KCSE 2023 PREDICTION

SMART-GRADE SERIES

ALL SUBJECTS

This Prediction examination is the outcome of a thorough analytical and systematic approach based on the trends and frequency of testing certain concepts on various subjects. Take Note that Mwalimu Consultancy has provided a critical understanding of areas anticipated to be tested in the final KCSE 2023 Examinations.

SUBJECTS COMPILED;

Mathematics, English, Kiswahili, Biology, Chemistry, Physics, CRE, Geography, Business Studies, Agriculture, IRE, History and Government, Electricity, French, Computer Studies & Home-science.

CONFIDENTIAL

For Marking Schemes/Answers

Mr Isaboke 0746-222-000 / 0742-999-000

ALL THE BEST!

KCSE 2023 PREDICTION

SMARTGRADE SERIES

313/1

CHRISTIAN RELIGIOUS EDUCATION

PAPER 1

TIME: 2½ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- *Write your name and admission number in the spaces provided above.*
- *This paper consists of six questions.*
- *Answer any **FIVE** questions in the answer sheet provided*
- *Each Question carries 20 marks*

FOR EXAMINERS USE ONLY

QUESTION NO.	1	2	3	4	5	6	GRAND TOTAL
MARKS							

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*Answer any **FIVE** questions*

1.a) Explain the different ways in which Christians in Kenya use the Bible to Evangelize. **(8mrks)**

b) State **five** responsibilities given to human beings in Genesis Chapter 1 and 2. **(5marks)**

c) What are the consequences of breaking taboos in traditional African Communities? **(7marks)**

2. a) Explain **four** importance of circumcision to Abraham and his descendants. **(8marks)**

b) State **five** importance of exodus to the Israelites. **(5marks)**

c) Identify **seven** ways in which God demonstrated His love for the Israelites during Exodus**.** **(7marks)**

3. a) Explain reasons why David was the most successful king in Israel. **(7marks)**

b) Outline **seven** importance's of the Jerusalem temple in the religious lives of the Israelites. **(7marks)**

c) Give **six** factors that have led to the increase of Christian denominations today. **(6marks)**

4.a) Outline **six** teachings of prophet Amos on the remnant and restoration of the Israelites. **(Amos 9:8-15).** **(6marks)**

b) State **six** ways in which God would punish Israel for her evils according to prophet Amos. **(6marks)**

c) How can Christians assist the church leaders to perform their duties effectively? **(8marks)**

5. a). Explain **four** differences between the old covenant and the new covenant as foretold by Prophet Jeremiah. **(8marks)**

b) Outline the problems that Nehemiah encountered in rebuilding the wall of Jerusalem. **(7mrks)**

c) State the importance of prayer in Christian life. **(5marks)**

6. a) Identify occasions when oaths were administered in traditional African communities.**(7mrks)**

b) Explain **four** importance of dowry in modern society? **(8marks)**

c) State **five** changes that have taken place in property ownership in Traditional African communities. **(5marks)**

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

313/2

CHRISTIAN RELIGIOUS EDUCATION

PAPER 2

TIME: 2½ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- *Write your name and admission number in the spaces provided above.*
- *This paper consists of six questions.*
- *Answer any **FIVE** questions in the answer sheet provided*
- *Each Question carries 20 marks*

FOR EXAMINERS USE ONLY

Questions No.	1	2	3	4	5	6	GRAND TOTAL
Marks							

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*Answer any **FIVE** questions*

1. a) Outline the characteristics of Messiah according to **Isaiah 61:1-2.** **(5marks)**

b) Narrate Mary's visit to Elizabeth. **(Luke 1:39-56).** **(8marks)**

c) Explain **seven** importance of singing in a Christian service. **(7marks)**

2. a) Describe the call of the first disciples according to **Luke 5:1-11.** **(8marks)**

b) Narrate the healing of the woman with a flow of Blood. **Luke 8:43-48.** **(7marks)**

c) Outline **six** ways in which the church prepares people to serve **God.** **(5marks)**

