONLY one question.

In 150 -180 words, write a composition in French beginning with:

EITHER

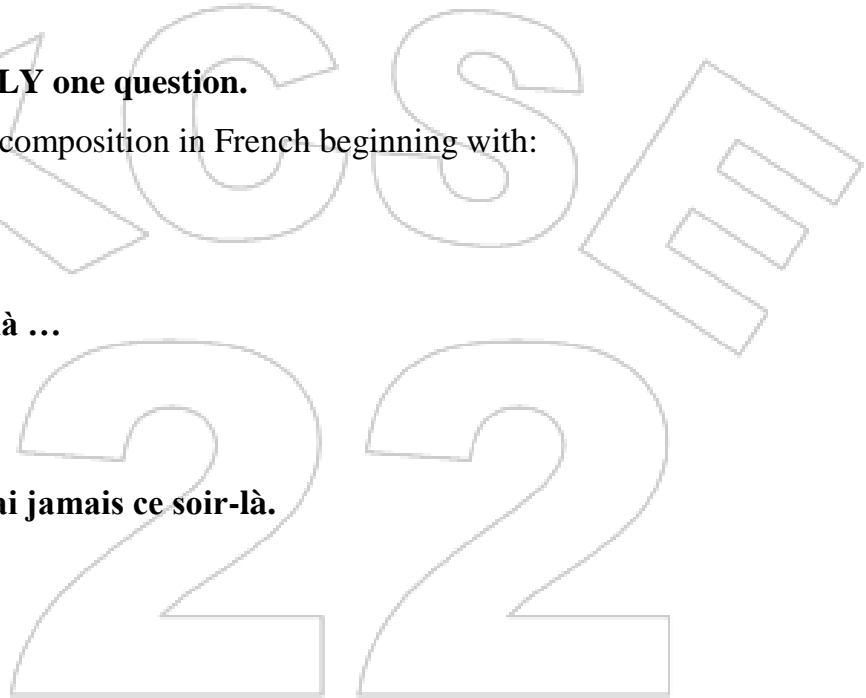
Beginning as follows :

8. (a) Il faisait froid ce soir-là ...

OR

Ending as follows :

(b)Je n’oublierai jamais ce soir-là.



KCSE
2022



TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

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

501/2

FRENCH

PAPER 2

Reading Comprehension and Grammar

TIME: 1 ½ HRS

Instructions to candidates:

- (a) Write your name, index number, date of examination and signature in the spaces provided above.
- (b) Answer all the questions in the spaces provided.
- (c) Check the question paper to ascertain that all the pages are printed.
- (d) Answer the question in French.

SECTION	MAXIMUM SCORE	CANDIDATE'S SCORE
I	15	
II	15	
	TOTAL SCORE	



SECTION 1

READING COMPREHENSION (15MKS)

PASSAGE 1

Le café est un endroit typique de la vie française. C’est un lieu agréable: en hiver, il y fait chaud, et en été, quand les chaises et les tables sont dehors, on peut profiter du soleil et du spectacle de la rue.

Les écrivains et les artistes ou les hommes politiques ont leurs cafés. A Paris, les cafés le Flore et les Deux Magots sont célèbres parce que des écrivains américains (Ernest Hemingway, F. Scott Fitzgerald...) et français (Jean – Paul Sartre, Simone de Beauvoir...) y venaient pour écrire.

A proximité des lycées et des universités, il y a toujours des cafés où se retrouvent les lycéens et les étudiants. Ils y viennent pour manger des sandwiches, discuter, faire leurs devoirs ou tout simplement pour passer le temps. Leurs cafés préférés sont ceux où ils ne sont pas obligés de trop consommer.

1. Quel avantage y a-t-il dans les cafés pendant l’hiver ? (1/2 mk)

.....
.....

2. Qui est Sartre ? (1/2 mk)

.....
.....

3. Combien d’activités est – ce que les étudiants font dans les cafés ? Lesquels? (2 ½ mk)

.....
.....

4. Pourquoi est-ce que les étudiants fréquentent certains cafés? (1/2 mk)

.....
.....

5. En quelle saison est –ce qu’on ne s’assoit pas dedans un café? (1/2 mk)

.....
.....



PASSAGE 2

Pour la deuxième fois en une semaine, la banque manqué-Paris a été victime de malfaiteurs, Hier, après-midi, un coursier de cette banque été victime d'un vol à l'arrache. Une opération s'est passée en quelques secondes. Il était 16h35 quand l'employé qui effectuait un transfert de fonds était bousculé par individu á hauteur du no. 177 de la rue Garibaldi. Agissant un visage ouvert et sans arme, le gangster âgé d'environ 18 ans qui portait un blouson marron lui arrachait son sacoché contenant 30,000 euros en espèce et quelques devises étrangers avant de sauter sur un vélomoteur par un complice.

1. Quand le vol s'est-il passé? (1/2 mk)

.....
.....

2. Où était l'employé quand l'argent a été vole. (1mk)

.....
.....

