KCSE 2023 PREDICTION

ALL SUBJECTS

SERIES 3

To arrive at this Compilation, KNEC Examiners gave a lot of thought to the syllabus, Past KCSE questions, the trend, and since this material has to enable both the teacher and the learner get the highest desirable level of performance, Predictability meets threshold.

SUBJECTS PREDICTED;

Mathematics, English, Kiswahili, Biology, Chemistry, Physics, CRE, Geography, Business Studies, Agriculture, IRE, History,French, German, Electricity, Art and Design, Power mechanics, Computer Studies & Home-science

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CONFIDENTIAL

For Marking Schemes
Mr Isaboke 0746-222-000 / 0742-999-000

THE PASSWORD TO SUCCESS!

KCSE 2023 PREDICTION EXAM

SERIES 3

CHRISTIAN RELIGIOUS EDUCATION

313/1

PAPER 1

TIME: 2½ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

(a) *This paper consists of* ***Six*** *Questions.*

(b) *Answer* ***ANY*** ***Five*** *Questions in the sheets provided.*

(c) *Each Question contains 20 Marks*

(d) *Candidates should answer the questions in* ***English.***

FOR EXAMINER'S USE ONLY

QUESTION	1	2	3	4	5	6	TOTAL SCORE
CANDIDATES' SCORE							

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*Answer **ANY Five** Questions*

1. **(a)**Give any **Six** literary forms which have been used in writing of the **Bible** **(6 Marks)**
   (b) State **Seven** reasons why the Bible is referred to as library of **books** **(7 Marks)**
   (c) State reasons why Christians should read the **Bible** **(7 Marks)**

2. **a)** What conditions were the Israelites given during the renewal of the covenant **(7 Marks)**
   b) How did God show He had a great plan for Moses from his birth and childhood. **[6Marks]**
   c) Identify **Seven** lessons that Christians learn about God from the Ten plagues experienced in **Egypt** **(7 Marks)**

3. **(a)** Explain **Six** ways in which the Temple of Jerusalem was central to worship in Israel **(6 Marks)**
   (b) State **Eight** features of the local Canaanite religion**.** **(8 Marks)**
   (c) Identify **Six** factors that have affected the worship of God Today **(6 Marks)**

4. **(a)** Outline **Eight** features of true prophets of **Yahweh** **(8 Marks)**
   (b) Describe the day of the Lord as it was taught by prophet Amos **(Amos 8:7-13) (7 Mks)**
   (c) State the relevance of the prophets to Christians today **(5 Marks)**

5. (**a)** Explain **Four** symbolic acts related to Judgment and punishment as demonstrated by prophet **Jeremiah** **(8 Marks)**
   (b) State **Seven** problems faced by Nehemiah during his mission **(7 Marks)**
   (c) Mention any good leadership qualities demonstrated by Nehemiah **(5 Marks)**

6. **(a**) State **Six** features of a Traditional African Community **(6 Marks)**
   (b) Give reasons why sacrifices are made in Traditional African Communities **(7 Marks).**
   (c) Highlight Seven reasons why Female Circumcision is being discouraged in Kenya today **(7 Marks)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

CHRISTIAN RELIGIOUS EDUCATION

313/2

PAPER 2

TIME: 2½ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

1. *Write your Name, School and Admission Number in the spaces provided above.*
2. *This paper consists of **six** questions.*
3. *Answer **any five** questions in the spaces provided.*
4. *Each question carries **20** marks.*

FOR EXAMINER'S USE ONLY

QUESTION	1	2	3	4	5	6	TOTAL SCORE
CANDIDATES' SCORE							

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*Answer **Any 5** questions only.*

1. a) Describe Nathans prophecy on the coming of the messiah in **2nd Samuel 7:13-17.** **(6 marks)**

b) Outline the Jewish expectations concerning the messiah. **(7 marks)**

c) State **seven** ways Christians prepare for the coming of the Messiah. **(7 marks)**

2. a) Show how John the Baptist is a link between the old and New Testament. **(6 marks)**

b) Outline what Jesus said about John the Baptist in Luke 7:18-35. **(6 marks)**

c) Explain how church leaders should respond to those who oppose them in church today. **(6 marks)**

3. a) Describe the incidence in which Jesus had the last supper with his disciples in **Luke 22:1-38.** **(7 marks)**

b) Give six reasons why Jesus used **bread** and **wine** during the last supper**.** **(6 marks)**

c) Explain the importance of celebrating the Holy Communion in church today. **(7 marks)**

4 (a] State the teachings of Jesus on the role of the Holy Spirit**.** **(6 marks**

(b) Describe how the theme of the unity of believers is expressed in the image of the body of Christ. **(1 cor 12:12 – 27)** **(7 marks)**

(c) State the factors that bind members of the church as one body today. **(6 marks)**

5. (a) Outline the importance of professional code of ethics. **(7 marks**

(b) Explain the relationship between work and leisure in the Christian view. **[7marks]**

(c) In what way can Christians use leisure to glorify God. **[6 marks]**

6. a) State ways in which science and technology has helped to improve human life. **(8 marks)**

b) Outline the reasons why the church in Kenya is opposed to **cloning.** **(6 marks)**

c) State the reasons why Christians should donate blood. **(6 marks)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

HISTORY AND GOVERNMENT

311/1

PAPER 1

TIME: 2½ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- *This paper consists of three sections A,B,C*
- *Answer all questions in section A, choose three questions in section B and two questions in section C*
- *Answers to all questions must be written in the answer booklet provided*
- *Candidates should answer questions in English.*

FOR EXAMINER'S USE ONLY

SECTION A	SECTION B				SECTION C			
1-17	18	19	20	21	22	23	24	

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SECTION A-25 MARKS

Answer all questions from this section

1. Name **two** communities in Kenya who belong to the same linguistic group as the Turkana. **(2mks)**

2. Name the original homeland of the Eastern Cushites**.** **(1mk)**

3. Give **two** reasons why Kenyan communities fought against each other during the Pre-colonial period. **(2mks)**

4. Mention the **two** main trade items from the interior of Kenya during the long-distance trade. **(2mks)**

5. Give **two** reasons why the missionaries promoted legitimate trade in Kenya in the 19^{th}c. **(2mks)**

6. Define the term ‘’National Integration”. **(1mk)**

7. Mention **two** limitations to the right to assembly, demonstration, picketing and petition. **(2mks)**

8. Give **two** contributions of Independent Schools in Kenya during the colonial period. **(2mks)**

9. Give the **main** reason why the Lancaster house conference was held in 1962. **(1mk)**

10. Give **two** roles played by Kenya African Democratic Union in the struggle for Independence. **(2mks)**

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

12. Identify **one** operational base established by the Imperial British East Africa Company in Central Kenya during the colonial period. **(1mk)**

13. Mention **one** group of people entitled to Kenyan citizenship by the Independence constitution of Kenya**.** **(1mk)**

14. Mention **one** way in which the colonial government attracted more settlers to Kenya. **(1mk)**

15. Give **two** sources of Nyayo Philosophy in Kenya. **(2mks)**

16. Identify **one** type of land holding in Kenya. **(1mk)**

17. Name the chief executive in Kenya. **(1mk)**

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SECTION B-45MARKS

Answer any three questions from this section

18. **(a)** Name **five** communities in Kenya that are part of the Eastern Cushites. (**5mks)**

(b) Explain **five** effects of the Somali migration into Kenya. **(10mks)**

19. **(a)** Identify **five** factors that led to the growth of towns along the Kenyan Coast before the 19thc. **(5mks)**

(b)Explain **five** consequences of the construction of the Kenya –Uganda railway. (**10mks)**

20. **(a)** State **three** methods used by the British to establish colonial rule in Kenya. **(3mks)**

(b) Explain **six** results of the Maasai collaboration with the British in the early 20th century. **(12mks)**

21. **(a)**Mention **three** trade unions which merged to form the Kenya federation of labour during the struggle for independence **(3mks)**

(b) Explain **six** roles played by trade unions in improving the lives of the Kenyan people during the colonial period. **(12mks)**

SECTION C-30 MARKS

Answer any two questions from this section

22. **(a)** State **three** qualifications for registration as a voter in Kenya. **(3mks)**

(b) Explain **six** rights of an accused person during trial in a court of law in Kenya. **(12mks)**

23. **(a)Identify five** characteristics of a good constitution. **(5mks)**

(b) Explain **five** reasons why parliament is supreme in Kenya. **(10mks)**

24. **(a**)Identify **three** categories of members in the county assembly. **(3mks)**

(b) Explain **six** challenges facing county government in Kenya. **(12mks)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

HISTORY AND GOVERNMENT

311/2

PAPER 2

TIME: 2½ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- *This paper consists of three sections A,B,C*
- *Answer all questions in section A, choose three questions in section B and two questions in section C*
- *Answers to all questions must be written in the answer booklet provided*
- *Candidates should answer questions in English.*

FOR EXAMINER'S USE ONLY

SECTION A	SECTION B				SECTION C			
1-17	18	19	20	21	22	23	24	

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SECTION A (25MKS)

Answer all questions from this section

1. Identify the historical period when oral traditions was the main source of information. **(1mk)**

2. Name the earliest form of art by early man. **(1mk)**

3. Who is the head of aristocratic government? **(1mk)**

4. Name **one** theory that explain the origin of Agriculture **(1mk)**

5. Identify **two** major forms of early manuscripts **(2mks)**

6. Give **two** features of Roman roads by 300AD **(2mks)**

7. Name the first people in the world to use iron metal **(1mk)**

8. Identify **one** state that forms the nucleus of Asante **(1mk)**

9. Identify **two** types of democracy **(2mks)**

10. Give **two** strategic reasons which made European countries to scramble for colonies in Africa **(2mks)**

11. Outline **two** similar methods used to recruit African labour in British and French colonies **(2mks)**

12. Name **one** community in Africa which collaborated with the Europeans in the 19th century **(1mk)**

13. Give the **main** objective of the Marshall plan after Second World War **(1mk)**

14. Give **two** countries in Africa that were declared mandate territories after the Versailles treaty of **1919** **(2mks)**

15. Give **two** military organizations formed by the capitalist and communist power blocs during the cold war **(2mks)**

16. Identify **two** principles of Arusha declaration of 1967 **(2mks)**

17. Name the current secretary general of United Nations organization **(1mk)**

SECTION B (45MKS)

Answer any three questions from this section

18. a) Give **five** changes which marked the Agrarian revolution in Britain **(5mks)**

b) Explain **five** effects of Agrarian revolution in the United States of America **(10mks)**

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19. a) Name **three** characteristics of Regional trade **(3mks)**

b) Explain **six** ways how West African communities benefited from Trans-Saharan trade **(12mks)**

20. a) Outline **five** social problems faced by factory workers in Europe during the industrial Revolution **(5mks)**

b) Explain **five** factors hindering industrialization in third world countries **(10mks)**

21. a) Give five challenges faced by Nationalists in Mozambique in their struggle for independence. **(5mks)**

b) Explain **five** factors that promoted Nationalism in Ghana **(10mks)**

SECTION C (30MKS)

Answer any two questions from this section

22. a) Give **three** reasons why USA was reluctant to join the first world war during its initial stages **(3mks)**

b) Explain **six** political results of the second world war **(12mks)**

23. a) Identify **three** differences between the former organization of African Unity (OAU) and the present African Union (AU) **(5mks)**

b) Explain **six** challenges facing the Common Market for Eastern and Southern Africa **(COMESA)** **(10mks)**

24. a) State **five** categories of persons who are disqualified from contesting for a constituency seat in Britain **(5mks)**

b) Explain **five** functions of the president of India **(10mks)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

GEOGRAPHY

312/1

PAPER 1

TIME: 2¾ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- *This paper has two sections: **A** and **B**.*
- *Answer **all** the questions in section **A**.*
- *Answer question **6** and any other **two** questions from section **B**.*
- *All answers must be written in separate answer sheets provided.*

FOR EXAMINERS USE

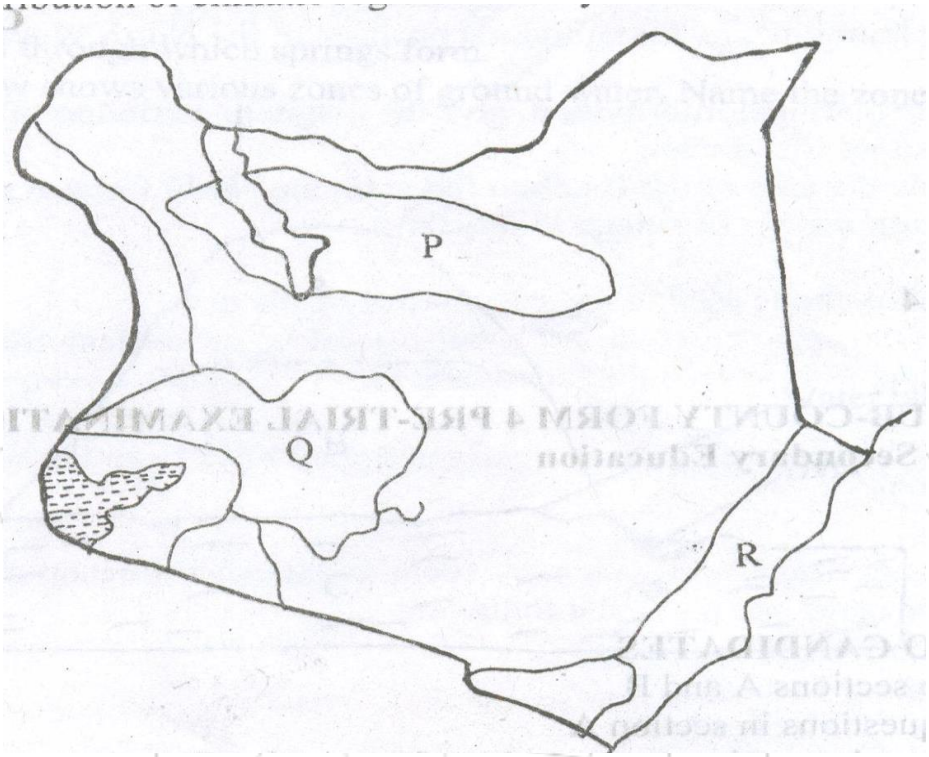
SECTION	QUESTION	CANDITATE SCORE
A	1 - 5	
B	6	
	7	
	8	
	9	
	10	
TOTAL		

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SECTION A

Answer ALL the questions in this section

1. The map below shows distribution of climatic regions in Kenya. Use it to answer the questions that follow.



(a) Name the type of climate found in the areas marked P and Q. **(2mks)**

(b) State **four** characteristics of the type of climate found in the area marked R. **(4mks)**

2. (a) Differentiate between a mineral and a rock. **(2mks)**

(b) Name the **three** ways in which rocks are classified. **(3mks)**

3. Outline **four** factors which influence the rate of weathering. **(4mks)**

4. (a) (i) What is a coast? **(2mks)**

(ii) Name **two** types of submerged coasts. **(2mks)**

(b) Give **two** factors which enhance coastal deposition. **(2mks)**

5. (a) Give **two** processes that lead to formation of lakes. **(2mks)**

(b) State **two** economic uses of lakes. **(2mks)**

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SECTION B

Answer question 6 and any other two questions in this section

6.(a) Study the map of **Kisumu East** 1:50,000 (sheet 116/2) provided and answer the following questions.

i. What type of map is Kisumu East map extract? **(1mark)**

ii. Give two scales that have been used in the map extract. **(2marks)**

iii. What is the bearing of the trigonometrical station at grid square 0383 from the Air Photo Principal Point at grid square 0281? **(2marks)**

(b). i. Measure the length of the All Weather Road Bound Surface B2/1 from the junction at Grid square 9793 to the western edge of the map extract. Give your answer in kilometer**.** **(2marks)**

ii. What is the altitude of the highest point in the area covered by the map? **(2marks)**

(c). Draw a rectangle measuring 16cm by 10cm to represent the area enclosed by Eastings 02 and 10 and Northing 90 and 00. **(1mark)**

On the rectangle, mark and name the following. **(4mrks)**

- Nyando escarpment.
- All Weather Road Bound Surface C543/1
- Prison
- Agricultural Sugar Research Station.

(d). i. Describe the drainage of the area covered by the map. **(5marks)**

ii. Citing evidence from the map, identify three social services offered in Kisumu Municipality. **6marks)**

7. (a) (i) Apart from the Rift valley, name **two** other relief features that were formed as a result of faulting. **(2mks)**

(ii) With the aid of well labeled diagrams, describe how a Rift valley is formed by tensional forces. **(8mks)**

(b) Explain **four** effects of faulting on the physical environment. **(8mks)**

(c) Students are planning to carry out a field study of an area affected by faulting.

(i) State **four** reasons why it is important for the students to have a pre-visit of the area. **(4mks)**

(ii) Name **three** types of faults they are likely to study. **(3mks)**

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8. (a) (i) What is hydrological cycle? **(2mks)**

(ii) Draw a well – labeled diagram of the hydrological cycle. **(5mks)**

(b) (i) What is the difference between a river tributary and a distributary? **(2mks)**

(ii) State **four** factors which influence the ability of a river to deposit materials. **(4mks)**

(iii) Describe **three** ways by which a river transport its load. **(6mks)**

(c) Describe the following drainage systems:

(i) Superimposed drainage. **(4mks)**

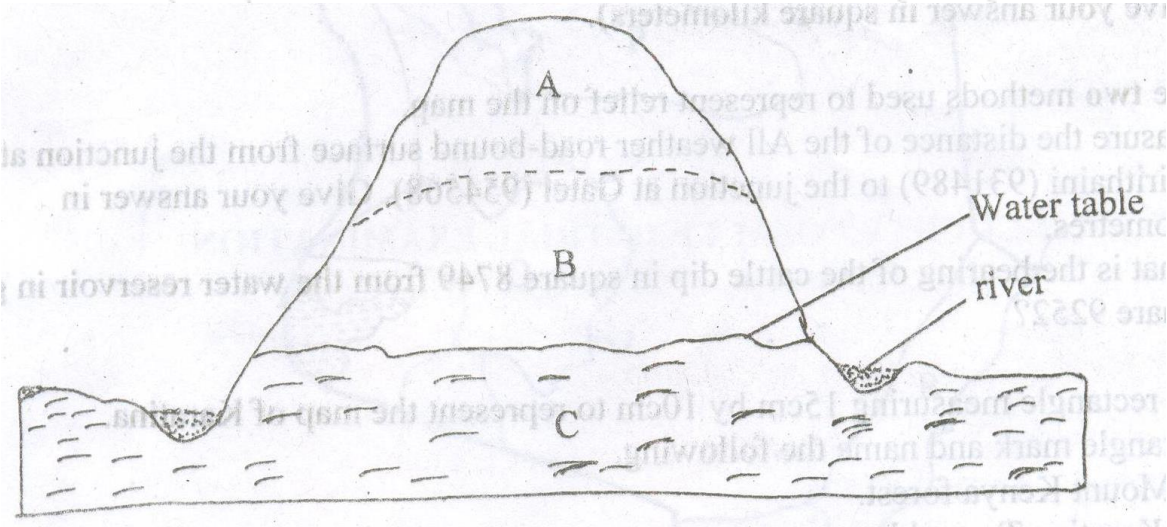
(ii) Antecedent drainage. **(2mks)**

9. (a) (i) What is ground water? **(2mks)**

(ii) List **four** sources of ground water. **(4mks)**

(b) (i) Outline four ways through which springs form. **(4mks)**

(ii) The diagram below shows various zones of ground water. Name the zones marked A, B and C. **(3mks)**



(c) (i) Name **three** features which form on the surface of a Karst scenery. **(3mks)**

(ii) Draw a diagram to show an underground limestone cave. On it, mark and name:

- A Stalactite. **(1mk)**
- A Stalagmite. **(1mk)**
- A Limestone pillar. **(1mk)**
- Underground river. **(1mk)**

(iii) Describe how a stalagmite is formed. **(5mks)**

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10. (a) (i) Define a glacier. **(2mks)**

(ii) Name **three** types of glacier. **(3mks)**

(b) (i) A part from a cirque, name **two** features found on upland glaciated areas. **(2mks)**

(ii) Describe the process through which a cirque is formed. **(5mks)**

(c) Explain **three** ways in which upland glaciated features are significant to human activities. **(6mks)**

(d) You are planning to carry out a field study of an upland glaciated area.

(i) Give **three** reasons why you would require a route map. **(3mks)**

(ii) Identify **four** challenges you are likely to encounter during the field study.**(4mks)**

KCSE 23

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KCSE 2023 PREDICTION EXAM

SERIES 3

GEOGRAPHY

312/2

PAPER 2

TIME: 2¾ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- *This paper has two sections: **A** and **B**.*
- *Answer **all** the questions in section **A**.*
- *Answer question **6** and any other **two** questions from section **B**.*
- *All answers must be written in separate answer sheets provided.*

FOR EXAMINERS USE

SECTION	QUESTION	CANDITATE SCORE
A	1 - 5	
B	6	
	7	
	8	
	9	
	10	
TOTAL		

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SECTION A

Answer all the questions in this section

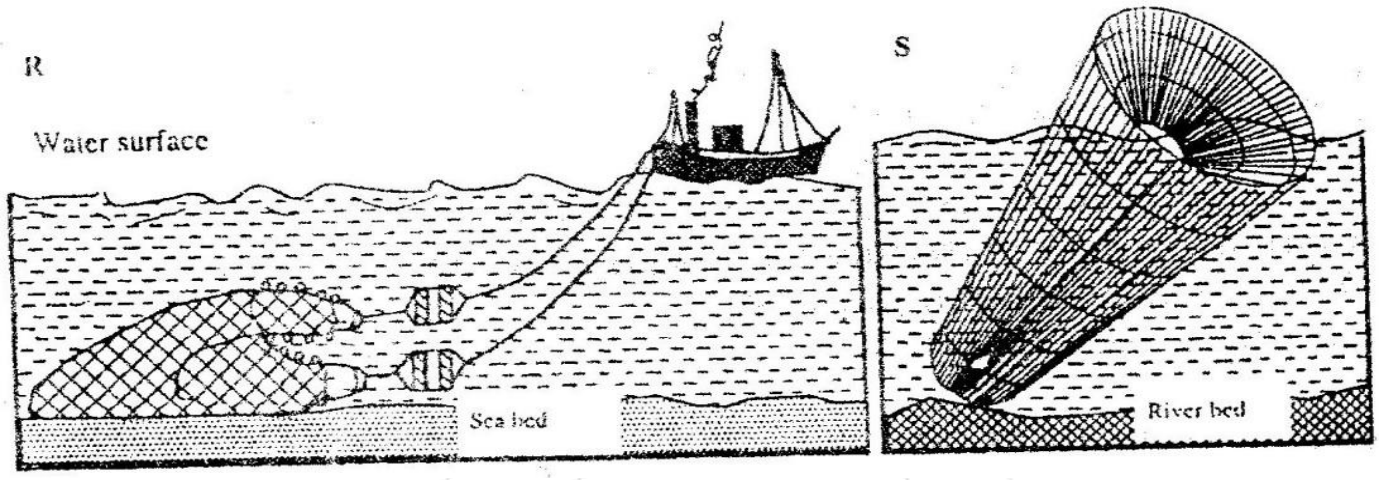
1. (a) Give **three** reason why primary industries are located close to raw materials. **(3mks)**

(b) State **three** characteristics of cottage industries in India**.** **(3mks**)

2. a)Name any **two** types of irrigation used in Mwea irrigation scheme. **(2mks)**

b) Name any **three** factors which influence the location of Mwea irrigation scheme**. (3mks**)

3. The diagrams below represent some fishing methods



(a) Identify the fishing methods marked **R** and **S** **(2mks**

(b) State **three** disadvantages of using method marked S. **(3mks**

4 (a) Apart from windstorms, name **two** other environmental hazards associated with climatic conditions **(2 mks**)

(b) State **three** problems caused by windstorms in Kenya **(3mks**

5 State **four** human factors that favour dairy farming in Denmark. **(4mks**

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SECTION B

Answer question 6 and any other two questions from this section

6.The table below shows the number of passengers that used railway transport in the selected countries in 1997 and 2007. Use it to answer question (a) and (b)

COUNTRY	PASSENGERS IN MILLIONS	
	1997	2007
Canada	4,200	3,000
U.S.A	27,700	16,600
Argentina	14,100	12,000
India	96,800	163,800
Japan	258,400	311,900

a) (i) Using a scale of 1cm to represent 20,000 million passengers , draw **comparative bar** graphs based on the data above **(8mks)**

ii) State **three** advantages of using bar graphs in presenting data **(3mks)**

b) Calculate the **percentage decline** in railway passenger transport in Canada between 1966 and 1977. **(2mks)**

c) Explain **three** reasons why there are few railway links among African countries **(6mks)**

d) Explain **three** ways through which Kenya has benefited from her international airports. **(6mks)**

7 a) (i) Classify mining into **three** broad categories. **(3mks)**

(ii) Name **two** sea ports through which some mineral mined in East Africa are exported. **(2mks**

(b) State any **four** factors that influence the exploitation of minerals (**4mks)**

(c) Explain **four** ways in which oil mining contributes to the growth of economy of Kenya. **(8 mks)**

(d) (i) Explain **three** ways in which mining derelicts can be reclaimed. **(6mks)**

(ii) Give **two** uses of diatomite. **(2mks)**

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8. (a) Identify **three** sources of renewable energy. **(3mks)**

(b) (i) Name **three** main hydro-electric power stations along river Tana**.** **(3mks)**

(ii) Apart from providing electric power, state **four** other benefits of the dams along river Tana. **(4mks)**

(iii) Identify **two** problems that affect the production of power along River Tana. **(2mks**

(c) Explain **four** measures the government of Kenya has taken to conserve energy. **(8mks)**

(d) Some students carried a field study on sources of energy by sampling the households around their school.

(i) Identify **two** sampling techniques the students used during the study. **(2mks)**

ii) Give **three** advantages of using sampling in the study of the households. **(3mks)**

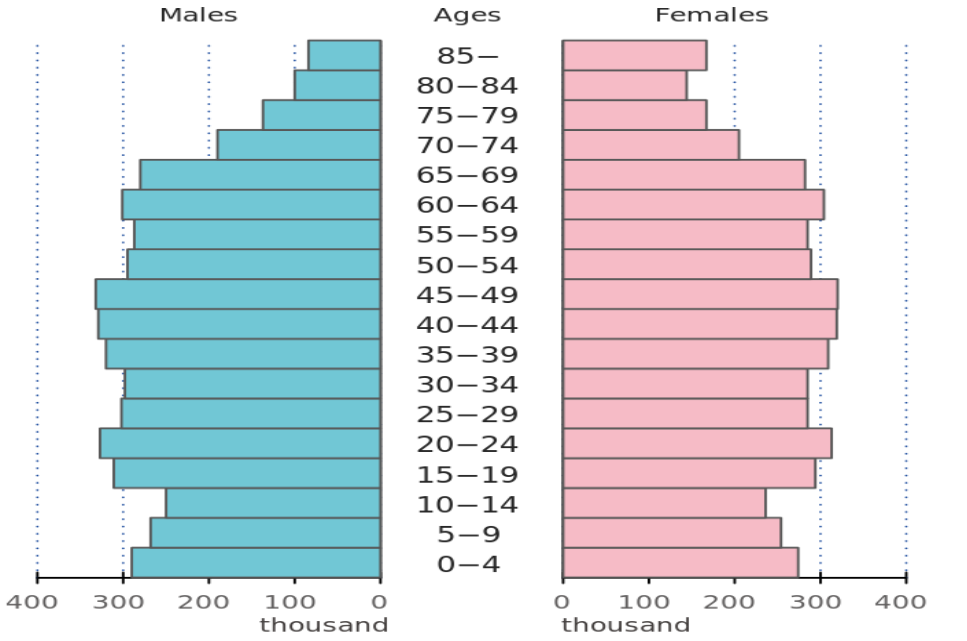
9(a)(i) What is life **expectancy?** **(2mks**

(ii) Apart from population census, give ***two*** other primary sources of population data. **(2 mks**)

(iii) State ***three*** significance of population census to a country. **(3mks)**

(b) Explain ***four*** factors that have led to a high population density in the Kenya Highlands. **(8 mks)**

(c) The pyramid below represents the population structure of Sweden.



Population pyramids of Sweden 2011 (OECD stat)

Describe **four** characteristics of population represented by the pyramid. **(4 mks)**

(d) Explain ***three*** cause of urban-rural migration. **(6 mks)**

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10. (a) (i) Give **two** species of coffee grown in Kenya **(2mks)**

(ii) State **four** physical factors that favour coffee growing in Kenya **(4mks)**

(b). Describe coffee growing in Kenya from planting to harvesting **(7mks)**

(c) State four ways through which Kenyan government assist small scale coffee farmers **(4mks)**

(d) Explain **four** ways through which the Brazilian government responds to the problems facing coffee industry in Brazil **(8mks)**

KCSE 23

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KCSE 2023 PREDICTION EXAM

SERIES 3

PHYSICS

232/1

PAPER 1 (THEORY)

TIME: 2 HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

a) *Write your name, admission number and index number in the space provided*
b) *Write the date of the examination in the space provided above*
c) *This paper consists of two sections A and B.*
d) *Answer all the questions in the spaces provided below each question*
e) *All workings must be clearly shown.*
f) *Mathematical tables and silent electronic calculators may be used.*

FOR EXAMINER'S USE ONLY

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

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SECTION A (25 MARKS)

Answer all the questions in this section in the spaces provided

1. The figure 1 below shows a section of a micrometer screw gauge when used to measure the diameter of a cylindrical rod of mass 2.5g.

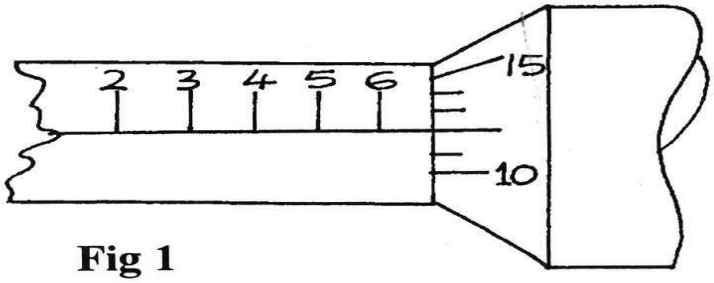


Fig 1

a) What is the diameter of the rod? **(1mark)**

……

b) If the length of the rod is 14cm, determine its density. **(3marks)**

……

……

……

……

……

2. The density of a solid decreases after heating. Explain. **(2marks)**

……

……

……

3. When a drop of oil is placed on the surface of water it spreads out forming a circular patch. Explain this observation. **(2marks)**

……

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4. A uniform meter rule is balanced as shown in the figure 2 below.

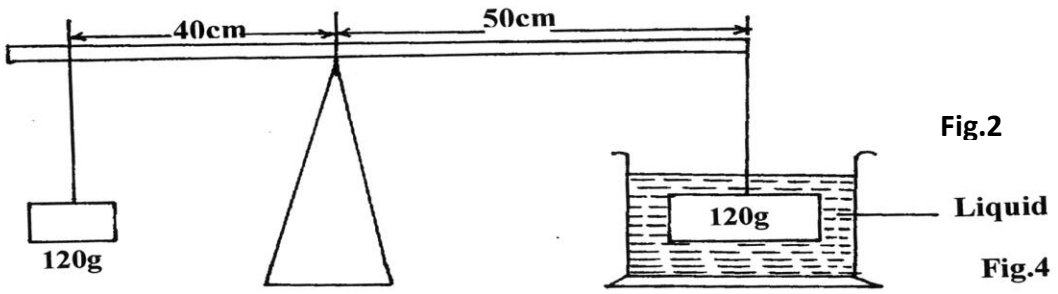


Fig.2

Fig.4

The volume of the immersed object is 13. 5cm^3. Determine the relative density of the liquid.

(3marks)

5. Give a reason why a person may nose bleed after ascending a high mountain. **(1mark)**

……

……

……

6. A turntable of radius 10cm is rotating at 42 revolutions per second. Determine the linear speed of a point on the circumference of the turntable. **(3marks)**

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7. Figure 3 below shows a glass filled with hot liquid placed on a table immediately after wiping with water. State and explain what is observed when one tries to lift the glass after a few minutes. **(2marks)**

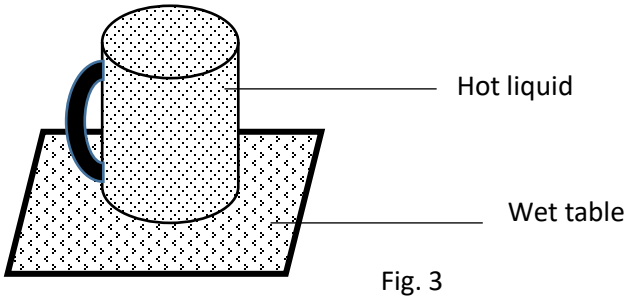


Fig. 3

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8. In using the lift pump to raise water from a bore hole. It is observed that practically the height the water is raised cannot be 10m and more. Give two reasons for this observation.**(2marks)**

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9. When a mass of 2kg is hang from a single spring, the spring extends by a distance 10cm. Determine the total extension in the set up in Figure 4 below given that the springs are identical **(2marks)**

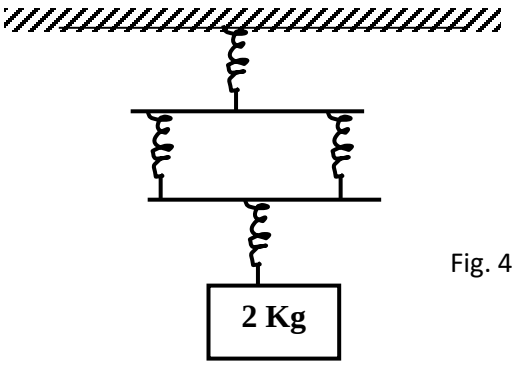


Fig. 4

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10. Define the term viscosity. **(1mark)**

……

……

11. State one reason why the efficiency of a machine is always less than 100% **(1mark)**

……

……

12. State two factors that determine the critical speed for a car moving along a curved road. **(2marks)**

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SECTION B (55 MARKS)

Answer all the questions in this section in the spaces provided

13. (a) State the law of Floatation. **(1mark)**

……

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(b) A submarine made of iron was observed to float in water while a piece of iron rod sinks in water. Explain this observation **(2marks)**

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(c) A solid displaces 5.0cm^3 of liquid when floating and 20cm^3 when fully immersed in it. Given that the density of the solid is 1.2g/cm^3. Calculate

i) The weight of the solid **(2marks)**

ii) Upthrust on the solid when floating **(1mark)**

iii) The density of the liquid **(3marks)**

iv) The upthrust when the body is fully submerged **(3marks)**

(d) Define the term relative density as used in liquids **(1mark)**

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14. (a) Define specific latent heat of fusion of a substance **(1mark)**

……

……

(b) Water of mass 400g at a temperature of 60^{o}C is put in a well lagged copper calorimeter of mass 160g. A piece of ice at 0^{o}C and mass 40g is placed in the calorimeter and the mixture stirred gently until all the ice melts. The final temperature, T, of the mixture is then measured. (*Specific latent heat of fusion of ice = 334000J/kg, specific heat capacity of water = 4200J/kgK specific heat capacity of copper = 400J/kgK*)

Determine:

(i) The heat absorbed by the ice during melting. **(2marks)**

(ii) Total heat gained by the melted ice (*Give your answer in terms of T*) **(2marks)**

(iii) Total Heat lost by the water and Calorimeter **(3marks)**

(iv) The final temperature T of the mixture. **(2marks)**

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c) Figure 5 below shows a block of ice with two heavy weights hanging such that the copper wire connecting them passes over the block of ice block resting on wooden support.

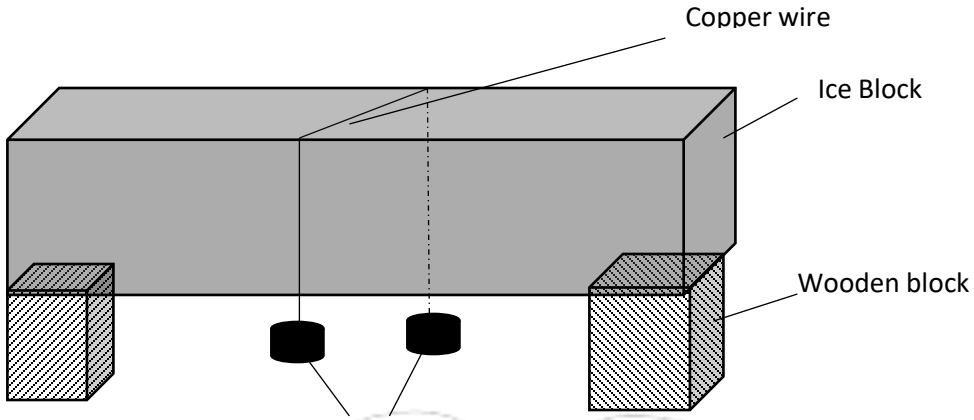


Fig. 5

It is observed that the wire gradually cuts its way through the ice block, but the ice is left as one piece. State the factor behind the observation. **(1mark)**

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15. (a) (i)Define the Impulsive force in terms of momentum. **(1mark)**

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……

(ii) A striker kicks a ball of mass 250g initially at rest with a force of 75N. If the foot was in contact with the ball for 0.10sec. Calculate the take-off velocity of the ball. **(3marks)**

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(**b)** A bullet of mass 20g moving at 400 m/s strikes a block of wood of mass 3.5kg initially at rest. The bullet sticks into the block and the two move off together on a horizontal surface, where a frictional force of 4N is acting between the block and surface.

(i) Determine the initial common velocity of bullet and wooden block. **(3marks)**

(ii) What distance does the block move before coming to rest? **(3marks)**

(c) Explain why a paratrooper flexes his legs as he lands. **(2marks)**

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16. The figure 6 **below** shows an inclined plane, a trolley of mass 30kg is pulled up a slope by a force of 100N, parallel to the slope. The trolley moves so that the centre of mass C travels from points A to B.

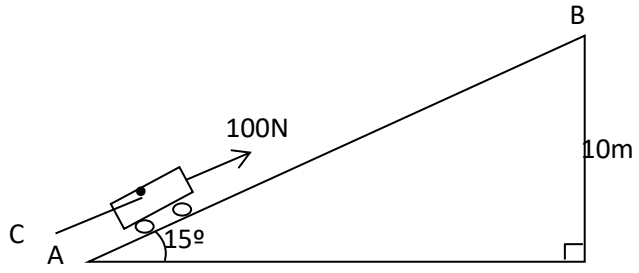


Fig. 6

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(i) What is the work done on the trolley against the gravitational force in moving from **A** to **B**.?

(2marks)

(ii) Determine the work done by the force in moving the trolley from **A** to **B**. **(2marks)**

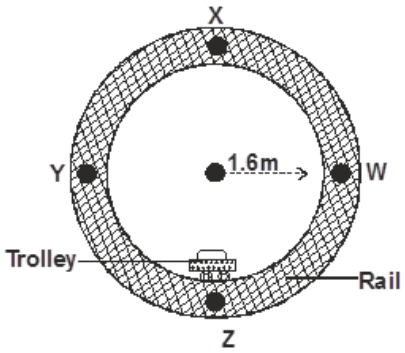
(iii) Determine the efficiency of the system. **(3marks)**

(iv) Determine the work done in overcoming the frictional force. **(1mark)**

(v) Determine the mechanical advantage of the system. **(2marks)**

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17. Figure 7 below shows a trolley moving on a circular rail with a vertical plane, given that the mass of the trolley is 250g and the radius of the rail is 1.6m.



i) Determine the minimum velocity at which trolley passes point X. **(3marks)**

ii) Find the angular velocity at point Z **(2marks)**

iii) The force exerted on the rail at this point Z. **(3marks)**

iv) State one application of circular motion in daily life**.** **(1mark)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

PHYSICS

232/2

PAPER 2 (THEORY)

TIME: 2 HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- *Write your name, class and admission number in the spaces provided above*
- *Attempt **ALL** questions in sections A and B.*
- *All your answers must be written in the spaces provided in this question paper.*
- *All working must be clearly shown*
- *Non programmable silent electronic calculators and KNEC mathematics table may be used except where stated otherwise*

FOR EXAMINERS USE ONLY

SECTION	QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
A	1 – 13	25	
B	14	10	
	15	12	
	16	12	
	17	07	
	18	08	
	19	06	
	TOTAL MARKS	80	

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SECTION A (25 MARKS)

Answer ALL questions in this sections in the spaces provided.

1. The figure 1 below shows a positively charged metal plate with an earthing connection. Using an arrow to show the direction of charges through the earth connection and explain the final charge of the plate. **(2marks)**

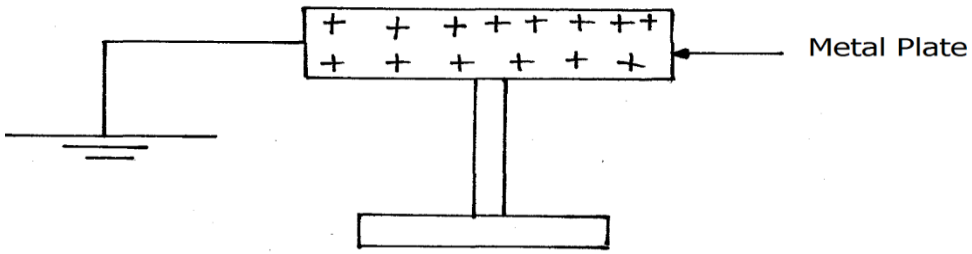


Fig. 1

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2. Figure 2 below shows a metre rule in equilibrium balanced by the magnet. The iron core is fixed to the bench

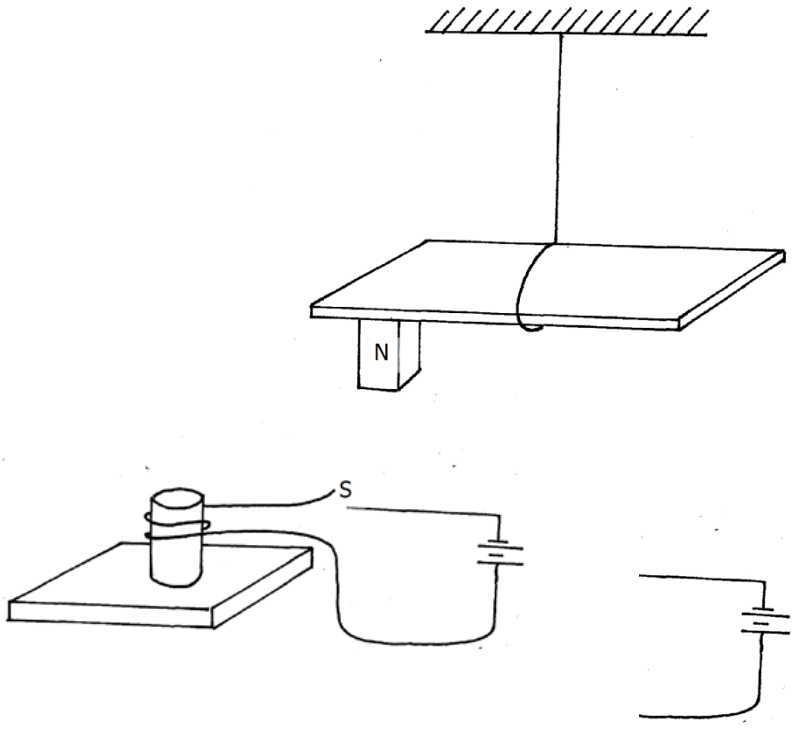


Fig. 2

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State and explain the effect on the metre rule when the switch S is closed. **(2marks)**

……

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3. State **two** factors affecting the type of shadow formed by an object placed infront of a source of light. **(2marks)**

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4. Distinguish between intrinsic and extrinsic semi – conductors. **(1mark)**

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5. Figure 3 shows a galvanometer connected to a coil with a south pole of a permanent magnet approaching the coil.

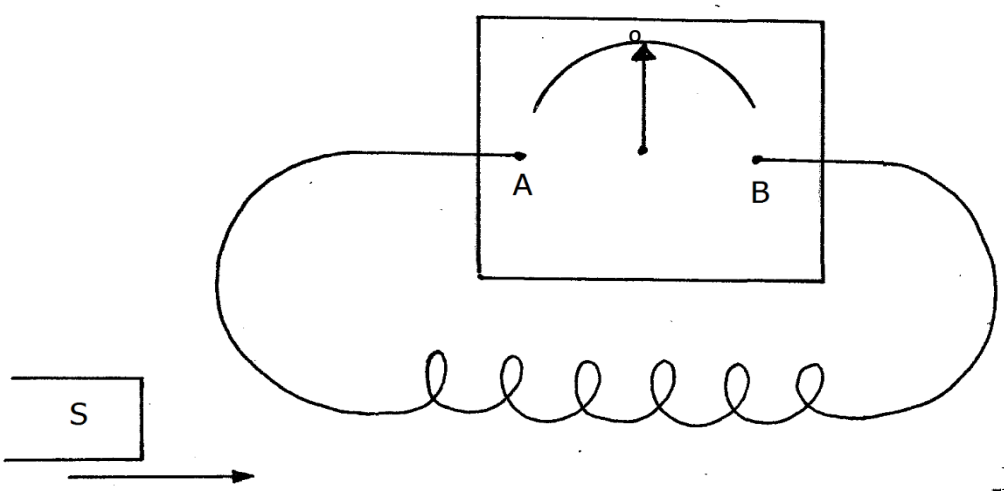


Fig. 3

Indicate the direction of the pointer on the galvanometer when the bar magnet is moved as shown. **(1mark)**

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6. What are the characteristics of the image formed when;

a)An object is placed beyond the centre of curvature of a concave mirror? **(1mark)**

……

……

b) An object is placed between the principal focus and the pole of a concave mirror? **(1mark)**

……

……

7.a)A coin is placed beneath a transparent block of thickness 10cm and refractive index 1.50. Calculate the vertical displacement of the coin. **(3marks)**

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b) Kenya launched the use of optical fibres in communication recently. State why optical fibres are preferred to ordinary cables. **(1mark)**

……

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8.A radiation of frequency 8.5 x 10^{14} Hz is incident on a metal emitting photoelectrons. Determine the threshold wavelength if electrons accelerate to the anode at a velocity of 7.2 x 10^{5} m/s **(3marks)**

(Planck's constant = 6.63 x 10^{-34} Js, m_e= 9.11 x 10^{-31} Kg)

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9. Figure 4 shows an electromagnet in an electric circuit.

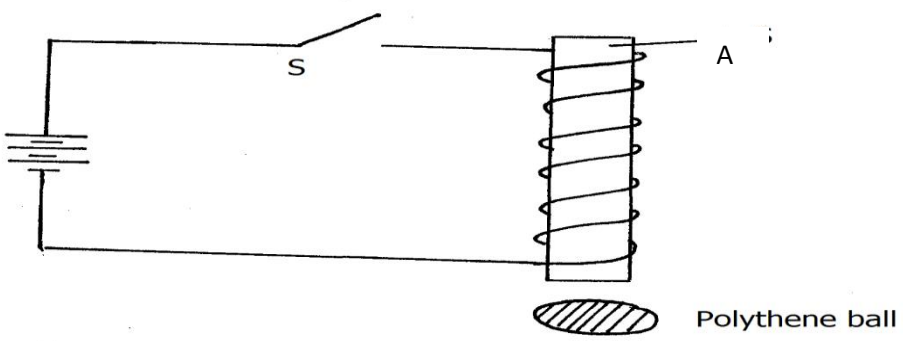


Fig 4

a) State what happens to the polythene ball when the switch S is closed. **(1mark)**

……

b) Why soft iron is preferred for material A than steel? **(1mark)**

……

……

10. Explain why the cathode of a CRO is coated with oxides of metals such as barium and strontium. **(1mark)**

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11. Distinguish between hard and soft X – rays. **(2marks)**

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12. Figures 5 shows a simple water heater.

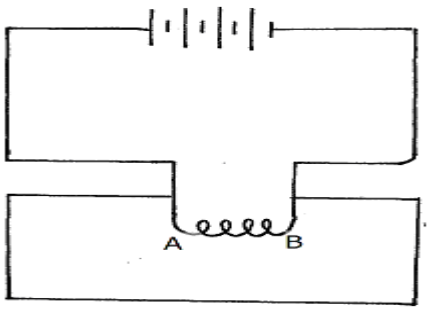


Fig 5

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Give a reason why AB is coiled. **(1mark)**

……

……

13. Arrange the following radiations in order increasing wavelength:

Ultra violet, microwaves, blue light, yellow light. **(2mk)**

……

……

SECTION B (55 MARKS)

Answer ALL the questions in the spaces provided.

14. a) Some students wish to determine the focal length of a convex lens of thickness 0.6cm using an optical pin and a plane mirror. Figure 6 shows the experimental set up when there is no parallax between the pin and the image.