3. a) Outline Jesus teachings on watchfulness and readiness **Luke 12:35-48.** **(8marks)**

b) Explain Jesus teachings on **prayers.** **(6marks)**

c) State **six** reasons why some Christians find it difficult to **pray.** **(6marks)**

4. a) Identify the fruits of the Holy Spirit taught by St. Paul in **Galatians 5:22-23.** **(6marks)**

b) Explain how the unity of believers is expressed in the image of the **bride.** **(8marks)**

c) Give **six** reasons why some Christians live in **disunity.** **(6marks)**

5. a) Explain the **importance** of leisure in the life of a Christian. **(7marks)**

b) State **six** leisure activities common to both Christians and traditional African community. **(6marks)**

c) State ways through which Christians use leisure to glorify God. **(7marks)**

6. a) Outline the remedies to social disorder in our society today. **(7marks)**

b) List **seven** rights of a citizen. **(7marks)**

c) Identify **six** ways in which the Kenyan Government is fighting terrorism. **(6marks)**

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

311/1

HISTORY AND GOVERNMENT

PAPER 1

TIME: 2½ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- *This paper consists of three sections A,B and C*
- *Answer **All** questions in section A,**three** questions in section B and **two** Questions in section C*
- *Answer to all question must be written in the answer booklet provided*
- *Candidate should answer the questions in English*

FOR EXAMINER USE ONLY

SECTION	QUESTION	MAX SCORE	SCORE
A	1-17	25	
B		15	
		15	
		15	
C		15	
		15	
TOTAL SCORE			

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SECTION A (25 Marks)

*Answer **all** questions in this section*

1. Give the main method used by the archaeologists to gather historical data. **(1mk)**
2. State environmental factors that contributed to the migration of the Bantu from their original Homeland. **(2mk)**
3. State **two** similarities in the political organization of the Ameru and the Abagusii during the 19th Century. **(2mks)**
4. Identify **two** archaeological evidence that prove that early visitors came to the East African coast. **(2mks)**
5. State **one** element of a good citizen **(1mk)**
6. Give economic factors that promote national unity **(2mks)**
7. State **one** challange facing Nairobi city **(1mk)**
8. Identify commissions established by the new constitution of 2010 **(2mks)**
9. Give **one** right of a person with disability **(1mk)**
10. Identify **one** council that was established during colonial period to assist the Governor in administration (**1mk)**
11. State **two** features of missionary education **(2mks)**
12. Name the political association formed in Western Kenya before 1939. **(1mk)**
13. Mention the main contribution of Wangari Mathai in Kenya's history **(1mk)**
14. Give **two** non-military functions of the Kenya Army **(2mks)**
15. Identify the National philosophy adopted in Kenya at independence. **(1mk)**
16. Give **two** types of land ownership in Kenya. **(2mk)**
17. Identify **one** fund to which collected revenue by the national government is deposited **(1mk)**

SECTION B

Answer any three questions from this section

18. a) State **five** economic activities of the Borana during the pre-colonial period **(5marks)**

b) Explain **five** results of the interaction between the Bantu and the Cushites in the pre-colonial period. **(10marks)**

19.a) State **five** terms of Devonshire White paper of 1923 **(5marks)**

b) Explain **five** methods used by colonial government to promote settler Agriculture. **(10marks)**

20.a) State **three** problems that independent schools and churches faced in colonial Kenya.

(3marks)

b). Explain **six** roles played by women in the struggle for independence in Kenya.**(12marks)**

21.a) Identify **three** settlement schemes established by the government in independent Kenya

(3marks)

b) Explain the major challenges facing health sector after independence **(12marks)**

SECTION C

Answer Any Two Questions From This Section

22 (a). Give **three** conditions that a person should meet to qualify to be a Kenyan citizen by birth.