3. Combien d'argent a été volé? (1mk)

.....
.....

4. Décrivez le voleur (1/2 mk)

.....
.....

5. Donnez un mot du passage pour. (2 mks)

i. Messenger

.....
.....

ii. Presque

.....
.....

iii. Ouvrier

.....
.....



iv. Voyou

.....
.....

PASSAGE 3

La seiche est capable de changer de couleur et de se camoufler au point de devenir quasiment invisible à l’œil humain. Selon une étude, elle << est connue pour avoir une large gamme de motifs corporels et passer de l’un à l’autre presque instantanément>>. Comment s’y prend –elle ?

La seiche change de couleur grâce á ses chromatophores. Ces cellules, qui sont logées sous sa peau, contiennent des sacs remplis de pigments et entourés de tout petit muscle. Quand la seiche a besoin de se camoufler, son cerveau émet un signal pour que les muscles se contractent : les sacs s’élargissent, les pigments s’étalent, et la peau de la seiche change alors rapidement de couleur et de motif. La seiche utilise cette capacité a se camoufler, pour impressionner des partenaires potentiels et peut-être même pour communiquer.

a) Le texte parle de la de la seiche à de couleur. **(1mk)**

b) Que est – ce qui aide le seiche à se camoufler ? **(1/2mk)**

.....
.....

c) D’après le texte, il y a deux avantages de se camoufler. Lesquels **(1mk)**

i.
.....

ii.
.....

d) Donnez l’antonyme du mot : <<rapidement>> **(1/2mk)**

.....
.....



PASSAGE 4

Grâce à la technologie, tu peux être en contact avec plus de gens facilement – qu’á n’ importe quelle autre époque. Pourtant, les amitiés que tu as peuvent te sembler superficielles. Un jeune l’exprime en ces termes. : << J’ai l’impression que mes amitiés pourraient s’effondrer du jour au lendemain. Mon père, lui, est proche de certains de ses amis depuis des dizaines d’années!>>

Pourquoi est-il si difficile au jour d’aujourd’hui de construire des amitiés solides ?

a) À cause de la technologie on peut :

i).....
(1/2mk)

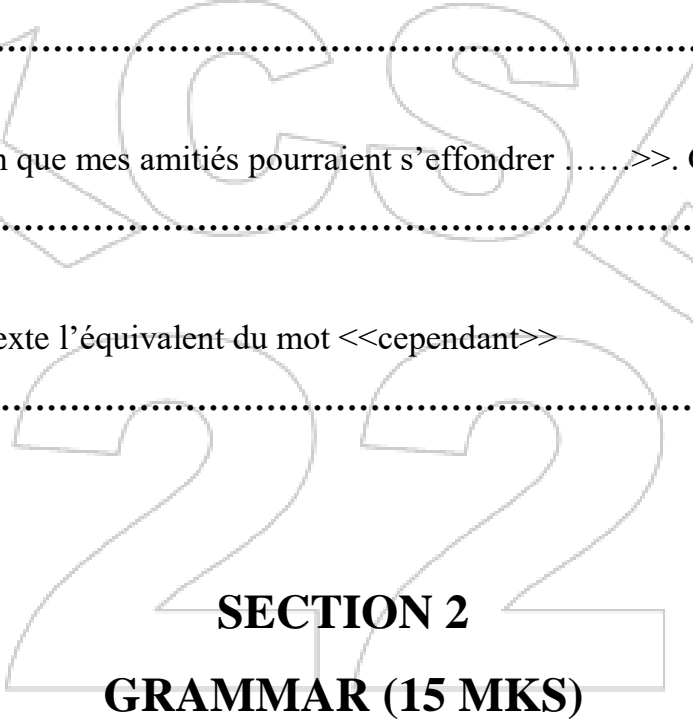
ii)
..... (1/2mk)

b) <<J’ai l’impression que mes amitiés pourraient s’effondrer>>. Ce la veut dire que

.....
..... (1mk)

c) Cherchez dans le texte l’équivalent du mot <<cependant>>

.....
..... (1/2mk)



SECTION 2

GRAMMAR (15 MKS)

Answer the following questions beginning as indicated. Make necessary changes where possible.

(8mks)

Exemple : As – tu visité la nouvelle bibliothèque?

Oui, je l’ai visitée.

a) JOURNALISTE : Monsieur Kimani, vous êtes pilote depuis dix ans?

KIMANI: Oui, ça fait

(1/2 mks)



b) “ Nous allons voir nos cousins demain. “

Elles ont dit (1 1/2 mks)

c) Est- ce que maman met du sel dans la soupe ?

Oui, elle

.....

(1mk)

d) Tu dois être à l’heure pour la reunion.

Il faut que tu

(1/2 mk)

e) Il a patiemment attendu mais les resultats ne sont pas arrivés.

Malgré

.....

... (1mk)

f)Je ne peux pas finir ce travail car je n’ai pas le temps.

Mais, si j’ai le temps

..... (1mk)

g) L’ employé a faim mais il continue á servir les clients.