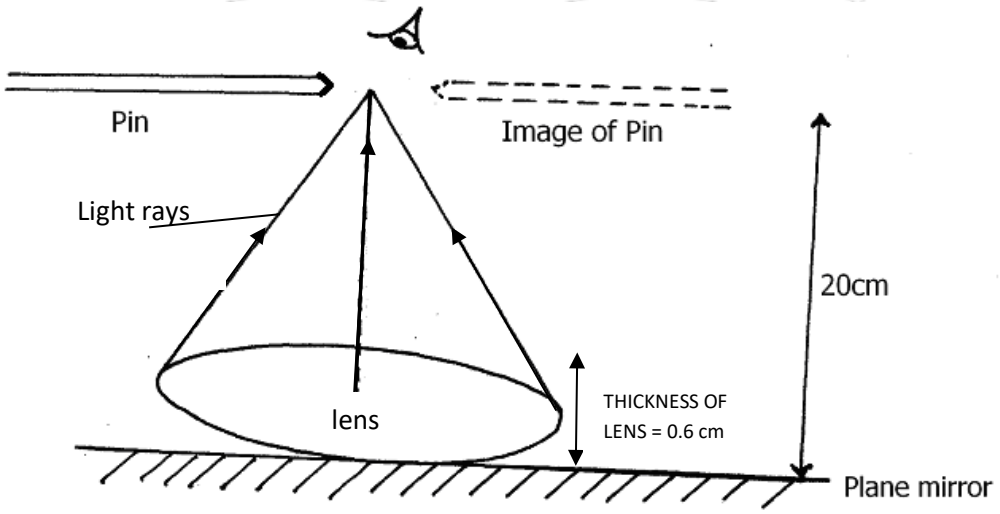


Fig 6

(i) Determine the focal length of the lens. **(1mark)**

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(ii) Explain how you arrive at your answer. **(2marks)**

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b) An optician in Eldoret Hospital examined an eye of a patient and made the following observations:

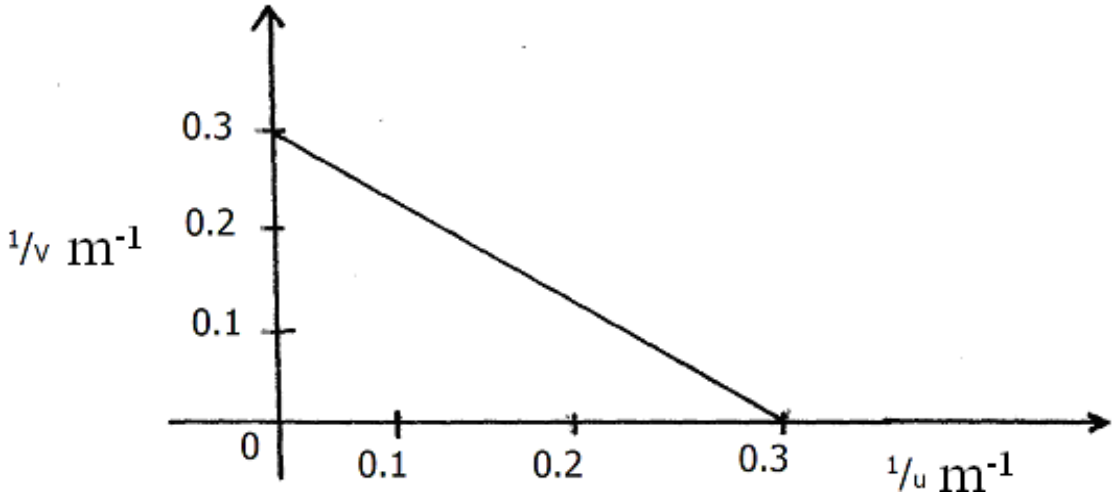
Eye ball too small and the focal length of the eye lens too short.

(i) State the eye defect the patient could be having. **(1mark)**

……

(ii) Use a diagram to describe how the defect could be corrected. **(2marks)**

c) The graph below shows the variation of 1/v and 1/u in an experiment to determine the focal length of a lens.



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(i) Use the graph to determine the focal length. **(3marks)**

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(ii) What is the power of the lens used? **(1mark)**

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15. a) Define electric resistance. **(1mark)**

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b) Figure 7. shows three resistors connected as shown.

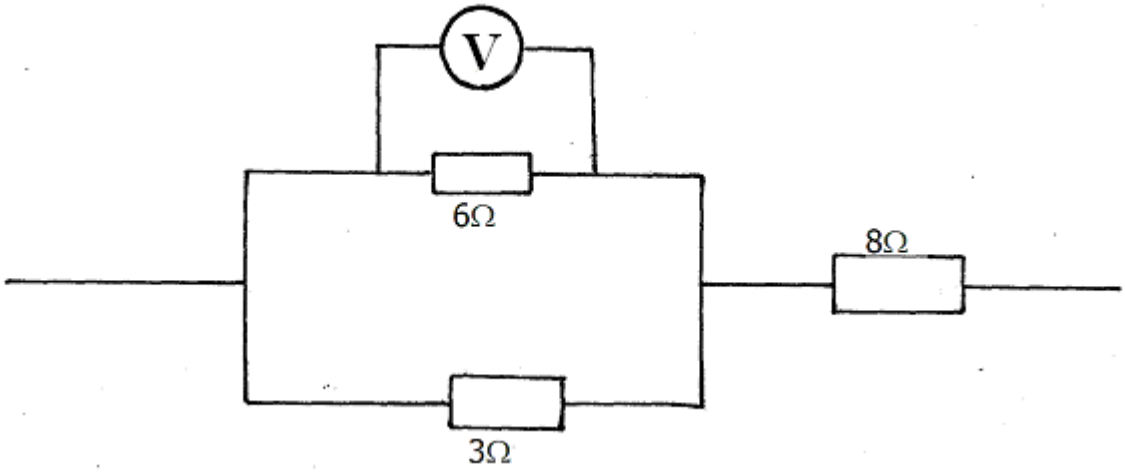


Fig 7

If the voltmeter reads 4V, find the

(i) Effective resistance. **(2marks)**

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(ii) Current through the 3Ω resistor. **(2marks)**

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……

(iii) Potential difference across the 8Ω resistor. **(2marks)**

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……

c)i) What is meant by the term "lost volts"? **(1mark)**

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ii)A cell supplies a current of 0.5A when connected to a 2Ω resistor and 0.25A when connected to a 5Ω resistor.

Find the e.m.f and the internal resistance of the cell. **(4marks)**

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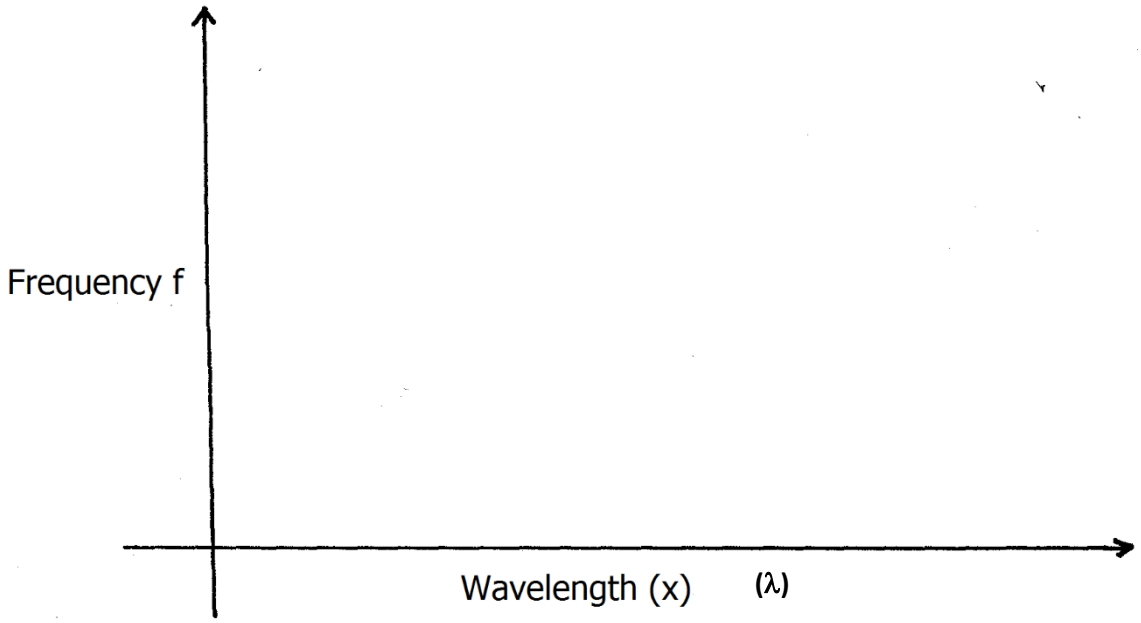
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16. a) On the axes provided below, sketch a graph showing the variation of frequency with wavelength at constant velocity. **(1mark)**



b) Tv waves of frequency 6MHz travels with a speed of 3.0×10^8 m/s.

What is the wavelength ?. **(2marks)**

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c) Figure 8. shows circular waves approaching a concave reflector.

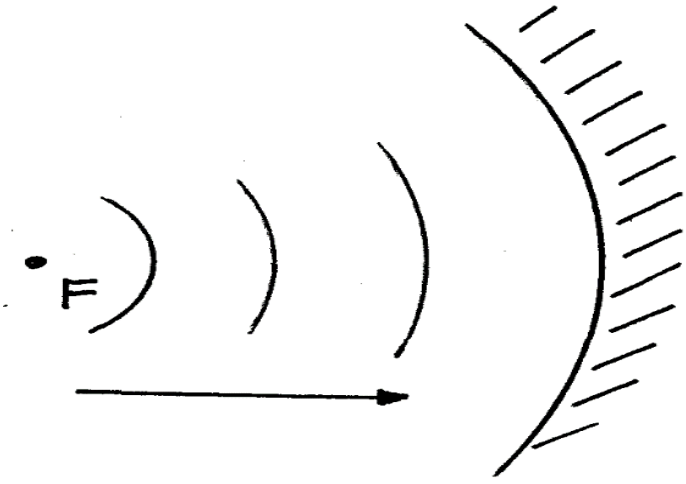


Fig. 8

Show the reflected waves and the missing part of incident wave **(2marks)**

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d) State **two** conditions necessary for two progressive waves traveling in opposite directions to form stationary waves. **(2marks)**

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e) Figure 9 shows the set up used to demonstrate interference of sound.

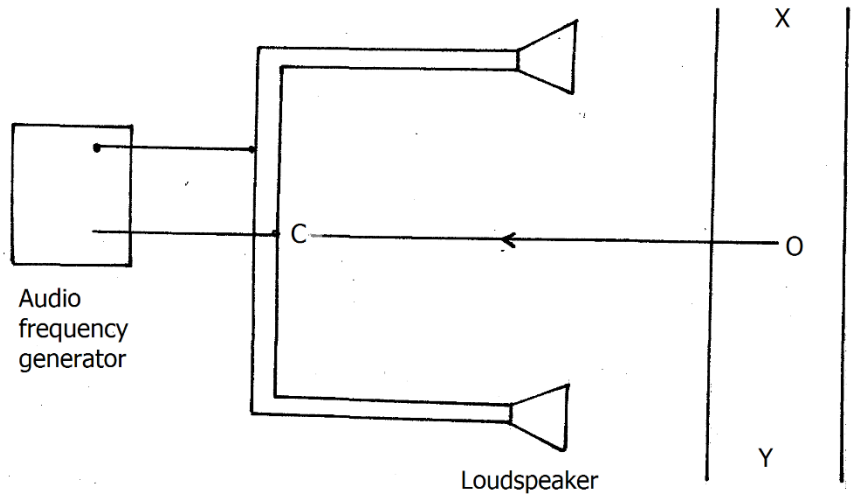


Fig 9

(i) An observer O, moves along XY.

State the observation(s) made. **(1mark)**

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……

……

(ii) State what would be observed if a cathode ray oscilloscope is moved along line **XY(2marks)**

……

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……

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(iii) What will a student hear if he moves along the line OC? **(1mark)**

……

……

……

(iv) Why are the loudspeakers connected to the same audio – frequency generator? **(1mark)**

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17. a) State **one** factor that affects the capacitance of a capacitor. **mark)**

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b) Figure 10. shows a circuit diagram with three capacitors.

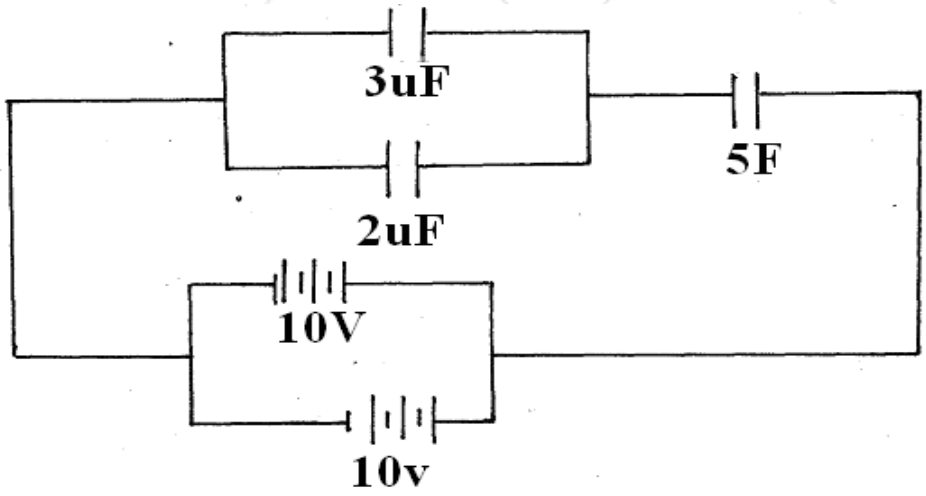


fig 10

(i) Determine the effective capacitance of the arrangement. **(2marks)**

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(ii) Find the energy stored in the combinations of capacitors. **(3marks)**

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c) Explain why it is not advisable to shelter under a tree when it is raining. **(1mark)**

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18 a) State **two** dangers of high voltage transmission. **(2marks)**

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b) A generator produces 150KW at a voltage of 5 kV. The voltage is stepped up to 60kV and transmitted through cables of resistance 150Ω to a step – down transformer in a substation. If both transformers are 80% efficient,

Calculate the:-

(i) Current through the transmission cables. **(3marks)**

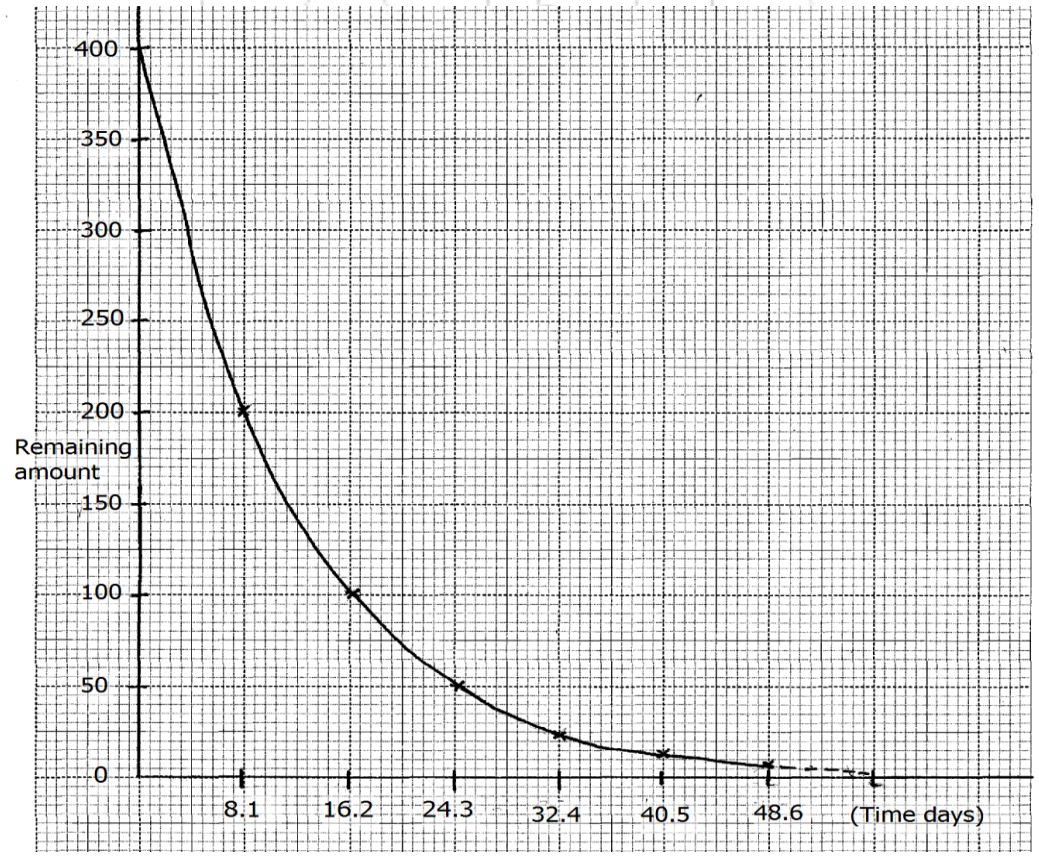
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(ii) Power lost during transmission. **(3marks)**

19. a) The half – life of cobalt – 60 is 5years.

How long will a sample take for the activity to decrease to $^{1}/_{16}$ of its original value. **(3marks)**

b) The graph below shows radioactive decay of iodine.



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Use the graph to determine the:-

(i) fraction of the amount remaining after 16.2 days. **(1marks)**

(ii) determine the half – life of iodine. **(1marks)**

(iii) mass remaining after 17 days. **(1mark)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

PHYSICS

232/3

PAPER 3 (PRACTICAL)

TIME: 2½ HOURS

SCHOOL…… SIGN……

Kenya Certificate of Secondary Education.

CONFIDENTIAL

Each candidate should be provided with the following

QUESTION 1

- *Resistance wire fitted on a scale labeled MN (SW 28)*
- *Switch*
- *Voltmeter (0-3v) or(0-5v)*
- *Ammeter (0-2.5A)OR (0-3 A)*
- *Two dry cells*
- *Six connecting wires at least 4 with crocodile clips*

QUESTION 2

- *A concave mirror Focal length 15 cm*
- *Mirror holder.*
- *A screen*
- *A meter rule*
- *A candle*
- *A match box (to be shared)*
- *a boiling tube*
- *a measuring cylinder (50ml)*
- *a half metre rule*
- *water in a beaker about 100ml*
- *a stand complete with boss and clamp*
- *vernier callipers (may be shared)*

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KCSE 2023 PREDICTION EXAM

SERIES 3

PHYSICS

232/3

PAPER 3 (PRACTICAL)

TIME: 2½ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES:-

- *Write your **name**, **index number** and **school** in the spaces provided above.*
- *Answer **all** the questions in the spaces provided in the question paper*
- *You are supposed to spend the first **15 minutes** of 2 ½ hours reading the whole paper carefully before commencing your work.*
- *Marks are given for a clear record of the observations actually made, their suitability, accuracy and the use of them*
- *Record your observations as soon as you make them.*
- *Mathematical tables, slide rules and silent non-programmable electronic calculators may be used.*

  Take g = $10ms^{-2}$

FOR EXAMINERS' USE ONLY:

QUESTION	MAXIMUM SCORE	CANDIDATE SCORE
1	20	
2	20	
TOTAL SCORE	**40**	

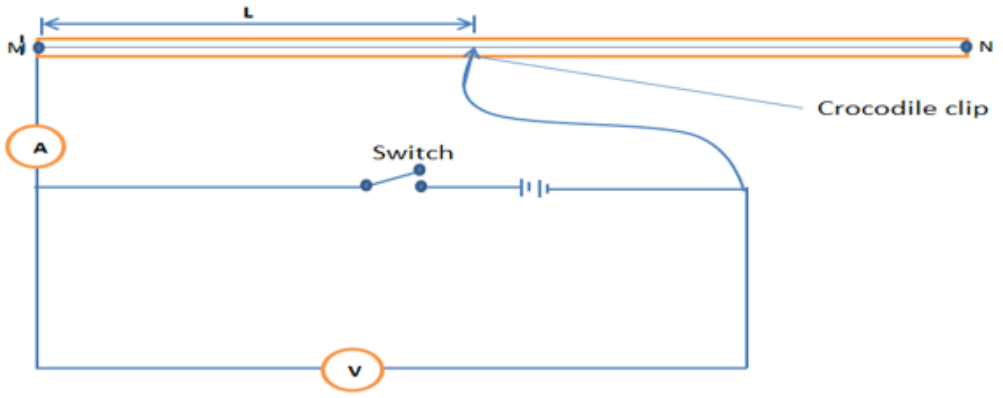
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QUESTION 1

a) You are provided with the following apparatus:

- Resistance wire fitted on a millimeter scale labeled MN
- Switch
- Voltmeter (0-3v) or(0-5v)
- Ammeter (0-2.5) or(0-3)
- Two dry cells
- Six connecting wires

i) Set up the apparatus as shown in the fig 1 below.



ii) Remove the crocodile clip from the resistance wire MN and close the switch. Record the voltmeter reading.

V_0=……V (1mk)

iii) Attach the crocodile clip to the resistance wire such that L=0.

Read and record the ammeter reading at L=0

I_0=……..A (1mk)

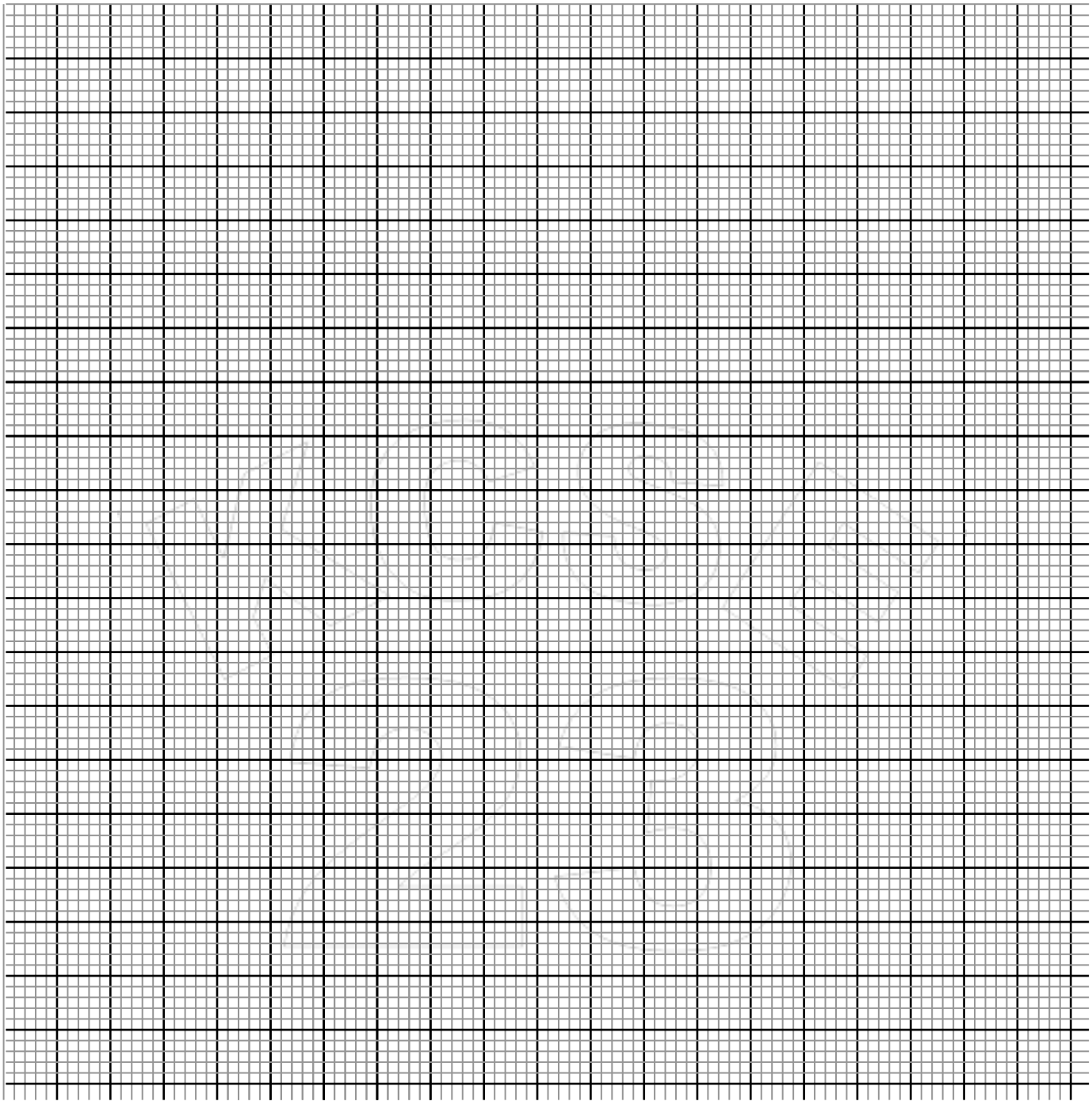
iv) Repeat the procedure in (iii) and for L=10cm, 20 cm, 30 cm, 40 cm, 50cm, 60 cm, 70cm and 80 cm and record the voltmeter and ammeter reading in the table below.

v) Complete the table below. **(7marks)**

Length L(cm)	10	20	30	40	50	60	70	80
Current I(A)								
p.d V(V)								
V_0-V								
$\frac{V}{V0-V}$								
$\frac{V}{I}$ = R (Ω)								

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vi) a) Plot the graph of $\frac{V}{V0-V}$, vertical axis against R **(5marks)**



b) Determine the slope of the graph **(3marks)**

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c) Given that $\frac{V}{V0-V} = \frac{MR}{5} + d$

Where M and d are constants, Determine the values of M and d from the graph. **(3marks)**

QUESTION 2

PART A

You are provided with the following.

- A concave mirror
- A mirror holder.
- A screen
- A meter rule
- A candle
- A match box (to be shared)

Proceed as follows:

a. i)Using the concave mirror provided focus a sharp image of a distant object (a laboratory window) on the screen. Measure the distance (X) between the mirror and the screen at which a sharp image is obtained repeat this three times, and record your readings in the table below 3marks

TRIAL	Distance(X) (cm)
1	
2	
3	

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ii) Calculate the average value of X. **(2 marks)**

iii) What is the physical significance of the result obtained in (ii) above? **(1 mark)**

b) Set up the apparatus as in figure 2 below.

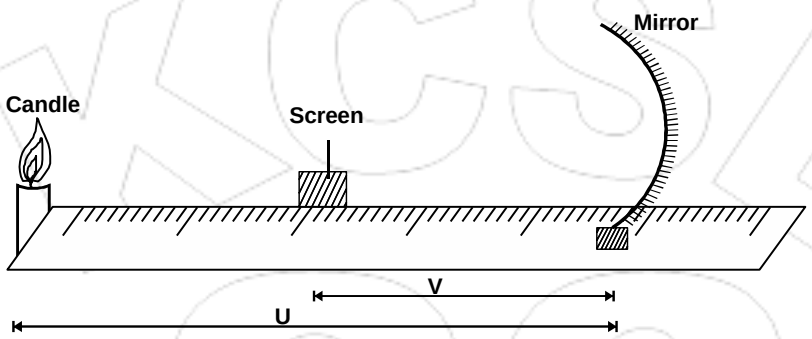


Fig 2

c) Put the object at a distance u = 30cm and from the concave mirror. Adjust the position of the screen until a sharp image is formed on the screen. Record the distance V

d) Repeat procedure (c) above for the distance u = 40cm and record the new distance V, in the table below

e) complete the table below**.** **3marks**

U(cm)	V (cm)	m =V/U	(m + 1)
30			
40			

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f) Given that $f = \frac{v}{(m+1)}$, calculate the values of f in each case; **(3 marks)**

`

2 PART B

You are provided with the following :

- a boiling tube
- a measuring cylinder
- a half metre rule
- water in a container
- a stand complete with boss and clamp
- vernier callipers (may be shared)

Proceed as follows:

a) i) Using the vernier callipers measure the internal diameter,(d),of the boiling tube provided

d =..... cm (1/2 mark)

ii) Using the half meter rule measure the height of the boiling tube provided

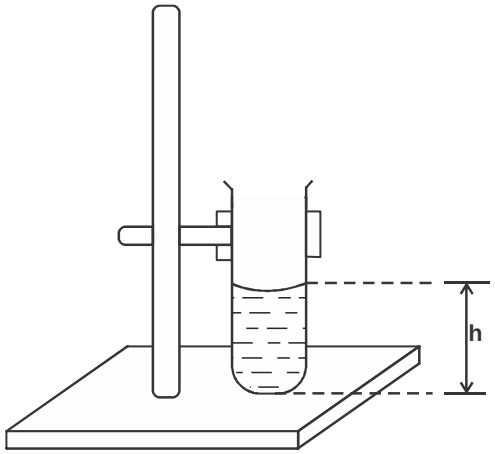
h=……cm (1/2 mark)

iii) Calculate the volume of boiling tube

(2marks)

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b) i) Clamp the boiling tube vertically as shown in the figure 1 below.



ii. Using the measuring cylinder pour 25cm^3 of water into the boiling tube. Measure and record in the table below the height h, of water in the boiling tube.

iii) Repeat the procedure in b (ii) for other volumes of water, V, shown in the table. **3marks**

Volume, **V**, of water (cm^3)	Height, **h**, of water (cm)	S =**V/h**
25		
35		
45		

iv) Calculate the average value of **S** and state what it represents **2marks**

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KCSE 2023 PREDICTION EXAM

SERIES 3

CHEMISTRY

233/1

PAPER 1 (THEORY)

TIME: 2 HOURS

NAME……

SCHOOL…… **SIGN**……

INDEX NO…… **ADM NO**……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- *Write your name, admission number, class, date and then sign in the spaces provided.*
- *Answer **all** questions in the spaces provided.*
- *KNEC mathematical tables and silent electronic calculators **may** be used for calculations.*
- *All workings **must** be clearly shown where necessary.*

FOR EXAMINERS USE ONLY

QUESTIONS	MAXIMUM SCORE	STUDENTS SCORE
1-28	80	

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*Answer **all** questions in the spaces provided.*

1. a) Name another gas, which is used together with oxygen in welding**.** **(1 mark)**

……

(b). Explain the change in mass that occurs when the following substances are separately heated in open crucibles.

(i) Copper metal. **(1mark)**

……

……

(ii) Copper (II) nitrate**.** **(1mark)**

……

……

2. Aluminum metal is a good conductor and is used for overhead cables. State any other two properties that make aluminum suitable for this use**.** **(2marks)**

……

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……

3. Give **two** reasons why helium is used in weather balloons**.** **(2marks)**

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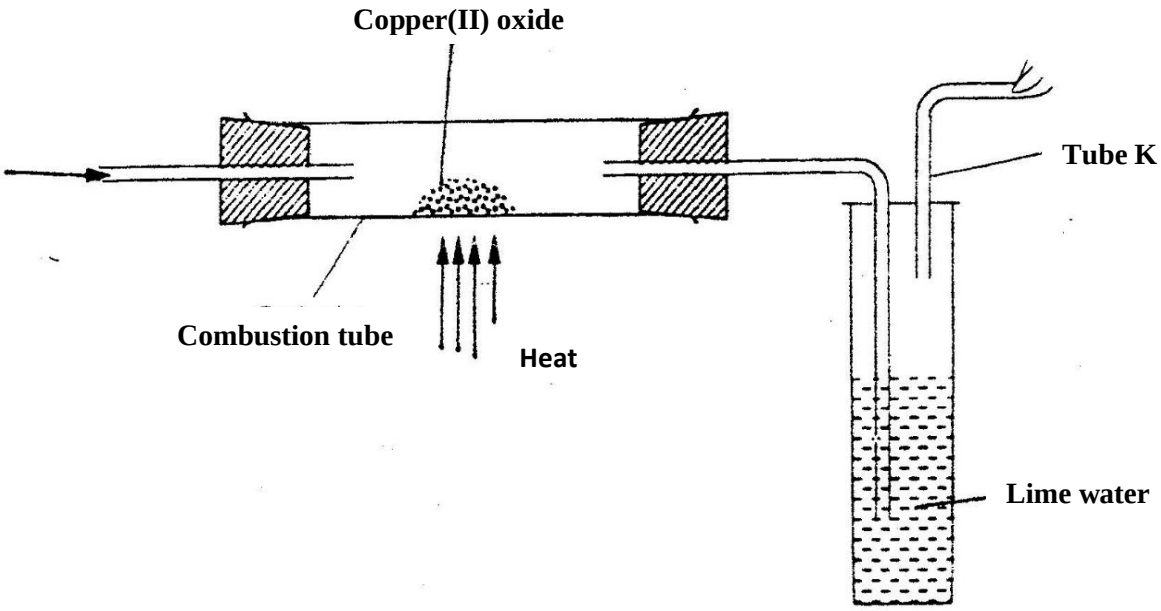
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4. Draw two positional isomers of the third member of alkyne series. **(3marks)**

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5. The apparatus shown below was used to investigate the effect of carbon (ii) oxide on copper (II) oxide.



a) State the observation that was made in the combustion tube at the end of the experiment. **(1mark)**

……

……

b) Write an equation for the reaction that took place in the combustion tube **(1mark)**

……

……

C) Why is it necessary to burn the gas coming out of tube K**?** **(1mark)**

……

……

6.Give a reason why

(i) Phosphorus is stored under water. **(1mark)**

……

……

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ii) Chlorine gas is prepared in the fume chamber. **(1mark)**

……

……

iii) Concentrated sulphuric acid is not used to dry ammonia gas**.** **(1mark)**

……

……

7. A certain matchstick head contains potassium chlorate and Sulphur. On striking, the two substances react to produce Sulphur (iv) oxide and potassium chloride. State the environmental effect of using such matches in large numbers. **(2marks)**

……

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……

8. When a sample of concentrated sulphuric acid was left in an open beaker in a room for two days, the volume was found to have increased slightly.

a) What property of concentrated sulphuric acid was being investigated. **(1mark)**

……

b) State one use of concentrated sulphuric acid that depends on the property named above. **(1mk)**

……

……

9. The following two tests were carried out on chlorine water contained in two test tubes

a) A piece of colored flower was dropped into the first – tube. Explain why the flower was bleached **(2marks)**

……

……

……

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b) The second test- tube was corked and exposed to sunlight after a few days, it was found to contain a gas that rekindled a glowing splint. Write an equation for the reaction which produced the gas. **(1mark)**

……..

……..

10. In the Haber process, the optimum yield of ammonia is obtained when a temperature of 450^0C, a pressure of 200 atmospheres and iron catalysts are used

$N_2(g) + 3H_2(g) \rightleftharpoons 2NH_3(g)$; $\Delta H = -92kJ$.

a) How would the yield of ammonia be affected if the temperature was raised to 600^0C? Explain. **(2marks)**

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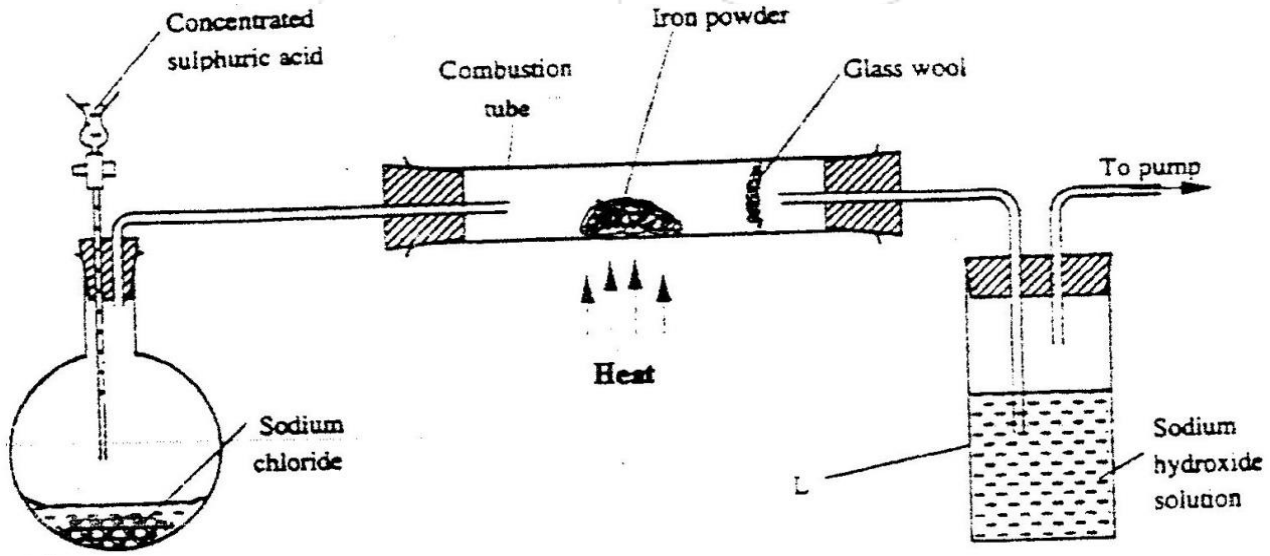
……

b) Give two use of ammonia. **(1mark)**

……

……

11. The set – up below was used to prepare hydrogen chloride gas and react it with iron powder. Study it and answer the questions that follow.



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At the end of the reaction, the iron powder turned into a light green solid.

a) Identify the light green solid. **(1mark)**

……

b) At the beginning of the experiment, the pH of the solution in container L was about 14. At the end, the pH was found to be 2. Explain. **(2marks)**

……

……

……

12. Below is part of the Thorium decay series.

$$^{232}_{90}Th \xrightarrow{(i)} {}^{228}_{88}Ra \xrightarrow{(ii)} {}^{228}_{89}Ac \xrightarrow{(iii)} {}^{228}_{90}Th \xrightarrow{(iv)} {}^{224}_{88}Ra$$

(i) Write an overall nuclear equation for the conversion of Th-232 to Ra-224. **(1mark)**

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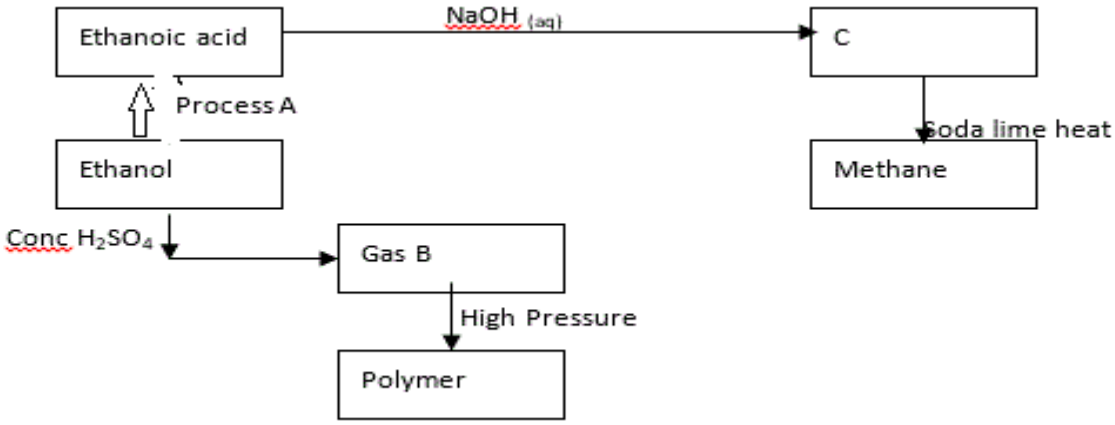
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(ii) Give any **two** uses of radio isotopes in medicine. **(2marks)**

……

……

13. The flow chart below shows a series of reactions starting with ethanol , Study it and answer the questions that follow.



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i) Name:

I. Process **A**…… **(1mark)**

II. Substances B and C

B..... **(½mark)**

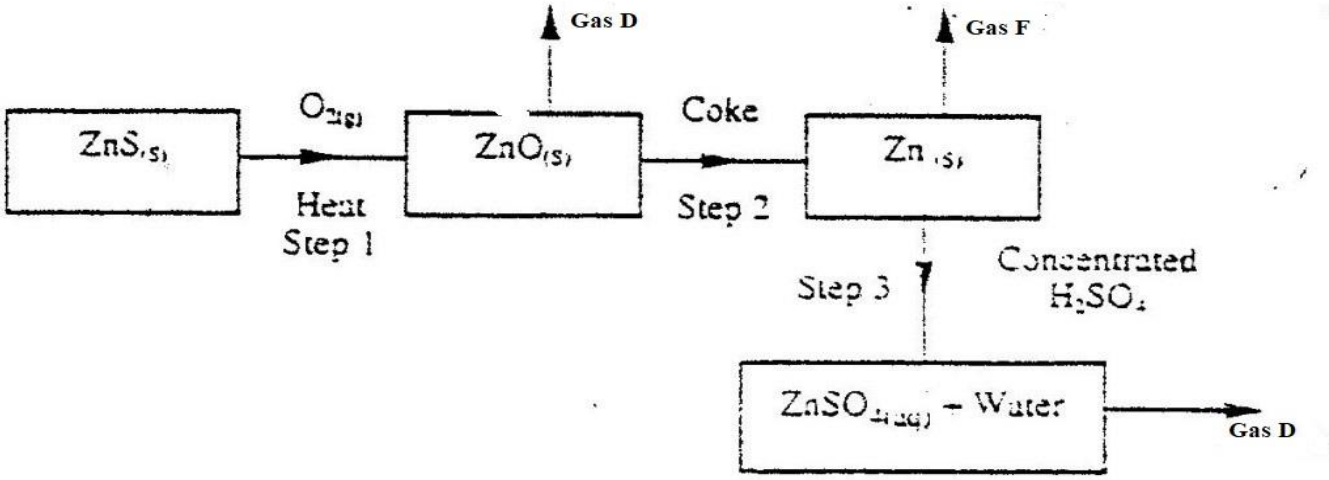
C…… **(½mark)**

ii) Write the equation for the reaction leading to formation of methane. **(1mark)**

……

……

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



a) State the condition necessary for the reaction in step 2 to **occur** **(1mark)**

……

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b) Name gases **D and F:** **(1mark)**

i) Gas D……

Gas F ……..

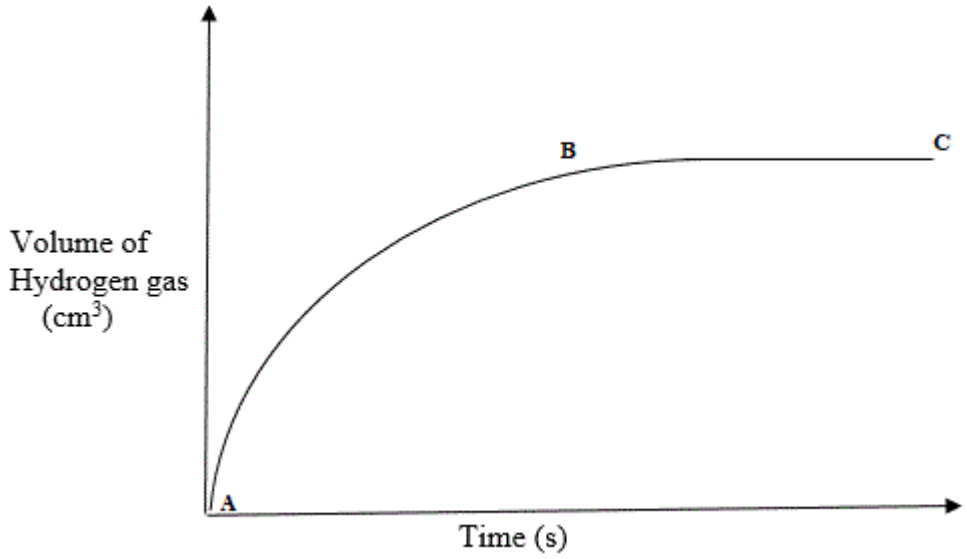
ii) State one use of zinc metal. **(1mark)**

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15. The reaction between a piece of magnesium ribbon with excess 2M hydrochloric acid was investigated at 25^{o}C by measuring the volume of hydrogen gas produced as the reaction progressed. The sketch below represents the graph that was obtained.



a) Explain the shape of the curve between B and C. **(1mark)**

……

……

b) Suggest another parameter that can be used to determine the rate of the above reaction **(1mark)**

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……

c) On the same diagram, sketch the curve that would be obtained if the experiment is repeated using powdered magnesium metal**.** **(1mark)**

16. Zinc oxide reacts with acids and alkalis.

a) Write the equation for the reaction between zinc oxide and:

i) Dilute sulphuric acid **(1mark)**

……

ii) **Sodium** hydroxide solution **(1 mark)**

……

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b) What property of zinc oxide is shown by the reactions in (a) above? **(1 mark)**

……

……

17. **0.84 g** of aluminum reacted completely with chlorine gas. Calculate the volume of chlorine gas used (Molar gas volume is $24dm^3$, al = 27). **(3 marks)**

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18. Proper use of soaps in washing hands has proven to control the spread of corona novel virus.

a) Write the formula of the grey insoluble substance left in the washing basin when one uses soap with tap water given that the formula of the soap is $C_{17}H_{35}COONa$. **(1mark)**

……

b) State two advantages of Soapy detergents over soapless detergents. **(2marks)**

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19. a) Use the information given below to draw a labeled diagram of an electrochemical cell that can be constructed to measure the electromotive force between G and J.

$G2+(aq) + 2e \rightarrow G(s)$; $E^{\theta} = - 0.74$ V

$J2+(aq)+ 2e \rightarrow J(s)$; $E^{\theta} = -0.14$ V **(2marks)**

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b) Calculate the E^{θ} value for the cell constructed in (a) above. **(1mark)**

……

……

……

20. a) Sate Le' Chetelier's principle. **(1mark)**

……

……

b) Study the following equilibrium reaction and answer the questions that follow: -

$$\underbrace{HL_{(aq)} + H_2O_{(l)}}_{\text{Red}} \rightleftharpoons \underbrace{H_3O^+(aq)\ L^-(aq)}_{\text{Blue}}$$

Given that in an acid solution, $H_3O^+_{(aq)}$ act in place of hydrogen ions, H^+, according to the equation.

$$H_3O^+_{(aq)} + OH^-_{(aq)} \longrightarrow 2H_2O_{(l)}$$

Explain what would be observed when potassium hydroxide solution is added to the above equilibrium mixture. **(2marks)**

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

Element	Electron arrangemer	Atomic radius (nm	Ionic radius(nm)
K	2, 8, 2	0.136	0.065
L	2, 8, 7	0.099	0.181
M	2, 8, 8, 1	0.203	0.133
N	2, 8, 8, 2	0.174	0.099

a) Which two elements have similar chemical properties? Explain. **(2marks)**

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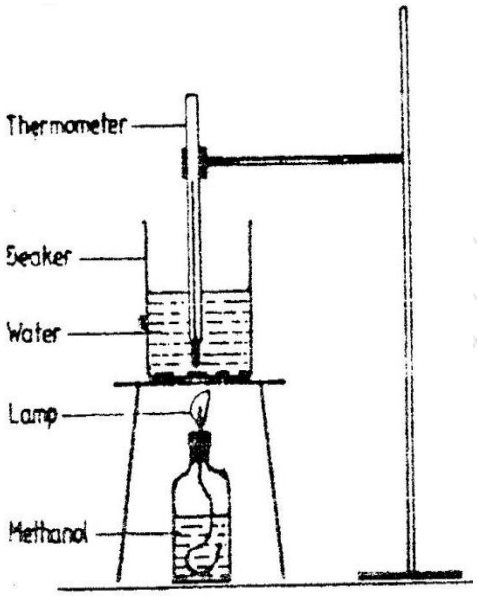
b) Which element is a non-metal? Explain. **(1mark)**

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22. In an experiment to determine the heat of combustion of methanol, a student used the set-up below.