(3 marks)

b). Explain **six** social rights of an individual in Kenya **(12 marks)**

23. a) List **five** principles of the rule of law in Kenya. **(5marks)**

b) Describe the functions of high court in Kenya **(10marks)**

24. a) State **five** challenges faced by the National Government in its attempt to raise revenue.

(5 marks)

b) Explain **five** ways in which the government of Kenya controls public finance. **(10 marks)**

All the Best!

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

311/2

HISTORY AND GOVERNMENT

PAPER 2

TIME: 2½ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- *This paper consists of three sections A,B and C*
- *Answer **All** questions in section A,**three** questions in section B and **two** Questions in section C*
- *Answer to all question must be written in the answer booklet provided*
- *Candidate should answer the questions in English*

FOR EXAMINER USE ONLY

SECTION	QUESTION	MAX SCORE	SCORE
A	1-17	25	
B		15	
		15	
		15	
C		15	
		15	
TOTAL SCORE			

SECTION A (25 Marks)

*Answer **all** questions in this section*

1. Identify the form of government where people vote in their leaders regularly. **(1mk)**

2. State one distinct characteristics of Homo erectus. **(1mk)**

3. Mention two crops grown by farmers in the Nile valley by 5000 BC. **(2mks)**

4. Identify one type of trade. **(1mk)**

5. Why is the camel referred to as the ship of the desert? **(2mks)**

6. State two characteristics of industrial revolution in Britain. **(2mks)**

7. State one disadvantage of smoke signals as a means of communication **(1mk)**

8. State the Role of religion in the growth of Athens. **(1mk)**

9. Give the functions of the Lukiiko **(2mks)**

10. State two peaceful methods used by Europeans to acquire colonies in Africa. **(2mks)**

11. Name the person who declared Unilateral Declaration of Independence in Zimbabwe **(1mk)**

12. Outline two ways the nationalists in Ghana used in their struggle for independence. **(2mks)**

13. Identify the immediate cause of the Second World War. **(1mk)**

14. Give one agreement signed to control the cold war **(1mk)**

15. Give two organs of the EAC. **(2mks)**

16. Identify the main challenge facing the Democratic Republic of Congo after independence **(1mk)**

17. Identify two levels of election in the USA **(2mks)**

SECTION B: (45 Marks)

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

18. a) State five ways in which the discovery of fire improved man's way of life. **(5mks)**

b) Explain five remedies to food shortages in Africa. **(10mks)**

19. a) State three benefits of the currency trade. **(3mks)**

b) Explain factors that undermined Trans-Atlantic trade. **(12mks)**

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20. a) State three features of macadamized roads. **(3mks)**

b) Explain the positive impact of telecommunication. **(12mks)**

21. a) State three responsibilities of the Emirs in the British rule in Northern Nigeria. **(3mks)**

b) Explain 6 differences between the British and French systems of colonial administration. **(12mks)**

SECTION C: (30 MARKS)

*Answer any **TWO** questions from this section*

22.a) State three factors that led to the decline of the Shona kingdom in the **19th C.** **(3mks)**

b) Describe the political organization of the Asante in the 19th C. **(12mks)**

23(a) State three social challenges experienced in Democratic Republic of Congo (DRC) since independence. **(3mks)**

b) Explain the measures Tanzania has taken to revive her economy since 1980 **(12mks)**

24 a) Outline ways in which one becomes a member of the House of Lords. **(3mks)**

b) Explain the functions of the President in India **(12mks)**

All the Best!