L’ employé continue á servir les clients en

(1mk)

h) Vous n’êtes pas prêts?,nous sommes prêts. (1/2mk)

i)GROUPE 1: Faut – il retourner à la réception après le tour?

GUIDE: Non, vous

(1mk)

Remplissez chaque blanc d’un seul mot pour completer le dialogue suivant (4mks)

MALICK : Joseph, (1) viens – tu, et où vas tu en survêtement?

JOSEPH : Je viens (2) participer (3)

un

marathon.

MALICK : Mais, (4) marathon?



JOSEPH : C'est organise chaque année (5) « Safaricom »
..... (6) collaboration avec le ministere de la santé.
MALICK : (7) quoi s'agit- il?
JOSEPH : C'est(8) lutter contre la diabète qui devient une grande
menace dans notre société surtout chez les enfants et les jeunes.

Rearrange the following dialogue to make sense. Use the letters A, B, C , D

A : Bien sûr, mais je crois que nous n' y pouvons rien.
B : Non, désolé, je ne suis pas au courant.
C : Certainement pas. Leur carriere est comp lètement conditionnée par les médias
sociaux. Si cela m' arrivait, je protesterais
D : Tiens, tu connais la dernière nouvelle ?
DJ MO a épousé AVRIL
E : C'est incroyable comme on dévoile la vie des gens célèbres.
F : Les personnalités dont dévoile la vie privée doivent refuser ce genre de tapage
médiatique !

- (i) (iv)
(ii) (v)
(iii) (vi)



TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

SCHOOL..... SIGN.....

DATE.....

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

314/1

ISLAMIC RELIGIOUS EDUCATION

PAPER 1

TIME: 2HRS 30MINS

INSTRUCTIONS TO CANDIDATES.

1. *This paper consists of six questions.*
2. *Answer any five questions in the answer booklet provided.*
3. *Candidates should check the question paper to ascertain as indicated and that no questions are missing.*

Question	1	2	3	4	5	6
Marks						



Answer ALL questions.

1. a) State seven significance of marriage in Islam. (7mks)
- b) Outline three qualities of a mumin (3mks)
- c) Explain the effects of corruption in the society. (10mks)
2. a) Give reasons why students in Kenya find it important to study I.R.E. (14mks)
- b) State the teaching of Sura alfatiha on the relationship between man and Allah. (6mks)
3. a) Define the term **NISAB** giving five examples. (7mks)
- b) Identify three officials of the mosque. (3mks)
- c) What are the conditions under which Tawbah is acceptable according to Islam. (10mks)
4. a) Give five qualities of a Muslim witness. (6mks)
- b) How can a Muslim youth help in the campaign against the spread of HIV and AID (8mks)
- c) Why is gambling prohibited in Islam. (6mks)
5. a) State seven measures taken by Prophet Muhammed (SAW) to discourage slavery. (7mks)
- b) Outline six factors that would undermine good relationship between people in a given society. (6mks)
- c) What are the rules regarding the making of a commercial agreement. (7mks)
6. a) Outline the groups exempted from fasting. (6mks)
- b) Explain the need for divine guidance according to Islam. (5mks)
- c) What are the Shia teachings on the concept of leadership? (9mks)



TOPGRADE 2022 PREDICTION

KCSE SERIES 1

NAME..... INDEX NO.....

SCHOOL..... SIGN.....

DATE.....

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

314/2

ISLAMIC RELIGIOUS EDUCATION

PAPER 2

TIME: 2HRS 30MINS

INSTRUCTIONS TO CANDIDATES.

1. *This paper consists of six questions.*
2. *Answer any five questions in the answer booklet provided.*
3. *Candidates should check the question paper to ascertain as indicated and that no questions are missing.*

Question	1	2	3	4	5	6
Marks						



Answer ALL questions.

1. a) State six main themes in the first revelations given to prophet Muhammed. (12mks)
- b) State four kinds of holy wars. (8mks)
2. a) Highlight Muhammed's sermon at Mt. Arafat (16mks)
- b) State why the Meccans were hostile to Mohammed (4mks)
3. a) Explain the importance of Hajj. (10mks)
- b) Explain the role of Zakat (10mks)
4. a) State the role played by Sheikh Abdallah Farsy in the spread of Islam in EastAfrica. 10mks)
- b) Discuss the contribution of Hassan Al-Banna to Islam. (10mks)
5. a) Give the terms of the first Agreement of Aqabah. (8mks)
- b) Explain the factors which contributed to the fall of Ummayyad dynasty. (12mks)
6. a) Give seven reasons why Arabs did not settle in the interior of East Africa before 15th Century. (7mks)
- b) What were the impacts of Arab settlement along the East Africa coast and interior. (7mks)
- c) State six factors that helped in the spread of Islam in Mumias in the 19th Century. (6mks)



**FOR MARKING SCHEMES
CONTACT**

0746 222 000

kcsepredictions@gmail.com

Mr Isaboke-Mwalimu Agency.

**TO ALL
KCSE 2022 CANDIDATES**

SUCCESS