Volume of water = 500cm^3

Final temperature of water= 27.0^{0}C

Initial temperature of water = 20.0^{0}C

Final mass of lamp + methanol = 22.11g

Initial mass of lamp+ methanol= 22.98g

Density of water = 1.0g/cm^3

Specific heat capacity = 4.2kJ/g/k

Calculate:

(i) The number of moles of methanol used in this experiment given that the R.F.M is 32. **(1mark)**

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(ii) The heat of combustion per mole of methanol. **(2mark)**

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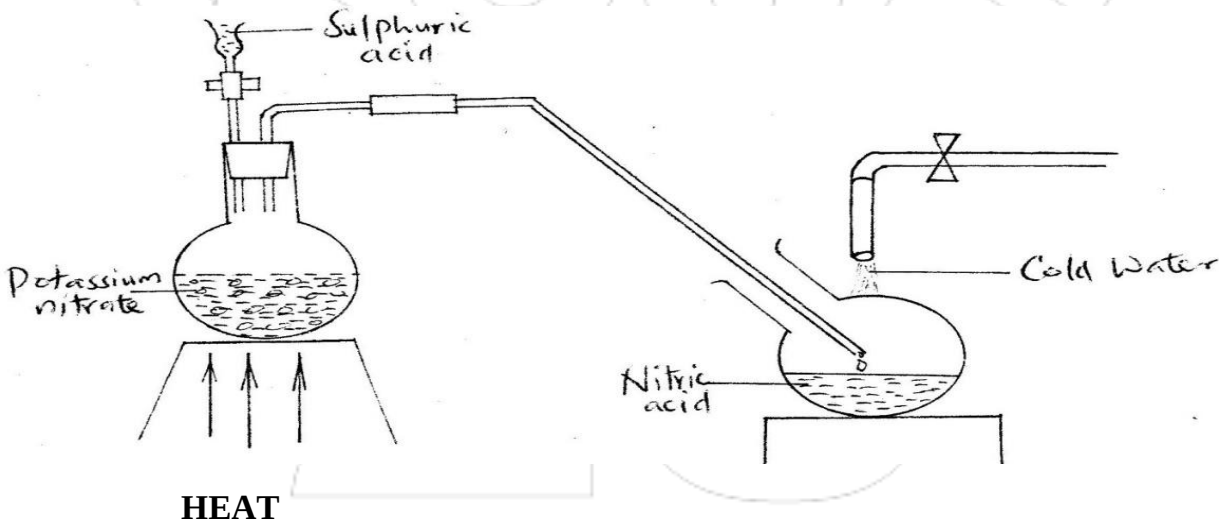
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23. Using dots (.) and crosses (x) to represent outermost electrons, draw diagrams to show the bonding in, CO_2 and H_3O^+. (Atomic numbers; H = 1.0,C= 14.0, O = 8)

i) CO_2. **(1mark)**

ii) H_3O^+ **(2marks)**

24. The diagram below shows a set- up that was used to prepare and collect a sample of nitric (v) acid



a)Give a reason why it is possible to generate nitric (v) acid from sulphuric(vi) acid in the set – up. **(1mark)**

……

……

b) Name another substance that can be used instead of potassium nitrate. **(1mark)**

……

c) Give two use of nitric (v) acid. **(1mark)**

……

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25. When a hydrocarbon was completely burnt in oxygen, 4.2g of carbon (IV) oxide and 1.71 g of water were formed. Determine the empirical formula of the hydrocarbon

(H= 1.0 ; C=12.0 ; 0 = 16.0). **(3marks)**

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26. Starting with 50 cm^3 of 2.8M sodium hydroxide describe how a sample of pure sodium sulphate crystals can be prepared. **(3 marks)**

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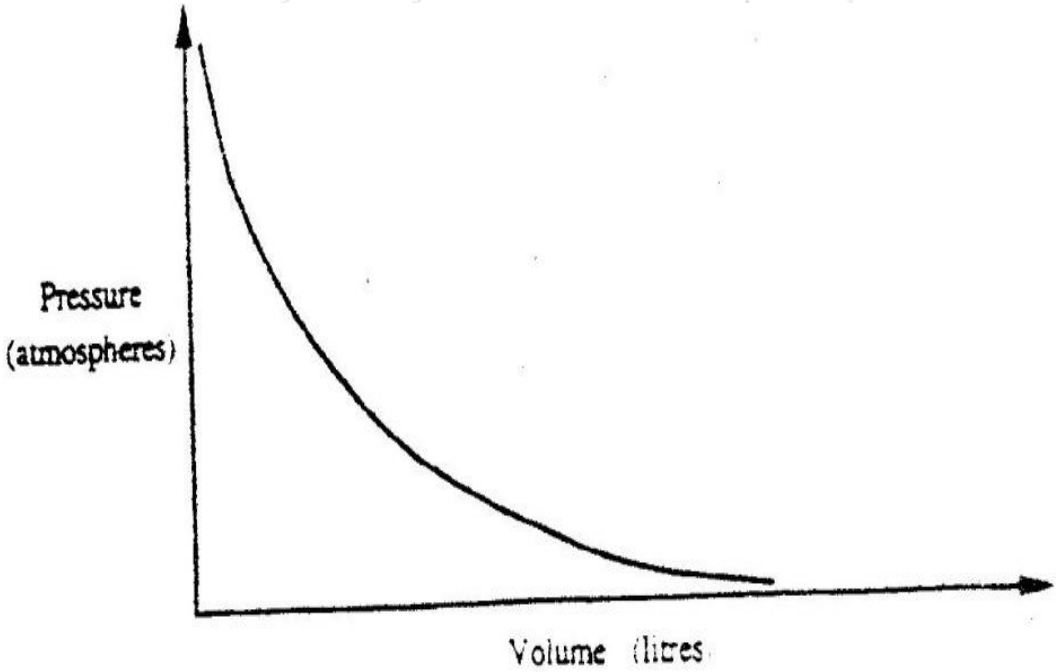
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27. The graph below shows the behavior of a fixed mass of a gas at constant temperature.



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a) What is the relationship between the volume and the pressure of the gas? **(1mark)**

……

……

b) Three litres of oxygen gas at one atmosphere pressure were compressed to two Atmospheres at constant temperature. Calculate the volume occupied by the oxygen gas. **(2marks)**

……

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28. Explain the following observations

i) Very little amount of hydrogen gas is collected when dilute sulphuric acid react with calcium metal. **(1mark)**

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ii) When hydrogen chloride gas is dissolved in water, the solution turns blue litmus paper to red, while when hydrogen chloride gas is dissolved in methyl benzene; the resulting solution has no effect on the blue litmus paper. **(2marks)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

CHEMISTRY

233/2

PAPER 2 (THEORY)

TIME: 2 HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

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

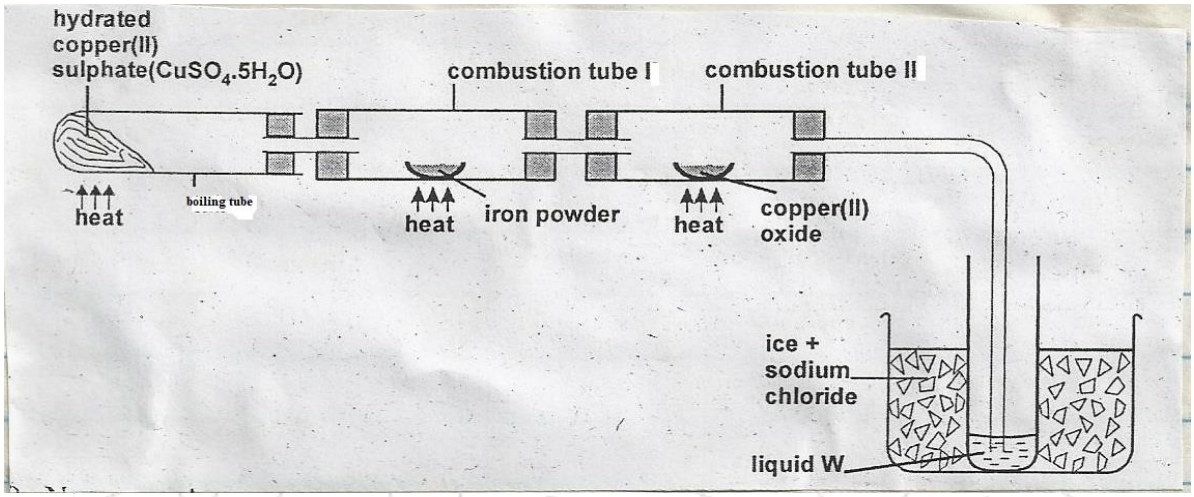
FOR EXAMINER'S USE ONLY

QUESTION	MAXIMUM SCORE	SCORE
1	11	
2	12	
3	12	
4	11	
5	11	
6	12	
7	11	
Total score	**80**	

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*Answer **all** the questions in the spaces provided*

1. The diagram below shows the apparatus for the preparation of gas A and investigate on its properties. Study it and answer the questions that follow.



a) (i) Name gas A. **(1mark)**

……

(ii) Suggest the property of gas A under investigation. **(1mark)**

……

(iii) Write chemical equations for the reactions in the;

Boiling tube **(1 mark)**

……

Combustion tube I **(1 mark)**

……

b) State and explain the observation made in

(i) Boiling tube. **(1mark)**

……

……

(ii) Combustion tube II. **(1mark)**

……

……

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c) What is the use of hydrated copper (II) sulphate in the experiment? **(1mark)**

……

……

d) **(i)** Name one other substance that comes out of tube II. **(1mark)**

……

(ii) Name liquid W. **(1mark)**

……

(iii) What is the role of sodium chloride in the ice (freezing mixture). **(1mark)**

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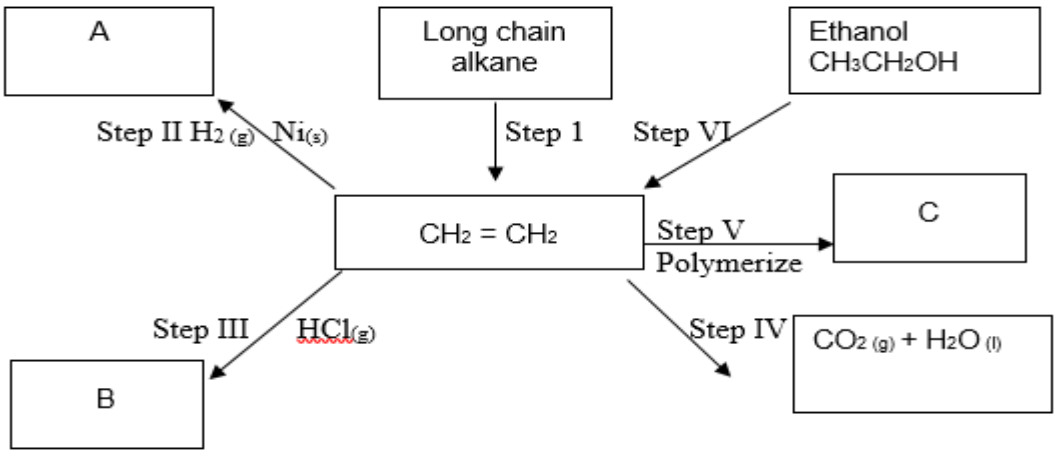
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(iv) Explain why hydrogen gas has been replaced by helium in filling of aereoplane tyres. **(1mark)**

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2.(a) Study the flow chart below and answer the questions that follow.



(i) Name the process-taking place in step I. **(1mark)**

……

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Describe a chemical test that can be carried out determine the identity of organic compound A.

(2marks)

……

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Give the name of the following: **(2marks)**

I.A……..

II. B……..

(ii) Give the structural formulae of substance C. **(1mark)**

……

(iii) Name the type of reaction that occurs in:

I. Step IV . **(2marks)**

……

II. Step VI:

……

(iv) Give the reagent and the condition necessary for step VI. **(2marks)**

Reagent……

Condition……

(b) Give the systematic names of the following compounds:

I. $CH_3CHCHCH_2CH_3$ **(1mark)**

……

II. $CHCCH_3$ **(1mark)**

……

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3. The grid below forms part of the periodic table. Study it and answer the questions that follow. The letters do not represent the actual symbols of the elements.

P				T	V	W	Y	M
	Q		S	U		X		
	R						Z	

a) Write the general name given to the group where element P belong. **(1mark)**

……

b) An element N has an atomic number of 15. Write down its electronic arrangement and hence fix it in its right position on the grid above. **(2marks)**

Electronic arrangement

……

b) Compare the size of the atom of R and that of its ion. Explain your answer. **(2marks)**

……

……

……

c) Give the formula of the compound formed between. **(1mark)**

i. P and W

……

ii. T and Y

……

e) Compare the melting points of element Q and S. Explain. **(2marks)**

……

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f) State the most reactive non-metal from the grid. Give a reason for your answer. **(2marks)**

……

……

……

g) Write chemical equations for the thermal decomposition of nitrates of: **(2marks)**

i) Q

……

ii) P

……

4. a) The results below were obtained in an experiment conducted by form three students from MBORANU secondary school using magnesium.

- Mass of the crucible + lid = 19.52g
- Mass of the crucible + lid + Magnesium Ribbon = 20.36g
- Mass of the crucible + lid + Magnesium oxide = 20.92g

(i) Use the results to find the percentage mass of Magnesium and Oxygen in magnesium oxide. **(2marks)**

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(ii) Determine the empirical formula of magnesium oxide. (Mg=24.0, O=16.0) **(2marks)**

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b) Sodium hydroxide pellets were accidentally mixed with sodium chloride. 8.8g of the mixture were dissolved in water to make one litre of solution. $50cm^3$ of the solution was neutralised by $20cm^3$ of 0.25M sulphuric acid.

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

……

(ii) Calculate the:

I. Number of moles of the substance that reacted with sulphuric acid. **(2marks)**

……

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II. Number moles of the substance that would react with sulphuric acid in the one litre solution. **(1mark)**

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III. The percentage of sodium chloride in the mixture**.** **(3marks)**

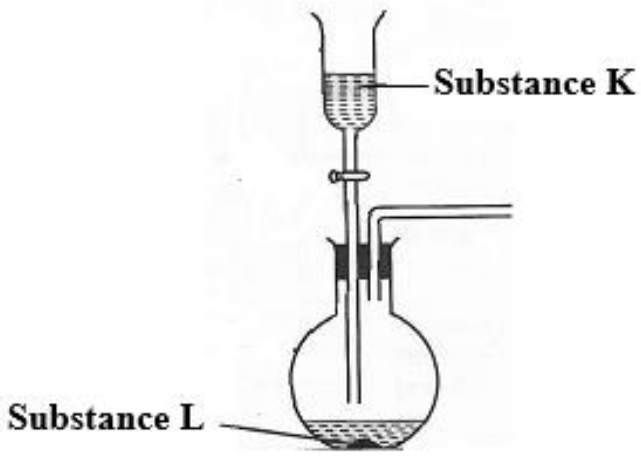
(H=1.0; Na=23.0; Cl=35.5; O=16.0)

……

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6. The set-up below can be used to generate a gas.



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(a) (i) Complete the table below giving the names of substance **K** and **L** if the gases generated are carbon (IV) oxide and carbon (II) oxide. **(2marks)**

Substance	Carbon (IV) oxide	Carbon (II) oxide
K		
L		

(ii) Complete the diagram to show how a sample of carbon (II) oxide can be collected.

(2marks)

(iii) State two ways that can be used to distinguish carbon (IV) oxide from carbon (II) oxide? **(2marks)**

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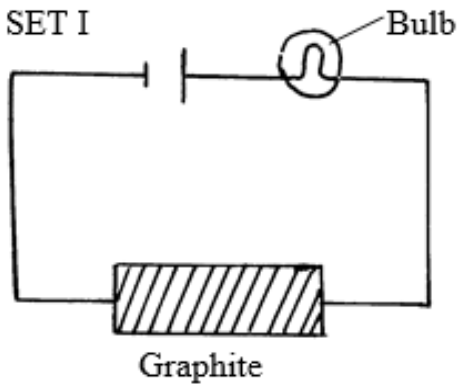
(b) (i) In an experiment, carbon (IV) oxide gas was passed over heated charcoal held in a combustion tube. Write a chemical equation for the reaction that took place in the combustion tube. **(1mark)**

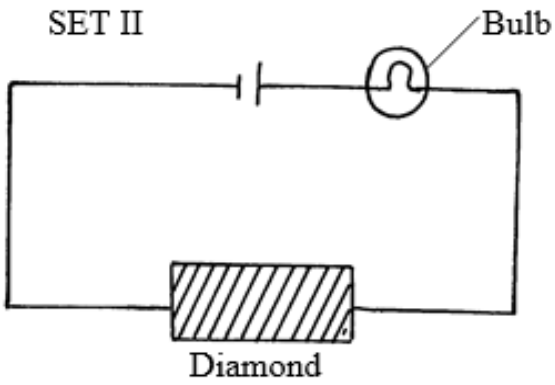
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(ii) State one use of carbon (II) oxide. **(1mark)**

……

(c) The following set ups were used by Form Two students. Study and use them to answer the questions that follow.





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State and explain the observations made in set up I and II above. **(3marks)**

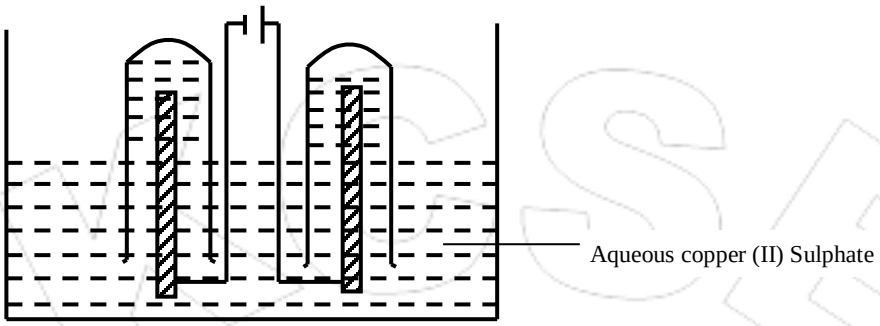
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6. a) The set up below was used during electrolysis of aqueous copper (II) sulphate using inert electrodes.



i) Name a suitable pair of electrodes for this experiment. **(1 mark)**

……

ii) Write formula of the anions and cations in the solution**.** **(1 mark)**

……

iii) On the diagram, label the cathode**.** **(1mark)**

iv) Write ionic equation for the reaction that took place at the anode. **(1 mark)**

……

v) Explain the observation that occurred to the Copper (II) Sulphate solution during the experiment. **(2 marks)**

……

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vi) During the electrolysis, a current of 2 amperes was passed through the solution for 4 hours. Calculate the volume of the gas produced at the anode. (1 Faraday = 96,500 coulomb. Volume of gas at room temperature = 24,000cm^3). **(3 marks)**

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b) i) Draw a diagram to show how an impure copper lump can be refined through electrolysis. **(2marks)**

ii) State one other application of electrolysis other than the one shown in b (i) above. **(1mark)**

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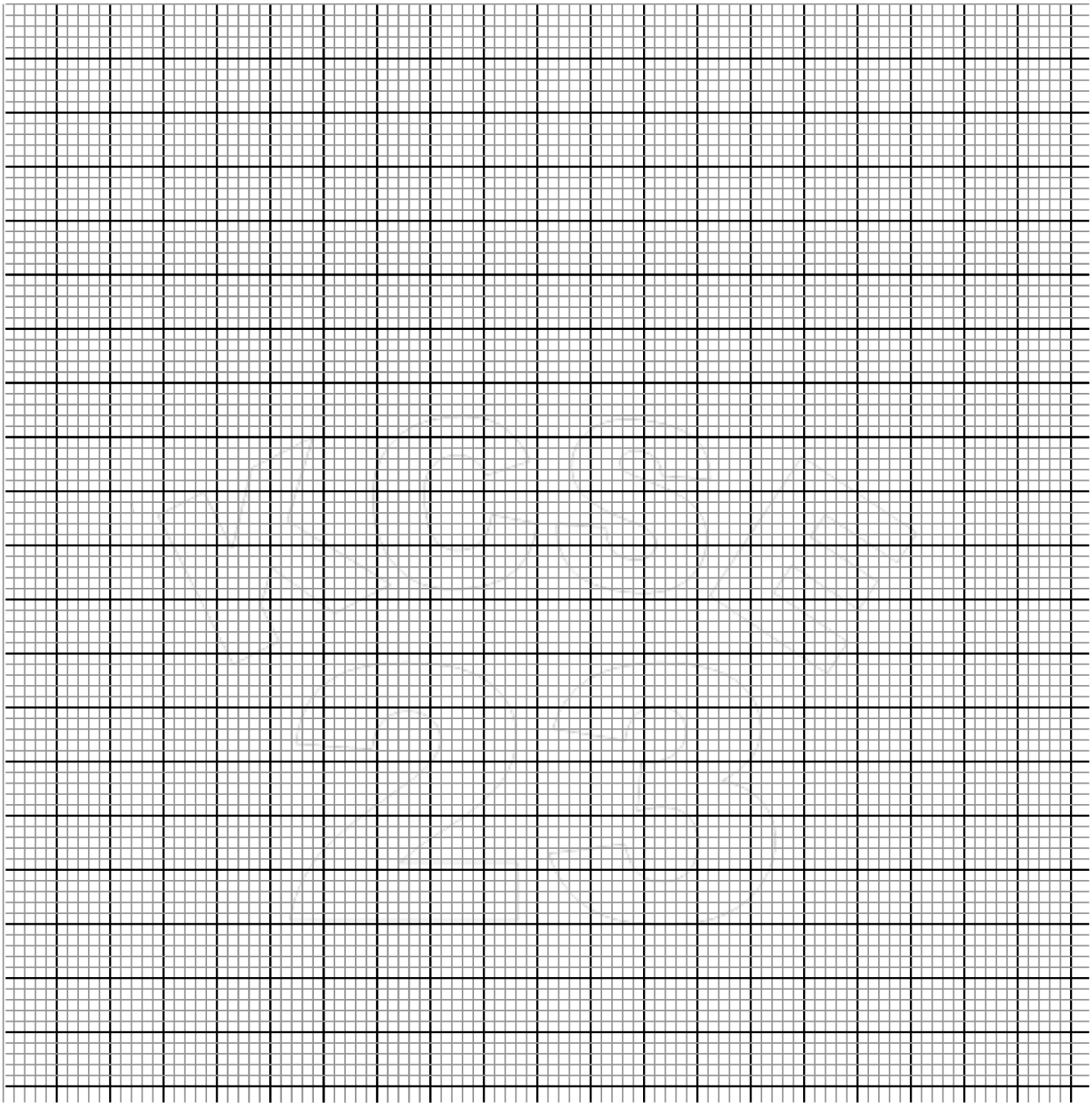
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7.(a) The solubilities of potassium nitrate and potassium bromide at different temperatures were determined. The following data was obtained.

Temperature ^0C		0	10	20	30	40	50	60	70	80
Solubility g/100g H_2O	KNO_3	5	15	26	43	61	83	105	135	165
	KBr	50	55	60	65	70	77	85	90	95

(i) Draw solubility curves for both salts on the same axis. **(3marks)**

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(ii) What was the solubility of each salt at 65^0C? **(1mark)**

……

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(iii) 100g of a saturated solution of potassium nitrate at 75^0C was cooled to 25^0C. What mass of the crystals will be formed? **(3marks)**

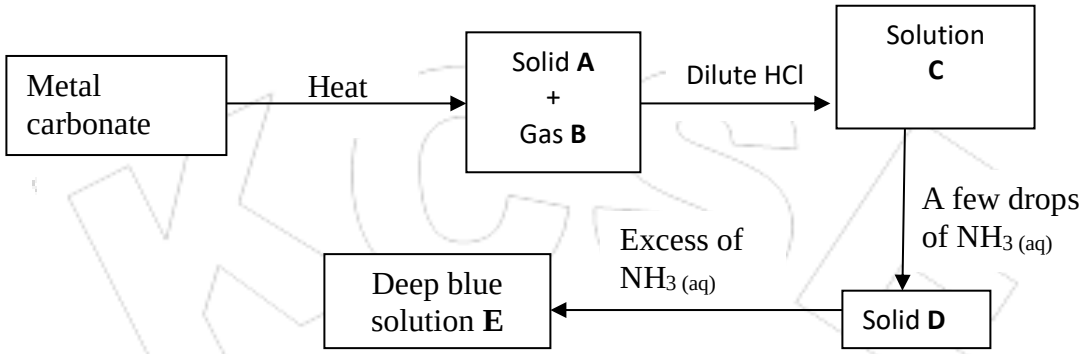
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(b) Study the flow chart below and answer the questions that follow



.

(i) Write an equation for the formation of solid **A** and gas **B**. **(1mark)**

……

(ii) Name;

Solution **C** ……. **(1mark)**

Solid D …..…… **(1mark)**

(c) Write the formula of the complex ion in solution **E**. **(1mark)**

……

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KCSE 2023 PREDICTION EXAM

SERIES 3

CHEMISTRY

233/3

PAPER 3 (PRACTICAL)

TIME: 2¼ HOURS

SCHOOL…… SIGN……

Kenya Certificate of Secondary Education.

CONFIDENTIAL

In addition to apparatus and fittings in a chemistry laboratory, each candidate will require the following:

1. *0.3g Solid A weighed accurately and supplied in a stoppered container*
2. *A burette.*
3. *About 0.2g of solid sodium carbonate.*
4. *250ml Plastic beaker.*
5. *A thermometer*
6. *Test tube holder*
7. *70cm3 of solution B*
8. *Six dry test tubes in a test tube rack.*
9. *A metallic spatula.*
10. *100 cm^3 of solution C*
11. *Stopwatch*
12. *One dry boiling tubes*
13. *About 500cm^3 distilled water supplied in a wash bottle.*
14. *Solid P. Aluminum chloride about 0.5g.*
15. *Liquid F. Absolute ethanol, about 3cm^3*
16. *250 ml volumetric flask.*
17. *2 conical flasks*
18. *1 pipette*
19. *pipette filler*
20. *Label*

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B Access to.

1. *2M sodium hydroxide solution with a dropper*
2. *2M ammonia solution with a dropper*
3. *Barium nitrate solution. With a dropper*
4. *Bunsen burner*
5. *Acidified $KMnO_4$ solution with a dropper*
6. *Potassium iodide solution*
7. *Methyl orange indicator*
8. *Sodium sulphate solution.*
9. *Lead (II) nitrate solution.*
10. *Acidified potassium dichromate VI*

NOTES:

1. Solid A accurately weighed **magnesium powder**

2. Aqueous barium nitrate prepared by dissolving 26.0g barium nitrate in 800cm^3 distilled water in 1litre volumetric flask then adding distilled water to the mark

3. Solution C, prepared by placing 15.9g of anhydrous sodium carbonate in 1 litre volumetric flask, adding 800 cm^3 distilled water and shaking to dissolve the solid then top up to the mark with distilled water.

4. Solution B, prepared by adding 172 cm^3 of concentrated hydrochloric acid of specific gravity of 1.18g/cm3 to 500cm^3 distilled water in a 1 litre volumetric flask then adding distilled water to the mark.

5. $KMnO_4$ solution is made by dissolving 1.58g in 400ml. of 2.0M H_2SO_4 then topping up with distilled water to one litre.

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KCSE 2023 PREDICTION EXAM

SERIES 3

CHEMISTRY

233/3

PAPER 3 (PRACTICAL)

TIME: 2¼ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- *Write your name in the spaces provided above.*
- *Answer all the questions in the spaces provided*
- *All workings must be clearly shown where necessary*

FOR EXAMINERS USE ONLY

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORES
1	20	
2	11	
3	09	
TOTAL SCORE	**40**	

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QUESTIONS

1. You are provided with:

- 0.30g solid A, magnesium metal
- Hydrochloric acid, solution B
- 0.15M sodium carbonate, solution C
- Methyl orange indicator

You are required to determine:

- The enthalpy change, ΔH per mole for the reaction between magnesium and excess hydrochloric acid.
- The concentration in moles per litre of hydrochloric acid, solution B.

PROCEDURE I

i. Using a burette, place 50.0cm³ of Solution B in a 100 ml plastic beaker.

ii. Measure the temperature of solution B after every 30 seconds. Record your readings in Table 1.

iii. At the 90th second, add **ALL** of solid A provided to the beaker, stir gently with the thermometer and continue measuring and recording the temperature after every 30 seconds. Complete Table

1. **Retain the content in the beaker for use in procedure II**.

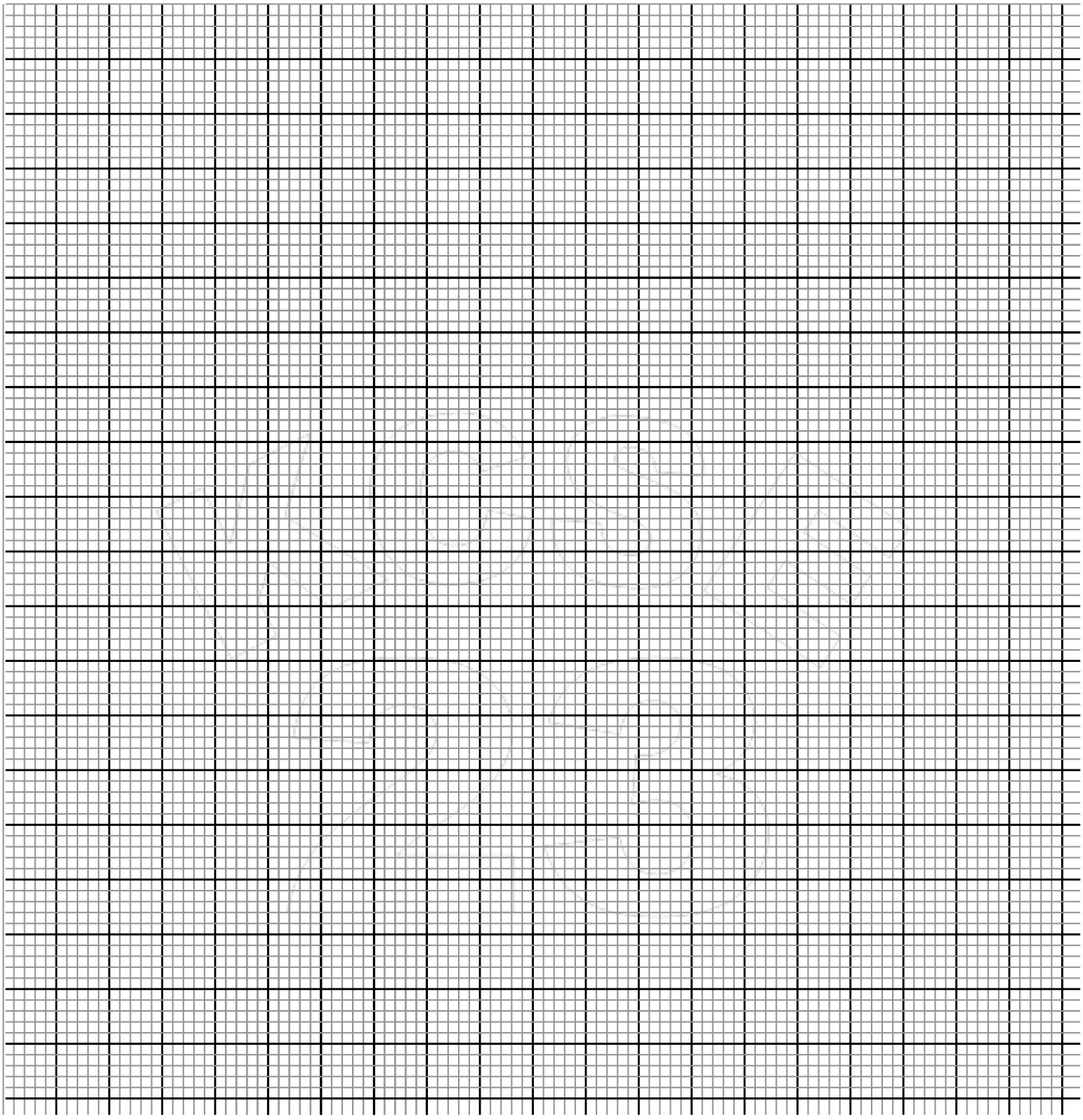
Table 1

Time (S)	0	30	60	90	120	150	180	210	240	270
Temperature (°C)				X						

(3 marks)

a) On the grid provided, plot a graph of temperature (vertical axis) against time. **(3 marks)**

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b) Determine the change in temperature, ΔT, for the complete reaction. Show the working on the graph.

ΔT=…… (1mark)

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c) Calculate the heat change for the reaction. *(Assume density of solution =1.0g/cm ^{3}, specific capacity of the solution = 4.2 kJ g^{-1} K^{-1}).* **(1mark)**

……

……

……

d) The relative atomic mass of magnesium is 24.0. Calculate the enthalpy change, ΔH, for the reaction per mole of magnesium. **(1mark)**

……

……

……

PROCEDURE II

i. Rinse the burette and fill it with 0.15M sodium carbonate, solution C.

ii. Transfer **ALL** the solutions in the beaker from procedure I into a 250ml volumetric flask. Rinse both the beaker and thermometer with distilled water and add the rinsing to the volumetric flask. Add more distilled water to the volumetric flask up to the mark. Label this as solution T.

iii. Pipette 25cm^3 of solution T into a 250ml conical flask and add 2 drops of methyl orange indicator.

iv. Titrate solution T in the conical flask with the sodium carbonate, solution C and record the results in Table 2.

v. Repeat steps (iii) and (iv) and complete Table 2.

Table 2

Titre	1	2	3
Final burette reading (cm^3)			
Initial Burette reading (cm^3)			
Volume of solution C (cm^3)			

(4 marks)

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a) Calculate the average volume of the 0.15M sodium carbonate, solution C used**.** **(1 mark)**

……

……

……

b) Calculate the number of moles of :

i. Sodium carbonate used. **(1 mark)**

……

……

……

ii. Hydrochloric acid in the 25.0 cm^3 of solution T. **(1 mark)**

……

……

……

iii. Hydrochloric acid in the 250 cm^3 of solution T. **(1 mark)**

……

……

……

iv. Hydrochloric acid that reacted with magnesium metal. **(1 mark)**

……

……

……

v. Total number of moles of hydrochloric acid in the 50.0 cm^3, solution B. **(1 mark)**

……

……

……

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c) Determine the concentration of hydrochloric acid in moles per litre, in solution B. **(1 mark)**

……

……

……

2. You are provided with solid P. Carry out the following tests and write your observation and inferences in the spaces provided.

Place all of the solid P in a boiling tube. Add about 10cm³ of distilled water and shake until all the solid dissolves. Divide the mixture into 6 portions

Observation	Inferences
(1 mark)	**(½ mark)**

a) To the first portion add 2 drops of sodium sulphate solution provided.

Observation	Inferences
(1 mark)	**(1mark)**

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b) To the second portion, add 2M sodium hydroxide solution dropwise until in excess.

Observation	Inferences
(1mark)	**(1mark)**

c) To the third portion, add 2M ammonia solution dropwise until in excess.

Observation	Inferences
(1mark)	**(½ mark)**

d) To the fourth portion, add 2 - 3 drops of aqueous potassium iodide solution.

Observation	Inferences
(½ mark)	**(½ mark)**

e) To the fifth portion, add 2 - 3 drops of barium nitrate solution.

Observation	Inferences
(1mark)	**(1mark)**

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f) To about 1cm³ of the solution in a test tube, add 2 - 3 drops of lead (II) nitrate solution.

Observation	Inferences
(½ mark)	**(½ mark)**

3. You are provided with liquid **F in** a boiling tube. Carry out the following tests. Write your observations and inferences in the spaces provided.

a) Place about 1cm^3 of liquid **F** on a watch glass. Introduce a burning splint above the solution on the watch glass.

Observation	Inferences
(1mark)	**(1mark)**

b) To the remaining liquid in the boiling tube, add about 10 cm3 of distilled water. Divide the mixture in to 3 portions.

Observation	Inferences
(1mark)	**(½ mark)**

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(i) To the first portion in a test tube, add two drops of acidified potassium manganate (VII)

Observation	Inferences
(1mark)	**(1mark)**

ii) To the second portion in a test tube, add two drops of acidified potassium dichromate (VI)

Observation	Inferences
(1mark)	**(1mark)**

ii) To the 3rd portion of 2cm^3 of solution **F** add a spatula of sodium carbonate provided.

Observation	Inferences
(½ mark)	**(1mark)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

BIOLOGY

231/1

PAPER 1 (THEORY)

TIME: 2 HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- *Write your name and admission number in the spaces provided.*
- *Answer **all** questions in the spaces provided*
- *Candidates should check the question paper to ascertain all the pages are printed as indicated and no questions are missing.*

FOR EXAMINERS USE ONLY

QUESTIONS	MAXIMUM SCORE	CANDIDIATES SCORE
1 -30	80	

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*Answer **all** questions in the spaces provided*

1. Name one chemical used to immobilize highly mobile animals during collection in field for study **(1 mark)**

……

2. Give a name for a branch of biology which deals with**;** **(2 marks)**

a) Study of cells

……

b) Study of internal structure of living organisms.

……

3. Conjugated proteins are proteins which combine with non- protein compound. Name non-protein compound in the following conjugated proteins **(2 marks)**

a) Mucus

……

b) Haemoglobin

……

4. State **two** differences between smooth muscles and skeletal **muscles** **(2marks)**

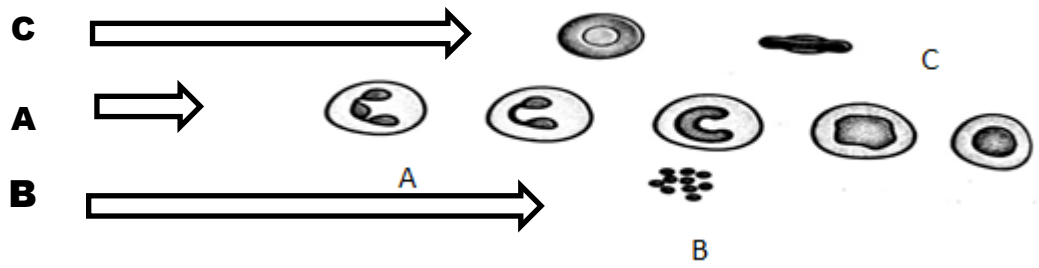
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5. Study the diagram below and answer questions that follows



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a) Highlight the type of tissue illustrated **(1mark)**

……

b) Name the cells labeled **(2marks)**

A-……

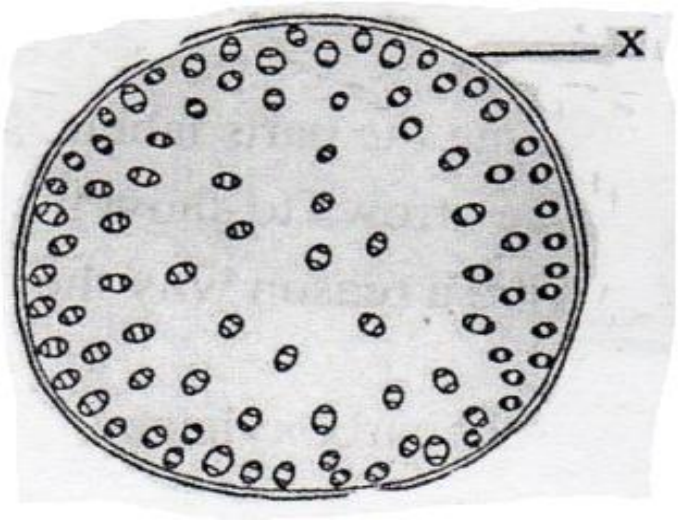
B-……

c) Give one adaptation of cell C to its function **(1mark)**

……

……

6. The diagram below shows a transverse section of a plant organ



a) Name the plant organ from which the section was **obtained** **(1 mark)**

……

b) (i) Name the class of the plant from which the plant organ was obtained. **(1 mark)**

……

(ii) Give a reason for your answer in (b) (i) above. (**1 mark)**

……

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c) Name the part labeled **X** **(1 mark)**

……

7. State a characteristic that is common to all cervical **vertebrae** **(1 mark)**

……

8. a) Name a protein and vitamin involved in blood clotting.

i) Protein. **(1mark)**

……

ii) Vitamin **(1mark)**

……

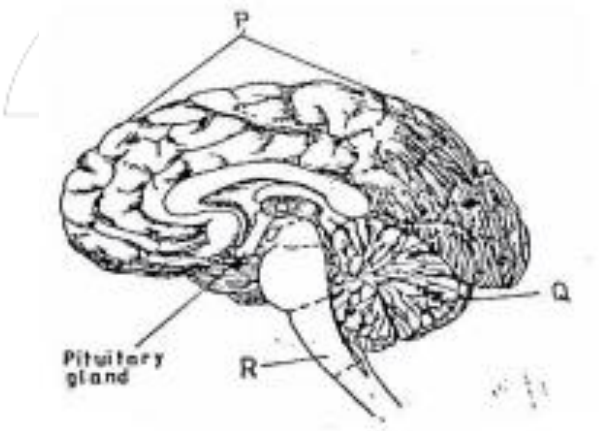
b) Explain why blood is not normally used for transfusion after one month**.** **(1mark)**

……

……

……

9. The diagram below represents a section of the human brain.



i) Name the structure labelled **P .** **(1marks)**

……

ii) State one function of the part labelled **R.** **(1mark)**

……

……

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iii) Give a disease which is caused by bacteria infection on brain membranes

(1 mark)

……

10. The reaction represented by the equation below occurs in the body.

$$\text{Hydrogen peroxide} \xrightarrow{\text{Enzyme } \mathbf{Y}} \text{Oxygen + Water}$$

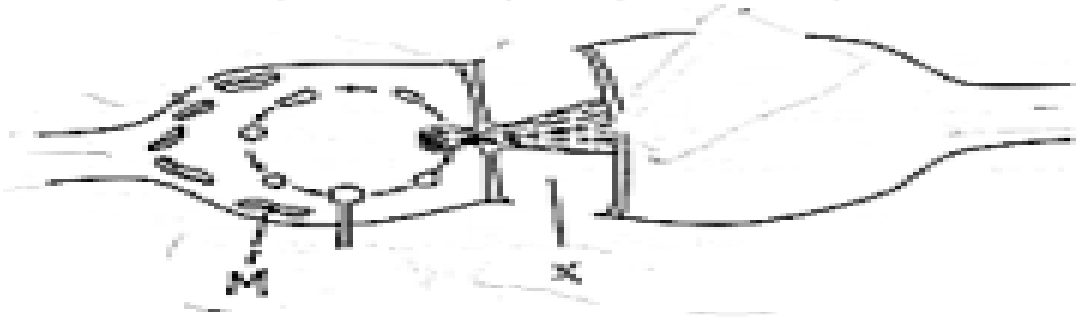
(a) Name enzyme **Y**. **(1mark)**

……

(b) Name an organ in the body where the reaction occurs. **(1mark)**

……

11. The diagram below represents a neuro-junction/synapse



a) Name the:

i) Structure labeled **M**. **(1mark)**

……

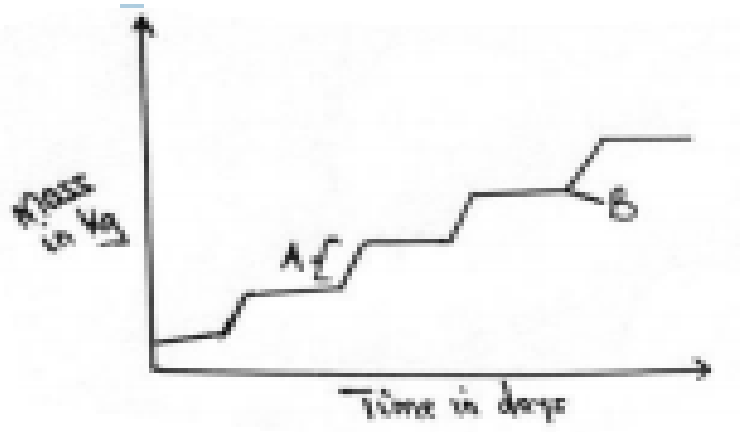
ii) Enzyme responsible for reconstitution of transmitter substance labeled X. **(1mark)**

……

b) On the diagram, show the direction of the nerve impulse transmission. **(1mark)**

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12. The graph below represents the growth of animals in a certain phylum. Study it and answer the questions that follow



a) Name the type of growth pattern shown on the graph **(1mark)**

……

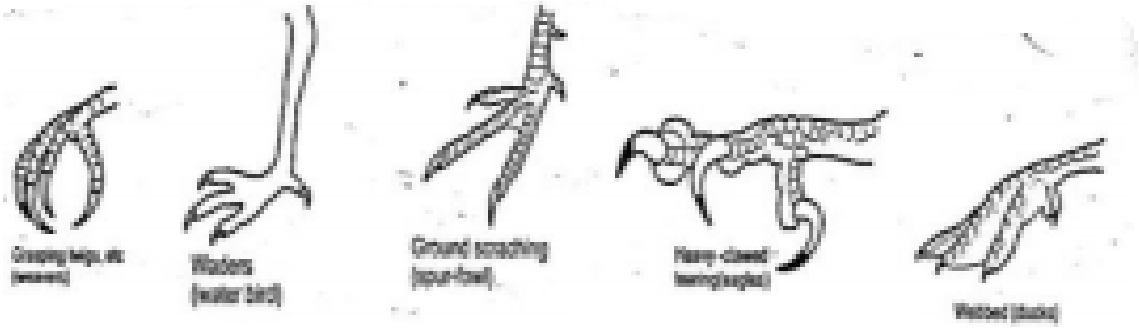
b) Identify the process represented by letter B **(1mark)**

……

c) Name the hormone responsible for the process in (b) above **(1mark)**

……

13. Study the diagram below and answer the questions that follows



a) What type of evolution is illustrated by the **limbs** **(1mark)**

……

b) What does the origin of the limbs suggest about the ancestry of these animals **(1mark)**

……

……

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14. Compare the blood in the umbilical artery and umbilical vein in **placenta** **(2marks)**

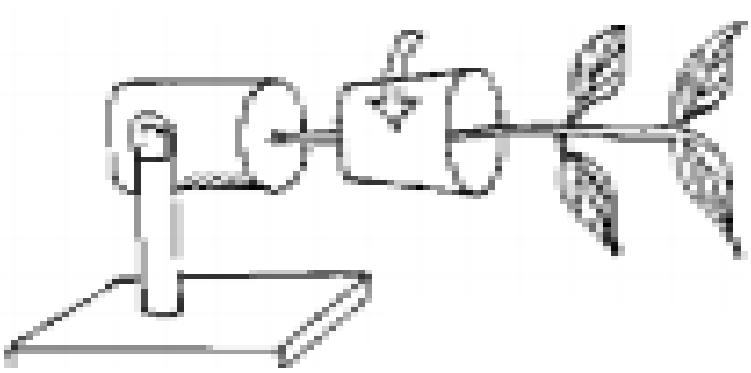
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15. Carefully study the figure which rotates making one resolution in 15 minutes. A seedling With a straight radicle and plumule was attached to the apparatus as shown below.



a) What is the name of the apparatus shown **(1mark)**

……

b) Make a drawing of how the seedling might have appeared after one week. Explain **(2mark)**

c) State the type of response being investigated in the experiment above. **(1mark)**

……

……

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16. (a) Why is sexual reproduction important in evolution of plants and animals **(1mark)**

……

……

(b) The calyx cells of a certain plant has 22 chromosomes. State the number of chromosomes present in plants **(2marks)**

(i) Endosperm

……

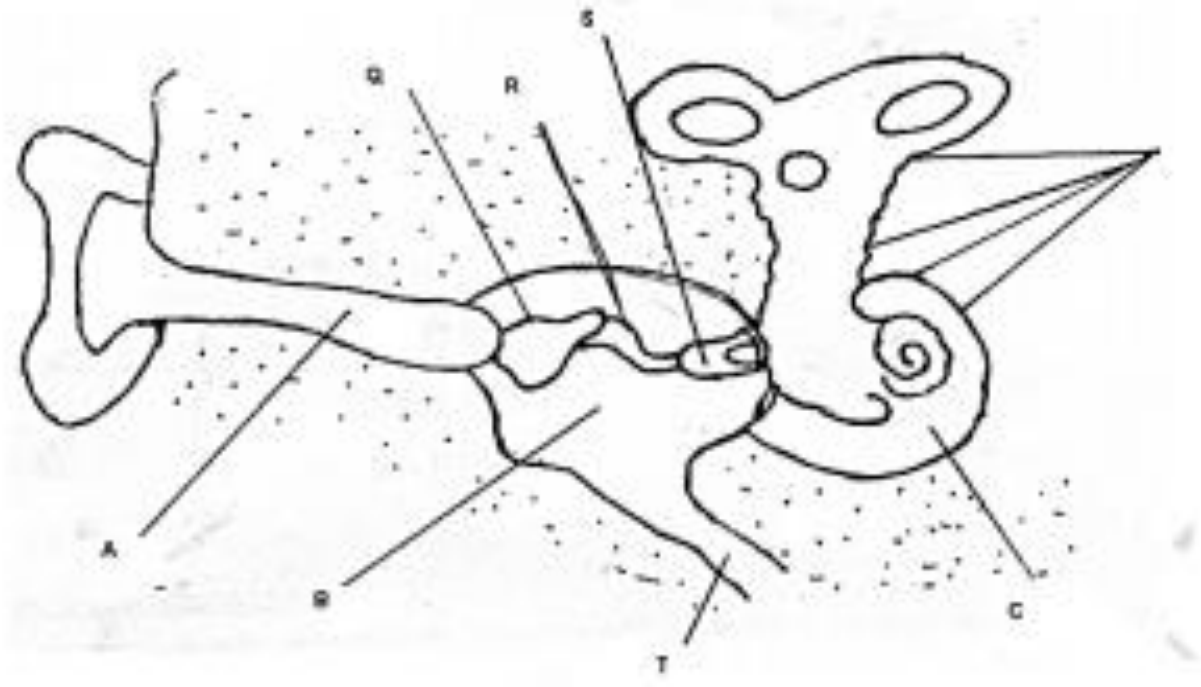
……

(ii) Ovule cell

……

……

17. The diagram below shows the internal structure of the mammalian ear



a) Name the part labeled Q **(1mark)**

……

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b) Explain what would happen if the part labeled T is blocked **(2marks)**

……

……

……

18. (a) State the functions of olecranon process**.** **(2marks)**

……

……

……

(b) Which type of joint is found at the articulation of:

(i) Pelvic girdle and femur **(1mark)**

……

(ii) Humerus and ulna **(1mark)**

……

19. State three adaptations of aquatic plants to photosynthesis. **(3 marks)**

……

……

……

……

……

20. Distinguish between haemolysis and plasmolysis. **(2marks)**

……

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21. State two adaptations of respiratory surface to gaseous exchange **(2marks)**

……

……

……

22. State two roles of hydrochloric acid in the digestion of food. **(2marks)**

……

……

……

23. a) Name the blood vessels that link arterioles with venules **(1mark)**

……

b) How are the blood vessels above suited to carry out their functions **(2marks)**

……

……

……

24. Explain how the following adaptations will reduce the rate of transspiration. **(2marks)**

i. Sunken stomata

……

……

ii. Leaf folding

……

……

25. a) Name two structures for gaseous exchange in amphibians **(2marks)**

……

……

……

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b) What is the effect of relaxation of diaphragm muscles during breathing in mammals? **(2marks)**

……

……

……

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

$C_6H_{12}O_6 \longrightarrow$ [B] $+ C_2H_5OH$ +Energy

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

……

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

……

c) State the economic importance of this process **(2marks)**

……

……

……

27. State the role of the following bacteria in the Nitrogen cycle.

(i) Nitrosomonas**……(1mark)**

(ii) Nitrobacter**……..……(1mark)**

28. State the structures that adapt the fish for: **(2marks)**

a) Forward movement**…….**

b) Fast movement**……**

29. Name the organelled that:-

a) Manufacture and transport lipids and steroids in a cell. **(1mark)**

……

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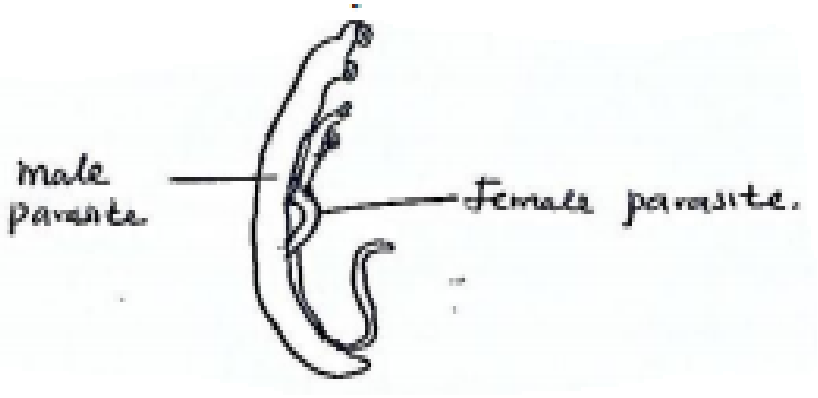
b) Contain enzymes that are capable of destroying old damaged cells. **(1mark)**

……

c) Form cilia and flagella in cells that have them. **(1mark)**

……

30. A patient blood was found to have the parasite below:



a) Name the parasite; **(1mark)**

……

b) Name the disease the patient was suffering from; **(1mark)**

……

c) State **one** way the above disease can be controlled. **(1mark)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

BIOLOGY

231/2

PAPER 2 (THEORY)

TIME: 2 HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

1. *Write your name and Admission Number in the spaces provided above.*
2. *Sign and write the date of examination in the spaces provided above.*
3. *This paper consists of two sections: **A** and **B**. Answer **ALL** questions in section **A** in the spaces provided. In section **B,** answer question 6 (**compulsory**) and either question 7 or 8 in the spaces provided after question 8.*

FOR EXAMINERS' USE ONLY

Section	Questions	Maximum Score	Candidate's Score
A	1	8	
	2	8	
	3	8	
	4	8	
	5	8	
B	6	20	
	7	20	
	8		
Total Score		**80**	

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SECTION A (40 MARKS)

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

1. Pure breed of red cows and pure breed of white bulls were crossed to give F_1 calves which had a mixture of red and white coat known as roan. The F_1 were selfed.