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

312/1

GEOGRAPHY

PAPER 1

TIME: 2¾ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

(a) *Write your name, admission number and class in the spaces provided above.*

(b) *This paper has* ***two*** *sections:* ***A*** *and* ***B.***

(c) *Answer* ***all*** *the questions in section* ***A.***

(d) *Answer* ***question 6*** *(compulsory) and any other two questions from section* ***B.***

FOR EXAMINER'S USE ONLY

SECTION	QUESTIONS	MAXIMUM SCORE	CANDIDATE'S SCORE
A	1 - 5	25	
B	6	25	
		25	
		25	
	TOTAL SCORE	**100**	

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SECTION A (25MARKS)

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

1. (a) What is the relationship between Geography and Mathematics **(2mks)**

(b) State three reasons why it is important to study Geography. **(3mks)**

2. (a) Give three components of the solar system. **(3mks)**

(b) State two characteristics of the outer core in the internal structure of the earth. **(2mks)**

3. (a) Give two reasons why it is necessary to study the plate tectonic theory. **(2mks)**

(b) Name three types of boundaries associated with the plate tectonic theory. **(3mks)**

4. (a) State three ways in which plants adapt to hot desert conditions. **(3mks)**

(b) State two climatic conditions experienced in Sahara Desert. **(2mks)**

5. (a) What is an ocean tide? **(2mks)**

(b) Name three types of ocean tides. **(3mks)**

SECTION B

Answer ***question 6 (compulsory)*** and any other ***two*** questions in this section

6. Study the map of **Kisumu East (1:50000)** provided and answer the following questions.

(a) i) What is the bearing of the trigonometrical station at Grid reference 081980 from the rock out crop at grid reference 071992. **(2 marks)**

ii) Measure the length of the all – weather road (bound surface) B 2/1 from the junction at grid reference 974911 to the edge of the Map, grid reference 947967.(Give your answer in kilometers**)** **(2 marks)**

iii) Draw a rectangle 10m by 15cm to represent the area covered by the map. On a rectangle, mark and name: **(1 mark)**

- A lake **(1 mark)**
- A plantation **(1 mark)**
- River Luando **(1 mark)**

b) i) Describe the relief of the area covered by the map. **(4 marks)**

ii) Explain how relief has influenced settlement in the area covered by the map. **(4 marks)**

b) Citing evidence from the map, give **three** economic activities carried out in the area covered by the map. **(3 marks)**

c) Students from the school at Masogo (grid square 0681) carried out a field study of the course of River Ombeyi.

i) State **three** findings they are likely to have come up with **(3 marks)**

ii) Give **three** advantages of studying rivers through field work **(3 marks)**

7.(a) i) Differentiate between weather and climate **(4mks)**

ii) State two conditions necessary for the formation of fog. **(2mks)**

(b) i) Briefly describe the working of Aneroid barometer. **(4mks)**

ii) State three effects of sea breeze on the adjacent land mass. **(3mks)**

(c) i) Explain how the following factors influence climate

Ocean currents **(2mks)**

Altitude **(2mks)**

ii) State three characteristics of equatorial climate. **(3mks)**

(d) With the aid of well labelled diagram, describe the formation of land breeze. **(5mks)**

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

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

(b) i) State three effects of faulting on drainage. **(3mks)**

ii) Briefly describe the formation of a crater by subsidence method. **(5mks)**

(c) i) List three causes of earthquakes. **(3mks)**

ii) Name three major earthquake zones of the world. **(3mks)**

d) You intend to carry out a field study in the Rift Valley.

i)Name three methods of data collection you used. **(3mks)**

ii) State three problems you are likely to face during the field study. **(3mks)**

9. (a) i) List three types of desert according to the nature of the surfaces. **(3mks)**

ii) State two factors that contribute to development of deserts**.** **(2mks)**

iii)Highlight three reasons why wind is a dominant agent of erosion in arid areas. **(3mks)**

(b) i) Explain two processes of wind erosion **(4mks)**

ii) Name three features of wind deposition in arid areas. **(3mks)**

(c) i) With the aid of well labelled diagrams describe how a rock pedestal is formed. **(8mks)**

ii)Give two ways in which wind transports its load. **(2mks)**

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10. (a) i) Name two types of glaciers. **(2mks)**

ii)State two reasons why there are no ice sheets in Kenya. **(2mks)**

iii) Explain two processes of glacial erosion **(4mks)**

(b) The diagram below shows types of moraine in a valley glacier. Use it to answer the following questions



i)Name the type of moraines marked A, B and C. **(3mks)**

ii) Explain how the movement of a valley glacier is influenced by the following factors:

Temperature changes **(2mks)**

Width of a glacier channel **(2mks)**

(c) With the aid of well labelled diagrams, describe how a cirque is formed (**6mks)**

(d) Students from Mumbai girls intended to carry out a field study on a glaciated lowland area.