(a) Using letter R to represent gene for red colour and W to represent gene for white colour work out the phenotypic ratio of F_2. **(4 marks)**

……

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(b) Work out the genotypic ratio of a cross between F_1 offspring and white bull. **(3 marks)**

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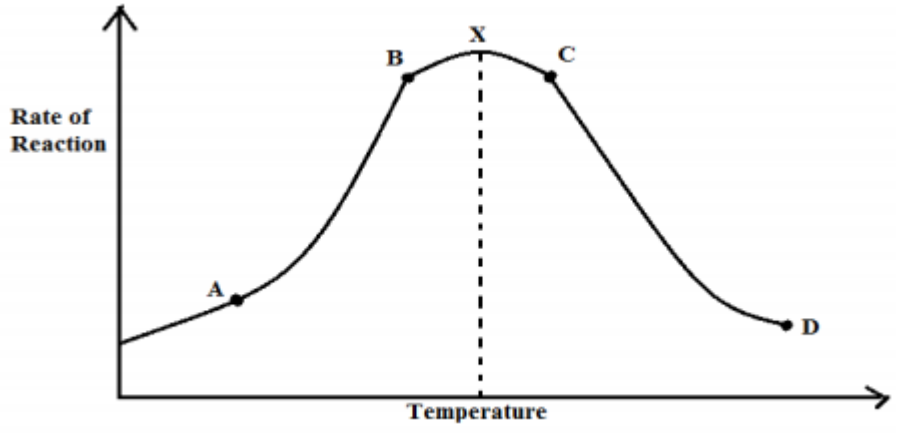
(c) Comment on the gene(s) controlling the colour of coats in cattle mentioned above. **(1 marks)**

……

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2. The graph below show the effect of temperature on an enzyme catalysed reaction.



(a) Account for the shape of the curve between:

(i) A and B **(3 marks)**

……

……

……

……

(ii) C and D **(2 marks)**

……

……

……

……

(b) What does the point marked X represent? **(1 mark)**

……

(c) Apart from temperature. State two other factors that affect the rate of enzyme-controlled reaction. **(2 marks)**

……

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3. (a) The scientific name *Lantana camara* refers to a green herbaceous plant. Other related plants include *Lantana trifoliate* and *vitex rifoliate*.

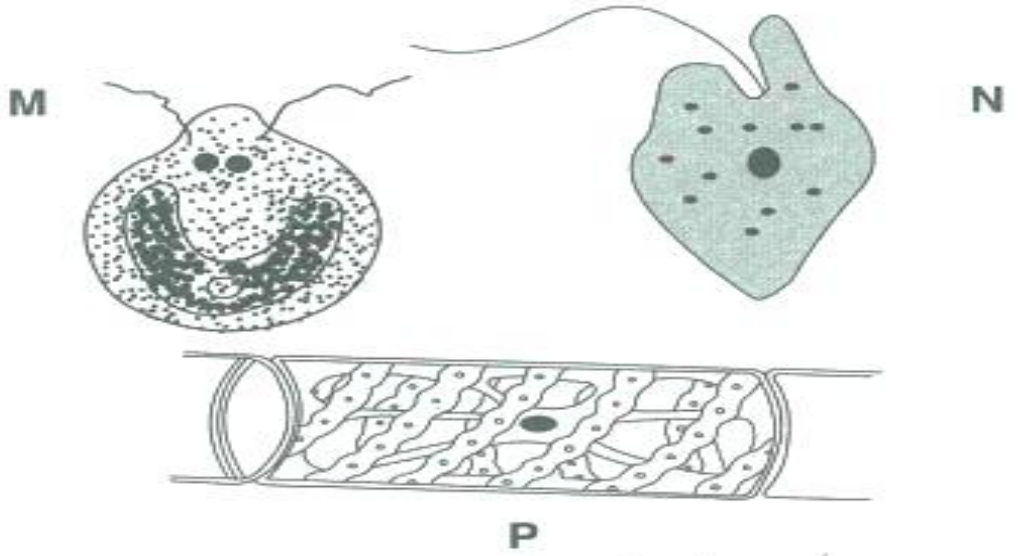
(i) From the list, identify the plants belonging to the same genus. **(1 mark)**

……

(ii) From the name *Lantana camara*, which name represents the genus name? **(1 mark)**

……

(b) During a taxonomical study of pond water, pupils observed the following organisms:



(i) Identify organisms **M, N and P.** **(3 mark)**

M

N

P

(ii) All the three organisms above belong to the same kingdom. Name the kingdom to which they belong. **(1 mark)**

……

(iii) State two main observable features of the kingdom you have named in (ii) above. **(2 marks)**

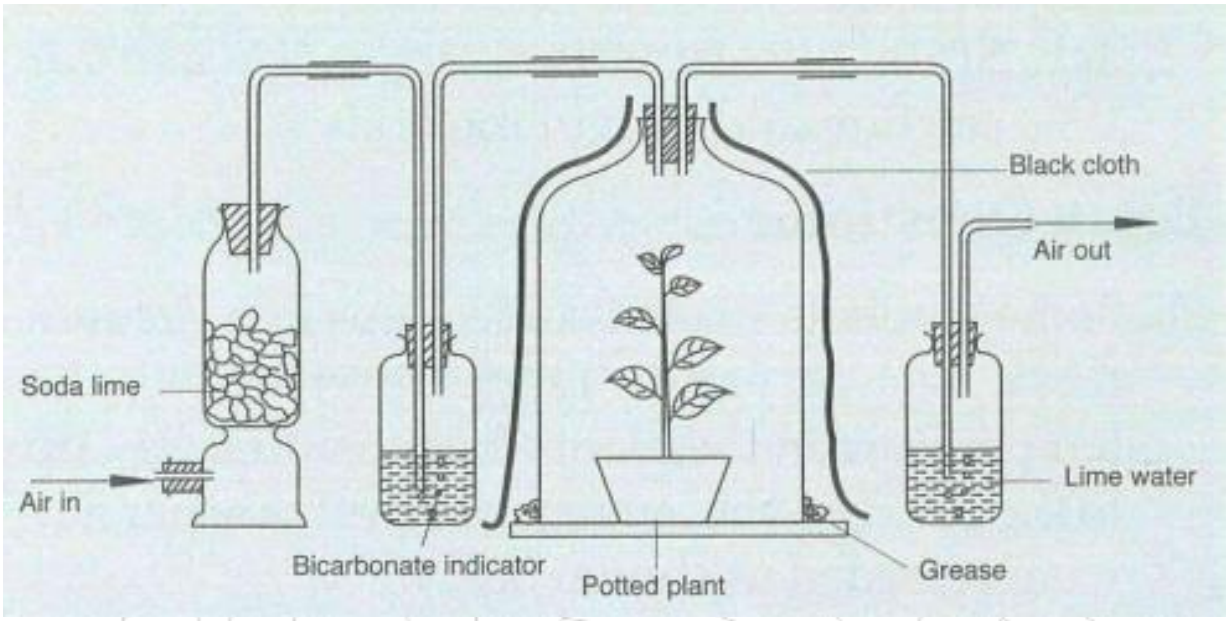
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4. The apparatus below were used to investigate a certain physiological process in plants.



(a) State which physiological process was being investigated. **(1 mark)**

(b) Give the function of the following in the experiment:

(i) Soda lime **(1 mark)**

(ii) Bicarbonate indicator **(1 mark)**

(iii) Black cloth **(1 mark)**

(iv) Grease **(1 mark)**

(c) (i) Suggest a possible observation that would be made at the end of this experiment**.(1 mark)**

(ii) Give reasons for your answer in (c (i) above. **(2 marks)**

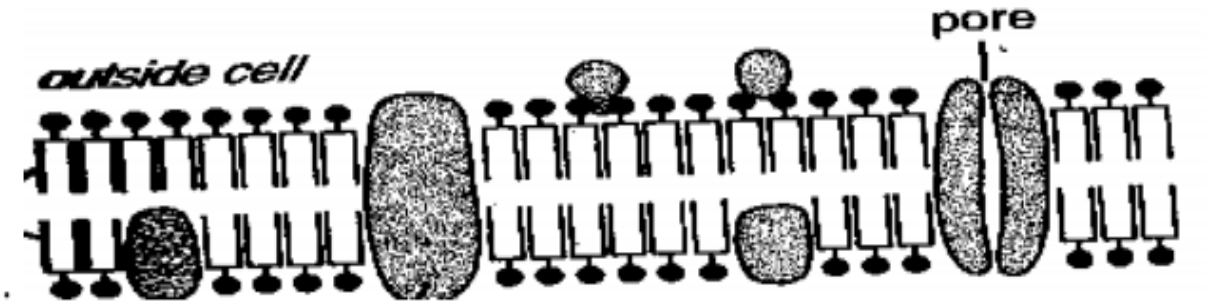
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5. Below is a diagram of a structure found in Eukaryotic cells. Study it and answer the questions that follow.



(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 evidence of evolution. **(3 marks)**

……

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SECTION B (40 MARKS)

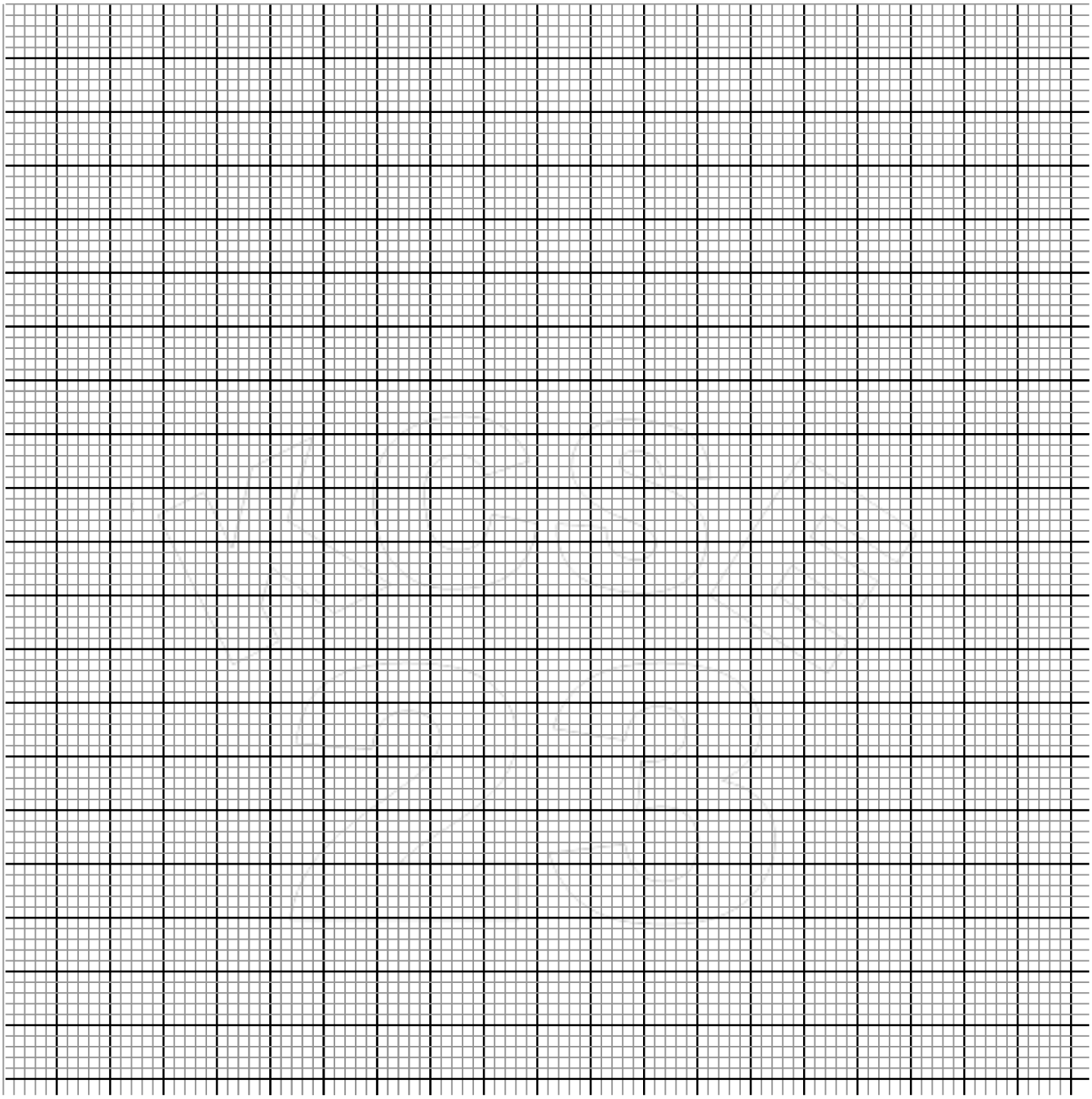
Answer question 6 (compulsory) and either question 7 or 8 in the spaces provided after question 8.

6. The pressure in the flow of blood in a mammal was determined at two different vessels. The data was taken within a period of one minute and was presented as follows.

Time (seconds)	Blood vessel A	Blood vessel B
0	160	320
10	165	360
20	170	320
30	180	400
40	170	360
50	160	320
60	160	360

(a) Plot a graph of blood pressure in both vessels against time on the same axis. **(8 marks)**

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(b) Describe the trend of each curve. **(2 marks)**

……

……

……

……

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(c) From the graphs, suggest the possible identity for:

(i) Blood vessel A. **(1 mark)**

……

(ii) Blood vessel B. **(1 mark)**

……

(d) Give reasons for your answer in (c) (i) and (ii) above. **(2 marks)**

……

……

(e) Explain a factor that would result to an increase in blood pressure in both blood vessels above. **(2 marks)**

……

……

……

(f) State three structural differences between the two vessels mentioned in (c) above.**(3 marks)**

……

……

……

……

(g) Name a nerve that is responsible for the increase of the rate of heartbeat. **(1 mark)**

……

7. (a) Describe the digestion of a starchy meal along the human alimentary canal. **(13 marks)**

(b) Describe the process of urea formation. **(7 marks)**

8. Discuss the effects of drugs abuse on human health. **(20 marks)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

BIOLOGY

231/3

PAPER 3 (PRACTICAL)

TIME: 1¾ HOURS

SCHOOL…… SIGN……

Kenya Certificate of Secondary Education.

BIOLOGY CONFIDENTIAL

Each candidate will require the following:

a) 3 bean seedlings as follows:

b) One grown under normal conditions labelled **A**

c) One grown in the dark labelled **B**

d) One grown in the dark with unilateral source of light labelled **C**

NB:

The curvature of the seedling **C** towards source of light should be obvious.

Germination time 10 – 14 days.

- ✓ *Iodine solution*
- ✓ *White tile*
- ✓ *Dropper*
- ✓ *2 test-tube*
- ✓ *Mortar & pestle*
- ✓ *2 labels*

Coloured photographs

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KCSE 2023 PREDICTION EXAM

SERIES 3

BIOLOGY

231/3

PAPER 3 (PRACTICAL)

TIME: 1¾ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO THE CANDIDATES

- *Write your **name** and **admission number** in the spaces provided above.*
- *Write the **date** of examination in the spaces provided.*
- *Answer **all** questions in the spaces provided.*
- *You are required to spend the first 15 minutes of the **1 ¾** to read the questions*
- *Candidates should answer the questions in **English.***

FOR EXAMINER'S USE ONLY:

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1	16	
2	12	
3	12	
TOTAL	**40**	

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1. You are provided with three sets of seedlings labelled A, B and C.

Examine them and answer the questions that follow:

(a) State the conditions under which seedling A and B were grown. **(2marks)**

A ……

B……

(b) (i) Name the type of germination exhibited by the seedlings. **(1mark)**

……

(ii) Give a reason for your answer in b (i) above. **(1mark)**

……

……

(c) List two observable differences between seedlings A and B. **(2marks)**

A	**B**

(d) Name the term used to describe the phenomenon exhibited by specimen **B** **(1mark)**

……

(e) (i) Name the response exhibited by the seedlings labelled **C**. **(1mark)**

……

(ii) Explain how the response named in (e) (i) above occurred. **(2marks)**

……

……

……

……

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(f) Separately, pluck, cut and crush the leaves from seedling **A** and **B.**

Place the crushed extract into separate test-tubes labelled $\mathbf{A_1}$ and $\mathbf{B_2}$.

Add 2ml of water to form solutions A_1 and B_1 respectively.

(i) Using the reagent provided, carry out food test on $\mathbf{A_1}$ and $\mathbf{B_1}$. **(4 marks)**

Test for	Procedure	Observation	Conclusion

(ii) Account for the results obtained (f) (i) above. **(2marks)**

……

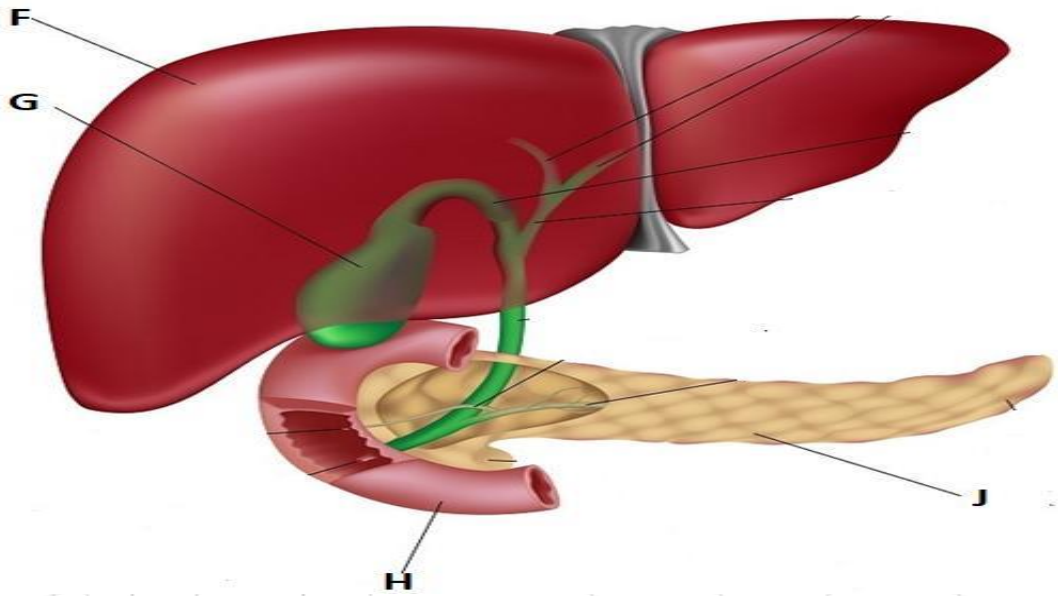
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2. Study the photographs below and answer the questions that follow.



(a) Identify the following parts. **(2mks)**

F ……

G……

(b) (i) Identify the secretion stored in the part labelled G. **(1mk)**

……

(ii) Give two functions of the secretion you have identified in b (i) above. **(2mks)**

……

……

……

(c) (i) Give two major roles of the part labelled J. **(2mks)**

……

……

(ii) State the hormone secreted by the part labelled H. **(1mk)**

……

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(d) Study the photograph below and answer the questions that follow.



(i) Identify the following part. **(2mks)**

K ……

L ……

(ii) Give two adaptations of the part labelled M. **(2mks)**

……

……

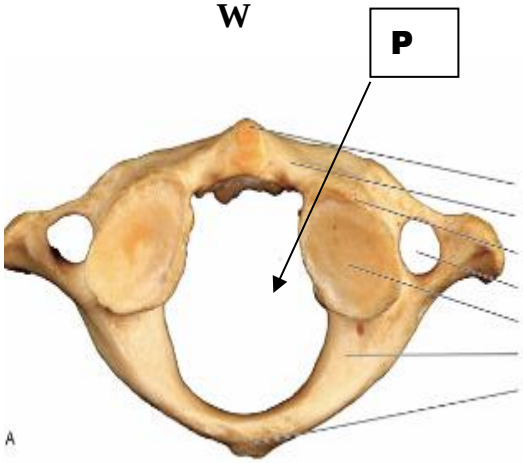
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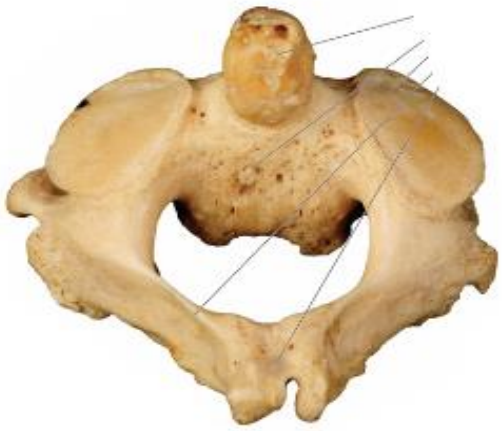
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3. You are provided with photograph of specimen W, Y and Z.

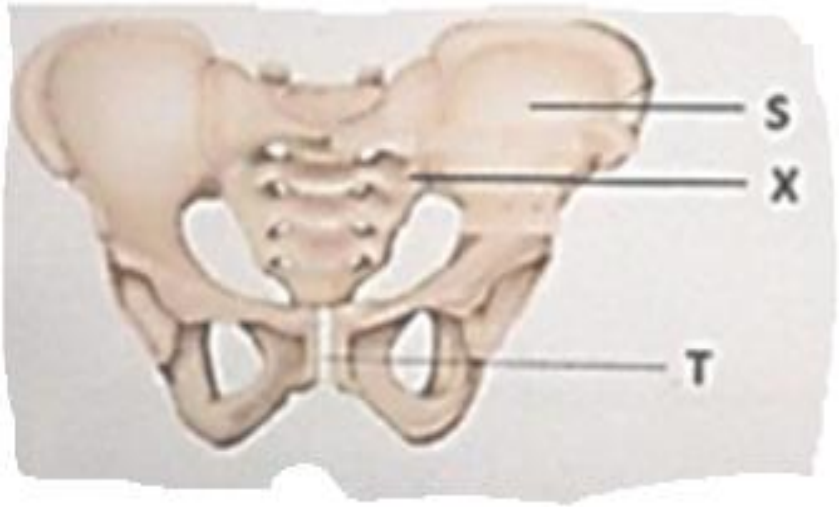
W



Y



Z



(a) Name the region from which bones W and Y were obtained. **(1mk)**

……

(b) Identify the bones **3mks)**

W……

Y……

Z ……

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(c) State three characteristics features of the bone labelled W. **(3mks)**

……

……

……

……

(d) Which structures fit in the opening labelled P in the photographs of specimen W. **(2mks)**

……

……

……

(e) Name the parts S and T on photograph Z. **(2mks)**

S……

T……

f) On the photographs label orbutrator foramen **(1mk)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

AGRICULTURE

443/1

PAPER 1 (THEORY)

TIME: 2 HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO STUDENTS

a) *Write your name and Admission number in the spaces provided at the top of this page*
b) *This paper consists of three sections: A , B and C*
c) *Answer all questions in sections A and B*
d) *Answer any two questions in section C*
e) *All answers should be written in the spaces provided*
f) *Candidate should answer the questions in English*

FOR EXAMINER'S USE ONLY

SECTION	QUESTIONS	MAXIMUM SCORE	CANDIDATE SCORE
A	1-21	30	
B	22-25	20	
C		20	
		20	
	TOTAL SCORE	**90**	

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SECTION A (30 Marks)

Answer all questions in this section on the spaces provided

1. Suggest **three** factors that determine the choice of a method of farming **(1½ marks)**

……

……

……

……

2. Outline **three** effects of soil organisms which benefit crop growth **(1½ marks)**

……

……

……

……

3. State the soil component that determines **(1mark)**

Soil Structure class

……

……

Soil Structure grade

……

……

……

4. State **four** effects of hard pans in the soil **(2 marks)**

……

……

……

……

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5. State **four** factors that determine the number of secondary operations carried out on land in the formation of a seedbed **(2marks)**

……

……

……

……

6. State **four** factors that are hinder access of enough and clean water to most Kenyans communities **(2marks)**

……

……

……

……

7. Name **three** causes of water logging in arable land **(1½ marks)**

……

……

……

8. What is the difference between compost manure prepared in drier areas and one prepared in wet areas? **(1 mark)**

……

……

……

9. State **two** methods used to test the PH of the soil **(1 mark)**

……

……

……

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10. Differentiate between stem and root tubers **(1 mark)**

……

……

……

11. The average spacing of Arabica coffee is 2.7 m by 2.7 m. Calculate the plant population in one hectare (1Ha) of land (***Show your working***) **(2marks)**

……

……

……

……

12. State any **two** practices carried out during hardening of seedlings in the production of tomatoes **(1mark)**

……

……

13. Name the **three** types of suckers that are supposed to be left in each banana stool after removal or pruning of the extra suckers. **(1½ marks)**

……

……

……

……

14. State **four** types of information contained in a land title deed **(2 marks)**

……

……

……

……

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15. Explain **two** ways in which grass strips help to conserve the soil **(1 mark)**

……

……

……

16. State **four** disadvantages of tillage as a method of weed control **(2 marks)**

……

……

……

……

17. Explain the difference between pests economic injury level and integrated pest management **(1mark)**

……

……

……

18. Name the **three** grades of coffee obtained after sorting out the picked berries **(1½ marks)**

……

……

……

19. What is topping in pasture management **(½ mark)**

……

……

20. State **three** ways in which labour productivity can be improved **(1½ marks)**

……

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21. State **three** roles of agricultural co-operatives in Kenya **(1½ marks)**

……

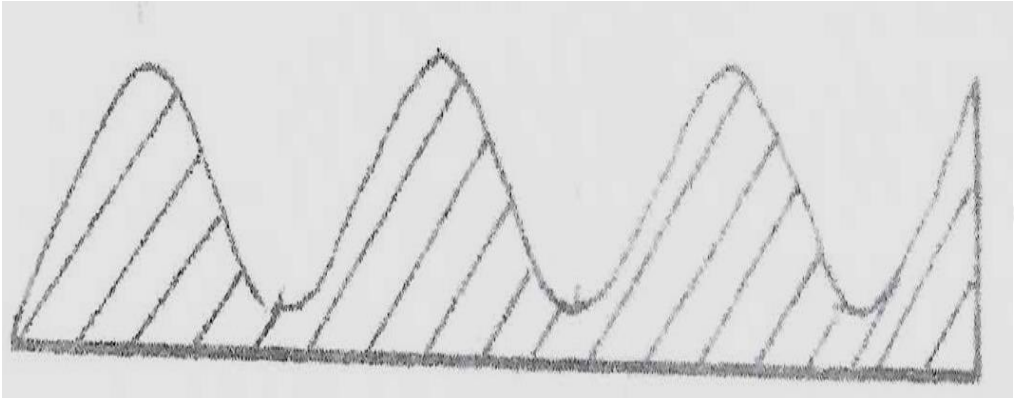
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SECTION B (20 Marks)

Answer ALL questions in this section on the spaces provided

22. Below is a diagram of a tertiary land operation. Study it and answer the questions that follow



a) Name the tertiary land operation **(1 mark)**

……

b) Explain the process of performing the tertiary land operation **(1 mark)**

……

……

c) Name the tractor implement that can be used to achieve the operation **(1 mark)**

……

d) State the importance of carrying out the tertiary operation **(2 marks)**

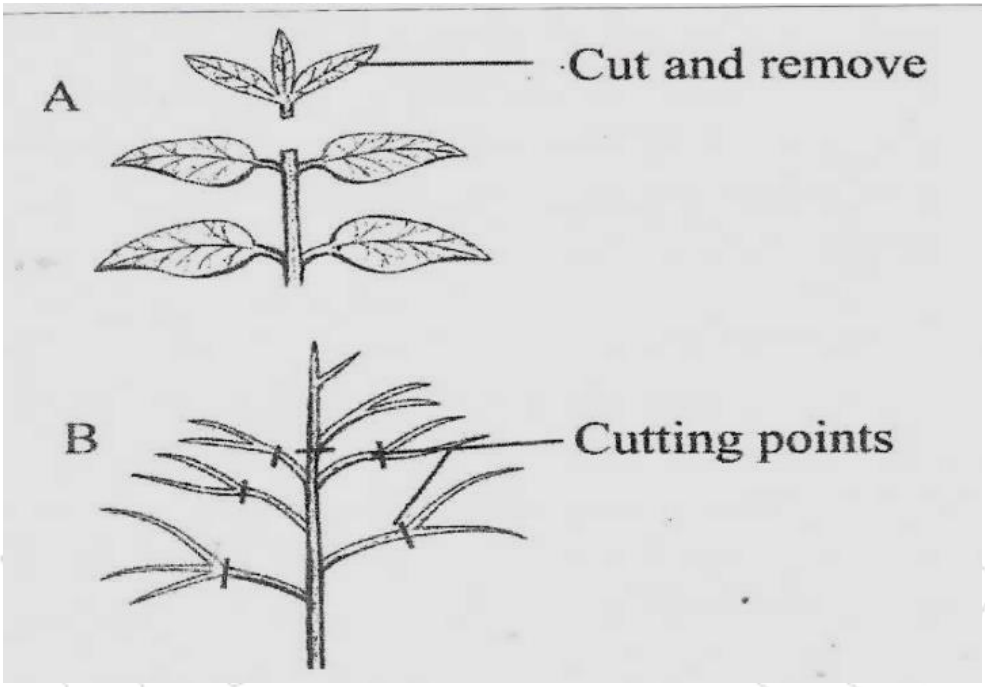
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23. Below are diagrams of two methods of pruning. Study them carefully and answer the questions that follow.



i. Identify the pruning methods shown below **(2 marks)**

Method **A** ……

Method **B** ……..

ii. When would it be necessary to carry out the type of pruning illustrated in both cases (**2 marks)**

Method **A** ……..

……

Method **B** ……..

……..

iii. Give **two** advantages of carrying method of pruning in tomatoes **(1mark)**

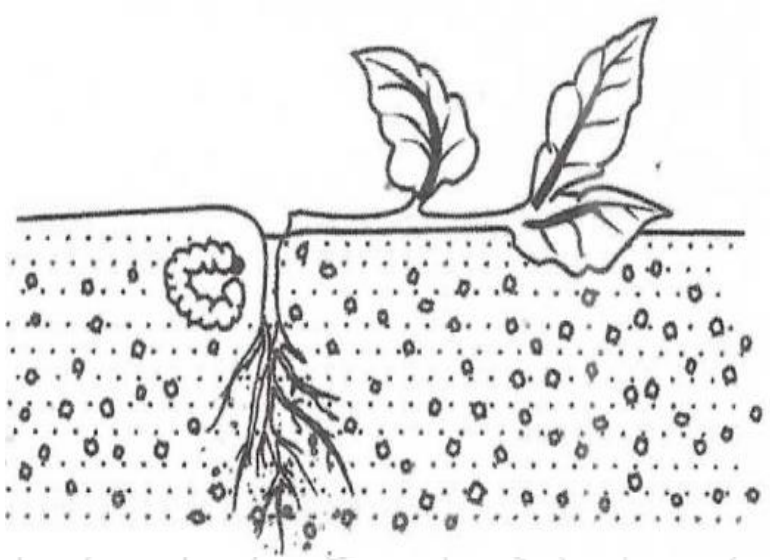
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24. Below is a diagram of a cabbage pest. Study it carefully and answer the questions that follow



a) Identify the cabbage pest shown above **(1 mark)**

……

b) In which category of pests does the pest you named in (a) above belong **(1mark)**

……

c) What kind of mouth part does the pest named in (a) above possess? **(1 mark)**

……

d) Suggest **two** control measures for the pest named in (a) above **(2 marks)**

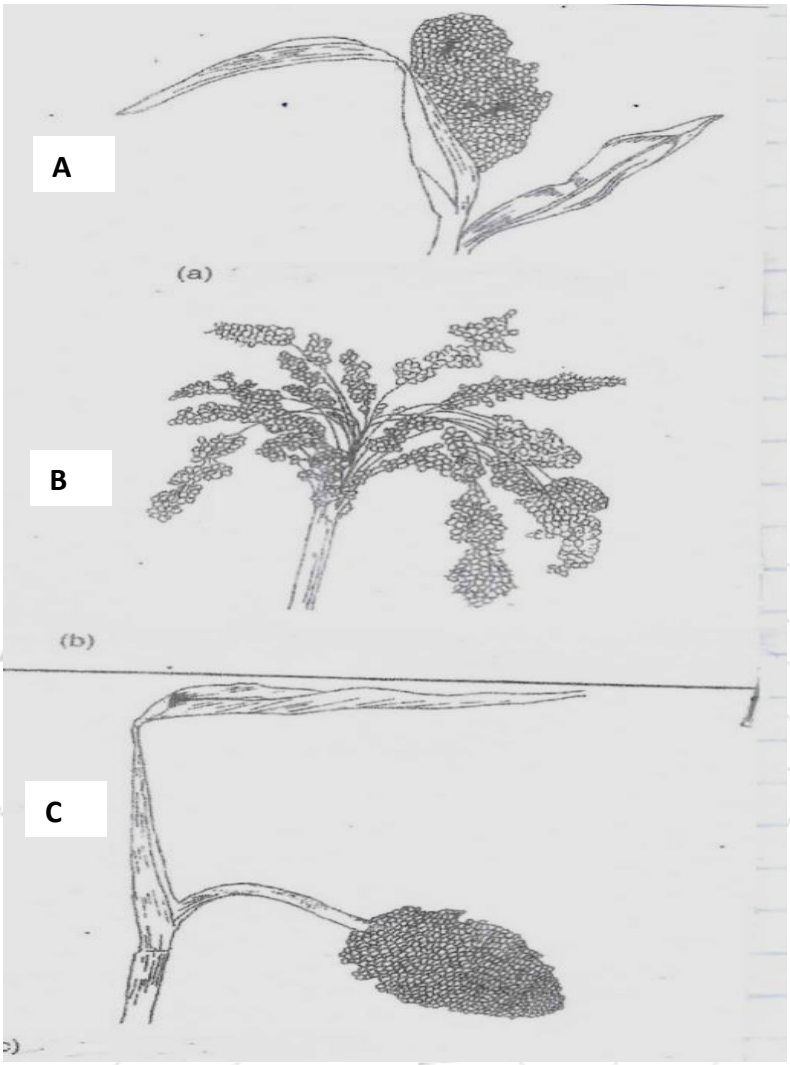
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25. Below are diagrams of different varieties of sorghum. Study them and answer the questions that follow



i. Identify the different varieties **(3 marks)**

A……

B……..

C……..

ii. State **one** advantage of the variety labeled C over the other varieties **(1 mark)**

……

iii. Name **two** common pests of sorghum **(1 mark)**

……

……

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SECTION C (40 Marks)

Answer any TWO questions in this section in the spaces provided after question 28.

26. a) State and explain **four** ways in which biological agents may enhance soil formation **(6 marks)**

b) Discuss **six** reasons on the importance of keeping good and up to date farm accounts in the farm **(6 marks)**

c) Discuss why liming is a recommended practice in crop production **(4 marks)**

d) Explain the roles of irrigation water in rice production **(4 marks)**

27. a) Outline the procedure undertaken in inheriting a registered land upon death of the owner **(8 marks)**

b) State the **three** harvesting practices of maize **(3 marks)**

c) Discuss the processes of large scale chemical treatment of water **(9 marks)**

28. The following information was obtained from Keheo farm. Study the information and prepare a balance sheet for the farm for the year ended **31st JULY/AUG 2023**

Payable tax	-	16,000
Interest on loan	-	24,000
Payable debts	-	14,000
Two year bank loan	-	120,000
Wages	-	24,000
Buildings	-	84,000
Receivable debts	-	12,000
Livestock	-	124,000
Feeds in store	-	12,000
Maize in store	-	42,000
Cash at hand	-	22,000
Movers	-	5,500
Cash in bank	-	52,000

7 marks

ii) Was Keheo farm solvent or insolvent? **(1 mark)**

b) State **six** advantages of mixed cropping **(6 marks)**

c) Name the **three** zones of the production function and explain what happens in each of the production zone **(6 marks)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

AGRICULTURE

443/2

PAPER 2 (THEORY)

TIME: 2 HOURS

NAME……

SCHOOL…… **SIGN**……

INDEX NO…… **ADM NO**……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO STUDENTS

a) *Write your name and Admission number in the spaces provided at the top of this page*
b) *This paper consists of* ***three*** *sections:* ***A, B and C***
c) *Answer all questions in sections* ***A and B***
d) *Answer any two questions in section* ***C***
e) *All answers should be written in the spaces provided*

FOR EXAMINER'S USE ONLY

SECTION	QUESTIONS	MAXIMUM SCORE	CANDIDATE SCORE
A	1 – 17	30	
B	18 – 21	20	
C		20	
		20	
	TOTAL SCORE	**90**	

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SECTION A (30 MARKS)

Answer ALL Questions in the spaces provided

1. **(a)** Name a breed of sheep with a lambing percentage of above 125 % and whose fleece maybe inferior due to black features. **(½ mark)**

……

(b) Name a goat breed which can be used for production of mohair **(½ mark)**

……

2. Name two tools in each case in a workshop that are used for:

(a) Assembling **(1 mark)**

……

……

(b) Holding **(1 mark)**

……

……

3. List two equipment used in handling cattle during Agricultural exhibition**.** **(1 mark)**

……

……

4. State **four** methods of maintaining good health in livestock. **(2 marks)**

……

……

……

……

5. (a) State **four** desirable qualities of milk. **(2 marks)**

……

……

……

……

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(b) State **four** major dairy processors and distributors in Kenya. **(2 marks)**

……

……

……

……

6. State **four** characteristics of livestock succulent roughage feedstuff. **(2 marks)**

……

……

……

……

7. State **four** common bacterial diseases that affect livestock in the farm. **(2 marks)**

……

……

……

……

8. State **four** advantages of using corrugated iron sheets for roofing. **(2 marks)**

……

……

……

……

9. Give **two** reasons for spreading a damp proof coarse of PVC on the top of foundation. **(1 mark)**

……

……

……

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10. (a) State **four** roles played by engine oil in a tractor engine. **(2 marks)**

……

……

……

……

(b) State **four** practices through which a farmer would ensure that no engine knock occurs in a tractor **(2 marks)**

……

……

……

……

11. State **two** factors that influence the respiration rate in animals **(1 mark)**

……

……

12. State **four** practices that ensure maximum harvest of fish from a fish pond**.** **(2 marks)**

……

……

……

……

13. State **two** difference between dromedary species of camel and Bactrian**.** **(1 mark)**

……

……

……

14. State **one** farm implement which can be used in both primary and secondary operations**(½ mk)**

……

……

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15. Give a reason why Irish potatoes should not be fed to ruminant **animals** **(½ mark)**

……

……

16. List **four** routes through which pathogens can enter the body of an animal **(2 marks)**

……

……

……

……

17. State **four** reasons why farmers give milk to kids using artificial method. **(2 marks)**

……

……

……

……

SECTION B (20 MARKS)

Answer all questions in this section in the spaces provided

18. The pictures below show some of the farm tools, observe them and answer the questions that follow.



W



D

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Y



Z

(a) Identify each of the tools shown above **(4 marks)**

W……

D……

Y……

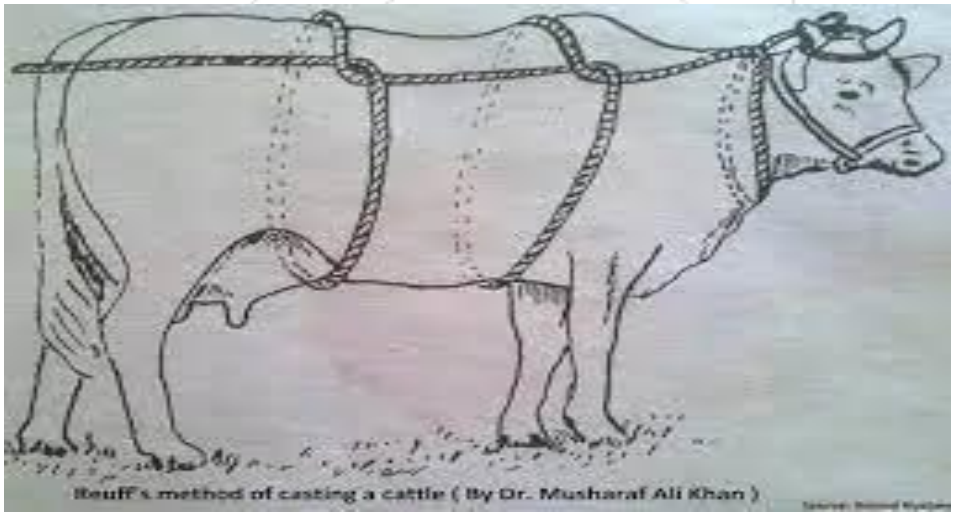
Z……

(b) State the use of the tool labeled Z and W **(1 marks)**

……

……

19. Study the diagram below and answer the questions that follows



(a) Identify the practice **(1 mark)**

……

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(b) Outline **three** management practices that are usually carried out after restraining an animal **(3 marks)**

……

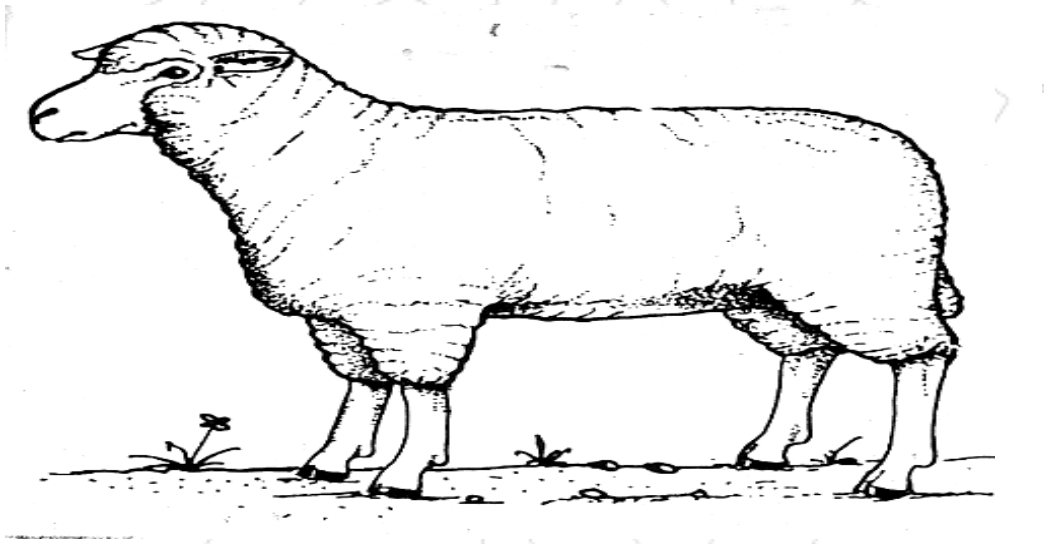
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……

(c) Name one precaution observed when carrying out the practice **(1 mark)**

……

20. Study the diagram below and answer the questions that follows.



(a) Outline **two** reasons for raddling **(2 marks)**

……

……

(b) Using letter R, indicate on the diagram the site of ringing **(1 mark)**

(c) Using letter C, show the position of breeding chutes **(1 mark)**

(c) Give the function of fitting canvas apron/sire sine harness on the underside of rams **(1 mark)**

……

……

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21. Below is a photograph of an artificial method of rearing chicks. Answer the questions below.



(a) Identify the structure **(1 mark)**

……

(b) Give reason why

(i) Newspapers are spread on the floor **(2 marks)**

……

……

(ii) The structure has to be round

……

……

(c) Outline **two** important practices that should be done before the arrival of the chicks **(2 marks)**

……

……

……

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SECTION C

*Answer Any **TWO** questions in this section in the spaces provided after question 24.*

22. a) State **five** conditions that help in observing the disease symptoms in livestock **(5 marks)**

b) State and explain why farmers keeping livestock. **(8 marks)**

c) Describe the typical life cycle of a tapeworm **(7 marks)**

23. a) Describe the reasons why bees swarm **(6 marks)**

b) Describe feeding of a dairy calf from birth to weaning. **(8 marks)**

c) State **six** advantages of farm mechanization **(6 marks)**

24. a) Discuss the farming in a fish pond under the following subheadings

i) Stocking **(4 marks)**

ii) Harvesting **(5 marks)**

iii) Practice carried out before fish preservation **(4 marks)**

b) Explain the causes of cannibalism in a flock of layers **(7 marks)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

BUSINESS STUDIES

565/1

PAPER 1

TIME: 2 HOURS

NAME……

SCHOOL…… **SIGN**……

INDEX NO…… **ADM NO**……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

a) *Write your name and index number in the spaces provided above.*
b) *Sign and write the date of the examination in the spaces provided above.*
c) *This paper consists of 25 questions.*
d) *Answer all the questions in this paper.*
e) *All your answer must be written in the spaces provided in the question paper*
f) *Non –programmable silent electronic calculator may be used.*

FOR EXAMINER'S USE ONLY

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20
Candidate's score																				

21	22	23	24	25	TOTAL MARKS

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1. State the level of production that matches the following occupations. **(4marks)**

Occupation	**Level of production**
a) Carpentry	.....
b) Lumbering	.....
c) Bridge construction	.....
d) Banking	.....

2. State four reasons that may make a firm to be located near a source of raw materials.**(4marks)**

.....

.....

.....

.....

3. Outline four channels used to distribute locally manufactured products in Kenya. **(4 marks)**

.....

.....

.....

.....

4. Give four types of small-scale retailers with shops **(4marks)**

.....

.....

.....

.....

5. State four external factors that may influence the operations of a business negatively. **(4marks)**

.....

.....

.....

.....

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6. State four circumstances under which the capital of a business may change. **(4marks)**

……

……

……

……

7. List down factors that a trader may consider when choosing a means of transport.**(4marks)**

……

……

……

……

8. State four factors that may lead to the success of a business. **(4marks)**

……

……

……

……

9. Highlight four advantages of promoting sales through the internet. **(4marks)**

……

……

……

……

10. Indicate the document to be used for each of the following descriptions. **(4marks)**

Description	**Document**
a) Reply to a specific letter of inquiry	_____
b) To update a catalogue	_____
c) To show the content of container	_____
d) To correct an overcharge in the invoice	_____

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11. The information below relates to Kimeu's business as at 31st JULY/AUG 2022.

	Kshs
Capital	100,000
Additional investment in the year	40,000
Profit realised in the year	25,000
Drawings made in the year	45,000

Determine Kimeu's capital as at 31st JULY/AUG 2022. **(4 marks)**

12. Highlight four forms of economic integration. **(4marks)**

……

……

……

……

13. Highlight four reasons for consumer's protection. **(4marks)**

……

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14. Outline four factors that would make John and Ann taking the same type of life assurance policy with the same insurer to pay different amount of premiums. **(4marks)**

……

……

……

……

15. The information below was extracted from the books of Wapendwa Traders on 31st JULY/AUG 2022

Details	Amount
Furniture and fittings	234,000
Debtors	67,500
Capital	157,900
Commission earned	13,200
Creditors	34,750
Drawings	21,800
5 years bank loan	114,450
Discount received	3,000

Required; Prepare Wapendwa Traders trial balance as at 31st JULY/AUG 2022. **(5marks)**

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16. Identify the ledger in which the following accounts are maintained. **(4marks)**

Account	**Ledger**
a) Pendo (Debtor)	_____
b) Machinery	_____
c) Rent	_____
d) Capital	_____

17. Indicate the source document that relates to the following books of original entry. **(3 marks)**

Books of original entry	**Source document**
a) Purchase return journal	.....
b) Cash book	.....
c) Sales return journal	.....

18. Identify the type of unemployment described by the statements below. **(4marks)**

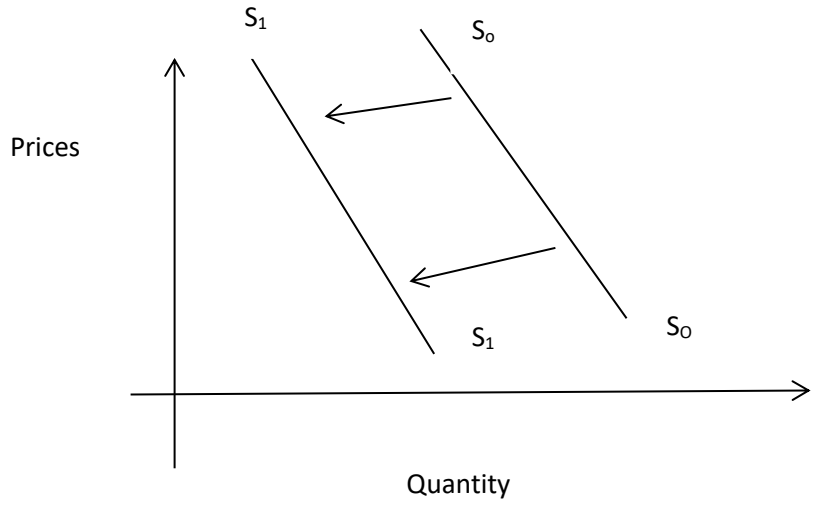
a) Introduction of tea picking machines to replace human labour_____

b) Ignorance of existing opportunities _____

c) Decline in economic activities of a given country_____

d) Five employees handling a single task in an organisation._____

19. The diagram below shows supply of a certain commodity. Give four reasons that may cause such a shift **(4 marks)**



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20. Outline four tools of monetary policy that a government may use to reduce excess money supply **(4marks)**

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……

21. State whether the following transactions will increase, decrease or have no effect on the balance sheet items. **(4marks)**

Transaction	Assets	Capital	Liabilities
a) Took a loon from K.C.B and used it to pay a K.I.E loan.			
b) Bought furniture and paid by cheque			
c) Took stock of goods and donated to a local church			
d) Sold stock of goods on credit at a profit.			

22. The following information was provided from the Mzalendo Traders books for the period ending 31st JULY/AUG 2022.

Commission received	20,000
Gross loss	50,000
Rent paid	30,000
Discount received	35,000
Carriage outward	10,000
Interest on loans	5,000

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Required: Prepare profit and loss account for the period ending 31st JULY/AUG 2022. **(4 marks)**

23. State four assumptions in the circular flow of national income in a two-sector economy.

(4marks)

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24. Highlight four characteristics of underdeveloped countries. **(4marks)**

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25. Outline four levels of inflation. **(4marks)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

BUSINESS STUDIES

565/2

PAPER 2

TIME: 2½ HOURS

NAME……

SCHOOL…… **SIGN**……

INDEX NO…… **ADM NO**……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

a) *Write your name and index number in the spaces provided above.*
b) *Sign and write the date of the examination in the spaces provided above.*
c) *This paper consists of 6 questions.*
d) *Answer any **five** questions in the spaces provided.*
e) *All questions carry equal marks*
f) *Non –programmable silent electronic calculator may be used.*
g) *Candidates must answer the questions in English.*

FOR EXAMINER'S USE ONLY

Question	Maximum score	Candidate's score
	20	
	20	
	20	
	20	
	20	
TOTAL		

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1. (a) Highlight five ways in which Kenyan government can provide an enabling environment to the local traders**.** **(10 marks)**

(b) Explain **five** problems encountered in calculating national income using the output approach **(10 marks)**

2. (a) Explain five challenges that may be experienced by a new entrepreneur who has just established a business in Kenya. **(10 marks)**

(b) Kigal Traders had the following balances as at 30th April 2022

	Sh.
Sales	240,000
Purchases	90,000
Stock (30th April 2022)	70,000
7 years bank loan	100,000
General Expenses	12,000
Interest on loan	25000
Debtors	25,000
Cash at bank	20,000
Creditors	75,000
Cash at hand	10,000
Premises	95,000
Stock (2nd April 2022)	160,000

Calculate:

i) Mark-**up** **(3 marks)**
ii) Margin **(2 marks)**
iii) Rate of stock turn-over **(2 marks)**
iv) Current ratio **(2 marks)**
v) Net profit. **(1 marks)**

3. (a) Explain five purposes of public finance in an economy**.** **(10 marks)**

(b) Highlight five circumstances that allow the existence of a monopoly in an economy. **(10 marks)**

4. (a) Other than monetary policies, explain five ways of controlling demand-pull inflation. **(10 marks)**

(b) Explain five features of sole proprietorship form of business. **(10 marks)**

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5. (a) Outline five benefits that accrue to an organization that uses electronic filing. **(10 marks)**

(b) The following are transactions of Epic traders for the month of June 2005.

June 1: Purchased stock for sh. 84,000 in cash and was given 2% cash discount.
June 2: Paid workers' wages by cheque shs. 21,750
June 3: Sold goods worth sh. 240,000 and received cash after allowing 4% cash discount.
June 7: Received sh. 400,000 by cheque from a debtor after 2% cash discount was allowed.
June 10: Took sh. 80,000 to bank from the business.
June 13: Took stock of goods worth sh. 2000 from the business for personal use.
June 18: Paid sh. 2000 cash as part of water bill leaving a balance of sh. 1750 to be settled at a later date.
June 24: Received a cheque from John a debtor worth sh. 60,000 in settlement of his debt of sh. 66000.
June 28: All the cash at bank was taken to the business for office use except sh. 250,000.

Required: Enter the above transactions in a duly balanced two-column cash book. **(10 marks)**

6. (a) Explain five principles of insurance. **(10 marks)**

(b) Highlight five factors that may lead to a surplus in the balance of payment. **(10 marks)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

ENGLISH

101/1

PAPER 1(*Functional Skills*)

TIME: 2 HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

a) *Write your name and index number in the spaces provided above.*

b) *Answer all questions*

c) *Candidates should check to ascertain that no questions are missing.*

d) *Candidates MUST answer the questions in English.*

For Examiner's Use Only

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

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1. Your friend living in the UK has sent you an e-mail requesting you send her a book review of one of your compulsory set text. You have just finished reading the novel, ***Blossoms of the Savannah by Henry Ole Kulet***. You found it very interesting and you want to entice your friend into reading it. Send her the review through e-mail. **(20marks)**

KCSE 2023

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2.Read the passage below and fill in each blank space with the most appropriate word.(10 Mk

When preparing for examinations, the use of the mind is encouraged rather (1) _____ dull rotational learning, that is, memorizing facts. Thorough preparation for an examination (2) _____ anxiety and helps in passing the examination. This can be achieved when one lays a good (3) _____ at the outset. To ensure this, the learner (4) _____ ascertain that essential points in a topic are understood before moving (5) _____ another topic. One should guard (6) _____ being left behind, but should (7) _____ to cover the ground as the course progresses. The learner should also develop a habit of making notes of what they learn (8)_____ reviewing these notes at intervals, starting with the simpler ones and then progressing to the hard ones. The notes should be organized in such a way that points are (9)_____ to other points, (10)_____ showing some coherence which is easier to follow.

3) a) Read the following poem and answer the questions that follow:-

A Minor Bird

I have wished a bird would fly away
And not sing by my house all day;
Have clapped my hands at him from the door
When it seemed as if I could bear no more.
The fault must have partly been in me
The bird was not to blame for his key.
And of course there must be something wrong
In wanting to silence any song. **Robert Frost**

i) Describe the rhyme scheme of this poem **(2 Marks)**

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ii) Explain with illustrations how the poem achieves its rhythm. **(4 Marks)**

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iii) Mention two things would you do as you perform lines 3 and 6 of this poem to make it lively? **(4 Marks)**

……

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……

……

b) Write another word which is pronounced the same as the following words. **(3 Marks)**

i) Bell

……

iii) Grisly

……

iv) Freeze

……

c) Indicate the meaning of the sentence when the following words are stressed**.** **(3 Marks)**

The tall **<u>teacher</u>** punished the naughty boys.

……

……

The tall teacher **<u>punished</u>** the naughty boys.

……

……

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The tall teacher punished the **naughty** boys.

……

……

d) Imagine that you have been requested to present a speech to form one students on the importance of etiquette in speech. How would you ensure that your speech delivery is effective? **(6 Marks)**

……

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……

e) Underline the words with long vowel sounds **(5 Marks)**

Lot	Loud	Could
Farther	Lord	Card
Should	Moan	Sort
Showed	More	god
Father	Shower	

F) You are listening to Ngugi wa Thiong'o giving a talk on neo-colonialism. Explain what you would do to ensure that you benefit from the talk. **(3 Marks)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

ENGLISH

101/2

PAPER 2

(Comprehension, Literary appreciation and Grammar)

TIME: 2½ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTION TO STUDENTS

i. *Write your* ***name, admission number*** *and* ***class*** *in the spaces provided.*

ii. *Sign and write the date of the examination in the spaces provided.*

iii. *Answer* ***all*** *the questions in the spaces provided.*

iv. *Candidates must answer all the questions in* ***English.***

FOR EXAMINERS' USE ONLY

Question	Maximum score	Candidate's score
1	20	
2	25	
3	20	
4	15	
Total score	80	

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

The Federal Trade Commission on Tuesday confirmed some of the worst fears about Internet – connected devices, saying that technology presented serious data security and privacy risks and urged companies to make data protection a top priority.

While the agency noted the potential benefits for owners of smart devices like connected fitness bands, regulators also said that technology generated enormous amounts of personal data that could be misused or obtained by hackers.

"Many of us are using these devices," Edith Ramirez, the chairwoman of the FTC, said in a telephone interview. "But," she said, "if consumers feel that their information isn't protected, they won't have the confidence level to embrace them."

In a staff report, the agency urged companies to **institute** basic data security measures when they develop such devices and sensors, rather than as an afterthought. It also encouraged companies to develop new ways to communicate their data collection and handling practices – even if they market sensors that are too small to contain digital information displays for consumers.

"We are still at a time when we can have an impact on how the internet of things evolved,' Ramirez said in the interview, referring to an array of connected devices. 'These important privacy principles still have a place in today's world.'

Although the report highlights the issues that the agency intends to monitor and underlines the best practices regulators hope companies will adopt, it does not carry the weight of enforceable regulations. The agency has urged congress to enact baseline federal consumer privacy law. But such legislation is unlikely to pass with congress controlled by republicans.

Still, data security and privacy experts predicted at least larger-well known technology companies would take the agency's data security recommendations into account if only to reduce the business risk of federal investigations.

Around 4.9 billion connected items for consumers, enterprises, manufacturing and utilities will be in use this year according to estimates from Gartner, an information technology market research firm. That number is expected to rise to 25 billion by 2025, centre for Democracy and Technology, a non – profit group in Washington said.

One concern that comes with all these devices, the FTC report noted, is that **hackers** could potentially hijack and misuse intimate information recorded by the technology, perhaps even creating physical safety risks for consumers.

Last year, for instance, an electronics company that marketed what it said was "secure" internet connected cameras, allowing parents to remotely monitor young children at home, **settled** a complaint by the FTC that lack of security practices had exposed its customers to privacy invasions. A security feature that allowed anyone with the cameras intercept addresses to view, and in some cases hear, what was happening in customers' homes, the agency said.

The FTC report recommended that companies consider putting limits on the volume of information their devices collect from consumers and on the amount of time they retain those records.

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But companies may be reluctant to adopt those practices because data storage costs are decreasing and the ability to quickly analyze huge data sets is increasing.

Even so, regulators said they would be keeping watch to see that makers of connected devices **limit** the potential security and privacy risks of their products for consumers.

For companies, it will be to their detriment if they don't heed the issues we flag in the report," Ramirez said. ***New York Times.***

QUESTIONS

(i) According to the first paragraph, what fears did the Federal Trade Commission confirm?

(2marks)

……

……

……

(ii) What does the acronym F.T.C stand for? **(1 mark)**

……

……

(iii) Provide a suitable title for the passage? **(2marks)**

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(iv) Why is the word "secure" written in quotation marks? **(2marks)**

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(v) It does not carry the weight of enforceable regulations. (add a question tag) **(1mark)**

……

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(vi) Make notes on what the agency in a staff report urged companies to implement. **(4marks)**

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(vii) Around 4.9 billion connected items per consumer, enterprises, manufacturing and utilities will be in use this year according to estimates from Gartner.

Begin: According to estimates…. **(1mark)**

……

……

(viii) Why is it that companies would be reluctant to adopt the practices recommended?**(2marks)**

……

……

……

(ix) What is the meaning of the following underlined words as used in the passage. **(5 marks)**

a) Institute ……

b) Hackers ……

c) Settled ……

d) reluctant ……

e) Limit ……

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2. **EXCERPT: A Doll's House BY HENRIK IBSEN (25 MARKS)**

Read the following excerpt and answer the questions that follow.

Mrs Linde: Good evening.

Nora: Christine!

Helmer: You here, so late, Mrs. Linde?

Mrs. Linde: Yes, you must excuse me; I was so anxious to see Nora in her dress.

Nora: Have you been sitting here waiting for me?

Mrs. Linde: Yes, unfortunately I came too late, you had already gone upstairs; and I thought I couldn't go away again without having seen you.

Helmer: (taking off Nora's shawl) Yes, take a good look at her. I think she is worth looking at. Isn't she charming, Mrs. Linde?

Mrs. Linde: Yes, indeed she is.

Helmer: Doesn't she look remarkably pretty? Everyone thought so at the dance. But she is terribly self-willed, this sweet little person. What are we to do with her? You will hardly believe that I had almost to bring her away by force.

Nora: Torvald, you will repent not having let me stay, even if it were only for half an hour.

Helmer: Listen to her, Mrs. Linde! She had danced her Tarantella, and it had been a tremendous success, as it deserved - although possibly the performance was a trifle too realistic – a little more so, I mean, than was strictly compatible with the limitations of art. But never mind about that! The chief thing is she made a success – she made a tremendous success. Do you think I was going to let her remain there after that and spoil the effect? No, indeed! I took my charming little Capri maiden – my capricious little Capri maiden, I should say – on my arm; took one quick turn round the room; a curtsey on either side, and, as they say in novels, the beautiful apparition disappeared. An exit ought always to be effective, Mrs. Linde; but that is what I cannot make Nora understand. Pooh! This room is hot. (Throws his domino on a chair, and opens the door of his room.) Hullo! It's all dark in here. Oh, of course – excuse me-. (He goes in, and lights some candles.)

Nora: (in a hurried breathless whisper) Well?

Mrs. Linde: (in a low voice) I have had a talk with him.

Nora: Yes, and –

Mrs. Linde: Nora, you must tell your husband all about it.

Nora: (in an expressionless voice) I knew it.

Mrs. Linde: You have nothing to be afraid of as far as Krogstad is concerned; but you must tell him.

Nora: I won't tell him.

Mrs. Linde: Then the letter will.

Nora: Thank you, Christine. Now I know what I must do. Hush -!

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QUESTIONS

1. Describe what happens before this excerpt **(2 Marks)**

……

……

……

2. Identify and illustrate the character traits of the following as evident in this excerpt (**6 Marks)**

Nora

……

……

……

Helmer

……

……

……

Mrs. Linde

……

……

……

3. Describe a major theme evident in this excerpt**.** **(2 Marks)**

……

……

……

4. Referring elsewhere in the play explain why Mrs. Linde tells Nora she has nothing to be afraid of as far as Krogstad is concerned**.** **(3 Marks)**

……

……

……

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5. From the excerpt, what is Helmer's attitude towards Nora? **(3 Marks)**

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……

……

……

6. Which letter does Mrs. Linde refer to and what are its contents? **(3 Marks)**

……

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7. Everyone thought so at the dance. Rewrite changing to an interrogative. **(1 Mark)**

……

……

8. Describe the use of dramatic irony as evident in this excerpt. **(3 Marks)**

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……

9. What happens immediately after this excerpt? **(2 Marks)**

……

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3. Read the narrative below and answer the questions that follow.

Mola had two wives. The first wife was faithful and had borne him children. The second wife was a fickle woman, greedy and jealous. Now Mola had taken a third wife, who admired him as a great chief. She was so devoted to him that she praised him even while she worked. Whatever she was doing, grinding, pounding, or harvesting, she would praise his name in songs like this one:

Mola my husband is great like my father.
Mola my master, a lion in the hills.
When he is away, I scan the hill slopes.
His strength crushes me like the eagle crushing a buck's shoulder blade.
I am the field for his hoe, the soil waiting for the first rains.
I hang like a liana from the mighty branches of a forest-giant.
I find shelter in his presence like the velvet monkey in the thick foliage.
Of the mahogany tree.
I am my Mola's mola; I fit round his strong arm.
I am like the bats hanging from the ceiling of the caves in the rocks.
He is the rock that no spear can kill…

The second wife was annoyed with these praises for a husband who did not, she felt, give her enough presents. What was worse, the singing pleased her husband so much that he lavished most of his attentions on the third wife. So the second wife decided to sing him a song of her own.

Mola, my brother, be silent in the mountain ……

It contained many more lines one could not understand. Mola began to sink into the ground, like a tree in a flood. At last he disappeared altogether, and the earth covered him altogether, and earth covered his head. The first and third wives began to wail loudly.

Mola found himself in the land below. He traveled along a path until he came to copse. He decided to build a house there, but as soon as he started cutting a tree, all the trees began to cry for help. So he walked on.

Then he came to a forest where he found hundreds of mushrooms. He collected large numbers until he was suddenly surrounded by the king's soldiers, who accused him of stealing the royal herd.

He said: "I was only collecting mushrooms." He opened his bags and found animals. He emptied his bag and the animals tuned into mushrooms again. He looked at the soldiers but he saw only trees.

He went on and met an old woman. She said, "guard my millet field while I am away. But do not try to catch the birds, just chase them by shouting." She vanished and at once a flock of orange birds descended and began to eat the

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millet. He burnt his fingers and went away.

Behind a bush he met a great lion who told him" "You are trespassing in my kingdom, but if you bring me the fire, I will give you half of my cattle." Mola went on and found lightning, who was sitting in an old tree. He concluded a pact of friendship with lightning, who gave him a flaming torch. Mola brought the torch to King Lion, who was so pleased that he gave him cows.

Suddenly, he heard the voice of his mother crying and complaining: Oh my son, who always worked for me, he used to hoe my fields! Alas for his mother! Who will now harvest my millet for me? I am old and weak!"

When Mola heard this he asked permission of the lion to return to his own country, because his old mother urgently needed help with the crops. The lion agreed that this was a valid reason and called his guards to guide Mola to the door.

The guards showed him a cave and Mola drove his cattle through the narrow opening. He found himself in the bushes at the foot of the hill not far from his own village. He drove the cows to his own Kraal.

There was a great rejoicing in his compound, when the children saw him they raced out to meet him. The hunting dogs yelped around him. The news soon spread; Mola has come back from the underworld a rich man.

His mother said: "Chase away that evil woman who bewitched you." The villagers stoned the second wife. The third wife took her nanga, a stringed instrument and sang:

My husband has come back from the land of graves.
He lives again like fire in the morning ……

a) Giving a reason, classify this narrative. **(2Marks)**

……

……

……

b) Identify the oral features evident in the story. **(4Marks)**

……

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c) "Mola has come back from the underworld a rich man." Explain the irony in this statement. **(2Marks)**

.....

.....

.....

d)Describe the character of the second wife and show how it affects the events of the story. **(3Marks)**

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.....

e) From what happened to Mola later, how would you interpret the line: "Mola, my brother, be silent in the mountain ....." **(1Mark)**

.....

.....

f) With clear illustrations, identify any other figures of speech used in the narrative. **(4Marks)**

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g)Explain the attitude of the third wife towards her husband. **(2Marks)**

.....

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h)What can we learn about the values of this community**?** **(2Marks)**

……

……

……

4. GRAMMAR **(15MARKS)**

a. Use the correct form of the verb in brackets to fill the blanks. [3 marks]

i.The couple ……..…….. not well informed about adoption procedures.[be]

ii. Last year we ……..……. all the maize into flour. [grind]

iii. Munyankei …….. the bat and smashed the ball. [swing]

b. Rewrite the following replacing the underlined words with appropriate phrasal verbs [2 marks]

i. Low quality universities <u>produce</u> incompetent graduates.

……

ii. Some managers do not <u>tolerate</u> lateness among workers.

……

c. Choose the correct word from the choices to fill the blanks. [3marks]

i. She wore a ……..…….[stripped/striped] shirt, a tie and gumboots.

ii. This teacher's ……[remuneration / renumeration] is scandalously low.

iii. Parents should not park their vehicles ……..[anyhow / anyhowly].

d. Use the correct form of the words in brackets to fill the blanks. [4 marks]

i. The ……. between them is as interesting as it is sickening [enemy]

ii. She was sacked due to chronic ……. [absent]

iii. Adoyo works in the …… department. [maintain}

iv. Laziness is a ……. to success. [hinder]

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e. Rewrite the following sentences according to instructions after each [3 marks]

i. Peter is successful even though he did not pass exams. [Begin: *In spite of*.…]

……

……

ii. Is there life after death or not? This is a question which humans have been grappling with for a very long time. [Begin: The question of ……]

Do not use the word 'question' twice

……

iii. After a new manager was appointed, profits began to improve.

[Begin: *Subsequent*……**]**

……

KCSE 23

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KCSE 2023 PREDICTION EXAM

SERIES 3

ENGLISH

101/3

PAPER 3

(Creative Composition and Essays Based On Set Texts)

TIME: 2½ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INTRUCTIONS TO CANDIDATES

(a) *Answer three questions only*

(b) *Question 1 and 2 are compulsory.*

(c) *In question three answer only one of the optional texts you have prepared on.*

(d) *Where a candidate presents work on more than one optional text only the first one to appear will be marked.*

(e) *Each of your essay must not exceed 450 words*

FOR EXAMINER'S USE ONLY

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

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1. Imaginative Composition (Compulsory) (20 marks)

Either

a) Write a composition beginning with the following sentence: Walking out of the gate that afternoon, itdawned on me how foolishly I had acted.

Or

b) Write a composition on effects of social media on the students in schools in Kenya.

2. The Compulsory Set Text (20 marks)

Blossoms of the Savannah by H. Ole Kulet

"Parents have a duty to make choices that safeguard the interests of their children but when they fail to doso they expose the children to untold agony." Using *Blossoms of the Savannah* for your illustrations, writean essay in support of this statement.

3. The Optional Set Texts (20 marks)

*Answer any **one** of the following **three** questions.*

EITHER

(a)<u>The Short Story</u>

A Silent Song and Other Stories (ed.); Siundu Godwin

When one is gifted, they should strive to use their gifting for the good of others. If such gifts are used forselfish reasons, they may end up miserably. Using examples from Mahfouz story *A Man of Awesome Power*, write a composition in support of this statement.

OR

(b)<u>Drama</u>

Inheritance by David Mulwa

Using illustrations from David Mulwa's, *Inheritance,* write an essay to justify the statement: "Things arenot always what they look like."

OR

(c) <u>The Novel</u>

***An Artist of the Floating World*;** by Kazuo Ishiguro

War has a way of turning people's lives inside out. Using specific illustrations from Ishiguro's *An Artistof the Floating World*, write an essay to show the truth of this statement.

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UTABIRI WA KCSE 2023

MFUATANO WA 3

102/1

KISWAHILI

KARATASI YA 1

INSHA

MUDA: SAA 1¾

JINA……

SHULE…… SAHIHI……

NAMBARI YA USAJILI…… MKONDO……

Cheti cha Kuhitimu Kisomo cha Sekondari (KCSE)

MAAGIZO

a) *Andika jina lako na nambari yako katika nafasi ulizoachiwa hapo juu.*

b) *Andika insha **mbili**. Insha ya **kwanza** ni ya **lazima.***

c) *Kisha chagua insha nyingine moja kati ya tatu zilizobakia.*

d) *Kila insha isipungue maneno **400***

e) *Kila insha ina alama **20***

f) *Kila insha **lazima** iandikwe kwa lugha ya Kiswahili.*

KWA MATUMIZI YA MTAHINI PEKEE

Swali	Upeo	Alama
1	20	
	20	
Jumla	40	

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1. LAZIMA

Wewe ni mwenyekiti wa vuguvugu la Tazama Afrika. Andika mazungumzo yako na mawaziri wawili kutoka mataifa yaliyoendelea barani kujadili matatizo yanayokumba bara la Afrika.

2. Uhuru unaopewa vijana leo katika nchi yetu una madhara zaidi kuliko faida.Jadili.

3. Maji ukiyavulia nguo, yaoge.

4. … Nilijitoa kafara na msaada wangu ukazaa natija kwa wengi.

KCSE 23

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UTABIRI WA KCSE 2023

MFUATANO WA 3

102/2

KISWAHILI

KARATASI YA 2

LUGHA

MUDA: SAA 2½

JINA……

SHULE…… SAHIHI……

NAMBARI YA USAJILI…… MKONDO……

Cheti cha Kuhitimu Kisomo cha Sekondari (KCSE)

Maagizo

a) *Andika jina lako na nambari yako ya mtihani katika nafasi ulizoachiwa hapo juu.*

b) *Tia sahihi yako kisha uandike tarehe ya mtihani katika nafasi ulizoachiwa hapo juu.*

c) *Jibu maswali* ***yote****.*

d) *Majibu yote yaandikwe katika nafasi ulizoachiwa katika kijitabu hiki cha maswali.*

e) *Usitoe ukurasa wowote kutoka kwenye kijitabu hiki.*

KWA MATUMIZI YA MTAHINI PEKEE

SWALI	UPEO	ALAMA
1	15	
2	15	
3	40	
4	10	
Jumla	80	

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1. UFAHAMU (Alama 15)

Soma taarifa ifuatayo kisha ujibu maswali.

Mengi yamesemwa kuhusu utiifu. Ukweli ni kuwa,watu wengi hudhani kuwa maisha yangekuwa mazuri zaidi ikiwa kila mtu angeruhusiwa kufanya atakavyo. Kulingana na mimi, ni makosa kufikiria hivyo madhali mienendo isiyodhibitiwa na sheria ni kiini cha vurugu na ukiukaji wa sheria nchini. Hebu fikiria hali ingekuwa vipi ikiwa mwendeshaji pikipiki angeiendesha kulia na kushoto katikati ya barabara na kupuuza sheria za trafiki. Hali kama hii huweza kusababisha msongamano mkubwa wa magari mjini, hivyo kuwafanya watu wachukue muda mrefu kabla ya kufika waelekeapo. Kutengenea au shwari kwa mambo hutokana na kila mtu kufuata kanuni zote zilizowekwa.

Kila mtu hana budi kuelewa kuwa utiifu si udhaifu au woga. Ni hali ya kutambua kuwa kutii utawala wa kisheria huhakikisha kuwa kuna muumano na utangamano wa kijamii. Utiifu una maana ya kufanya yanayotarajiwa. Vilevile utiifu una maana ya kutambua na kukubali kuwa kufanya matendo mema ni bora zaidi kuliko kutekeleza jambo au matendo ya kibinafsi tu. Kwa hakika, ni vyema kutafakari kuhusu tunayoambiwa tufanye na wenzetu au hata watu wengine. Hatufai kufuata kila maagizo tunayopewa bila kuyatathmini vizuri. Mathalan; ikiwa mtu atakuambia ujihusishe na ujambazi, unafaa kuwajibika kwa kukataa kufuata amri ya aina hiyo hata kama mtu huyo ana mamlaka makubwa namna gani. Maagizo au kanuni tunazofaa kufuata au kutii ni zile zenye maana;yaani, maagizo au kanuni zenye manufaa.

Je, kwa nini watu wengi huona vigumu kuwatii walimu, wazazi au watu wenye mamlaka? Sababu kuu ni kuwa wao ni wabinafsi. Wao huchochewa na kufanya kutotii kutokana na lengo la kutenda mambo yatakayowafaidi; yale mambo yatakayowasaidia kutimiza matakwa yao ya kibinafsi. Kiini cha mioyo ya watu kama hawa kukaidi maagizo na kanuni maishani, hutokana na ukweli kuwa utiifu humlazimu mtu kupuuzilia mbali matakwa ya kibinafsi na mara nyingi hujumuisha kutekeleza anayoambiwa afanye na wengine.Hata hivyo,ikiwa watu kama hawa watazingatia manufaa ya utiifu, watatamani kupalilia utiifu kama mojawapo wa maadili maishani mwa binadamu.

Ukweli ni kuwa katika maisha ya kila siku, tunatii kanuni nyingi bila kufahamu au kujua. Hakuna mtu,kwa mfano, anayetulazimisha kuzingatia lishe bora au kufuata maagizo ya daktari. Wengi wetu huhudhuria shule au kwenda kazini kwa wakati unaofaa bila kushurutishwa. Ikiwa kwa mfano una gari unalomiliki, hakuna anayekuarifu kulipeleka kwenye gereji likatengenezwe au likarabatiwe. Hebu jiulize hapo ulipo; je, kwa nini watu hufanya mambo kama haya bila kuagizwa au kukahiriwa?Ukweli ni kuwa,tendo lolote lile la kutotii au kutotekeleza yanayohitajika litakuwa na matokeo mabaya au hata ya kuhatarisha maisha ya watu. Kwa hivyo, utiifu huleta utangamano na humfanya mtu kuishi bila mfadhaiko wowote.

Kiini cha vijana kukosa kukubali na kufuata kanuni na taratibu zilizowekwa hutokana na ukweli kuwa, wao huziona kama zilizopitwa na wakati. Ni ukweli kuwa si mambo yote wanayotuhimiza wenzetu kufanya yana mantiki. Hata hivyo, ni muhimu kuzingatia **matilaba** ya kuyatenda badala ya kuyapuuza. Zaidi ya hayo, tunaosema kuwa wana mawazo yaliyopitwa na wakati wanaweza

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kuwa na **tajriba pevu** na umaizi au utambuzi mkubwa wa mambo kutuzidi. Vijana wengi wanaokaidi maagizo ya wazazi wao huteseka maishani. Inafaa ieleweke kuwa hata kama wazazi na walimu wanaweza kuonekana wakali na wasiozingatia kila tutakalo, daima wao hututakia mazuri na huwa na malengo mema kuhusu maisha yetu.

Baadhi ya matatizo ya kijamii, kiuchumi na hata kisiasa tunayopitia au kukumbana nayo hutokana na kutotii sheria. Hali ya kutotii sheria au hata kanuni zilizowekwa huwafanya baadhi ya watu hukataa kulipa ushuru, wengine kubadhiri au kuhariji mali ya umma au kujihusisha na vitendo vya kifisadi; hali ambayo huinyima nchi yetu mapato au maduhuli. Vitendo kama hivi huifanya nchi kurudi nyuma kimaendeleo. Kutotii sheria husababisha madhara mengi kwa mtu binafsi; watu wengi huharibu maisha yao kwa kupiga mtindi kupindukia, kuvuta sigara au hata kasumba na kujihusisha na mapenzi kiholela. Ukweli ni kuwa wao hujua hatari itokanayo na mienendo kama hiyo. Kabla ya kuvunja sheria au kupuuza kanuni zozote zile ni muhimu kufikiria kuhusu matokeo yake kwanza. Aidha ni vyema kugundua kuwa hakuna mtu yeyote yule anayeweza kuepuka athari za uasi.

Maswali

a) Ipe taarifa hii anwani mwafaka. **(alama 1)**

……

……

b) Je, ni kwa nini watu hawawezi kuruhusiwa kufanya watakavyo? **(alama 2)**

……

……

……

c) Eleza maana ya utiifu kwa mujibu wa taarifa hii**.** **(alama 2)**

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……

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d) Eleza sababu inayowafanya watu kuasi. **(alama 1)**

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e) Kwa nini tunafaa kusikiliza wanayotuambia wazazi na walimu wetu hata kama hatukubaliani nayo **(alama 2)**

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f) Eleza manufaa matatu ya utiifu. **(alama 3)**

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g) Fafanua matokeo mawili ya uasi kulingana na taarifa hii**.** **(alama 2)**

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h) Eleza maana ya maneno haya kama yalivyotumika katika taarifa: **(alama 2)**

(i) matilaba

……....

(ii) Tajriba pevu

……

2. UFUPISHO (Alama 15)

Soma kifungu kifuatacho kisha ujibu maswali uliyoulizwa.

Suala la uzito wa mwili ni mojawapo wa masuala ambayo yamewashughulisha wataalamu katika miaka ya karibuni.Tatizo hasa sio uzito wa mwili wenyewe bali ni uto ambao aghalabu unaenda sambamba na uzito huo. Uzito wa mwili ni kipimo cha mwili mzima ukihusishwa na misuli ya mwili. Zipo njia mbali mbali zinazoweza kuchangia uzito wa mwili.Kimsingi, hutokana na kalori za ziada ambazo mwili huo huwa nazo. Kalori hizi hutokana na hamirojo , mafuta au hata proteini.Kalori hizi huhifadhiwa na mwili katika seli maalum (tishu za mafuta). Asilimia 50 ya

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jumla ya mafuta au uto wa mwili huhifadhiwa chini ya ngozi ya mwili. Ile nyingine huzunguka viungo mbalimbali vya mwili kama vile moyo.

Uto una faida kadha mwilini.Kwanza,ni msingi muhimu na mkuu wa nishati za mwili. Uto unapochomwa na mwili huvyaza oksijeni ya ziada ambayo husambazwa kwenye seli za mwilini.Oksijeni hii inapoungana na atomu za kaboni na haidrojeni huwa chanzo cha joto mwilini.Uto pia hukinga mifupa na viungo vya mwili,huhifadhi au kuukinga mwili hasa dhidi ya baridi na huwa nyenzo muhimu hasa kwa mwenye matendo ambayo yanahitaji matumizi ya nguvu.Licha ya faida zake hizi,uto huwa na matatizo.Kimsingi, uto mwingi unaweza kuwa chanzo cha unene au utipwatipwa wa mwili ambao unaweza kuwa chanzo cha fedheha kutokana na unene.Uto pia unahusishwa na hali kadha za kimatibabu kama kufupisha uwezekano wa maisha kuwa marefu.Yapo maradhi ambayo yanahusishwa kwa kiasi kikubwa
na unene wa mwili,unaotokana na uto ,kama maradhi ya moyo,bolisukari,ugonjwa wa ini na matatizo ya figo.

Vyanzo vya tatizo la uto hutofautiana.Wataalamu wanaamini zipo chembechembe zinazorithiwa ambazo huweza kuwa chanzo cha ulaji unaopiku ambao unaweza kusababisha unene. Hata hivyo, ingawa msimbojeni unaweza kuwa chanzo hiki,ulaji usiozingatia hatari kama hizi huchangia pakubwa. Vipo baadhi ya vyakula ambavyo vina mchango mkubwa katika kulivyaza tatizo la unene.Vyakula hivi ni vile vinavyojulikana kama vyakula chapwa vikiwemo kaukau na viazi vya kutafuna.Aidha, vinywaji huweza kuwa vyanzo vya kalori ambazo huishia kuwa chanzo cha uto mwingi mwilini.Ili kupambana na tatizo la unene, pana haja ya kuhakikisha kuwa tunapunguza ulaji wa baadhi ya vyakula.Hivi ni vyakula vyenye mafuta mengi.Kwa mfano,mtu wa wastani anaweza kukung'uta kalori 300 kwa saa afanyapo mazoezi.Mazoezi haya husaidia viungo vingine vya mwili kama vile moyo kwa kiasi kikubwa.

Hizi ni njia nyepesi ambazo zinaweza kutumika kupunguzia uzito kuliko matumizi ya madawa au njia nyingine za kihazigi ambazo huweza kuwa na matokeo hasi kwa mwili.

Maswali

a) Fupisha ujumbe wa aya ya kwanza kwa maneno 50 (Alama 5;1 ya mtiririko)

Matayarisho

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Jibu

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b) Eleza masuala ambayo mwandishi ameibua katika aya ya pili kwa maneno 50.

(Alama 7;1 ya mtiririko)

Matayarisho

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Jibu

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c) Fupisha ujumbe wa aya ya tatu kwa maneno 40 **(Alama 3)**

Matayarisho

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Jibu

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3. <u>MATUMIZI YA LUGHA (ALAMA 40)</u>

(a) Andika sauti zenye sifa zifuatazo: (alama2)

(i) kipasuo **sighuna/hafifu** cha ufizi

……

(ii) irabu ya mbele juu

……

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(b) Neno ‘kwapa ‘ liko katika **ngel**i gani? **(alama 1)**

……

(c) Tofauitisha sentensi zifuatazo **kimaana** **(alama 2)**

(i) yote yameliwa .

……

……

(ii) yoyote yameliwa.

……

……

(d) Andika neno moja lenye **mofimu** zifuatazo: **(alama 3)**

Nafsi ya pili wingi , hali timilifu ,yambwa,mzizi, kauli tendea, kiishio

……

e) Andika sentensi ifuatayo katika hali ya **ukubwa wingi** **(alama 2)**

Ng’ombe huyo alinunuliwa mbali na mji ule mkuu.

……

(f) Ka imetumika kuleta maana gani katika sentensi zifuatazo : **(alama 2)**

(i) Rais kazuru mbuga za wanyama

……

(ii) Mgeni kaingia humu ndani kupumzika.

……

(g)i) Kirai ni nini? **(alama 1)**

……

……

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(ii) Bainisha **aina** za virai vilivyopigiwa mstari**.** **(alama2)**

Yule mzembe alipigwa na mwanawe.

……

……

……

(h) Tofautisha maana ya **jozi** ifuatayo ya maneno**.** **(alama 2)**

i.ridhi ……

ii.rithi…….....

(i) Eleza matumizi yoyote mawili ya alama ya **kistari kirefu** katika sarufi ya Kiswahili.**(Alama 2**

……

……

……

(j) Ainisha **vihusishi** katika sentensi: (Alama 2)

i) Hawa watatumia pesa nyingi kushinda wale.

……

……

ii) Darasa nzima litatuzwa na mwalimu wao.

……

……

(k) Sahihisha sentensi zifuatazo . (alama 2)

i) Kile kitabu kilipasuka ni changu .

……

ii) Mtu mwenye ameanguka ni ndugu yangu.

……

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(l) Nyambua vitenzi hivi katika kauli ya **kutendesha**, kisha uvitungie sentensi . **(alama 2)**

i) oa…….

…….

ii) la……

……

(m) Mkunga ni mtu mwenye maarifa ya kushugulikia wanawake wajawazito wakati wa kujifungua . Tunga sentensi mbili zitakazodhihirisha maana nyingine mbili za neno hili. **(alama 2)**

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(n) Kwa kutungia sentensi, dhihirisha matumizi ya '**kwa**' ili kuonyesha : **(alama 2)**

i) sababu / nia

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ii) Jinsi ya kutenda/kitendo kilivyofanywa

……

……

o) Changanua sentensi hii kwa kielelezo cha **<u>matawi.</u>** **(alama 4)**

Muumini atakayeshtaki ni msaliti mkubwa sana.

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(p) Bainisha shamirisho kitondo katika sentensi :

Lola alimpasulia nyanya kuni**.** **(alama 1)**

……

……

(q) Tumia viashiria vya **kutilia mkazo** katika sentensi zifuatazo: **(alama 2)**

c) Wema----------ulisababisha atuzwe.

ii) Polisi waliwafuata ---------- walikoenda.

(r) Andika **kitenzi** kinachotokana na neno : (alama 1)

mfuasi

……

(s) Eleza **tofauti** baina ya sentensi hizi**:** **(alama 2)**

i) Ningekuwa na pesa ningenunua pikipiki.

……

……

ii) Ningelikuwa na pesa ningelinunua pikipiki.

……

……

(t) Andika **methali** inayoafiki maelezo yafuatayo**:** **(alama 1)**

Mwanadamu hakosi ila. Aliyekamilika ni Mungu pekee.

……

……

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4 ISIMUJAMII **(Alama 10)**

Soma makala yafuatayo kisha ujibu maswali.

Jumamosi ,Disemba 26,2020

Ananyoa kwa shoka

Na Wangu kanuvi

Julius Mwangi, 24, ni kinyozi ambaye amevuma kwa kunyoa wateja wake. Kinyozi huyu aliamua kuanza kutumia shoka miezi mitatu iliyopita baada ya kutambua kuwa ipo haja ya kuwa na njia ya pekee ya kuwanyoa watu.

"Nimebobea katika kutumia mashine lakini nilitaka njia mbadala na ya kipekee ya kuwanyoa watu…"

Wateja wake hujaa kibao katika kibanda chake kilicho katika mtaa wa Tayari, kaunti ya kiambu…

a) Bainisha sajili ya makala haya**.** **(Alama 2)**

……

……

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(b) Eleza sifa zozote **sita** za sajili hii kwa kurejelea makala haya**.** **(alama 6)**

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(c) Fafanua sifa nyingine **mbili** za sajili hii ambazo zingejitokeza katika makala haya. **(alama2)**

……

……

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UTABIRI WA KCSE 2023

MFUATANO WA 3

102/3

KISWAHILI

KARATASI YA 3

FASIHI

MUDA: SAA 2½

JINA……

SHULE…… SAHIHI……

NAMBARI YA USAJILI…… MKONDO……

Cheti cha Kuhitimu Kisomo cha Sekondari (KCSE)

Maagizo

(a) *Andika jina lako na nambari yako ya mtihani katika nafasi ulizoachiwa hapo juu.*
(b) *Tia sahihi yako kisha uandike tarehe ya mtihani katika nafasi ulizoachiwa hapo juu.*
(c) *Jibu maswali **manne** pekee.*
(d) *Swali la kwanza ni la **lazima.***
(e) *Maswali hayo mengine matatu yachaguliwe kutoka sehemu nne zilizobaki;yaani:Riwaya, Tamthilia,,Hadithi Fupi na Ushairi.*
(f) *Usijibu maswali **mawili** kutoka sehemu moja.*

Kwa Matumizi ya Mtahini Pekee

Swali	Upeo	Alama
1	20	
	20	
	20	
	20	

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SEHEMU YA A: USHAIRI

1. Soma shairihilikwamakinikishaujibumaswali.

Vile leloWalalama, kwa yale ulotendewa, Huyakumbuki ya nyuma, pindi ulipochachiwa,
Ulipotenda unyama, uliona ndiyo sawa, Mtenda ukitendewa, hulalama kaonewa!

Ulizusha uhasama, leo wewe wapagawa,Walia bila kukoma, tungadhani umefiwa,Sasa huna usalama, huwezi kujiopowa, Mtenda akitendewa, hulalama kaonewa!

Tenda mambo kwa kupima ,usiruke huna mbawaUna macho kutazama, na akili umepewa Matendo hurudi nyuma, atendaye hurudiwa Mtenda akitendwa, hulalama kaonewa!

Dunia haishi njama, sijione umepewa Ukadhani usalama, binadamu kuwa sawa Ukahisi ni wanyama, waso hali kama ngawaMtenda akitendwa, hulalama kaonewa!

Unapotenda zahama, siku yako itakuwa Ambapo utaungama, useme umechachiwaNa uanze kutetema, ulie umeonewa Mtenda akitendewa, hulalama kaonewa!

Maswali

a) Lipe shairi hili kichwa mwafaka**(alama1)**

b) Taja na ueleze bahari mbili zinazojitokeza katika shairi hili**(alama 2)**

c) Kwa kutoa mifano, fafanua aina zozote tatu za taswira katika shairi hili**(alama 3)**

d) Eleza muundo wa shairi hili**(alama 3)**

e) Eleza toni ya nafsineni katika tungo hili**(alama 2)**

f) Eleza vile mshairi alivyotumia idhini za kishairi kufanikisha ujumbewake **(alama2)**

g) Andika ubeti wa pili katika lugha tutumbi**(alama4)**

h) Eleza shabaha ya mtunzi wa kazi hii**(alama3)**

SEHEMU B: TAMTHILIA

BEMBEA YA MAISHA TIMOTHY M. AREGE

Jibu swali la 2 au la 3

2. "Wajukuu wangu walikuja hapa wakati wa likizo. Nilitambua hawajuihata neno moja la lugha yetu…''

a) Eleza sifa za mwanandoa wa msemaji wa kauli hii. **(alama4)**

b) Eleza vile suala linalodokezwa hapa limeshughulikiwa katika tamthilia **(alama6)**

c) Eleza umuhimu wa mandhari katika dondoo hili katika kujenga vipengelembalimbali vya kifasihi **(alama10)**

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3. Maskini mke wangu! Kumbe ugonjwa haukumsaza mwaka baada ya mwaka.Umemla bila huruma. Awali niliona kama mchezo... kwa bahati nzuri bado tupo. Ninaweza kuiachia dunia tabasamu iwe silesi kwa vizazi vijavyo nakila mwenye nia njema. Siwezi kuendelea kuishi hivi. Sasa nimekata shauri lazima niache hii njia ya zamani na kuifuata mpya' maisha mapya. Pombe.! (kama anayesemea pombe). Umenichezesha kama mwanasesere kwa muda mrefu.

a) Kwa kutoa mifano, onyesha mitindo sita katika kifungu hiki**(alama6)**

b) Eleza nafasi ya msemaji katika dondoo hili**(alama4)**

c) Eleza kwa njia tano vile mwandishi alivyoshughulikia kinaya katikatamthilia **(alama10)**

SEHEMU YA C RIWAYA: CHOZI LA HERI-*ASUMPTA K MATEIJIBU SWALI 4 AU 5*

4) "Na nani akasema viongozi waliopo hawajajikuna wajipatapo? Huoni…"

a) kwa kujikita katika jina la msemaji, eleza vile mwandishialivyoshughulikia mbinu husika **(alama10)**

b) Eleza mpango wa ,maendeleo yanayoendelezwa na viongozi***(alama10)***

5. a)Masaibu ya jamii ya wahifidhina sio tu vita vya kisias. Fafanua kauli hiikwa kulejelea riwaya ya "Chozi la Heri''. **(alama 20)**

SEHEMU YA D:HADITHI FUPI

MAPAMBAZUKO YA MACHWEO NA HADITHI NYINGINE

Jibu swali la 6 au 7Ahadi ni Deni

6a) Vijana hupitia changamoto kadhaa maishani.Thibitisha kauli hii ukirejelea hadithi ya Ahadi ni deni**.(alama10)**

b) Vijana wengi katika jamii nyingi za kiafrika wameweza kuwafaa wenzao kwakiwango kikubwa. Tetea kauli hii ukirejelea hadithi ya Ahadi ni deni. **(alama10)**

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Msiba wa kujitakia.