(i) State two objectives intended for the study. **(2mks)**

(ii) Name two features they are likely to have observed during the field study **(2mks)**

All the Best!

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

312/2

GEOGRAPHY

PAPER 2

TIME: 2¾ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

(a) *Write your name, admission number and class in the spaces provided above.*
(b) *This paper has two sections **A** and B*
(c) *Answer **all** the questions in **SECTION A**.*
(d) *Answer **question 6** and any other two questions from **SECTION B.***
(e) *All answers must be written in English.*

For Examiner's Use Only

Questions	Candidate's Score	Maximum Score
1 -5		25
6		25
		25
		25
Total Score		100

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SECTION A

Answer All the questions in this section

1. State **four** characteristics of shifting cultivation **(4mks)**

2. Give the difference between softwood forests in Kenya and Canada under the following sub-headings.

(a) Distribution of softwood forests:

(2mks)

(b) Transportation of the logs: **(2mks)**

3. (a) Differentiate between land reclamation and land rehabilitation **(2mks)**

(b) State **two** ways in which each of the following problems experienced at the Mwea Irrigation Scheme can be solved.

(i) Low prices of rice. **(2MKS)**

(ii) Fluctuating water levels in the irrigation canals

(2MKS)

4. Give **five** reasons why it is necessary to conserve wildlife in Kenya

(5mks)

5. (i) Name **three** main hydroelectric power stations along the river Tana **(3mks)**

ii) Apart from providing electric power, state **three** other benefits of the dams along the River Tana **(3mks)**

6. The table below shows the total number of dairy cattle reared in the Kenya Highlands in the years 2021 and 2022. Use it to answer to question (a)

Types of dairy cattle	**2021**	**2022**
Friesian	942000	965000
Ayrshire	120000	154000
Jersey	97000	128000
Guernsey	94000	103000
Fleckvieh/Simmental	19000	24000
Sahiwal	29000	41000

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(a) (i) State the type of the dairy cattle with highest increase between 2021 and **2022**

(1mk)

ii) Calculate the percentage increase of Friesian dairy cattle between 2021 and 2022

(2mks)

iii) Draw a divided rectangle 15 cm long to represent the data above for the year 2021 and show your calculations **(10mks)**

(b) State **two** advantages of using divided rectangle to represent geographic **data** **(2mks)**

Explain **two** human factors that favor dairy farming in the Kenya Highlands **(4mks)**

c) Explain **three** ways in which dairy farming in Kenya is different from dairy farming in Denmark **(6MKS)**

7. (a) State **three** physical conditions that favor coffee growing in the Central Highlands of Kenya **(3mks)**

(b) Describe the stages involved in coffee production from picking to marketing. **(8mks)**

(c) Explain **four** problems facing coffee farming in Brazil **(8mks)**

(d) Your geography class carried out a field study on a coffee farm

(i) State **four** methods the class may have used to collect data **(4mks)**

(ii) During the field study the class collected data on quantities of coffee produced in the farm in the last five years. State two methods the class may have used to present the data. **(2mks)**

8. (a) (i) What is visible trade**?** **(2mks)**

(ii) List **three** major imports to Kenya from Japan **(3mks)**

(b) Explain **four** factors that influence internal trade in Kenya **(8mks)**

(c) State **four** ways in which trade is of significance to **Kenya** **(4mks)**

(d) Explain **four** benefits which the member states of ECOWAS have derived from the creation of the trading bloc **(8mks)**

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9. (a) State **three** factors that led to development of nucleated settlements **patterns** **(3mks)**

(b) Identify **three** differences in the functions of Nairobi and New **York** **(6mks)**

(c)Explain **four** economic factors that influence settlement **(8mks)**

(d) Describe **four** negative effects of urbanization **(8mks)**

10. (a) (i) Give two documents from where information on population data is obtained **(2mks)**

(ii) Describe the characteristics of the population structure in Kenya **(3mks)**

(b) (i) In 1989, Kenya's population was 21.4 million while in 1999 it was 28.7 million. Calculate the population growth rate over the 10-year period **(2MKS)**

(ii) Explain **two** factors which may have led to the large population increase **(4MKS)**

(c) Explain **three** consequences of high population growth rate **(6mks)**

(d) Explain **four** physical factors that influence population distribution in East Africa. **(8mks)**

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

101/1

ENGLISH

PAPER 1

(Functional Writing, Cloze Test and Oral Skills)

TIME: 2 HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

(a) *Write your name, admission number and class in the spaces provided above.*

(b) *This paper has* ***three*** *sections:* ***1, 2*** *and* ***3.***

(c) *Answer* ***ALL*** *questions in this paper.*

For Examiner's Use Only

Question	Maximum Score	Candidate's Score
1	20	
2	10	
3	30	
Total	60	

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1. FUNCTIONAL WRITING (20MARKS)

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)**

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2. CLOZE TEST **(10 MARKS)**

Complete the following passage by filling in the blank spaces with the most appropriate word.

Stealing livestock will attract a death sentence_____(1) conviction if a proposed_____ (2) is passed by parliament and assented_____ (3) by President Kenyatta. The Penal code (amendment) Bill 2020, by Kitui East M.P Nimrod Mbai, currently before the National Assembly_____(4) to enhance the punishment for livestock theft in the country as a way of _____(5) the societal vice of many years. "A person who steals livestock commits an_____ (6) and shall be sentenced to death upon conviction," the bill which seeks to amend section 278 of the Penal code act, reads. The Supreme Court declared death sentence illegal.

Livestock theft_____ (7) become a transitional organized crime in the Horn of Africa which region`s governments are_____ (8) equipped to deal with. Currently, the law provides a_____ (9) sentence not exceeding 14 years for those_____ (10) guilty of the offence.

3. ORAL SKILLS **(30MARKS)**

a. Read the oral poem below and answer the questions that follow. ***(8 marks)***

Make me a grave where're you will
In a lowly **plain**, or a lofty hill;
Make it among earth's humblest graves,
But not in a land where men are slaves.

I could not **rest** if around my grave,
I heard the steps of a trembling slave;
His shadow above my silent tomb,
Would make it a place of fearful gloom.

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i. What makes this poem rhythmic? **(2 marks)**

……

……

……

ii. How would you say the last line of the poem? **(1 mark)**

……

……

iii. Which words are you likely to stress in the **fourth** line of **first** stanza and why? **(2 marks)**

……

……

……

iv. Give a word that is pronounced as each of the following **(3 marks)**

a) Would _____

b) Plain _____

c) Rest _____

b. ***Study the genre below and answer the questions that follow.*** ***(7 marks)***

If Peter Piper picked a peck of pickled peppers, where's the peck of pickled peppers Peter Piper picked?

i) Giving a reason, classify the genre. **(2 marks)**

……

……

……

ii) Identify the dominant sound pattern used in the above genre. **(2 marks)**

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iii) State two functions of the genre above. **(2marks)**

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iv) If the above genre was to be translated to another language, what would be lost? **(1 mark)**

……

……

c. Two classmates, James and Erick have a debate. Erick strongly feels that boarding schools should be done away with. James, on the other hand, argues that they should remain.

i) If your teacher of English brought the same motion to your class, how would you prepare for the debate **(3marks)**

……

……

……

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ii) Explain three verbal cues that you would use to make your presentation effective. **(3marks)**

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iii) Advise the above classmates' **four** things they should do in order to disagree in a polite manner so that their conversation does not degenerate into a dispute**.** **(4mks)**

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d. Complete the following conversation between the principal and a parent.. ***(5 marks)***

Mr. Kamau: Good morning sir, my name is Mr. Kamau.