7.Fafanua mbinu za kimtindo katika kifungu hiki(alama6)

Jioni.Machoka ameketi kitako kochini. Amerejea akiwa amechoka zaidi ya kuchoka. Pilkapilka zake za kutafuta kibarua zimegonga mwamba. Matumbo yake yanateta na kushindwa kuhimili makali ya njaa… Taswira ya chumba chake ingeweza kumliza kipofu! ...Maisha kati ya mpiga kura na mpigiwa kurayametengana kama ardhi na mbingu.

b) Kwa hoja zozote saba, tetea ukweli wa kauli iliyopigiwa mstari. ***(alama 14)***

SEHEMU YA E: FASIHI SIMULIZI

8a*)* Eleza sababu zinazofanya jamii ya kisasa kuendeleza kipera cha nyimbomiongoni mwao **(alama5)**

b) Kwa kutoa mifano, eleza sifa tano bainifu za fasihi simulizi. **(alama5)**

c) Mwaniki aliweza kutumia njia kadhaa akiwa na hamu ya kujua mengi kuhusu somo la fasihi simulizi katika eneo la Pwani. Eleza njia tano ambazo msomi huyu alitumia kupata habari kuhusu fasihi simulizi **(alama10)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

MATHEMATICS

121/1

PAPER 1

TIME: 2½ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

a) *Write your name, index number and date in the spaces provided at the top of this page.*
b) *Write name, admission number and class in the spaces provided above.*
c) *This paper contains **TWO** sections: **section I** and **section II***
d) *Answer **ALL** the questions in **Section I** and only **five** questions from **section II.***
e) ***Show all the steps in your calculations, giving your answers at each stage in the spaces provided below each question.***
f) *Marks may be given for correct working even if the answer is wrong.*
g) ***Non-programmable** silent electronic scientific calculators and KNEC mathematical tables may be used except where stated otherwise.*

FOR EXAMINER'S USE ONLY:

Section I

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

Section II

17	18	19	20	21	22	23	24	**TOTAL**

GRAND TOTAL

SECTION 1 (*50 marks*)

Answer all the questions in this section in the space provided

1. Evaluated: **(3mks)**

$$\frac{2\frac{1}{2}\ of\ 1\frac{3}{4} - 5\frac{1}{4}}{1\frac{2}{5} + 2(1\frac{1}{4} - 2\frac{3}{4})}$$

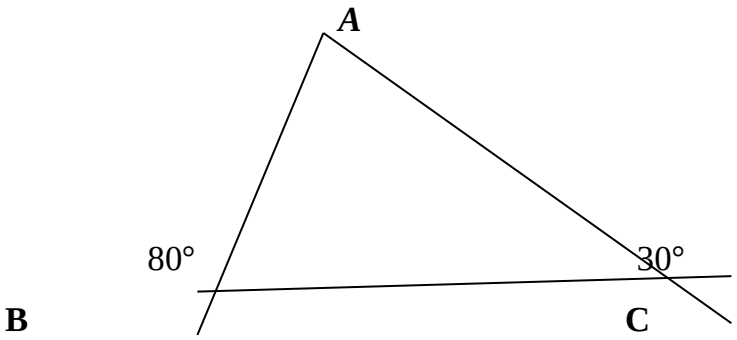
2. Use logarithms to evaluate the following to 4 significant figures to: **(4mks)**

$$\left(\frac{95.75\ X\ 0.85}{4.524 + 1.234}\right)^{\frac{2}{3}}$$

3. An electrician made a loss of 30% by selling a multi plug at sh.1400.what percentage profit would he has made if he sold the multi plug at sh. 2300. **(3mks)**

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4. In the triangle ABC below, BC=9cm, angle ABC=80°.and angle ACB=30°.



Calculate, correct to 4 significant figures, the area of the triangle. **(3mks)**

5.) Given that the exterior angle of a regular hexagon is 2x. Find the value of x . Hence find the size of each interior angle of the hexagon. **(3mks)**

6. Two numbers t and s are such that $t^4 \times s^2 = 5625$. Find t and s **(3mks)**

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7. Find the obtuse angle the line with equation 2y+5x+2=0 makes with the x-axis. **(3mks)**

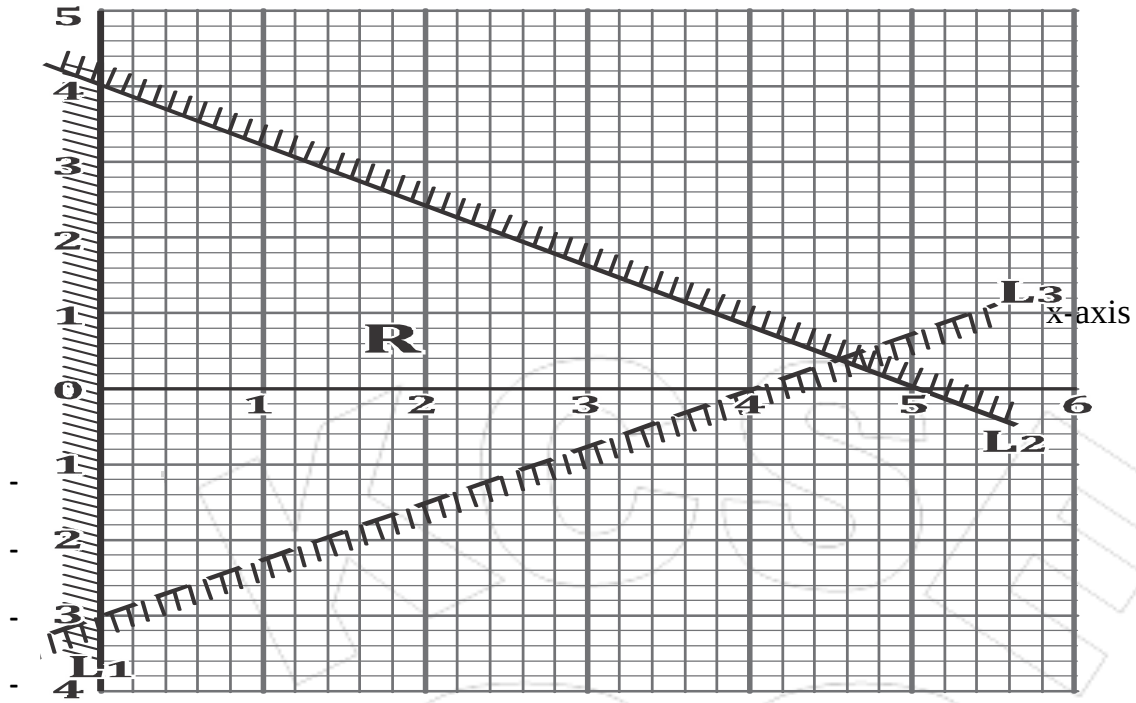
8. Simplify the expression **(3mks)**

$\frac{12x^2+ax-6a^2}{9x^2-4a^2}$

9. A plot is in the shape of a right angled triangle. The length of the shorter side is 15m and the area is 456.8m^2. Calculate the length of the longest side of the garden. **(3mks)**

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10.) The diagram below shows a region R bounded by three lines L_1, L_2 and L_3. Form the three inequalities that satisfies the given region R **(3mks)**



11. A bus travelled at an average speed of 63km/h left the station at 9.15 am. A car later left the same station at 10.00am and caught up with bus at 11.45 am. Find the average speed of the car. **(3mks)**

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12. A tourist came in Kenya and exchanged 1250 US dollars into Kenyan shillings at the rate shown below.

	Buying (Kshs)	selling (Kshs)
1US dollar	105.5	110.8

He spent Ksh. 85400 after which he converted the remaining balance to US dollars. How much US dollars did he get back to the nearest dollar. **(3mks)**

13.a) Complete the table below for $y= x^2+5$ **(1mk)**

X	0	1	2	3	4	5	6
$Y=x^2+5$	5						

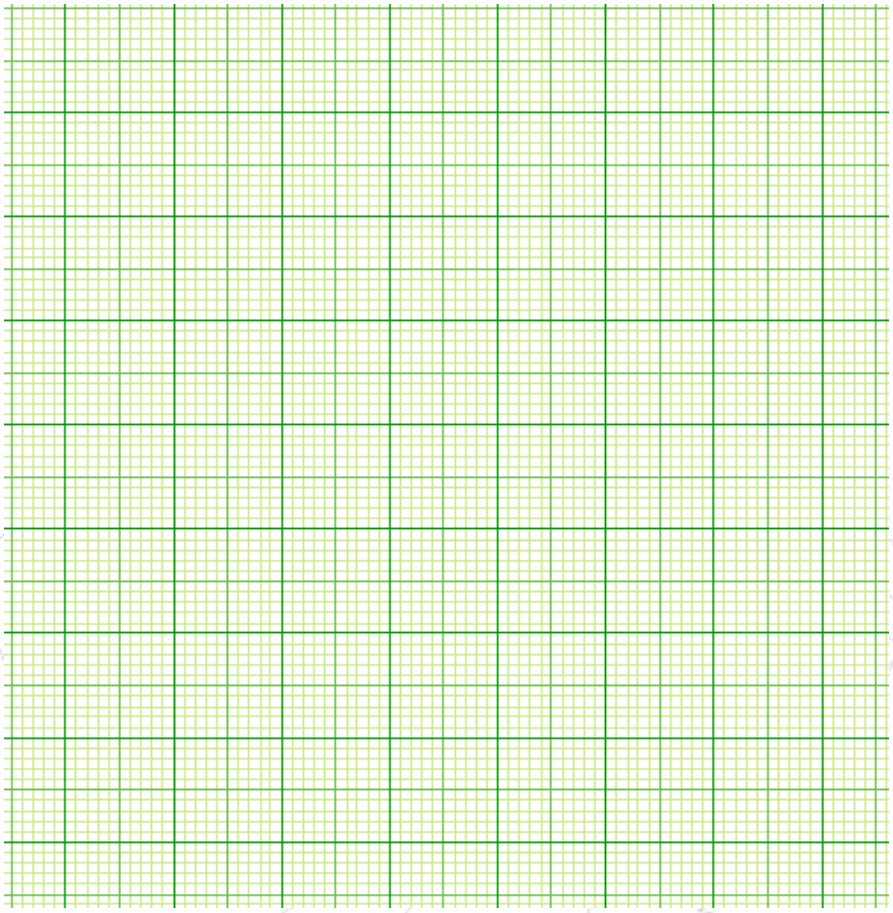
b) Use the trapezoidal rule with7 ordinates to estimate the area bounded by the curve $y=x^2+5$, x – axis , y-axis and x=6 **(2mks)**

14. Given that $\mathbf{a} = \begin{pmatrix} \mathbf{6} \\ \mathbf{2} \end{pmatrix}$, $\mathbf{b} = \begin{pmatrix} -2 \\ -4 \end{pmatrix}$ and $3\mathbf{a}-2\mathbf{b}+2\mathbf{c}=\begin{pmatrix} 32 \\ 20 \end{pmatrix}$, find **c** **(3mks)**

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15). A triangle T with vertices A(2,4), B(6,2)and C(4,8) is mapped onto triangle T' with vertices A'(10,0) ,B'(8,-4) and C'(14,-2) by a rotation .

a) on the grid provided draw triangle T and its image T' **(2mks)**



b) Determine the centre and the angle of rotation that maps T onto T' **(2mks)**

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

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Section II (50MKS)

*Answer any **five** questions in this section in the space provided*

17. Three businessmen, Hassan, Mutua and Wanyonyi decided to start a business. The initial capital which was needed was Ksh. 4,000,000 of which they were able to raise 30% by making contributions in the ratio 3:3:2 respectively. The rest of the amount was obtained from a bank and was to be paid back within one year with an interest of 25% in the same ratio 3:3:2. The three men were to share the profit of the business in the ratio of their contribution. During the year, the business realized a profit of ksh.4, 800,000.

a) How much of the initial amount did Wanyonyi raise? **(3mks)**

b) How much did Hassan pay to the bank at the end of the year? **(4mks)**

C) After paying the bank at the end of the year, how much was Mutua left with? **(3mks)**

KCSE 23

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18. The marks scored by 50 students in a geography examination are as follows:

60	54	40	67	53	73	37	55	62	43
44	69	39	32	45	58	48	67	39	51
46	59	40	52	61	48	23	60	59	47
65	58	74	47	40	59	68	51	50	50
71	51	26	30	38	70	46	40	51	42

a) Prepare a frequency distribution table using a class interval of 10 starting from 21-30 **(3mks)**

b) Draw a histogram to represent the distribution **(4mks)**

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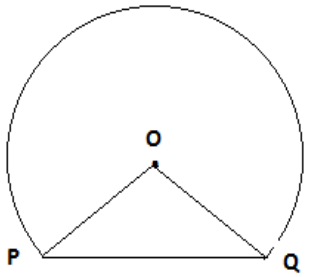
c) Use your histogram to estimate the modal class **(1mk)**

d) Using the histogram estimate the mean of the distribution of the data. **(2mk**

KCSE 23

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19. A petrol tanker has a cross-section in the shape shown below. It is used to transport petrol. Its internal length is 7m while its internal radius is 3.5 m. Obtuse angle POQ = 144^0.On one of its trips, it was filled to capacity. Taking $\pi = {}^{22}/_{7}$



(a) Calculate the volume of petrol in the tanker in

(i) m^3 **(2 marks)**

(ii) litres **(1mark)**

(b) In the parking lot at night, a third of the petrol was stolen.

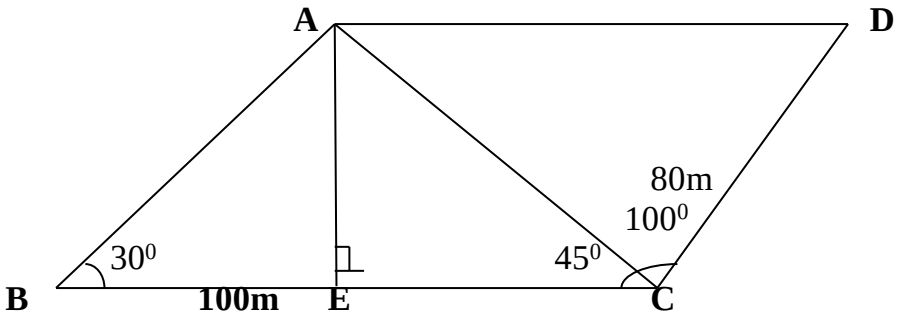
i) How many litres of petrol was the owner left with? **(2 marks)**

ii) What was the mass of the remaining petrol given that one cubic metre of petrol has a mass of 700kg? **(3 marks)**

(iii) At the weigh bridge, any vehicle carrying excess of 50,000 Kg was charged Sh. 12.50 for every extra kilogram. How much fine did the owner of the tanker pay? **(2 marks)**

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20. The figure below represents a quadrilateral piece of land ABCD divided into three triangular plots. The lengths BE and CD are 100m and 80m respectively. Angle ABE = 30^0, ACE = 45^0 and ACD = 100^0.



(a) Find to four significant figures:

(i) The length of AE. **(2mks)**

(ii) The length of AD. **(2mks)**

(iii) The perimeter of the piece of land. **(3mks)**

(b) The plots are to be fenced with five strands of barbed wire leaving an entrance of 2.8m wide to each plot. The type of barbed wire to be used is sold in rolls of lengths 480m. Calculate the number of rolls of barbed wire that must be bought to complete the fencing of the plots. **(3mks)**

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21. A straight line $\mathbf{L_1}$ has a gradient **-½** and passes through point **P (-1, 3).** Another line $\mathbf{L_2}$passes through the points **Q (1,-3)** and **R (4, 5)**.

Find:

(a) The equation of $\mathbf{L_1}$ **(2 marks)**

(b) The equation of $\mathbf{L_2}$ in the form $ax + by + c = 0$. **(3 marks)**

(c) The equation of a line passing through a point **S (0, 5)** and is perpendicular to $\mathbf{L_2}$. **(3 marks)**

(d) The equation of a line through **R** parallel to $\mathbf{L_1}$. **(2 marks)**

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22. a) A port B is on a bearing 080^{o} from a port A and a distance of 95 km. A Submarine is stationed at a port D, which is on a bearing of 200^{o} from A, and a distance of 124 km from B. A ship leaves B and moves directly Southwards to an Island P, which is on a bearing of 140^{o} from A. The Submarine at D on realizing that the ship was heading to the Island P, decides to head straight for the Island to intercept the ship. Using a scale of 1 cm to represent 10 km, make a scale drawing showing the relative positions of A, B, D and P. **(4 marks)**

KCSE 23

Hence find:

b) The distance from A to D. **(2 marks)**

c) The bearing of the Submarine from the ship when the ship was setting off from B. **(1 mark)**

d) The bearing of the Island P from D. **(1 mark)**

e) The distance the Submarine had to cover to reach the Island P. **(2 marks)**

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23. (a) Find the inverse of the matrix: **(1mk)**

$A=\begin{pmatrix}4 & 3\\ 3 & 2\end{pmatrix}$

b) Amina bought 20 bags of oranges and 15 bags of mangoes for a total of sh. 9,500. Nafula bought 30 bags of oranges and 20 bags of mangoes for a total of sh. 13,500. If he price of a bag of oranges is X and that of mangoes is y:

h) Form two equations to represent the information above. **(2mks)**

ii) Hence use the matrix A^{-1} above to find the price of one bag of each item. **(4mks)**

(c) The price of each bag of oranges was increased by 10% and that of mangoes reduced by 10%. The businesswomen (Amina and Nafula) bought as many oranges and as many mangoes as they bought earlier. Find the total cost of oranges and mangoes that each businesswomen bought after the percentage change. **(3mks)**

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24. The displacement, s metres, of a moving particle from a point O, after t seconds is given by, s = $t^3 - 5t^2 + 3t + 10$

a) Find s when t=2 **(2mks)**

b) Determine:

i) the velocity of the particle when t=5 seconds; **(3mks)**

ii) the value of t when the particle is momentarily at rest **(3mks)**

c) find the time , when the velocity of the particle is maximum **(2mks)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

MATHEMATICS

121/2

PAPER 2

TIME: 2½ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

a) *Write your name, index number and date in the spaces provided at the top of this page.*
b) *Write name, admission number and class in the spaces provided above.*
c) *This paper contains **TWO** sections: **section I** and **section II***
d) *Answer **ALL** the questions in **Section I** and only **five** questions from **section II.***
e) ***Show all the steps in your calculations, giving your answers at each stage in the spaces provided below each question.***
f) *Marks may be given for correct working even if the answer is wrong.*
g) ***Non-programmable** silent electronic scientific calculators and KNEC mathematical tables may be used except where stated otherwise.*

FOR EXAMINER'S USE ONLY:

Section I

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

Section II

17	18	19	20	21	22	23	24	TOTAL

GRAND TOTAL

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SECTION I (50mks)

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

1. Simplify without using mathematical tables or calculator. **(4mks)**

$$\frac{2(\log_{10} 2.5 + \log_{10} 40)}{3\log_{10}0.05 + 2\log_{10}2 - \log_{10}0.5}$$

2. Simplify $\frac{2}{2+\sqrt{5}} - \frac{2\sqrt{5}}{2-\sqrt{5}}$ and express your answer in the form $a+b\sqrt{c}$ where a, b and c are constants**.** **(3mks)**

3. A wedding committee did a budget for a wedding ceremony as follows:

Food: Ksh. 58,205

Chairs:Ksh. 11,950

Entertainment: 8,453

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The sum of the budget was done by first rounding each figure to 3 significant figures.

a) Determine the sum of the **budget** **(2mks)**

b) Determine the percentage error in this sum of the budget **(2mks)**

4. Solve the equation $4\sin^2 x + 4\cos x = 5$ for $0^0 \leq x \leq \mathbf{360^0}$ **(3mks)**

5. a) Expand $(1-x)^4$ using the binomial **expansion** **(1mk)**

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b). Use the first three terms of the expansion in (a) above to find the value of $(0.998)^4$
Correct to the nearest hundredth **(3mks)**

6. Make w the subject of the formula **(3mks)**

$P=\sqrt{\frac{vw^2}{V^2-W^2}}$

7. Given that $y = 3 \sin (\frac{1}{2} x + 60)^0$ find, amplitude, period and the phase angle of the function.
(3mks)

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8. A ship sails due North from latitude 20^0 S for a distance of 1440nm. Find the latitude of the point it **reaches** **(2mks)**

9. The equation of a circle is given by $3x^2+3y^2+3x+42y+30=0$. Determine the radius and the coordinates of the centre circle. **(3mks)**

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10. a) i) Draw a straight line MN such that MN=7cm **(1mk)**

ii) Construct the locus P such that < MPN=90^0 **(1mk)**

b) On the locus of P in (a) above, mark point T such that T is equidistant from M and N. **(2mks)**

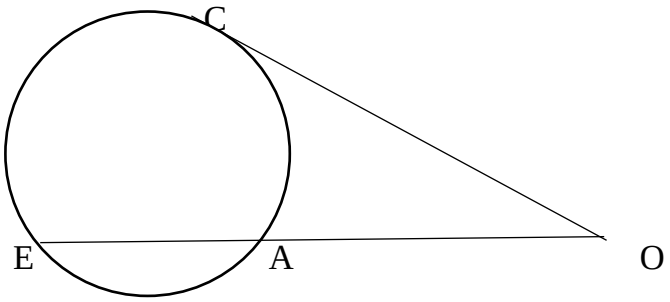
11. The table below shows tax table for monthly income

Monthly taxable income in Ksh.	**Tax rate % in each shilling**
0- 9680	10
9681- 18800	15
18801-27920	20

In a certain month, Kamau's tax was sh. 3336. Determine his income during that month. **(3mks)**

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12. In the figure below OC is the tangent to the circle. If OE=8cm and OC=6cm, find EA. **(2mks)**



13. Evaluate $\int_1^4 (3x^2 + 1)dx$ **(3mks)**

14. Liquid P contains 30% of water while liquid Q contains 48% of water. In what ratio should P and Q be mixed so that the mixture contains 42% of water**?** **(3mks)**

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15. The probability that it is rainy in the morning is 0.6. The probability that John carries an umbrella while going to work is 0.4. Find the probability that

i) It is not rainy and John does not carry an umbrella**.** **(2mks)**

ii) It is rainy and John carries an umbrella **(1mk)**

16. Solve the simultaneous equations

$x-2y=1, \quad x^2+y^2=29$ **(3mks)**

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SECTION II (50 MARKS)

(Answer five questions in this section)

17. The first three consecutive terms of a geometric progression are 3^{2x+1}, 9^{x} and 81 respectively

a) Calculate the value of x **(3mks)**

b) Find the common ratio of the **series** **(2mks)**

c) Calculate the sum of the first ten terms of this **series** **(2mks)**

d) Given that the fifth and the seventh terms of this Geometrical Progression form the first two consecutive terms of an arithmetic sequence calculate the sum of the first 20 terms of the arithmetic sequence. **(3mks)**

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18. In an experiment, the length of 100 rats were measured to the nearest 0.1cm and the frequency tabulated as follows:

Length in *(cm)*	20-24	25-29	30-34	35-39	40-44	45-49	50-54	55-59	60-64
Frequency	1	4	x	20	25	26	7	1	1

a) Find the value of x **(2mks)**

b) Calculate the mean length using assumed mean of 42 **(4mks)**

c) Calculate the standard **deviation** **(4mks)**

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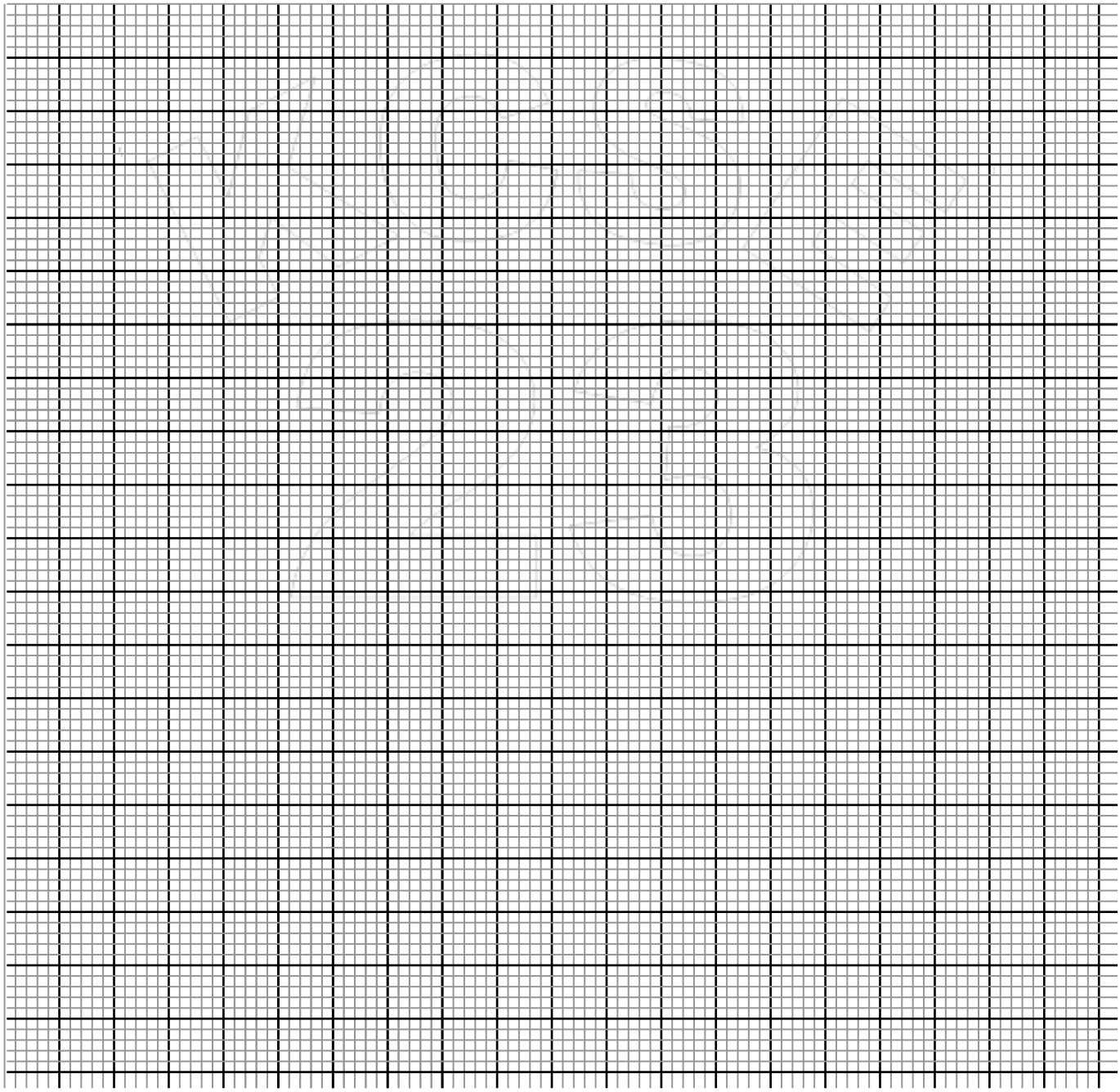
19. Complete the table below for the function

$y=x^3+6x^2+\mathbf{8x}$ **(2mks)**

X	-5	-4	-3	-2	-1	0	1
x^3	-125	-64		-8	-1	0	1
$6x^2$		96	54		6	0	6
$8x$	-40		-24	-16		0	8
Y			3	0	-3	0	15

a) Draw the graph of the function $y=x^3+6x^2+8x$ for $-5\leq x\leq 1$ **(3mks)**

(Use a scale of 2 big squares to represent 1 unit on the x-axis and 1big square to represent 2 units on the y-axis)



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b) Use your graph to estimate the roots of the equations

i. $x^3+6x^2+8x=0$ **(1mk)**

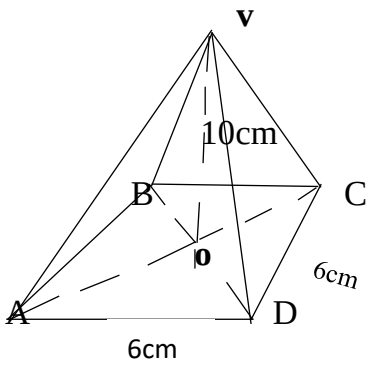
ii. $x^3+5x^2+4x=-x^2-3x-1$ **(2mks)**

c) Find the values of x which will satisfy the inequality $x^3+6x^2+8x>1$ **(2mks)**

KCSE 23

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20. The figure below is a square based pyramid ABCDV with AD=DC=6cm. VO=10cm



a) State the projection of VA on the base ABCD **(1mk)**

b) Find:

i. The length of VA **(3mks)**

ii. The angle between the planes VA and ABCD **(2mks)**

iii. The angle between the planes VDC and ABCD **(2mks)**

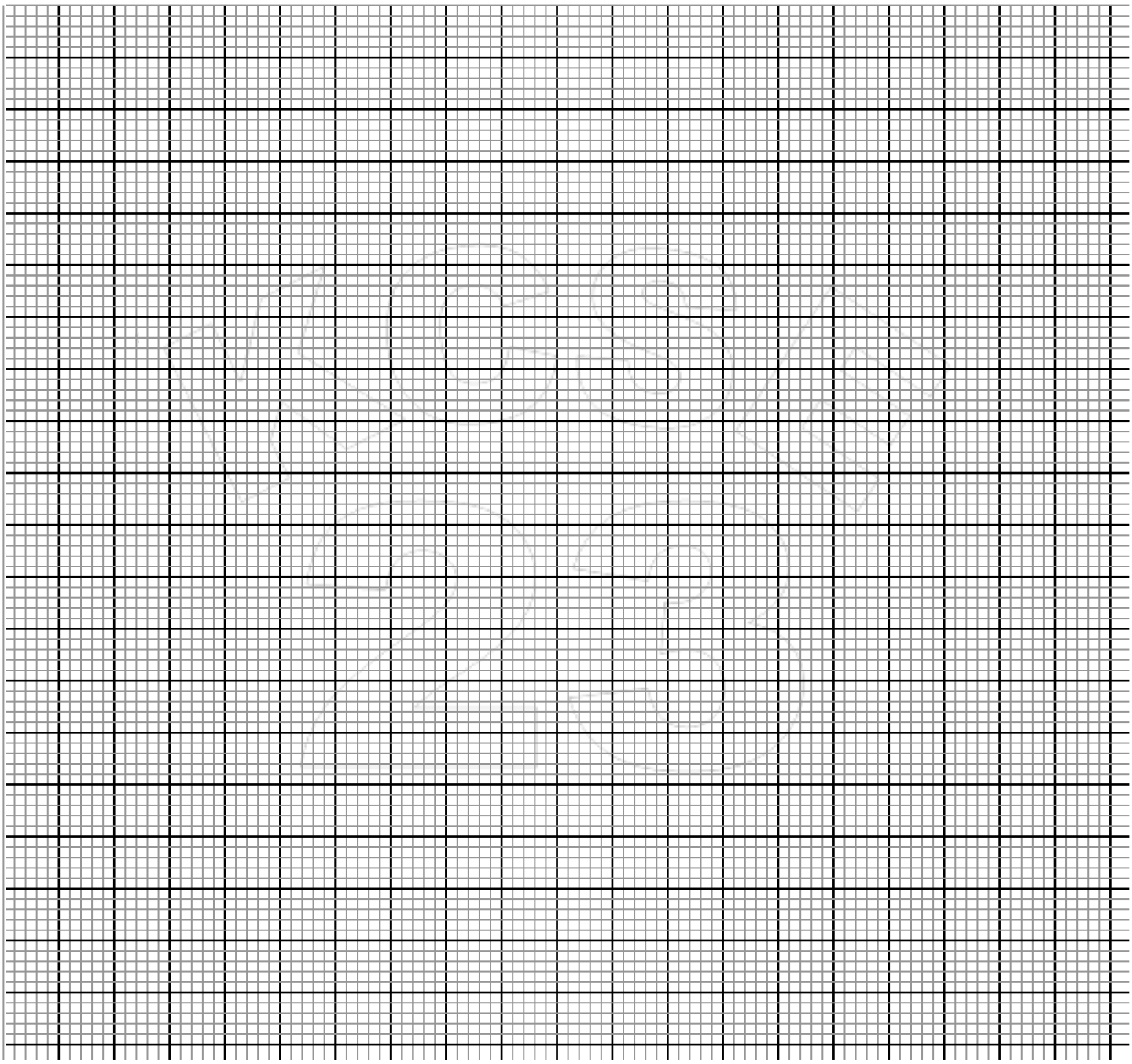
iv. The volume of the pyramid **(2mks)**

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21. The points A (0,0), B (-3,1), C (1,3) and (4,2) are the vertices of a parallelogram ABCD.

a) $A^{/}B^{/}C^{/}D^{/}$ is the image of ABCD under the matrix of transformation $\begin{bmatrix} -2 & 0 \\ 0 & -2 \end{bmatrix}$

Draw ABCD and $A^{/}B^{/}C^{/}D^{/}$ on the grid. Write down the coordinates of $A^{/}B^{/}C^{/}D^{/}$ **(3mks)**



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b) The points $A''(0,0)$ $B''(-6,2)$ $C''(2,6)$ and $D''(8,4)$ are the vertices of $A''B''C''D''$ the image of ABCD under a certain transformation. Draw $A''B''C''D''$ on the same grid as ABCD. Describe this transformation fully. **(3mks)**

c) A single transformation T maps $A'B'C'D'$ on to $A''B''C''D''$. Determine the matrix of T **(4mks)**

KCSE 23

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22. A sum of money is deposited in a bank that pays simple interest at a rate r. After 3 years the total amount of money in the account is Ksh. 358,400. The interest earned each year is Ksh. 12,800.

a) Calculate: i) The amount of money which was deposited. **(2mks)**

ii) The rate of interest r**.** **(2mks)**

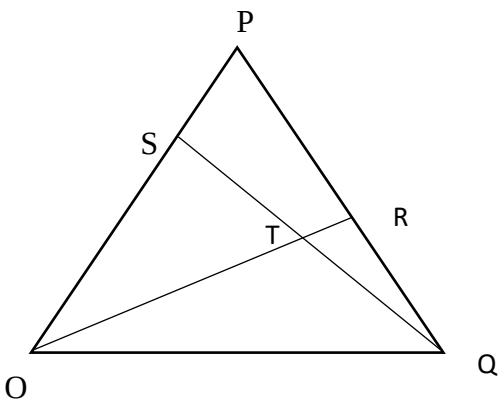
b) A computer whose marked price is Ksh. 40,000 is sold at ksh. 56,000 on hire purchase terms.

i) James bought the computer on hire purchase terms. He paid a deposit of 25% of the hire purchase price and cleared the balance by equal monthly instalments of ksh. 2625. Calculate the number of instalments. **(3mks)**

ii) Had James bought the computer on cash price he would have been allowed a discount of 12.5% on the marked price. Calculate the difference between the cash price and the hire purchase price and express it as a percentage of the cash price. **(3mks)**

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23. In the figure below OPQ is a triangle in which $\overrightarrow{OS} = \frac{3}{4}\overrightarrow{OP}$ and $\overrightarrow{PR}: \overrightarrow{RQ} = 2:1$. Lines OR and SQ meet at T.



a) Given that $\overrightarrow{OP} = \mathbf{p}$ and $\overrightarrow{OQ} = \mathbf{q}$. Express the following vectors in terms of p and q:

i. $\overrightarrow{PQ}$ **(1mk)**

ii. $\overrightarrow{OR}$ **(2mks)**

iii. $\overrightarrow{SQ}$ **(2mks)**

b) Given that $\overrightarrow{ST} = m\overrightarrow{SQ}$ and $\overrightarrow{OT} = n\overrightarrow{OR}$ where m and n are consonants, determine the values of m and n **(4mks)**

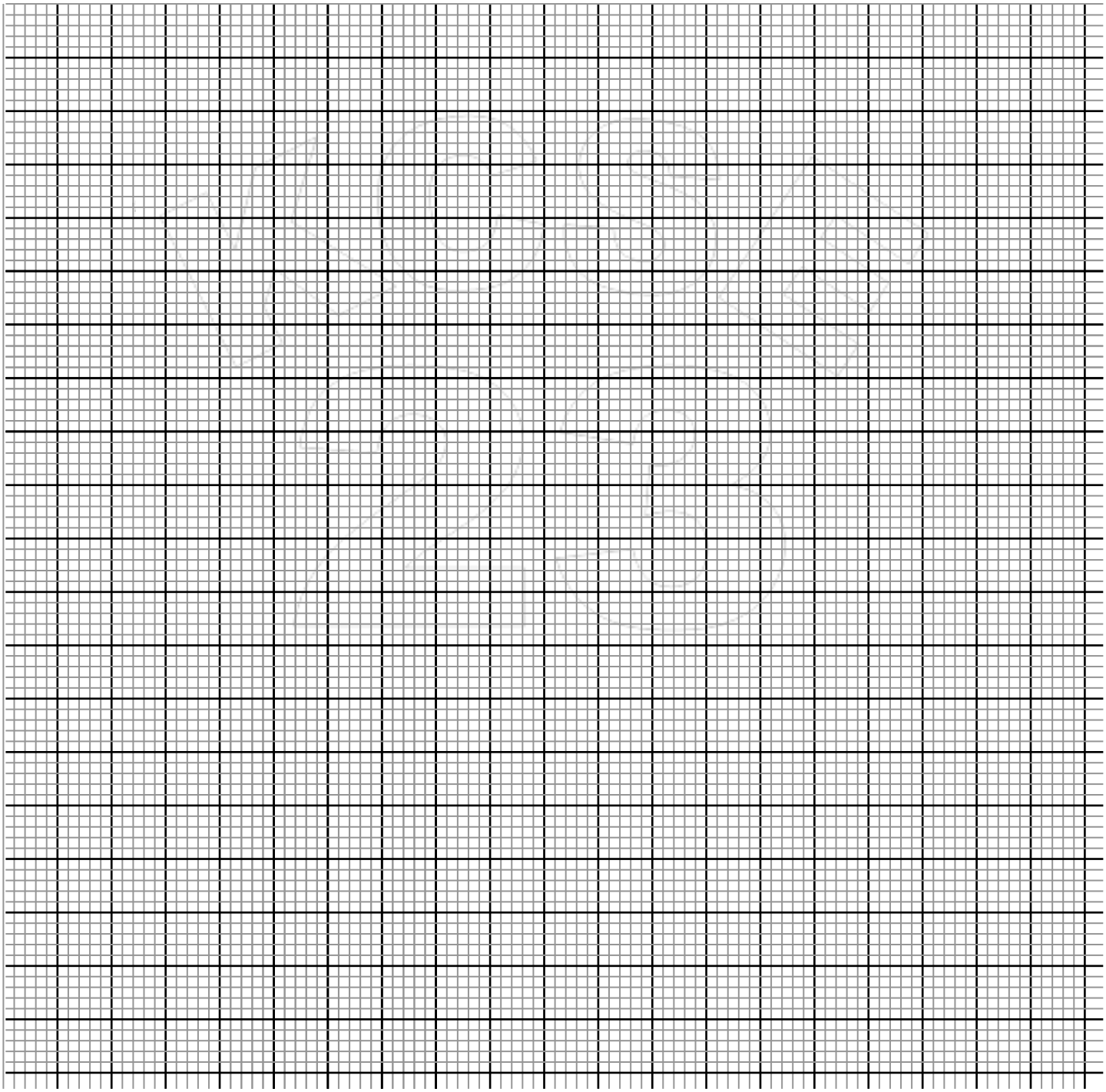
c) Find the ratio of ST:**TQ** **(1mk)**

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24. During installation of electricity bulbs in street lighting a dealer is required to supply two types of bulbs A and B. The total number of bulbs should not be more than 400. He must supply more of type A than of type B and type A should not be more than 300 and type B should not be less than 80.

a) By letting the number of type A bulbs to be x and the number of type B bulbs to be y, write all the inequalities representing the above information**.** **(3mks)**

b) On the grid provided draw all the **inequalities** **(4mks)**



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c) If type A bulbs cost sh.450 per piece and type B cost sh.350 per piece and that the higher the cost the higher the profit:

i. Use your graph to determine the number in each type of bulb that he should supply to maximize the profit. **(1mk)**

ii. Calculate the maximum cost of lighting the **street** **(2mks)**

KCSE 23

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KCSE 2023 PREDICTION EXAM

SERIES 3

COMPUTER STUDIES

451/1

PAPER 1 (Theory)

TIME: 2½ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- *Write your Name and Index Number and Adm No in the spaces provided.*
- *This paper consists of TWO sections: A and B*
- *Answer **ALL** questions in section **A***
- *Answer question **16** and any other **THREE** questions from section **B***
- ***All** answers should be written in the spaces provided in the question paper*

For Examiners use only.

Section	Question	Candidates Score
A	1 – 15	
B	16	
	17	
	18	
	19	
	20	
Total Score		

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SECTION A (40 marks)

Answer all the questions in this section.

1. Explain what is meant by the terms:- **(4 marks)**

i) FDD……

……

ii) HDD……

……

iii) CMOS……

……

iv) TFT……

……

2. Outline TWO application areas of Artificial Intelligence **(2 marks)**

……

……

……

3. State TWO ways of identifying an illegal copy of an Operating System **(2 marks)**

……

……

……

4. List any four publications that can be created using a Publishing application software **(2 marks)**

……

……

……

……

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5. Describe a speech synthesis system **(2 marks)**

……

……

……

6. Find the Value of T_8 in the following binary equation: 110_{10}-AB_{16}=T_8 **(3 marks)**

……

……

……

……

……

7. State any TWO factors one would consider when selecting any data output device. **(2 marks)**

……

……

……

8. Input devices can be categorized according to how they are used to enter data namely keying devices, pointing devices, scanning devices, speech recognition devices and other digital devices. Give TWO examples each of the following devices.

(i) Scanning devices. **(1 mark)**

a)……(b)……

(ii) Other digital devices. **(1 mark)**

a)……(b)……

(iii) Pointing devices. **(1 mark)**

a)……(b)……

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9. Describe the following types of monitors **(3 marks)**

a) Cathode Ray Tube(CRT)

……

……

b) Liquid Crystal Display (LCD)

……

……

c) Gas Plasma

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10(a) State TWO functions of Read Only Memory (ROM) **(2 marks)**

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(b) Give two characteristics of ROM **(2 marks)**

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11. Explain the meaning of the following system characteristics. **(2 marks)**

i) Entropy

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ii) Controls

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12. Discuss TWO computational errors giving example in each case. **(4 marks)**

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13. Differentiate between WORM and a VIRUS. **(2 marks)**

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14. Differentiate sequential file organization from indexed sequential file organization**. (2 marks)**

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15. Give any THREE functions of the central processing unit (CPU) **(3 marks)**

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SECTION B (60 marks)

Answer questions 16(Compulsory) and any other three questions from this section.

16. a) Differentiate between Assembler and Interpreter as used in programming. **(2 marks)**

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b) Give any THREE objectives that fourth génération programming languages were designed to meet**. (3mks)**

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c) On the Nairobi-Nakuru highway, the Kenya Police have put speed cameras at a certain point to read the time a vehicle passes a point (A) on the road and then reads the time it passes a second point (B) on the same road. (Points A and B are 200 meters apart). The speed of the vehicle is calculated using:

- $\boldsymbol{Speed = \frac{100}{(time\ at\ point\ B - time\ at\ point\ A)}\ (Km/\ hr)}$
- *The maximum allowed speed is 100 kilometers per hour.*
- *500 vehicles were monitored using these cameras over a 1-hour period.*

(i) Write a pseudo code, which: **(5 marks)**

- Inputs the start time and the end time for the 500 vehicles that were monitored
- Calculates the speed for each vehicle using the formula above.
- Outputs the speed for each vehicle and a message if the speed exceeded 100 km/hour.

>=100km/hr "High Speed"

<100km/hr "Normal Speed"

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PSEUDOCODE

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(i) Draw a flow chart for the above pseudo code. **(5 marks)**

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17.(a) Distinguish between the following sets of terms as used in spreadsheets

(i) Worksheet and workbook. **(2 marks)**

(ii) Filtering and sorting. **(2 marks)**

(b) State one way in which a user may reverse the last action taken in a spreadsheet package. **(1mark)**

(c)The following is a sample of a payroll. The worksheet row and column headings are marked 1,2,3…… and A,B,C……. respectively.

	A	B	C	D	E	F	G	H
1	**NAME**	**HOURS WORKED**	**PAY PER HOUR**	**BASIC PAY**	**ALLOWANCE**	**GROSS PAY**	**TAX DEDUCTION**	**NET PAY**
2	WAITHERA	21	750					
3	CHEPKOECH	28	850					
4	CHUMBA	14	550					
5	NKIROTE	20	1000					
6	NANA	23.5	250					
7	KIBET	25.5	500					
8	AUMA	14	250					
9	ATITWA	18	1500					
10	MOCHAMA	35	350					
	TOTALS							

Use the following expressions to answer the questions that follow

- Basic pay = Hours worked x pay per hour
- Allowances are allocated at 10% of basic pay
- Gross pay = Basic pay + allowances
- Tax deductions are calculated at 20% of gross pay.
- Net pay = Gross pay – tax deductions.

Write formulae using cell references for the following cells:

(i) D2…… (1mark)

(ii) E4……(1mark)

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(iii) F10……(1 mark)

(iv) G7……(1 mark)

(v) H5…… (1 mark)

d) (i) State THREE ways of moving round a page in Desktop Publishing window. **(3 marks)**

ii) State TWO ways on how Information and Communication Technology (ICT) has been used to reduce the spread of COVID 19 **(2 marks)**

18. a.(i) List down THREE advantages of ATM cards. **(3 marks)**

(ii) State FOUR components of an electronics Point of Sale. **(2 marks)**

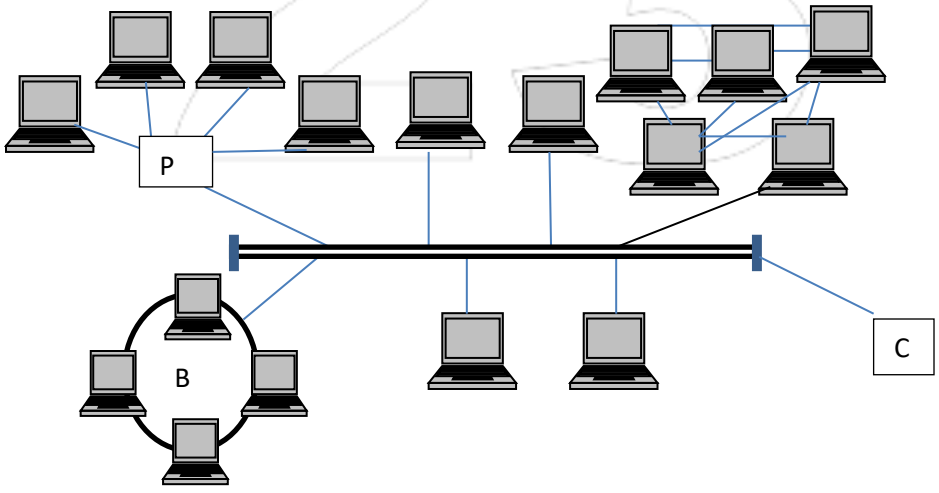
b. Give THREE reasons why a manager may prefer to teleconference during meetings. **(3 marks)**

c. Menengai Company would like to introduce use of a new information system. State THREE reasons why the company would like to introduce a new information system**?** **(3 marks)**

d. Once the whole system has been designed and constructed, it will need to be implemented. **Describe TWO** system changeover strategies that are likely to be used. **(4 marks)**

19.a) Explain why an intranet is more secure when sharing files within an organization compared to the internet. **(1 mark)**

b) The network setup below is formed by combining several LANS. Use it to answer the questions (i) – (v) below.



(i) Identify the network device P and C. **(1mark)**

(ii) State the importance of the network device P and C **(2 marks)**

(iii) What is the name given to the combined topology in figure above? **(1mark)**

(iv) Identify the network topologies used in the above diagram **(2marks)**

(v)**State TWO** disadvantages of topology connected to device P. **(2marks)**

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c) A company has three branches M,N and O , where M is the headquarter. The local area network (LAN) at M is directly connected to LAN at N and directly connected to the LAN at O. **Explain two** benefits of having LAN at N also directly connected to the LAN at O. **(4 marks)**

d) The government of Kenya ordered all broadcasting TV stations to switch from analog transmission to digital TV transmission. **State two** benefits of digital transmission over analog transmission **(2 marks)**

20. a) Describe the following computer memories. **(2 marks)**

i. Register:

ii. Cache:

b. Explain Real-time Processing data processing mode giving TWO areas where it can be used. **(5 marks)**

c. Describe any TWO coding schemes used in Data representation **(4 marks)**

d. List FOUR devices controlled by the Operating System **(2 marks)**

e. Define a Laptop **(2 marks)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

COMPUTER STUDIES

451/2

PAPER 2 (Practical)

TIME: 2½ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

(a) *Type your name and index number at the top right hand corner of each print out*

(b) *Write your name and index number on the CD-R / CD-RW provided*

(c) *Write the name and version of software used in each question on the answer sheet*

(d) *Answer **ALL** the questions*

(e) *Passwords **should not be used** while saving in the CD-R*

(f) *All answers **MUST** be saved in the CD-R / CD-RW*

(g) *Make print out of answers on the answer sheet provided*

FOR EXAMINER'S USE ONLY

Question	Candidate's Score
1	
2	
Total Score	

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1. The Judiciary Service Commission would like to conduct interviews on different shortlisted applicants.