Principal: **(1 mark)**

……

……

……

Mr. Kamau: I received your message inviting me to school over the conduct of my son.

For how long has he been absent from school?

Principal: **(2 marks)**

……

……

……

Mr Kamau: **(1 mark)**

……

……

Principal: Thank you Mr. Kamau for coming and accepting to discipline your son.

Mr.Kamau: **(1 mark)**

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

101/2

ENGLISH

PAPER 2

(Comprehension, literary Appreciation and Grammar)

TIME: 2½ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

INSTRUCTIONS

a) Ensure you write all your details in the space provided above

*c) All questions in this paper are **compulsory**.*

*b) Answer **ALL** questions in the spaces provided.*

FOR EXAMINER'S USE ONLY

Question	Maximum Score	Candidate's Score
1.COMPREHENSION	20	
2.EXCERPT	25	
3.ORAL POETRY	20	
4.GRAMMAR	15	
TOTAL	80	

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1. <u>Read the passage below and then answer the questions that follow (20mks)</u>

You may think that expecting food to change your life is too much to ask. But have you considered that eating the right food at the right time will increase energy, help you manage weight and ward off major illness?

Researchers have found that eating a meal with plenty of protein leaves you feeling more satisfied for longer when compared to a meal loaded with low - quality carbohydrates. Your body takes longer to digest protein, leading to a gradual increase in blood sugar. The high protein breakfast will therefore carry you through the morning and more importantly, through your tea break, many high carbohydrate meals are absorbed quickly and send blood sugar on a roller coaster ride, taking your appetite with it and depleting your energy.

Many foods contain antioxidants, but fruits and vegetables may be the richest source. Behaving like chemical warriors, antioxidants neutralize molecules known as free radicals before they damage arteries and body cells. This protects you from heart diseases, high blood pressure, cancer and diabetes. You can now see why antioxidant foods should be consumed in generous portions

Actually, forget pills – antioxidants work best when consumed in foods. In fact, nutritionists recommend that we eat five portions of fruit and vegetables a day. It's less **daunting** than it sounds: a portion equals a piece of fruit, three tablespoons of cooked vegetables or a glass of fresh juice.

And do you desire to relive yourself of some **baggage**? Calcium is the latest weight – loss star to appear on the scene. Scientists stumbled on its magic by accident. From study that measured the blood pressure of obese people. It was discovered that those who took one large tub of yoghurt a day in their diet lost an average of eleven pounds of body fat in one year, even though they did not eat less.

A follow- up study found that people on a high calcium diet lost more weight and fat than did people on a low – calcium diet - and again, both consumed the same number of calories. Researchers believe calcium encourages fat cells to stop "getting fatter". Instead, the cells burn extra fat without you having to go anywhere near a gymnasium.

It probably sounds strange to say that you can eat more in order to lose weight. Obviously, the question you should ask immediately is, "Eat more of what?" We are talking about foods rich in fibre. They have what is referred to as low- energy density; that translates to few calories relative to weight. This means that you can **down a mountain** without fear of calories overload.

Fibre also aids weight loss because it's filling. Most high - fibre foods take a lot of chewing, triggering your body's fullness sensors. Moreover, you absorb the food more slowly so you feel full longer.

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Will the wonders of food ever cease? Not if researchers in nutrition keep their pace. Let them keep the good news flowing- such as the fact that we don't have to starve ourselves to lose weight and keep diseases at bay.