Required.

(a) (i) Create the main document below as it appears and save it as **JLetter.** **(21 marks)**

JUDICIARY SERVICE COMMISSION,

P.O. BOX PRIVATE BAG-00100,

NAIROBI.

10th October, 2023.

<<First Name>> <<Second Name>>,

<<Postal Address>>,

<<City>>.

Dear <<Salutation>>,

RE: INVITATION TO AN INTERVIEW

This is to let you know that you have been shortlisted for an interview scheduled on <<date of visit>> at <<venue>> from <<Time>> for the <<Title>> position.

Please come with your:

(a) Original Identity Card

(b) Original Academic Certificates

(c) EACC Compliance Certificate

(d) Certificate of Good Conduct

(e) HELB Clearance Certificate

(f) KRA Compliance Certificate

A successful candidate will be entitled to the salary scales as shown in the table below:

TITLE	JOB GROUP	BASIC SALARY(KSH)
ICT OFFICE	TS III	102,050
CLERK	TS I	63,480
ACCOUNTANT	TS IV	90,345
TOTAL		255,875

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We look forward to your attendance.

Yours sincerely

Chris Nyachoti.

Director

(ii) Proofread the document **(2 marks)**

(iii) Format 1.5 Line spacing in the body section **(2 marks)**

(b) Create a Data source below for the candidates and save it as **JRecipients** **(15 marks)**

First Name	Second Name	Postal Address	City	Salutation	Date Of Visit	Time	Venue	Title
Charles	Omukuba	P.O BOX 12	Busia	Sir	3rd November, 2023	11:00 am	Golf Club Hotel	ICT Officer
Grace	Kith	P.O BOX 102	Nairobi	Madam	2nd November, 2023	8:00 am	Serena Hotel	Clerk
John	Pilau	P.O BOX 38	Mombasa	Sir	4th November, 2023	9:00 am	Intercontinental hotel	Accountant
Peter	Gakere	P.O BOX 25	Laikipia	Sir	4th November, 2023	9:00 am	Intercontinental hotel	Accountant
Antony	Kipchoge	P.O BOX 57	Bomet	Sir	3rd November, 2023	11:00 am	Golf Club Hotel	ICT Officer
Gladys	Mutua	P.O BOX 27	Machakos	Madam	3rd November, 2023	11:00 am	Golf Club Hotel	ICT Officer
Gilbert	Muriithi	P.O BOX 18	Meru	Sir	2nd November, 2023	8:00 am	Serena Hotel	Clerk
Janet	Kati	P.O BOX 42	Turkana	Madam	4th November, 2023	9:00 am	Intercontinental hotel	Accountant

(c) Using mail merging, create a merged document and save it as **JSC_Merged**. **(4 marks)**

(d) Print the following documents

(e) **JLetter** **(2 marks)**

(f) **JRecipients** **(2 marks)**

(g) **Kith's and Kipchoge's letters only** **(2 marks)**

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2. a) The MBORANU Hospital in your county would like to computerize their operations. They have consulted you to create a database and save it as **MBORANU Hospital.** **(2 marks)**

b) Create the two tables below with the shown fields. **(10 marks)**

(i) PatientsDetails Table

Field Name	Data Type	Field Size
PNO	Text	3
Patient Name	Text	30
Age	Number	Long integer
Residence	Text	15
City	Text	10
Gender	Text	2

(ii)MedicalRecords Table

Field name	Data type	Field size
PNO	Text	3
Doctor	Text	30
Diagnosis	Text	50
Treatment	Text	50
Bill Amount	currency	
Amount Paid	currency	

c) Set the Primary Key for each table **(2 marks)**

d) Using the appropriate fields create a relationship between the two tables. **(4 marks)**

e) Create forms for each table and save them appropriately. Use them to enter records into the respective table. **(10 marks)**

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PatientsDetails Table

PNO	Patient Name	Age	Estate	City	Gender
001	John Kimanzi	19	Kinoo	Kiambu	M
002	Jane Wanjiru	37	Siaya	Kisumu	F
003	Jack Omondi	32	Mathare	Nairobi	M
004	Mary Kimani	42	Buruburu	Nairobi	F
005	Grace Banda	36	Donholm	Nairobi	F
006	Aaron Odhe	30	Mamba	Mombasa	M
007	Mary Otieno	29	Matuu	Kitui	F
008	Shah Vadgama	34	Parklands	Nairobi	M

MedicalRecords Table

PNO	Doctor	Diagnosis	Treatment	Bill	Amount Paid
003	Isaac Omondi	Malaria	Quinine	500	500
006	Grace Achuman	Depression	Antidepressants	2500	2000
004	Francis Kimani	Headache	Paracetamol	200	200
002	Alex Kioko	Appendicitis	Operation	10000	2000

f) Create a query to display:

i. All patients whose names end with letter **"i"**. Save the query as **Iquery** **(3 marks)**

ii. All patients whose age is above **30** and come from **Nairobi City.** Save the query as **Agequery** **(3 marks)**

g) Create a query to compute the balance of the bill amount and save it as **Balquery**(4 marks)

h) Create a report with the title "**2023 MBORANU PATIENTS REPORT**" used to display **PNO, Patient Name, Age, Doctor, Diagnosis, Treatment and Bill.** Save the report as **patients report** **(6 marks)**

i) Print

i. Patients_Details table **(2 marks)**

ii. Age query **(2 marks)**

iii. Patients report **(2 marks)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

HOME SCIENCE

441/1

PAPER 1 (Theory)

TIME: 2½ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

(a) Write your name and index number in the spaces provided above.

(b) Sign and write the date in the examination spaces provided above

(c) This paper consists of **three** sections: **A, B** and **C.**

(d) Answer **all** questions in section **A** and **B** and any **two** from section **C.**

(e) Answers to **all** the questions must be written in the spaces provided.

(f) **Candidates should answer the questions in English.**

FOR EXAMINER'S USE ONLY

Section	Question	Maximum Score	Candidate's Score
A	**1-20**	**40**	
B	**21**	**20**	
C	**22-24**	40	
Total score		**100**	

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SECTION A (40 MARKS)

Answer all questions in this section

1. State **two** uses of eggs in flour mixtures. **(2 marks)**

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2. Give two ways of preventing skin diseases. **(2 marks)**

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3. State two disadvantages of traditional house designs. **(2 marks)**

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4. State two qualities of travel wear. **(2 marks)**

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5. Give the importance of calcium in expectant women. **(2 marks)**

……

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6. Give two disadvantages of credit cards. **(2 marks)**

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7. Give two reasons why babies fed on infant formula may suffer from diarrhea. **(2 marks)**

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8. Identify two precautions to take when cleaning glass utensils. **(2 marks)**

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9. State two advantages of convenience foods. **(2 marks)**

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10. Define ventilation. **(1 mark)**

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……

11. State two reasons for ironing clothes **(2 marks)**

……

……

……

12. Mention two advantages of starching house hold articles. **(2 marks)**

……

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13. Name two vaccines that are given to a baby immediately after birth. **(2 marks)**

……

……

14. Mention three areas/centres of work that make up the work triangle. **(3 marks)**

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15. Suggest two reasons for cleaning paraffin tank of a hurricane lamp occasionally. **(2 marks)**

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16. Differentiate between antiseptic liquid and disinfectant. **(2 marks)**

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17. Give two examples of self-neatening seams. **(2 marks)**

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18. State two reasons for including fruit salad in a meal. **(2 marks)**

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19. Give two uses of temporary stitches. **(2 marks)**

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20. List two points to consider when selecting a thimble. **(2 marks)**

……

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SECTION B (Compulsory)

21. You have been assigned some household chores by your mother.

Describe the procedure of carrying out the following tasks.

a) Making muddy contaminated water safe for drinking without using chlorine and storing it. **(8 marks)**

b) Dry cleaning and finishing polyester tie. **(6 marks)**

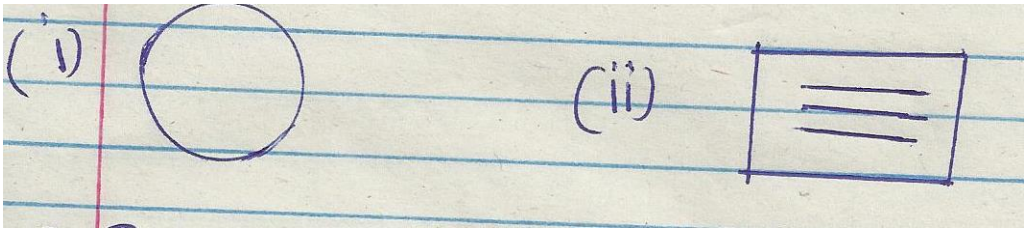
c) Cleaning a melamine cup. **(6 marks)**

SECTION C (40 Marks)

Answer any TWO questions from this section in the space provided.

22. a) State three laundry work processes that are harmful to woolen fibres and in each case state the harm caused. **(6 marks)**

b) Give the meaning of the following care symbols**.** **(2 marks)**



c) Outline the procedure of cleaning a kitchen refuse bin. **(6 marks)**

d) Suggest five factors to consider when shopping for goods and services. (6 marks)

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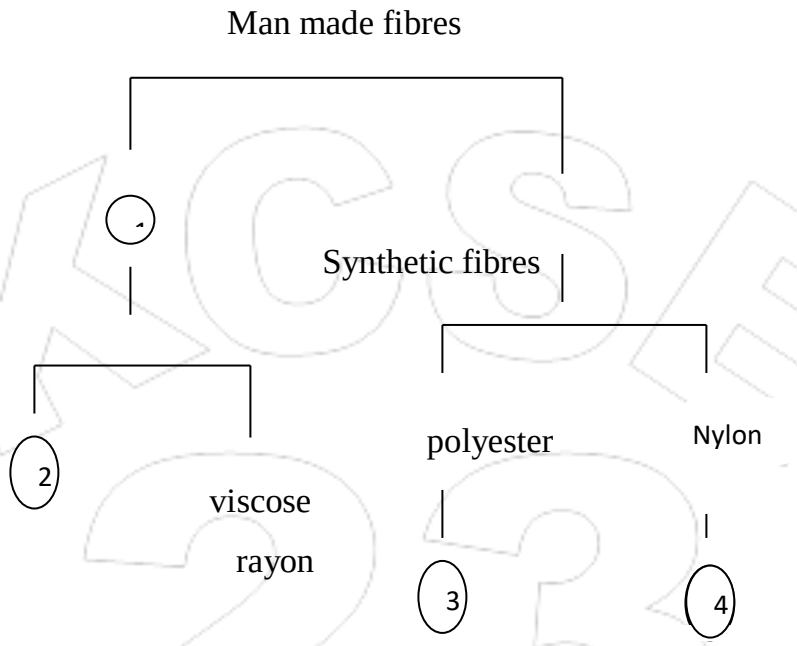
23. a) Explain five considerations to make when furnishing a sitting room. **(5 marks)**

b) Explain three nutritional needs of an adolescent. **(6 marks)**

c) Explain five preparations to make on a fabric before cutting out. **(5 marks)**

d) Complete the following diagram on the classification of man made textile fibre.(4 marks)

(Indicate what the number given stands for)



24. a) State four ways of misusing medicine. **(4 marks)**

b) Giving reasons in each case, explain three changes that take place in dough during the frying of mandazi. **(6 marks)**

c) With the aid of two labeled diagrams, describe how to make an overlaid seam. **(7 marks)**

d) Name three nutritional disorders associated with lifestyle. **(3marks)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

HOME SCIENCE

441/2

PAPER 2 (Practical)

TIME: 2½ HOURS

SCHOOL…… SIGN……

Kenya Certificate of Secondary Education.

CONFIDENTIAL

Schools should provide the following materials;

1. Plain light weight cotton fabric 65cm by 90cm

2. Sewing thread to match the fabric.

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KCSE 2023 PREDICTION EXAM

SERIES 3

HOME SCIENCE

441/2

PAPER 2 (Practical)

TIME: 2½ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

(CLOTHING AND CONSTRUCTION)

Instructions to the candidates.

1. *This paper contains 3 printed pages.*
2. *Candidates should check the question paper to ascertain that all pages are as printed as indicated and that no questions are missing.*

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A pattern of a child's dress 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. Dress Back

B. Dress Front

C. Front Yoke

D. Sleeve

E. Sleeve Binding

F. Back Facing

G. Front Facing

2. Plain lightweight cotton fabric 65cm by 90cm wide.

3. Sewing thread to match the fabric.

4. One large envelope.

THE TEST

Using the materials provided, cut out and make the **RIGHT HALF** of a child's dress to show the following processes.

(a) Cutting out **(16 1/2 mks)**

(b) Attaching the front yoke to the dress front using an overlaid seam. Neaten **half** of the seam using overcasting stitches; **(12mks)**

(c) Joining the shoulder seam using an open seam (**do not neaten**) **(4mks)**

(d) Joining of the side seam using an open seam; **(9mks)**

(e) Preparing and attaching the sleeve; **(27mks)**

(i) Making an inverted pleat

(ii) Joining the underarm seam using an open seam (**do not neaten**)

(iii) Attaching the binding and holding it using slip hemming (slip hem **half** the binding)

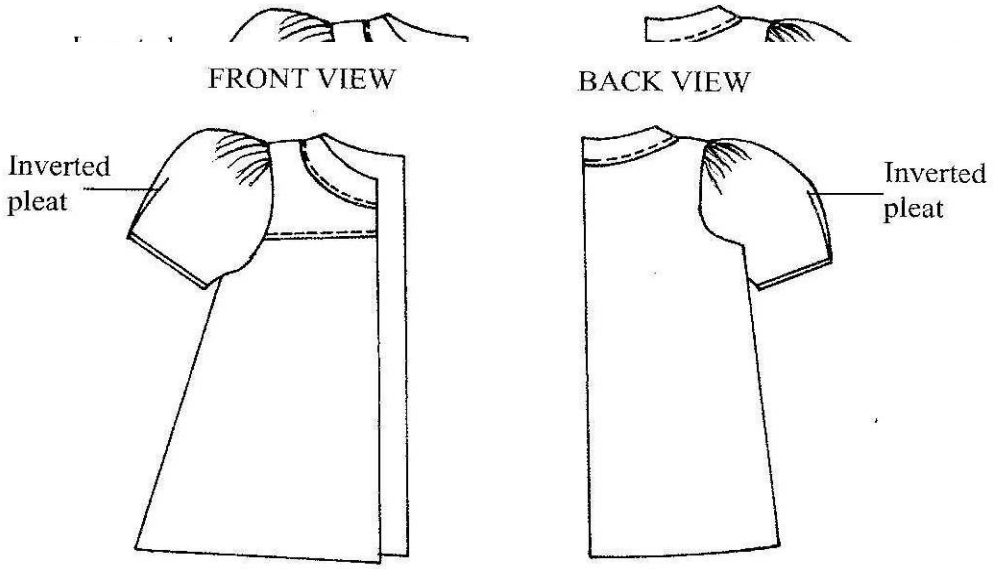
(iv) Attaching of the sleeve onto the garment (**do not trim or neaten**)

(f) Attaching the facing on the neckline. **(14mks)**

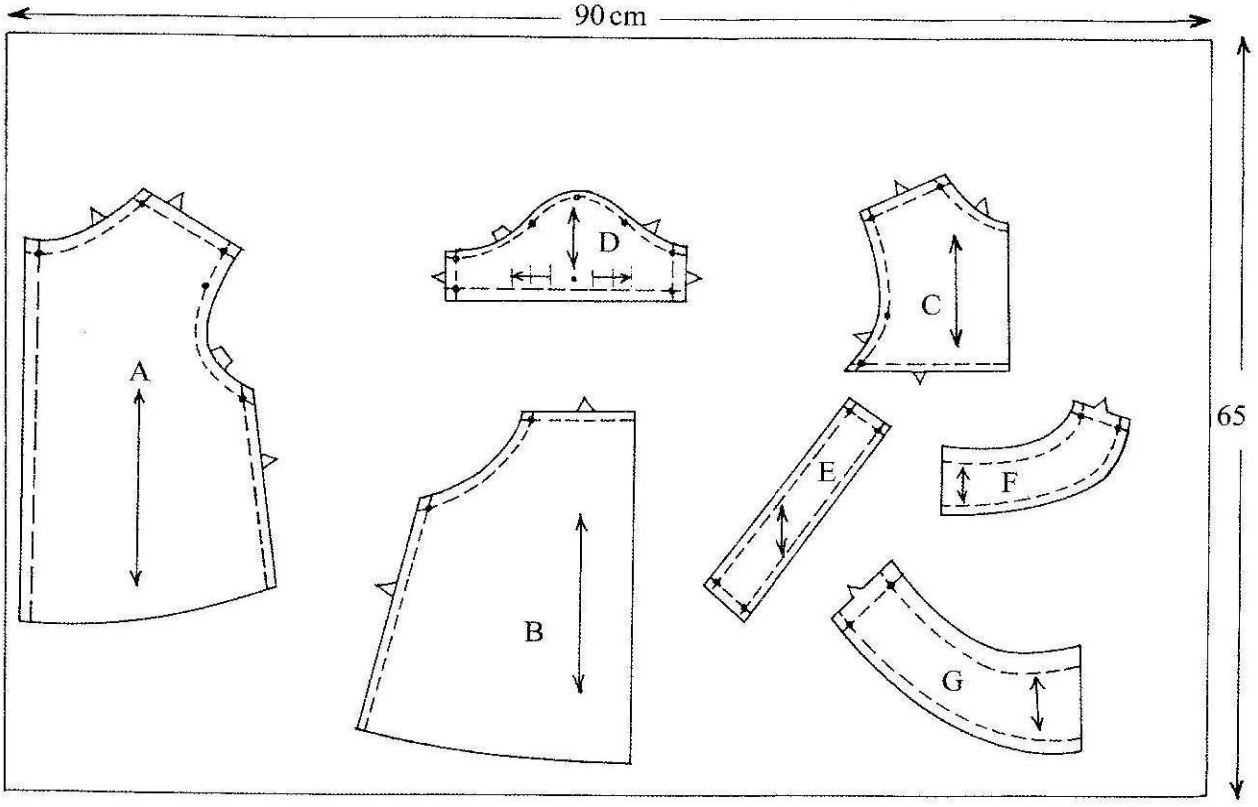
(g) Presentation **(7 1/2)**

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(h) At the end of the examination, firmly sew on your work, a label bearing your name and index number. Remove needles and pins from your work then fold your work neatly and place it in an envelope provided. Do not put scraps of fabric in the envelope.



THE LAYOUT (NOT DRAWN TO SCALE)



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KCSE 2023 PREDICTION EXAM

SERIES 3

HOME SCIENCE

441/3

PAPER 3 (Practical)

TIME: 1¼ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

Practical session: **1¼ hours**

Planning test session: **30 minutes**

INSTRUCTIONS TO CANDIDATES

a) Read the test carefully.

b) Write your name and index number on every sheet of paper used.

c) Textbooks and recipes may be used during the planning session as reference materials.

d) You will be expected to keep to your order of work during the practical session.

e) You are only allowed to take away your reference materials at the end of the planning session.

f) You are not allowed to bring additional notes to the practical session.

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THE TEST

You and your friend are on half term and are going for a picnic. Using the foodstuffs and ingredients listed below prepare cook and pack a one course meal for the two of you include a refreshing drink

Ingredients

- Tomatoes
- Dhania
- Rice/wheat flour/potatoes
- Spice of choice
- Onions
- Capsicum
- Sugar
- Pineapples
- Green leafy vegetables
- Garlic
- Beef/liver
- Salt
- Cooking oil

PLANNING SESSION: 30 MINUTES

Use separate sheets of paper for each task listed below and use carbon paper to make duplicate copies then proceed as follows;

(i) Identify the dishes and write down their recipes

(ii) Write down your order of work

(iii) Make a list of food stuffs and equipment you will require.

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KCSE 2023 PREDICTION EXAM

SERIES 3

ISLAMIC RELIGIOUS EDUCATION

314/1

PAPER 1

TIME: 2½ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

(a) *This paper consists of* ***Six*** *Questions.*

(b) *Answer* ***ANY*** ***Five*** *Questions in the sheets provided.*

(c) *Each Question contains 20 Marks*

(d) *Candidates should answer the questions in* ***English.***

FOR EXAMINER'S USE ONLY

QUESTION	1	2	3	4	5	6	TOTAL SCORE
CANDIDATES' SCORE							

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*Answer **ANY Five** Questions*

1. a) Highlight the lessons derived from the first portion of revelation of the Quran **(6marks)**

b) Discuss the rationale for the narratives of the prophets in the Holy Quran **(6marks)**

c) State the modern ways adapted in teaching the Quran **(8marks)**

2 a) Discuss any four differences between the Mas-haf of Abubakar and that of Uthman**(8marks)**

b) Outline the significance of reciting ayatul Kursy **(6marks)**

c) Explain how a Muslim can modify his life according to Suratul Hujurat **(6marks)**

3 a) State any five Shia collections of Hadith **(5marks)**

b) Give reasons why the fourth period of Hadith collection is regarded as the Golden age of Hadith collection **(8marks)**

c) The prophet (S.A.W) said "looking for a lawful earning is an obligatory act next to obligatory worship" With reference to the Hadith explain how Muslims can eradicate poverty in the society **(7marks)**

4 a) Discuss the relevance of punishment according to Shariah law **(8marks)**

b) Outline the features of a Juma'a prayer **(6marks)**

c) Mention six main activities of Hajj **(6marks)**

5a) Discuss the relevance of the sunnah acts observed during the month of Ramadhan**(7marks)**

b) Highlight five ways of asking for tawbah **(5marks)**

c) Discuss the challenges of Zakat collection in Kenya **(8marks)**

6 a) Give the rationale of forbidding Shirk in Islam **(7marks)**

b) Discuss any four stages that a Muslim passes through immediately after death **(8marks)**

c) Explain the incident of Ghadir Khum according to Shia belief **(5marks)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

ISLAMIC RELIGIOUS EDUCATION

314/2

PAPER 2

TIME: 2½ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

(a) *This paper consists of* ***Six*** *Questions.*

(b) *Answer* ***ANY*** ***Five*** *Questions in the sheets provided.*

(c) *Each Question contains 20 Marks*

(d) *Candidates should answer the questions in* ***English.***

FOR EXAMINER'S USE ONLY

QUESTION	1	2	3	4	5	6	TOTAL SCORE
CANDIDATES' SCORE							

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*Answer **ANY Five** Questions*

1 a. State **eight** effects of betting to the Muslim youth **(8 marks)**

b. Suggest ways of preventing zinaa in the community **(6 marks)**

c. Give **six** reasons why it is important for Muslims to conserve the environment **(6 marks)**

2 a. Describe the duties of the extended family members **(6 marks)**

b. Discuss how corruption undermines growth of society **(8 marks)**

c. What is the rationale for Eddat in Islam **(6 marks)**

3 a. Give seven reasons why agreements and contracts have to be documented in Islam **(7 marks)**

b. State the rules for jihad in Islam **(8 marks)**

c.Mention measures that can be taken to guard against hoarding **(5 marks)**

4a.State the similarities between the rule of ummayad and Abbasid dynasties **(6 marks)**

b.Give reasons why umar bin abdulaziz's reign is regarded as the heydays of the Umayyad dynasty **(6 marks)**

c.Explain Four significance of the battle of Hunain to Muslims **(8 marks)**

5 a. Highlight the human rights issues in madina constitution found in the modern constitutions **(6 marks)**

b.Mention the Contributions of Ali bin Abu Talib to the prophets misson. **(7 marks)**

c.State the achievements of the Abbasid dynasty **(7 marks)**

6 a. Discuss seven contributions made by ibn sina to medicine. **(7 marks)**

b.Mention Lessons a Muslim can learn from Ikhwan al-muslimun **(7 marks)**

c.In what ways can Muslims contribute in eradication of unemployment **(6 marks)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

ART AND DESIGN

442/1

PAPER 1 (THEORY)

TIME: 1½ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- *Write your name and index number in the spaces provided above*
- *Sign and write the date of the examination in the spaces provided above.*
- *This question paper consists of three sections A, B and C.*
- *Answer all questions in section A and B.*
- *Answer any one question in section C*
- *Answers to all the questions must be written in the spaces provided in this booklet.*
- *Do not remove any paper from this booklet.*

For Official Use Only

Section	Question	Maximum score	Score
A	1	20	
B	2	05	
	3	05	
	4	05	
	5	05	
	6	05	
C	7, 8, 9	15	
Max. Score		60	

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SECTION A (20 MARKS)

Answer ALL questions in this section.

1. a) Define the term **Subject Matter** as used in art? **(2mks)**

……

……

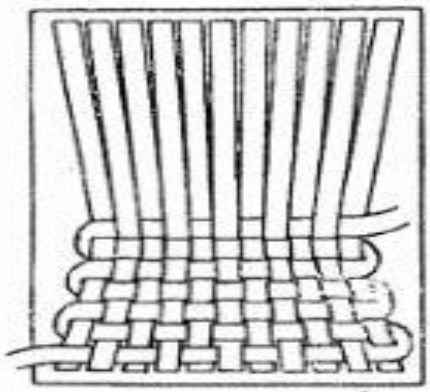
……

b) What is a **highlight** with reference to an artwork **(1mk)**

……

……

c) Study the illustration below and answer the following questions.



i) Name the weaving defect portrayed **(1mk)**

……

ii) What **causes the above defect**? **(1mk)**

……

……

d) Give two **characteristics** of a mosaic work **(2mks)**

……

……

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e) What does the term "**Primer** "stand for as used in painting? **(2mks)**

……

……

……

f) Why is **ironing out** of wax not recommended in fabrics to be used for dresses? **(1mk)**

……

……

g) Name the **ceramic technique** used to produce several identical clay articles. **(1mk)**

……

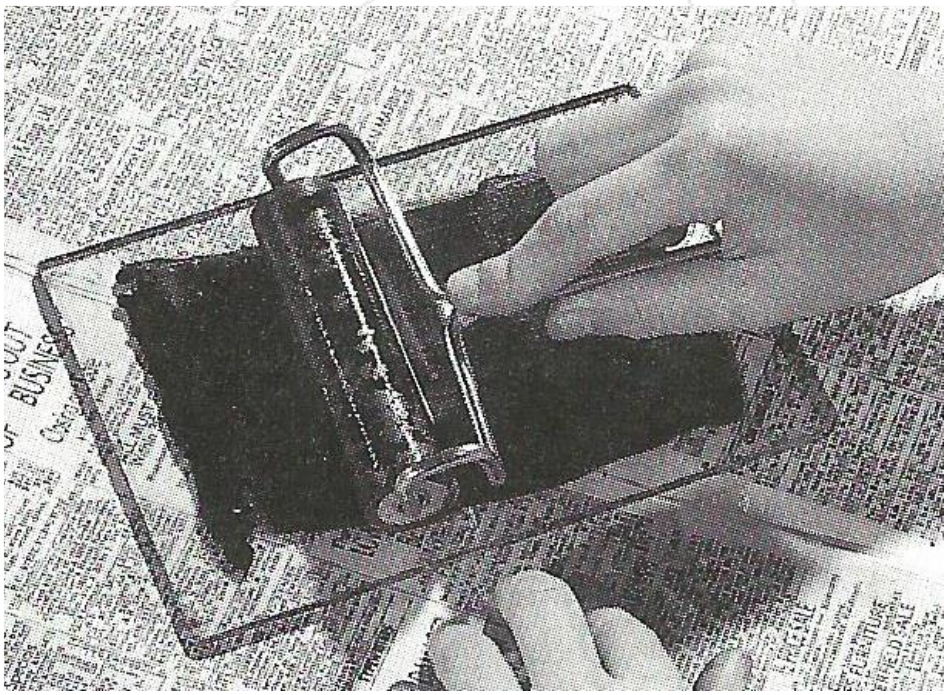
……

h) In Art, what do we mean by the term **Balance** **(1mk)**

……

……

i)Identify the **tool** illustrated below and state its role in printmaking. **(2mks)**



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j) Explain the term **Simultaneous contrast**. **(2mks)**

……

……

……

k) Outline two **differences** between collage and montage. **(2mks)**

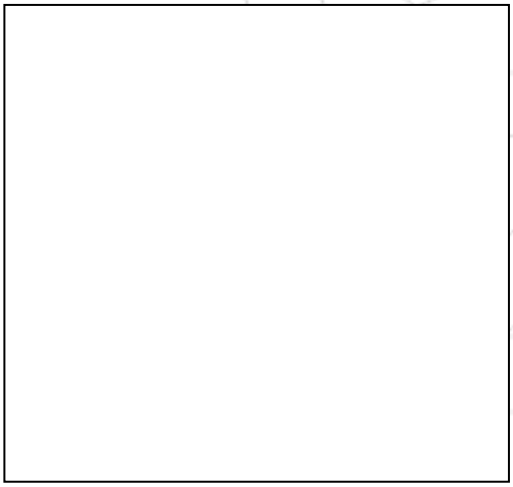
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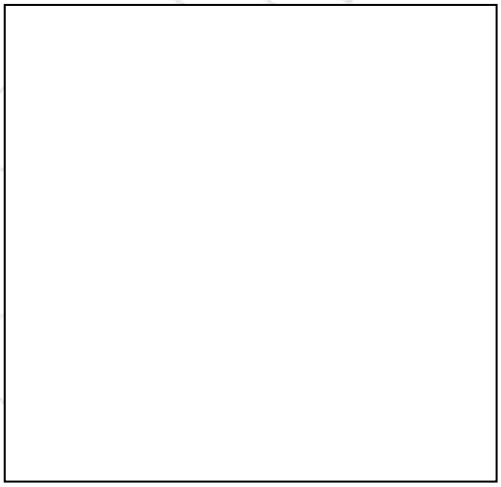
……

……

……

l) In the space below draw the typographical illustration of any uppercase alphabet to show; (**2mks)**





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SECTION B (25 MARKS)

Answer ALL questions in this section in the spaces provided

2. study the art work below



a) Identify the kind of art work? **(1mk)**

……

b)Why is it necessary to **frame such an art work**? **(2mks)**

……

……

……

c)Identify two elements portrayed in the art work. **(2mks)**

……

……

3. i) What is a letterhead? **(1mk)**

……

……

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ii) Name and explain four components of a letterhead **(4mks)**

……

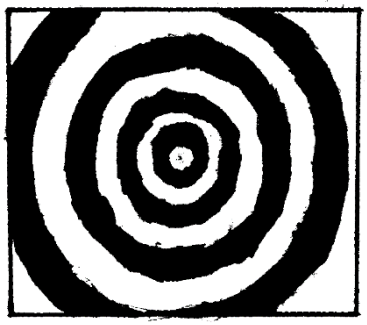
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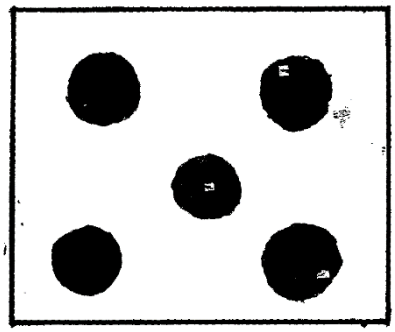
……

……

……

4. a) Identify the technique below and the pattern created in fabric decoration. **(1mk)**





(i)…… **(ii)**……

(b) Briefly explain how each of the end results were achieved. **(4mks)**

……

……

……

……

……

5. a) Differentiate between ornaments and jewellery. **(1mk)**

……

……

b) Outline four factors to consider when **designing** ornaments. **(4mks)**

……

……

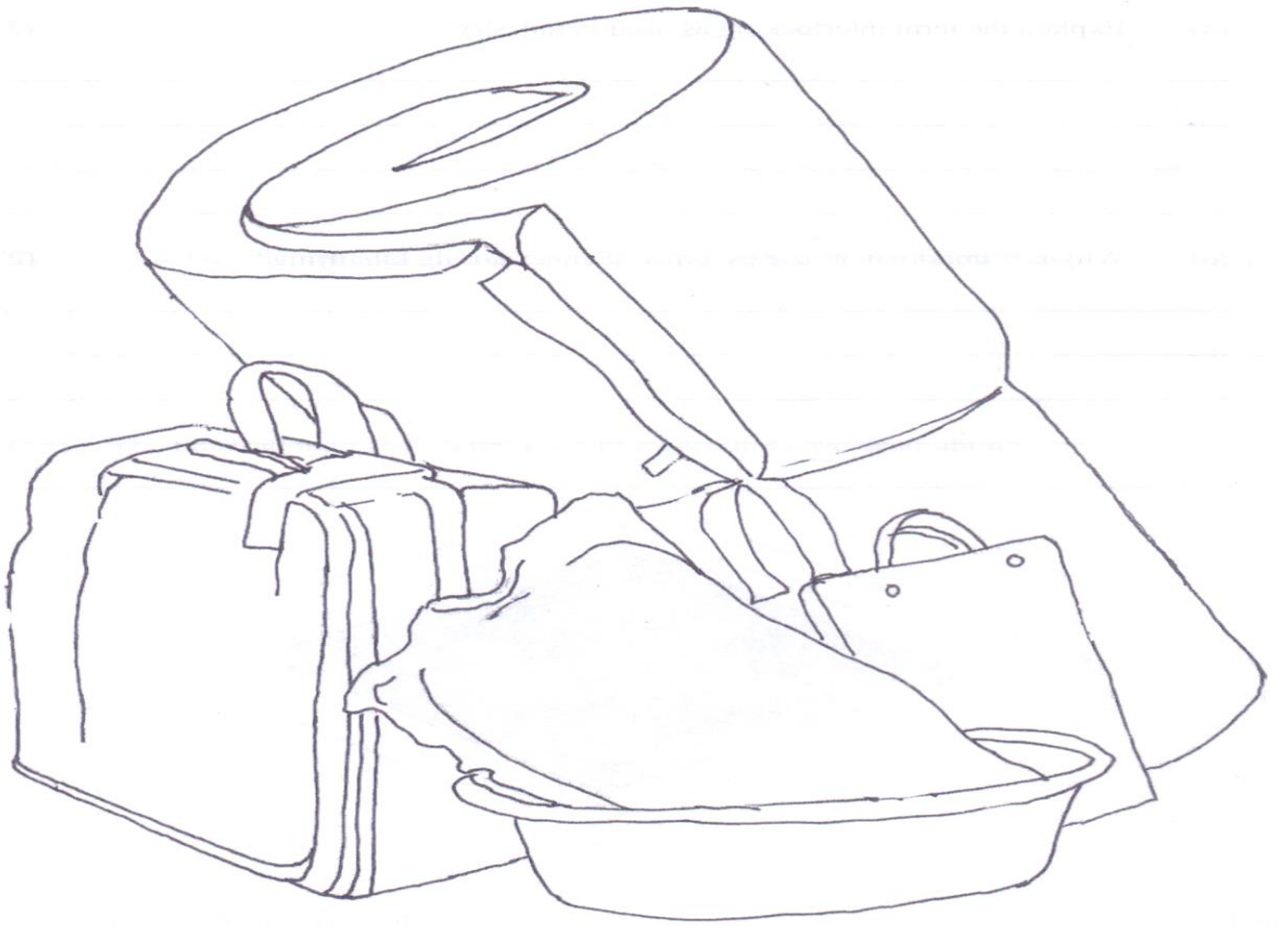
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……

……

……

6. Using the **hatching technique**, create three dimensional effects on the still life composition below. **(5mks)**



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SECTION C (15 MARKS)

*Answer any **one** question from this section*

Write your answers in the spaces provided after questions 9.

7. a) What is a **Motif**. **(1mk)**

b) Explain two differences between Bock and Stencil **techniques of printing.** **(4mks)**

c) Using a motif derived from a **flower** as an example, describe the process of producing a **half- drop repeat** using block printing technique. **(10mks)**

8. a) State **one** function of **grog**. **(2mks)**

b) Explain the meaning of the term '**vitrification'** as a property of clay. **(2mks)**

c) Identify any **four** hand building techniques used in pottery making. **(2mks)**

d) With the help of illustrations explain the process used in any **three** of the above identified techniques. **(9mks)**

9. a) Define the term **'design brief'** **(1mk)**

b) What is a **caption**? **(2mks)**

c) Define the term '**animated cartoons'.** **(2mks)**

d) Discuss the graphic design problem solving process **(10mks)**

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KCSE 2023 PREDICTION EXAM

SERIES 3

ART AND DESIGN

442/2

PAPER 2 (Practical)

TIME: 3 HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES.

1. *This paper contains **TWO** alternatives; **A** and **B**. Each alternative has two options.*
2. *Choose only **ONE** option from any **ONE** alternative.*
3. *This question paper will be given to you **ONE HOUR** before the start of the examination to enable you to make your choice from the alternatives. During this one hour, you are allowed to make sketches on the **A4** papers provided to help you decide on your choice.*
4. *The use of **rulers** and **other** mechanical means is **FORBIDDEN** in alternative **A** but is **ALLOWED** in alternative **B**.*
5. *Clearly write your name, index number, the alternative and the number of option chosen in that order on the right –hand corner of unpainted **4cm** wide margin across the bottom of the paper.*
6. *At the end of the examination, pass your work to the invigilator without **rolling** or folding it.*
7. *This paper consist of **2** printed pages candidates should check the question paper to ensure that all the printed pages are printed as indicated and no questions are missing.*

*Answer only **ONE** question from either alternative **A** or **B**.*

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ALTERNATIVE A

DRAWING OR PAINTING

You are instructed that the use of rulers and other mechanical means is forbidden in this alternative.

EITHER

DRAWING

1. A bare footed man dressed in a short, torn shirt and a straw hat holding a stick across his shoulders is happily driving his goat to the market.

The composition should be within an area of 35cm by 45 cm

OR

PAINTING

2. Create a pictorial composition in colour based on the theme "The first bicycle ride".

The composition should be within and area of 35cm by 45 cm

ALTERNATIVE B

GRAPHICS

You are instructed that the use of rulers and other mechanical means as well as tracing paper is allowed in this alternative.

*The colour of the **working surface** (paper) will not be considered as one of the colors required in any question.*

EITHER

3. A new mobile phone service provider "Trash International" requires a poster for its launch. In **three** colors, design a poster reflecting the provider's services and advantages over the existing competitors. The working area should measure 40cm by 30cm.

OR

4. "Classy-ware" a company dealing with production of children clothing requires a logo, a letterhead and an envelope. In an area measuring 35cm by 45 cm and in three colours, design;

a) Logo measuring 9cm by 9 cm
b) Letterhead measuring 30cm by 21cm
c) Envelope measuring 25cm by 17cm

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KCSE 2023 PREDICTION EXAM

SERIES 3

ELECTRICITY

448/1

PAPER 1 (Theory)

TIME: 2½ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

*a) Write your **Name**, **Index number** and **Class** in spaces provided*
b) Candidates should have the following for this examination
Drawing instruments
Scientific calculator
*c) This paper consists of two sections: **A** and **B**.*
*d) Attempt **ALL** questions in **section A** and any **FOUR** in **section B**.*
*e) All dimensions are in **millimeters** unless stated other wise*

For Examiner's use only

Section	Questions	Maximum Score	Candidate's Score
A	1-10	48	
B	11	13	
	12	13	
	13	13	
	14	13	
	15	13	

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SECTION A (48 marks)

(Attempt all questions in this section)

1. Explain the significance of using only one hand when working on high voltage system **(2 marks)**

……

……

……

2. a) Define each of the following terms: **(3 marks)**

i. semiconductor

……

……

ii. intrinsic semiconductor

……

……

iii. extrinsic semiconductor

……

……

b) Draw and label voltage versus current characteristics curve for a P-N junction in its forward and reverse modes **(3 marks)**

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3. a) A 5kΩ linear potentiometer has 6V source connected across its end terminals

i. Determine the range of output voltage of the potentiometer **(1 mark)**

……

……

……

ii. Calculate the two possible output voltages when the potentiometer is in its three-quarter position **(2 marks)**

……

……

……

b) An emf of 120V causes a current of 3A to flow in a circuit. Calculate the energy supplied by the source in 12 seconds **(2 marks)**

……

……

……

……

4. a) Outline two differences between a permanent magnet and an electromagnet **(2 marks)**

……

……

……

……

b) State and explain two properties of a good conductor **(2 marks)**

……

……

……

……

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5. a) List four electrical measurements that can be taken using a cathode ray oscilloscope **(2 marks)**

……

……

……

……

b) A moving coil meter gives a full scale deflection for a current of 100mA and has a resistance of 5Ω. Determine the value of the resistor used so that the meter can measure a current of 1.0A at full scale deflection. **(3 marks)**

……

……

……

……

……

6. a) Draw the current discharge curve of a capacitor **(2 marks)**

b) Outline how insulation resistance test can be carried out between two conductors **(5 marks)**

……

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7. a) Name the logic gate shown in **Figure 1** (1 mark)

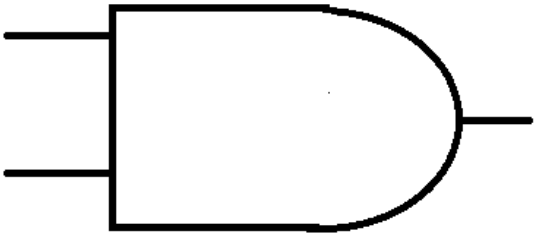


Figure 1

Name……..

b) Complete the truth table of the OR gate **(2 marks)**

INPUT 1	INPUT 2	OUTPUT
0	0	
0	1	
1	0	
1	1	

c) Perform each of the following number conversions **(4 marks)**

i. 101010_2 to decimal

……

……

……

ii. 23_{10} to binary

……

……

……

8. a) Name four sources of electricity in Kenya **(2 marks)**

……

……

……

……

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b) State one possible cause and remedy for each of the following electric motor faults

(4 marks)

i. Motor connected to the supply but will not start

……

……

……

ii. Motor overheats on load

……

……

……

9. Draw wiring diagram of a 12V electric bell controlled by two switches from a 240V mains supply **(4 marks)**

10. a) Define entrepreneur **(1 mark)**

……

……

b) List two business opportunities in the field of electricity **(1 mark)**

……

……

……

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SECTION B (52 marks)

*Answer any **four** questions from this section in the spaces provided*

11. a) State three variables which determine resonance condition in an RLC circuit **(3 marks)**

b) A series circuit consisting of a 0.1μF capacitor and a 25μH, 20Ω coil is connected across a 10V a.c supply. Calculate the following: **(10 marks)**

i. Resonant frequency

ii. Supply current at resonance

iii. Voltage across the capacitor at resonance

12. With the aid of a labelled diagram, show the construction and describe the operation of a moving coil permanent magnet type instrument **(13 marks)**

13. a) Explain the term ideal transformer **(3 marks)**

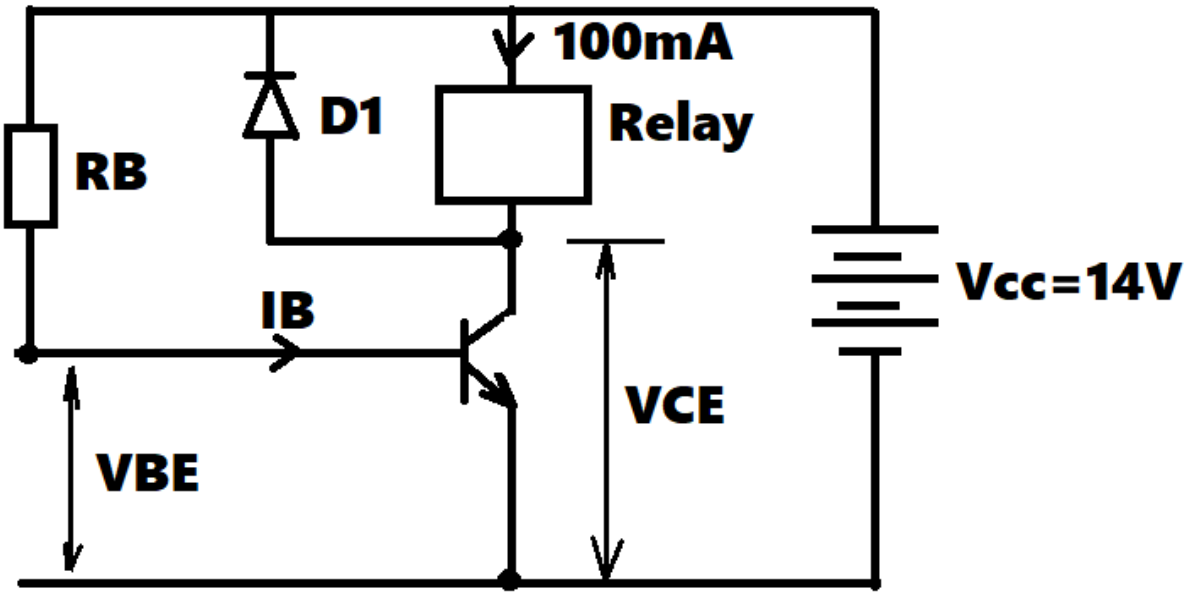
b) A transformer which has a primary winding resistance of 1Ω and a secondary winding resistance of 0.1Ω is connected to a 10Ω load. if the primary current is 0.5A and secondary is 5A, calculate: **(6 marks)**

i. Load power

ii. Copper losses

c) If the transformer in (b) has a core loss of 5W, calculate the efficiency of the transformer **(4 marks)**

14. The transistor in the circuit shown in **Figure 2** below is biased to supply the relay with 100mA. the dc current gain, β, of the transistor is 50 and the forward base-emitter voltage, V_{BE} is 0.7V



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a. If the voltage drop across the relay is 12V, calculate the: **(11 marks)**

i. Base current I_B

ii. Emitter current I_E

iii. Voltage between collector and emitter V_{CE}

iv. The base resistance R_B

b. Explain the function of diode D1 in the circuit **(2 marks)**

15. **Figure 3** shows three views of an object drawn in first angle orthographic projection. make isometric drawing of the object taking A as the closest point (13 marks)

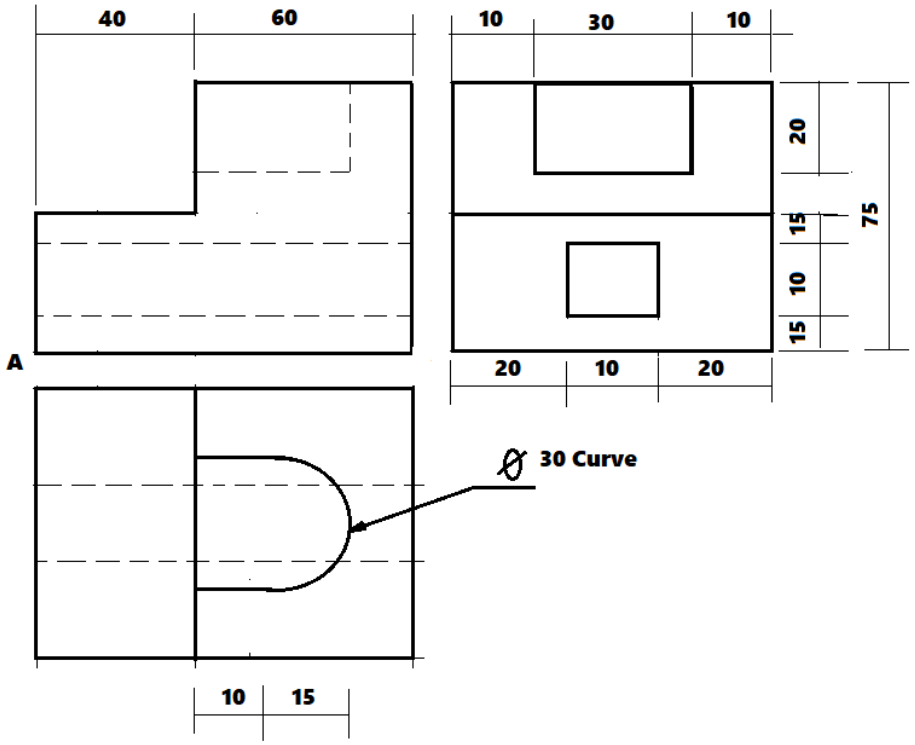


Figure 3

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KCSE 2023 PREDICTION EXAM

SERIES 3

ELECTRICITY

448/2

PAPER 2 (Practical)

TIME: 2½ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- ***a.*** *Write your **Name**, **Class** and **Index Number** in spaces provided*
- ***b.*** *There are **five** exercises in this examination*
- ***c.*** *Candidates are allowed **30** minutes for each exercise*
- ***d.*** *Each exercise will be awarded a maximum of 20 marks*
- ***e.*** *At each station, candidates are **not allowed** to either view the previous station's work or read instructions for the other stations*
- ***f.*** *Attempt all the **four** exercises*
- ***g.*** *All dimensions are in **millimeters** unless otherwise stated*
- ***h.*** *Candidates should answer the questions in **English***

For examiner's Use only

EXERCISE	1	2	3	4	TOTAL
MARKS(EC)					
MARKS(MC)					
GRAND TOTAL					

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EXERCISE 1

Using the materials, equipment and measuring instruments provided, perform the following tasks

a) Connect the circuit as shown in **Figure 1** **(2$\frac{1}{2}$ marks)**

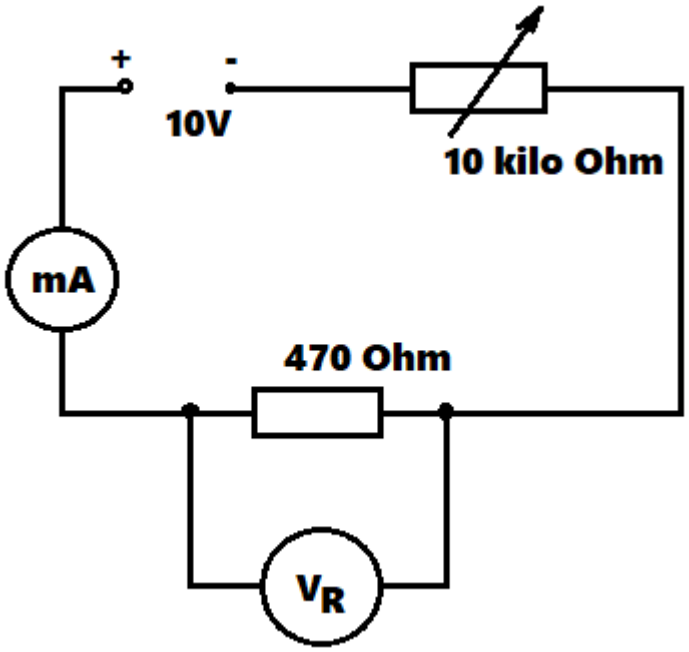


Figure 1.

b) Connect the circuit to the power supply **(1 marks)**

c) Turn the power on and adjust the potentiometer to obtain each of the voltages (V_R) shown in **Table 1**.in each case read and record the corresponding current I. **(6 marks)**

V_R (Volts)	I(mA)	Power (mW)
3		
4		
5		
6		
7		
8		

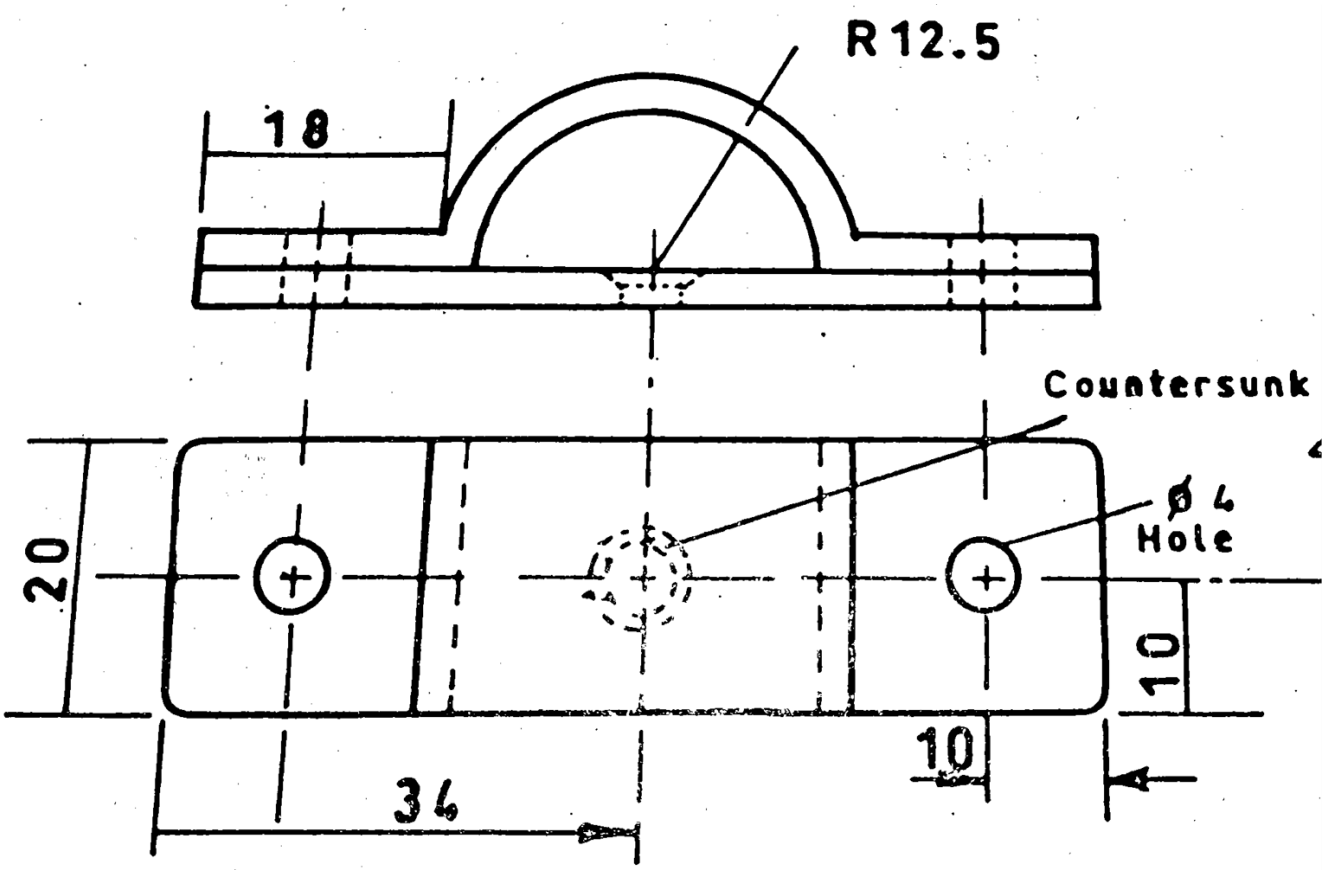
d) For each value of VR, calculate the power dissipated in the 470Ω resistor and complete the table **(5 marks)**

e) Using the values in **Table 1** draw the graph of power against voltage V_R. **(5$\frac{1}{2}$ marks)**

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EXERCISE 2

Using tools equipment and materials provided make the space bar saddle as shown in **Figure 2**



EXERCISE 3

a. Connect circuit as shown in **figure 3**. Let examiner check your work (2 marks)

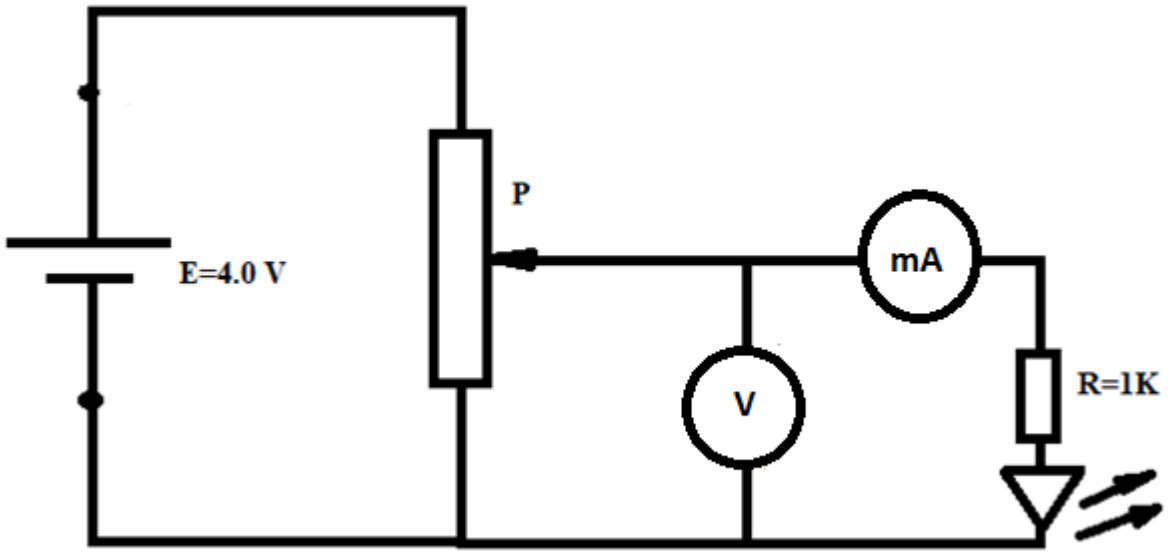


Figure 3

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b. Adjust the potentiometer and complete the table below (6 marks)

V(v)	0	0.5	1.0	1.5	2.0	2.5	3.0	3.5
I(mA)								

c. Adjust the potentiometer until LED starts to glow. Record voltage_____ **(1 mark)**

d. Plot graph of I(mA) against V(v) **(10 marks)**

EXERCISE 4

Figure 4 shows a layout of a power final sub circuit. Using PVC conduit wiring system, install the circuit

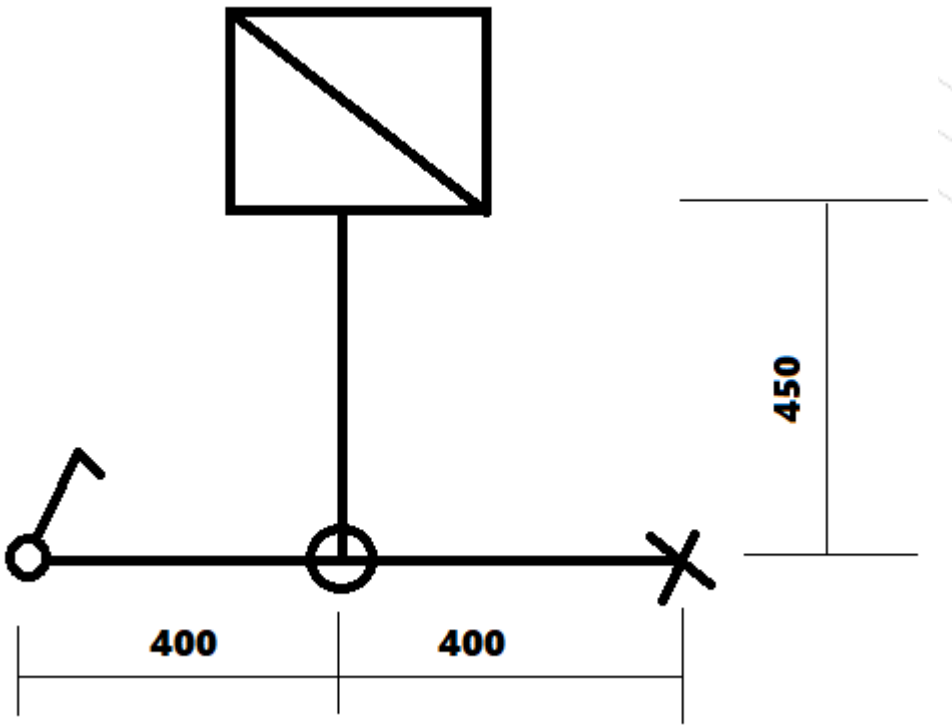


Figure 4

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KCSE 2023 PREDICTION EXAM

SERIES 3

FRENCH

501/1

PAPER 1

(Listening Comprehension, Dictation and Composition)

TIME: 2 HOURS

NAME……

SCHOOL…… **SIGN**……

INDEX NO…… **ADM NO**……

Kenya Certificate of Secondary Education.

Instructions to Candidates

*This paper consists of **three** sections.*

*In Section **I**, you will have five minutes to read through the questions before the test starts. Before answering the questions, you will listen to several recorded passages on a tape. For each passage, you will answer questions as indicated to you on the tape.*

*In Section **II**, you will listen to recorded materials once and start writing during the second listening.*

*In Section **III**, choose one composition from the two composition questions and write your composition on the foolscap provided.*

SECTION	MARK	SCORE
I	15	
II	05	
III	15	
TOTAL SCORE		

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SECTION I

Listening Comprehension (15 marks)

Write all answers in the spaces provided.

I. Passage 1 **(3 pts)**

	Equipe	**Nature de problème**
(i)	……	Sécurité
(ii)	Rose	…….
(iii)	Bleue	Assurance ……
(iv)	……	v) ……. scolaires
(vi)	……..	Autres renseignements

b) Où est-ce qu'on fait cette annonce?

……. (1 pt)

2. Passage II

(a) Quel est le produit dont on parle?

…… ($^1/_2$ pt)

(b) De quel pays vient-il?

…… ($^1/_2$ pt)

(c) Qu'est-ce que la alerte montre à l'usager?

…… (1 pt)

(d) Combien coûte le produit?

……... ($^1/_2$ pt)

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3. Passage 3

(a) Complétez le tableau avec l'information du texte.

INFORMATION IMPORTANTE

i) Atelier de …… (½ pt)

i) Dates: de …… au cinq août. (½ pt)

ii) Frais d'inscription: …… (½ pt)

v) Jour d'arrivée : …….. (½ pt)

) Fin des exercices personnels à …… (½ pt)

Le code donne accès au lieu suivants:

…… (½ pt)

…….. (½ pt)

b) Qu'est-ce que les participants ne peuvent pas faire pendant l'atelier?

…… (1 pt)

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4. Passage 4

(a)On a terminé le concours de lecture en …… ($^1/_2$ pt)

(b) Qui posait des questions aux finalistes? …… ($^1/_2$ pt)

(c) Comme cadeau, les gagnants:

(i) visitent une …… ($^1/_2$ pt)

(ii) Prennent le …… avec les …… (1 pt)

(d) Les sessions interactives auront lieu dans une ……..... exotique. ($^1/_2$ pt)

(e) On a choisi ce lieu parce qu'il est mentionné ……. …….

……. ($^1/_2$ pt)

SECTION II

Write the dictation passage in the spaces provided. **[5 points]**

……

……

……

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SECTION III

Composition (15 marks)

*Write **one** composition on the foolscaps provided. Indicate clearly whether your choice is **a** or **b.***

In **150-180** words, write in French, a composition on:

Either

a) **End:** "… depuis ce jour-là, je me suis promis de ne jamais aider quelqu'un que je ne connais pas." (15 marks)

or

b) **End:** "…Malheureusement, Marc et ses copains se sont trouvés en prison à cause de cet incident." (15 marks)

KCSE 23

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KCSE 2023 PREDICTION EXAM

SERIES 3

FRENCH

501/2

PAPER 2

(Reading Comprehension, Grammar& Functional writing)

TIME: 2¼ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

Write your name and index number in the spaces provided above.

This paper has three sections I , II and III.

Answer all the questions in the spaces provided.

For Examiner's Use Only.

	Maximum Score	Candidate's Score
I	15	
II	15	
III	10	
TOTAL SCORE		

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SECTION I (15 marks)

Read the following passages and answer the questions that follow after each passage.

PASSAGE I

Les problèmes de cette mère de famille de 44 ans ont commencé le jour où son mari et elle-même ont décidé d'acheter un garage automobile à Oberwampach, où ils vivent. À peine acquis, le couple apprend qu'il ne peut faire un tel commerce au Grand-Duché car le mari ne dispose pas du diplôme de maître-artisan nécessaire.

Résultat, le garage reste fermé à double tour. Les dettes s'accumulent et la situation va de mal en pire. Jusqu'à ce jour fatal où cette belge d'origine congolaise a fait l'impensable. À sa sortie, elle menace de se tuer sur La Place des Martyrs.

Elle semble si déterminée et désespérée à la fois que la fonctionnaire décroche immédiatement son téléphone pour prévenir la police. Rapidement, les forces de l'ordre se mettent en alerte et un important nombre de policiers est déployé à La Place des Martyrs. La femme qui s'est suicidée, Mme Delvaux-Mufu, avait expliqué toute sa situation dans une lettre qu'elle avait envoyée une semaine avant au journal " Le Jeudi ".

1. De qui parle le texte? ($^1/_2$ pt)

……..

2. Comment est-elle morte? ($^1/_2$ pt)

…….

3. La dame vient de quel pays? ($^1/_2$ pt)

……

4. Où habitait la dame? ($^1/_2$ pt)

……

5. Quel genre de commerce voulait-on commencer? ($^1/_2$ pt)

……..

6. Pourquoi est-ce que son mari ne peut pas faire le commerce? ($^1/_2$ pt)

……

7. La dame comment avait-elle communiqué son problème? (1 pt)

……

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PASSAGE 2

THEATRE DE L'ORME 24 RUE DES MIMOSAS

Jeudi, vendredi, samedi à 20h30

Dimanche à 17h

De Patricia OUVRAD avec Sophie ETAIS et Michel DUBOIS

CHUUUT!

Les tribulations d'un couple curieux de la vie de ses voisins de palier. Une comédie sur les petits détails de notre vie.

1. Quel type de document est présenté ci-dessus? ($^1/_2$ pt)

……

2. Combien de jours passe cette activité? ($^1/_2$ pt)

……

3. Qui sont Sophie, Patricia et Michel? ($^1/_2$ pt)

……...

PASSAGE 3

Un évènement extraordinaire s'est passé hier soir dans la ville de Sakima. Un pêcheur a eu un choc et est maintenant hospitalisé après avoir trouvé un grand serpent et ses petits dans un sac. Monsieur Oumar, pêcheur et père de trois enfants était allé au lac Victoria où il avait rempli son sac de poissons. Puis, il avait pris un matatu pour rentrer à Kondole, son village natal. Il est arrivé à la maison et devant sa femme, il a ouvert le sac. Mais hélas! Au lieu des poissons, il a trouvé le reptile et sa famille encore vivants. Il est immédiatement tombé par terre et sa femme a dû appeler l'ambulance pour le transporter à l'hôpital. La police a finalement établi que Monsieur Oumar avait pris le sac d'une sorcière sans le savoir.

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(a) Où se passe cette histoire? (½ pt)

…….

(b) Oumar a été choqué parce qu'il ……

…… (½ pt)

(c) Qu'est-ce qu'il a trouvé au lac? (½ pt)

……

(d) Où habite Oumar? (½ pt)

……..

(e) Qui a appelé l'ambulance? (½ pt)

……...

(f) A qui appartient le sac en question? (½ pt)

……..

PASSAGE 4

Aminata est très déçue. Elle vient de rater le bus… le seul bus qui allait l'emmener à un petit village isolé au sud-est du pays. Aminata, qui est chercheuse scientifique par profession n'est pas arrivée à l'arrêt de bus en retard. Au fait, elle y était bien tôt; trois heures d'avance. A son arrivée, elle s'est installée sous un arbre d'où elle a lu des journaux. Autour d'elle, il y avait des gens, des animaux et une vraie cacophonie. Plusieurs camions viennent et vont et la foule diminue graduellement. Après une attente de presque quatre heures, elle demande à un commerçant quand son bus arrivera.

- Mais madame, le bus est parti il y a trente minutes!

-Comment? Quel bus? Depuis mon arrivée, je n'ai pas vu de bus ici: que des camions et des vélos.

-Ah! les camions sont appelés 'bus' ici et, malheureusement, votre destination n'a que deux qui sont déjà partis, il y a trente minutes. Vous serez obligée de voyager demain.

Quelle journée perdue!

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a) La destination d'Aminata est ……. et se trouve au …… du pays. (1 pt)

b) Qu'est-ce qu'elle faisait en attendant le bus? (1 pt)

i) …….

ii) ……

c) Trouvez dans le texte les synonymes de: (3 pts)

i) Malheureuse ……

ii) Bruit incessant ……

iii) Des bêtes ……

iv) Hommes d'affaires ……

v) Une demie heure …….

vi) Connus comme ……

PASSAGE 5

Un certain monsieur a un domestique très paresseux. Un jour, il appelle son domestique et demande ses souliers. Il pleut à torrents, mais il désire voir un ami malade.

Le domestique apporte les souliers: ils ne sont pas propres. Le monsieur est très vexé. "Regardez mes souliers, Joseph!" dit-il. Votre paresse est inexcusable!" "Eh bien, monsieur" répond froidement Joseph. "Inutile de polir vos souliers. Dans deux heures ils vont être sales." "Très bien," répond froidement son maitre. Il met les souliers sales et quitte la maison.

A sept heures du soir, Joseph frappe à la porte du salon. Il désire la clé de la cuisine. "Pour quoi faire?" demande son maitre. Pour faire mon souper, monsieur" Ah non, pas de souper pour vous, ce soir, mon homme!"

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"Mais monsieur…j'ai faim!" "Peut-être bien," dit le maitre. "Inutile de manger, Joseph. Dans deux heures, vous aller recommencer à avoir faim!"

a) Pourquoi le monsieur sort-il? ($^1/_2$ pt)

……

b) Pourquoi le monsieur, n'est-il pas content de Joseph? ($^1/_2$ pt)

…….

c) Comment est-ce que le maitre a puni Joseph? ($^1/_2$ pt)

…….

SECTION II - GRAMMAIRE

Beginning as indicated, complete the sentences below making all appropriate changes. Avoid repetition. (8 pts)

Exemple: As-tu mis les livres sur la table?
Oui, je les y ai mis.

a). Le professeur enseigne. Les élèves tombent malade.
Hier, quand ……..

b). Vous êtes déjà arrivé?
Non, …….

c) C'est votre voiture?
Non, la ……. est tombée en panne.

d) Il a terminé son devoir puis il est sorti.
Ayant ……..

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e) Vous ne prenez pas d'huile?

Si, ……..

f) Il parle d'une dame qui est très méchante.

La dame ……..

g) Hier, j'ai rencontré Nadine en ville.

Dans deux jours aussi, …….

h) Je ne peux pas aller en ville car j'ai beaucoup de travail.

Mais si je n' …….

2. Remplissez par un seul mot. (4 pts)

Chère Emilie,

Je t'écris de ma chambre, où je viens d'arriver après …….longue journée. Le matin nous ……. allés au bureau d'information……. rendre visite …… maire. Il nous a bien reçu.

L'après-midi, j'aurais voulu faire la sieste mais je ……. suis rendu compte de notre rendez-vous. Je suis donc allé directement jusqu'à l'endroit d'attente.

Je t'ai attendu…" Où est-elle?" Je me suis ……. . "Tu n'es pas venue. Pourquoi est-ce qu'elle ne vient pas?"

Dis-moi franchement…qu'est-ce qui se passe? Est-ce que tu m'aimes comme avant?

Je commence à découvrir que tu ne ……..aimes plus.

J'…… ai marre!

Innocent.

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3. Match the questions in column A with the answers in column B (3 pts)

COLUMN A	**COLUMN B**
1. Tu penses à quelqu'un?	a) Rien.
2.Vous allez quelquefois au parc?	b) Je n'ai pas d'argent.
3. Où vont-ils passer les vacances?	c) Oui, à ma mère.
4. Que vas-tu faire après l'école?	d) Non, jamais.
5. Est-il vraiment malade?	e) Chez Jean.
6. Pourquoi êtes-vous triste?	f) Oui, je pense.
	g) Oui, les dents lui font mal.
	h) Demain je vais à Nairobi.
	i) Non, je ne vais pas à l'école.
	j) Oui, la malade est ici.
	k) Oui, je suis triste.

1	2	3	4	5	6

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SECTION III

In 120-150 words, write in French on :

Either

(a) Une organisation internationale cherche une secrétaire bilingue. Faites une lettre de motivation. (10 pts)

or

(b) Un hôtel cherche un(e) réceptionniste. Vous vous présentez au chef du personnel pour l'interview. Ecrivez le dialogue. (10 pts)

KCSE 23

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KCSE 2023 PREDICTION EXAM

SERIES 3

FRENCH

501/3

PAPER 3

TIME: 2 HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

SECTION I - Reading Aloud

CARD A.

Lucie, étudiante des Etats-Unis, vient d'arriver à Charles de Gaulle, L'aéroport qui accueille chaque jour à Paris, 1 million de visiteurs. Enfin, ça a toujours été le rêve de Lucie: Vivre dans la ville lumière, la ville des beaux arts, du quartier latin, du vin, et qui sait, peut-être la ville d'une petite histoire d'amour.

Son projet est d'étudier en France pendant un an, pour obtenir sa licence en informatique à l'Université de Versailles à St. Quentin-en-Yvelines. C'est l'université qui lui a offert une bourse pour faire ses études là-bas, et Lucie va pouvoir vivre avec elle dans son petite appartement.

Elle prend le RER qui la mène directement à la Gare St Lazare, en centre-ville. Une fois arrivée, elle cherche la quai du train pour Versailles. Elle monte dans le train , et bientôt il entre dans un tunnel sombre en direction de Versailles. Lucie est un peu déçue, parce qu'elle doit rester à Versailles bien qu'elle veuille vivre à Paris. Mais elle se dit que Versailles n'est qu'à quelques minutes en train de la grande ville de Paris, et qu'il y a aussi plusieurs attractions à Versailles.

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KCSE PREDICTION MWALIMU CONSULTANCY

501/3

FRENCH PAPER 3

SECTION I - Reading Aloud

Passage B

Lucie est arrivée à la gare de Versailles. Elle a déjà vu le château de Versailles, mais elle veut, plus tard, en faire une visite plus approfondie.

Mais d'abord, elle se promène sur l'avenue St. Cloud pour trouver l'appartement.

Elle le trouve juste en face du poste de police, dans une petite maison en brique. Elle met ses bagages devant la barrière qui sépare le petit passage qui mène du trottoir à la porte de la maison. Elle presse la petite sonnette jaune qui est à côté du nom "Joséphine Gérard".

Sa copine, Joséphine, dont elle a fait la connaissance sur le Web, ouvre la porte. Joséphine lui fait deux bises. Stupéfaite, Lucie demande pourquoi elle a fait ça. "Ça se fait en France. Les filles se font deux bises, les mecs font deux bises aux filles, et entre eux, les mecs se serrent la main. On fait tout ça pour se dire bonjour".

"Viens avec moi, dit Joséphine, je vais te montrer l'appart, il est petit, mais c'est notre chez nous". En silence, Lucie la suit. Stupéfaite, elle regarde l'entrée de cet appartement. Elle ne croit pas ses yeux.

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SECTION II - EXPOSÉ

Instructions to candidates.

a) You will talk on the topic given overleaf.
b) You will have **ten minutes** to prepare for the task.
c) You will have **two minutes** to talk about the topic.
d) **DO NOT** write anything on this card.

CARD A

Il est mieux d'habiter en ville qu'à la campagne. Qu'en pensez-vous?

SECTION II - EXPOSÉ

Instructions to candidates.

a) You will talk on the topic given overleaf.
b) You will have **ten minutes** to prepare for the task.
c) You will have **two minutes** to talk about the topic.
d) **DO NOT** write anything on this card.

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CARD B

Il est mieux d'utiliser le vélo que la voiture. Qu'en pensez-vous?

SECTION II - EXPOSÉ

Instructions to candidates.

a) You will talk on the topic given overleaf.

b) You will have **ten minutes** to prepare for the task.

c) You will have **two minutes** to talk about the topic.

d) **DO NOT** write anything on this card.

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CARD C.

Il est mieux d'avoir un téléphone mobile à l'école. Qu'en pensez-vous?

SECTION II - EXPOSÉ

Instructions to candidates.

a) You will talk on the topic given overleaf.
b) You will have **ten minutes** to prepare for the task.
c) You will have **two minutes** to talk about the topic.
d) **DO NOT** write anything on this card.

CARD D

Il est mieux d'avoir un ami/une amie au lieu d'habiter une vie solitude. Qu'en pensez-vous?

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KCSE 2023 PREDICTION EXAM

SERIES 3

POWER MECHANICS

447/1

PAPER 1 (THEORY)

TIME: 2½ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

(a) Candidates should have the following materials for this examination:

Answer booklets

Drawing instruments

Drawing paper size A4

*(b) This paper has **TWO** sections: **A** and **B.***

*(c) Answer **ALL** the questions in section **A**. Answer question **11** and any other **THREE** questions from section **B***

(d) All dimensions are in millimeters unless otherwise stated.

*(e) **Candidates may be penalized for not following the instructions given in this paper**.*

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SECTION A (40 marks**)**

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

1a) State **the composition of a soft solder.** (1 marks)

i. ……

ii. ……..

b) Define the following terms as applied to engine operation: **(3marks)**

i. Valve lead

……..

ii. Valve lag

……..

iii. Valve overlap

……

iv. Pre-ignition

……

v. Steering geometry

……

vi. Leading shoe

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c) Describe in point form how to repair a dented roof of a vehicle. **(5marks)**

……

……

……

……

……

……

2 Sketch the symbols for each of the following electrical devices: 2marks

a) Lamp

b) Capacitor

c) Diode

d) Fuses

.

3 a) Calculate the compression ratio of a single cylinder engine with the following measurements:

i) Stroke 100mm:

ii) Bore 100mm:

iii) Clearance volume 100cc. **(3marks)**

KCSE 23

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b) List **four** tools used in body repair work. (2marks)

i.……

ii.……

iii.……

iv……

4 a) Define the following terms related to materials **(2 marks)**

i. Torsional strength:

……..

……..

ii. Heat conductivity

……

……

c) List **four** major lighting circuits stating their functions **(2 marks)**

i. ……

ii. ……

iii. ……..

iv. ……

5. State two conditions which must be fulfilled before soldering is done. **(2 marks)**

a)

……

b)

……

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6a) State the functions of the following in a vehicle. (3marks)

a) Valve train

……

……

b) Radiator pressure cap

……

……

c) Distributor

……

……

b) State the best method of putting off fire caused by the following: (2 marks)

a) Electrical short circuit

……

c) Fire wood, paper, and grass.

……

d) Oil

.....

e) Gases and vapor.

……...

d) Give 2 main reasons why the power mechanics workshop must be well ventilated.

(2 marks)

a) ……

b) ……

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7. Draw the symbols used to represent each of the following machine parts in assembly drawing: (3 marks)

i. External screw thread:

ii. Splined shaft

iii. Cylindrical tension spring

8. For each of the following spark plug problems, state one possible cause: **(2 marks)**

i) Wet oily deposit:

……..

ii) Sooty black deposits

……..

9a) Define the following vehicle electrical terms (2 marks)

a) Conductor.

……

b) Short circuit.

……

c) Earth.

……

d) Open circuit.

……

b) State the cause of each of the following noise during welding process: (2 marks)

i. Sharp hissing

……..

Pop.

ii. ……

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10. List four functional /operational requirements of the suspension system. (4 marks)

i) ……

ii) ……

iii)…….

iv)……

*Answer question **11** and any other **THREE** questions from this section.*

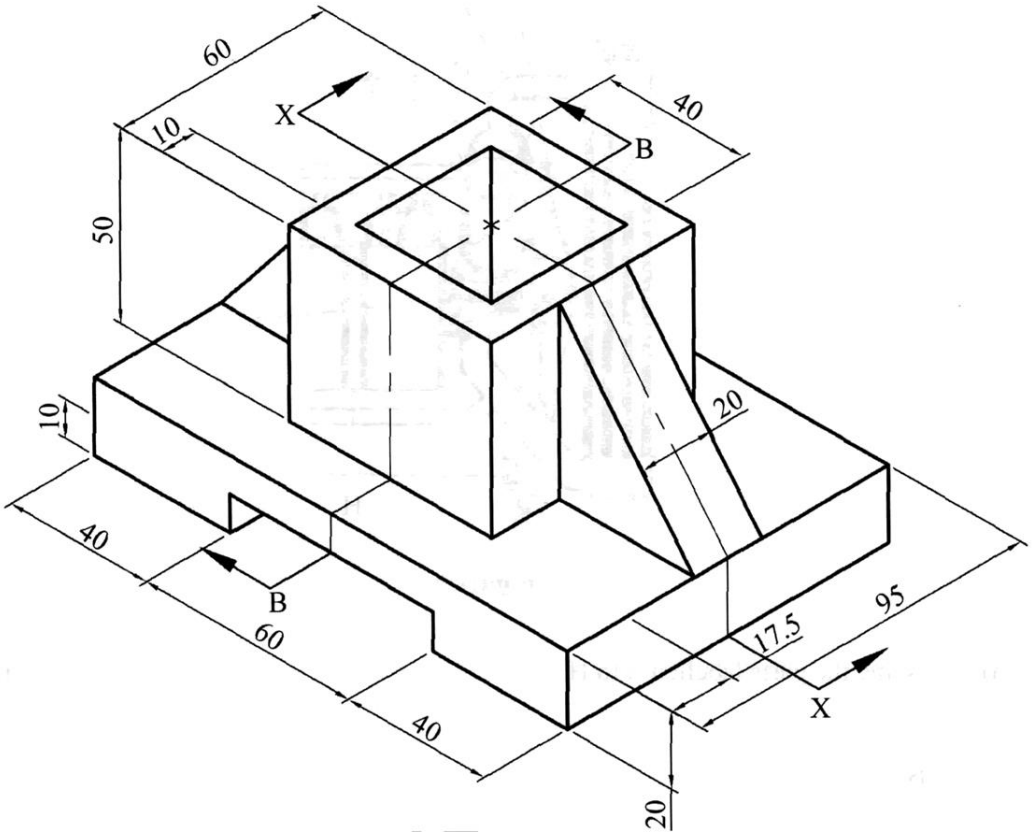
*Candidates are advised to spend **not more than 25 minutes** on question 11.*

11. The figure below shows a block drawn in isometric projection.

Draw full size in third angle projection the following views:

a) Sectional front elevation along the cutting plane X-X.

b) Sectional end elevation along the cutting plane B-B. (15 marks)



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12 a) Outline 3 factors that are used to determine the type of an internal combustion engine (3marks)

b Differentiate between a "a dead" axle and a "live" axial. **(2marks)**

c) Sketch a section of the disc brake assembly and label any six parts. **(6marks)**

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d) State two advantages of using disc brakes over drum brakes. (4marks)

i)……

ii)……

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13 a) Explain six (6) operational differences between 2 stroke and 4 stroke cycle petrol engines.

(6marks)

……

……

……

……

……

……

……

……

……

f) Name 5 types of non-fusion welding rods and each case identify one material they are used to weld in a motor vehicle. (**5marks)**

……

……

……

……

……

c) List 4 thermal processes used in joining metals. **(2marks)**

……

……

……

……

d) Name four types of pliers. (2marks)

i) ……..

ii) …….

iii)…….

iv)……...

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14. a) Sketch a standard manual transmission system from the engine to the wheels and label the major parts, stating the function of each part.(**10marks)**

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c) State four causes of tyre wear. (2marks)

……

……

……

……

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c) Illustrate the three types of fits with simple line diagrams**. (3marks)**

……

……

……

……

15 a) List five possible field opportunities available to a successive power mechanics graduate.

(5marks

……

……

……

……

……

c) List down possible causes for**: (5marks)**

a) Headlights dimming when engine is idling.

…….

b) Lights will not light.

…….

c) Poor illumination

……....

d) Wiper motor operates too slowly

……..

e) Faint horn sound

……

e) Name three types of mechanical gearboxes and sate the differences between them **(5marks)**

……

……

……

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KCSE 2023 PREDICTION EXAM

SERIES 3

POWER MECHANICS

447/2

PAPER 2 (PRACTICAL)

TIME: 2½ HOURS

NAME……

SCHOOL…… SIGN……

INDEX NO…… ADM NO……

Kenya Certificate of Secondary Education.

Instructions to candidates

(a) Write your name and index number in the spaces provided above.

(b) Sign and write the date of examination in the spaces provided above.

*(c) There are **TEN** stations in this examination.*

*(d) Candidates are allowed **15 minutes** at each station*

(e) At each station, candidates are not allowed to either review the previous stations' work or read instruction for other stations

*(f) Attempt **ALL** exercises in each station*

(g) All dimensions are in millimeters unless otherwise stated.

For examiner's use only

Stations	1	2	3	4	5	6	7	8	9	10	**Total**
Marks											

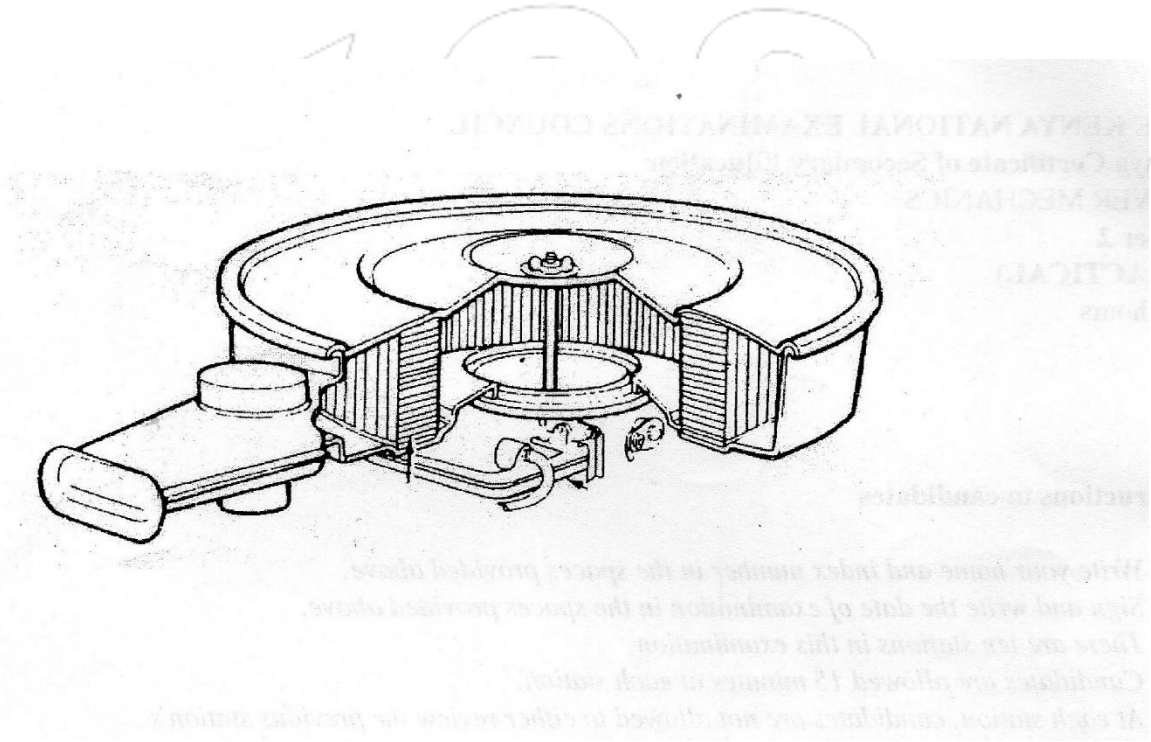
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STATION 1

INSTRUCTIONS:

The figure below shows a truncated air cleaner assembly. On the drawing paper (page 3) provided, sketch in good proportion the exploded view of the assembly and label **four** parts.

(10 marks) a well-drawn exploded view with the following components: air cleaner cap, air intake tube, stud, air cleaner gasket ,vacuum motor, carburetor air cleaner, air cleaner element temperature sensor kit



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STATION 2

INSTRUCTIONS:

Draw an exploded view of the differential unit and label all the parts.

(10 marks)

A well-drawn exploded view with the following parts:

-Shaft, axles ,side bevel gear, crown wheel, differential cage, and the pinion gear---10 marks

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STATION 3

INSTRUCTIONS:

On the single cylinder engine provided;

(a) Remove the exhaust valve and show it to the examiner

(b) Reassemble the valve to its original position

(c) Measure and record the exhaust valve clearance.

.....

(d) Name the tool you have used to take the reading

..... (10 marks)

Let the examiner check your work

The examiner to check the candidate work and award marks accordingly.

The examiner to check the candidate work and mark accordingly

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STATION 4

(b) Identify the fasteners labelled P to T and state a feature that makes each fastener unique in its class. (5 marks)

FASTENER	NAME	UNIQUE FEATURE
P		
Q		
R		
S		
T		

(10 marks)

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STATION 5

INSTRUCTIONS:

Table 3

Cell Number	Specific Gravity	Battery Voltage
1		
2		
3		
4		
5		
6		

Identify two defects on the fan belt and state one possible cause of each defect; (10 marks)

(a) Measure and record the specific gravity and battery voltage of each cell in Table 3. (Take cell number l to be next to the positive terminal)

Table 3 (b) Check and comment on the state of:

(i) Battery electrolyte level

(ii) Battery charge

The examiner to check and award marks accordingly

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STATION 6

INSTRUCTIONS:

On the engine provided, carry out the following tasks. (10 marks)

a) Remove the rocker cover.

b) Adjust the valve clearance for number 1to given specifications.

c) Replace the rocker cover.

Let the examiner check your work.

Mark and award marks accordingly.

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STATION 7

INSTRUCTIONS:

COMPONENT	DEFECT	**EFFECT**
V — Engine mount	Broken	Excessive vibration; Judder
W — Fuel filter	Clogged	Insufficient fuel delivery
X — Cylinder head gasket	Burnt or worn	No compression
Y — Distributor cap	Cracked	Engine won't start
Z — Inlet valve	Wom/bent	No compression
5 x O = 20 marks	5 x D = 20 marks	5 x 1 = 5 **marks**

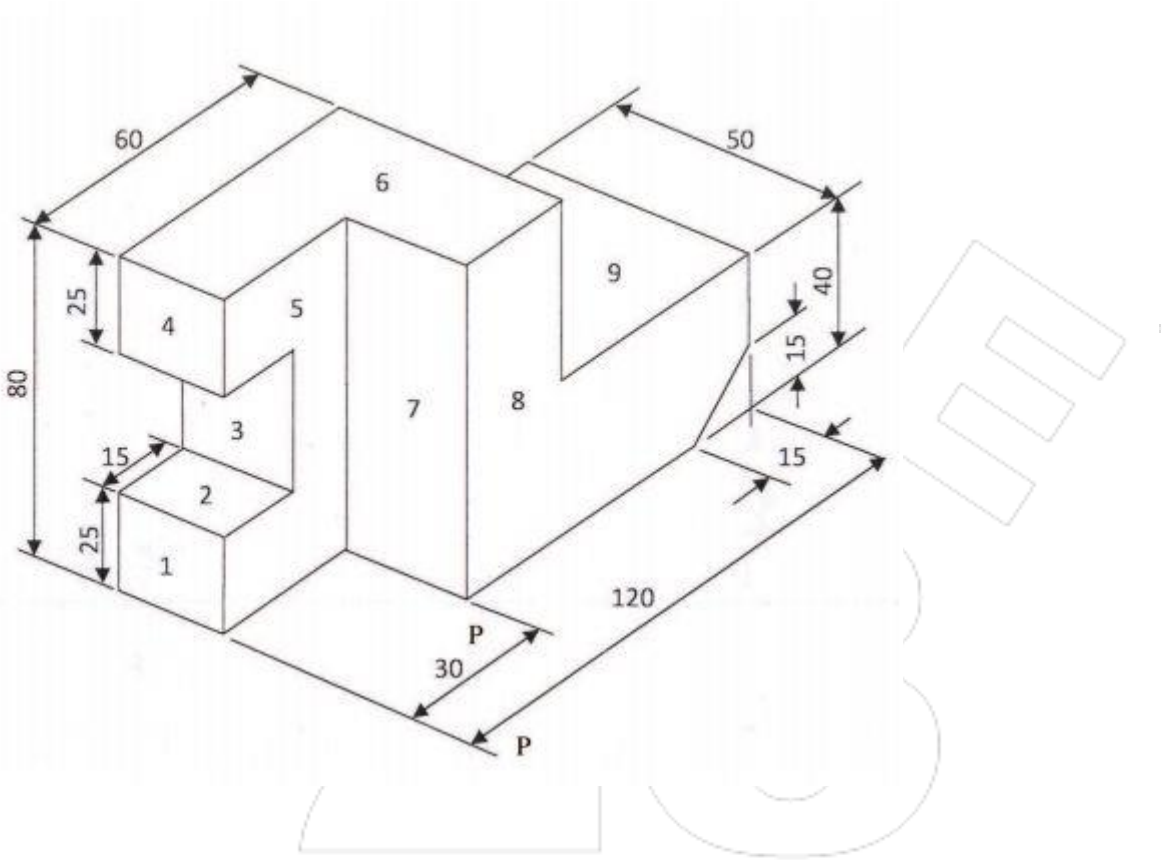
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STATION 8

INSTRUCTIONS:

The figure 1 below shows 3 orthographic views of a block drawn in the first angle projection. Draw the block FULL SIZE in isometric projection taking P as the lowest point. (10 marks)



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STATION 9

INSTRUCTIONS:

Using the instruments provided measure and record the readings in the table below.

PART	DESCRIPTION OF MEASUREMENT	MEASUREMENT TAKEN	NAME OF TOOL USED	ACCURACY OF TOOL USED
A	Cam height			
B	Depth of blind hole			
C	Intake valve margin			
D	Taper			
E	Pitch of spark plug			

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STATION 10

INSTRUCTIONS: using the tools and equipment provided make the scoop below.

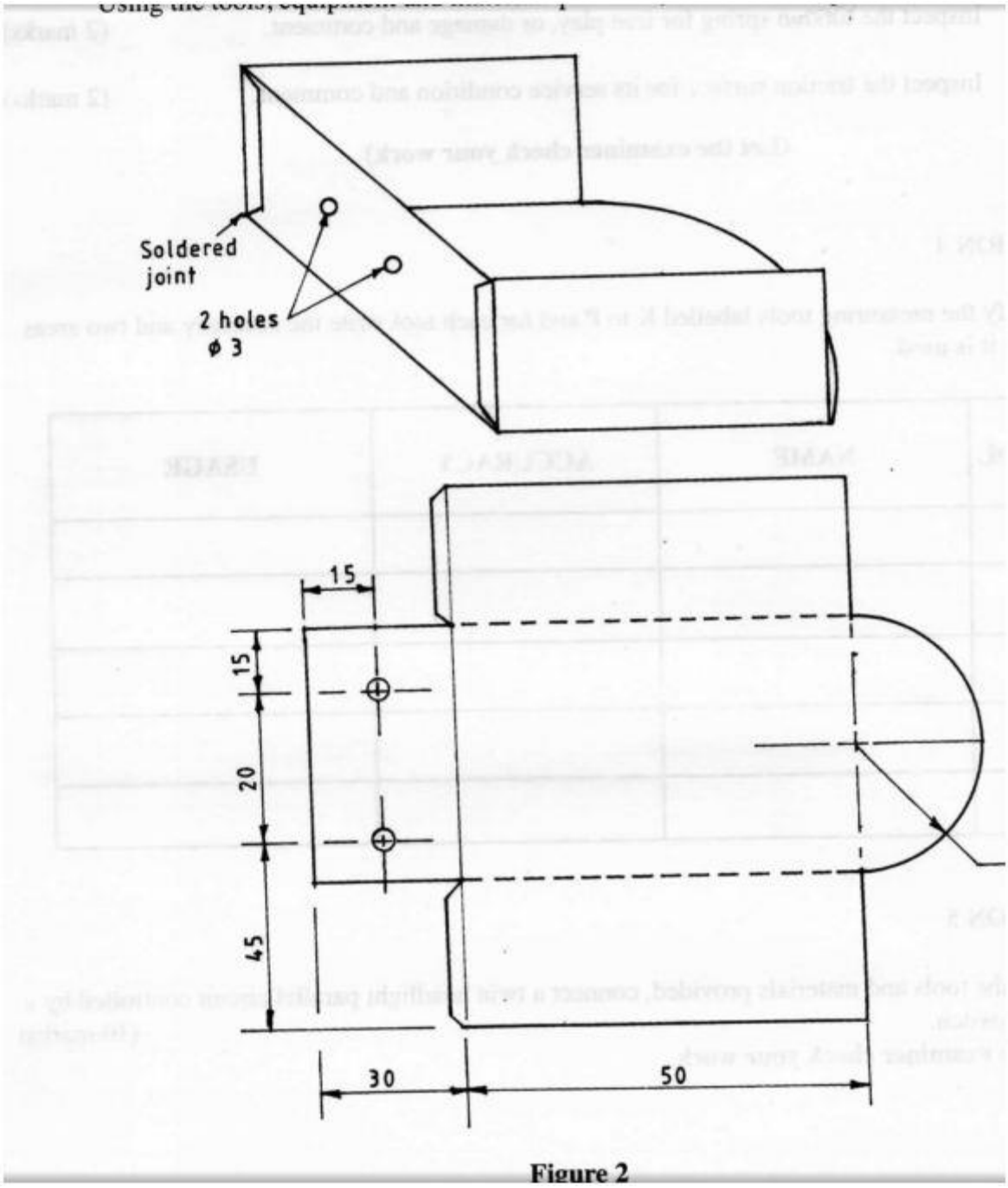


Figure 2

Award marks accordingly.

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THE END

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