(Adapted from Reader's Digest, January 2004)

QUESTIONS

(a) From the information given in the first paragraph, how can you improve your life? **(1 mark)**

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(b) In note form, give the effects of eating carbohydrates. **(4 marks)**

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(c) Explain how free radicals contribute to the occurrence of high blood pressure and cancer. **(2 mks**

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(d) In what **two** forms can antioxidants be consumed. **(2 marks)**

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(e) "In fact, nutritionists recommend that we eat five portions of fruit and vegetable a day."
(Begin: Don't …) **(1mark)**

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(f) What is the attitude of the author towards calcium as a weight– cutting measure? **(3 marks)**

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(g) According to the passage, how can you use up excess fat? **(2 marks)**

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(h) Identify an instance of irony in the passage. **(2 marks)**

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(i) Explain the meaning of the following expressions as used in the passage. **(3 marks)**

i)Daunting……

ii)Baggage…….....

iii) Down a mountain……..

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2. Read the excerpt below and answer the questions that follow. **(25 marks)**

Nora: No, no, not in the least. It is only something-it is my new dress-
Rank: What? Your dress is lying there.
Nora: Oh, yes, that one; but this is another. I ordered it. Torvald mustn't know about it-
Rank: Oho! Then that was great secret.
Nora: Of course. Just go into him; he is sitting in the inner room. Keep him as long as-
Rank: Make your mind easy; I won't let him escape. (goes into HELMER's room)
Nora: (to the MAID) And he is standing waiting in the kitchen?
Maid: yes; he came up the back of the stairs.
Nora: But didn't you tell him no one was in?
Maid: yes, but it was no good.
Nora: He won't go away?
Maid: No; he says he won't until he has seen you, ma'am.
Nora: Well, let him come in- but quietly. Helen, you mustn't say anything about it to anyone. It's a surprise for my husband
Maid: Yes, ma'am, I quite understand. (Exit)
Nora: This dreadful thing is going to happen! It will happen in spite of me! No, no, no, it can't happen-it shan't happen!

QUESTIONS

a) What happens immediately before the excerpt? **(3marks)**

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b) Explain any two stylistic devices evident in the extract. **(4marks)**

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c) Who is the person said to be waiting in the kitchen, and why has the person come? **(3marks)**

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d) 'Then that was the great secret'. From elsewhere in the text, identify any three secrets that Nora has kept. **(3marks)**

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e) He came up the back stairs. (Begin: Up…). **(1mark)**

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f) Explain a major social issue of concern addressed in this excerpt. **(2marks)**

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g) What dreadful thing does Nora fear might happen? Explain. **(3marks)**

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h) What do we learn about Nora's character from the excerpt? **(4marks)**

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i) What is the meaning of the following expressions as used in the excerpt? (**2marks)**

i.make your mind easy……..

ii. It was no good

……

3. POETRY

Read the poem below and then answer the questions that follow. (20marks)

Adieu

It's two months' today
And the absence looks eternity
But the memories and experiences-still very fresh
Thought we'd have many more years
And so much more time together
I was wrong
But the last day laughters, dances, sharings…
Then the silence
The many tubes
The complex machines
The silent prayers and tears
And then the ambulance
At one in the night
Miles away from home
These…these shall be my keepsakes
You were my son
My friend
My love
Still you are and I wanted you to know that

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Until that day we meet again ,*nind gi kue Thura*
For I can't forget about you yet
And I will not
Just not now!

QUESTIONS

a) What type of oral poem is this? Explain your answer. **(2marks)**

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b) Besides sound devices, explain what makes the above genre an oral poem. **(2marks)**

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c) Explain the relevance of the title 'Adieu'. **(2marks)**

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d) Identify the persona in the above genre? **(2marks)**

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e) Explain the mood in the oral poem above. **(2marks)**

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f) Explain two functions of this specific genre. **(2marks)**

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g) Describe the place setting that is clearly evident in this genre. **(2marks)**

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h) How is the persona portrayed in the oral poem? **(2marks)**

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i) Explain one **religious aspect** of the society from which the genre is drawn**.** **(2marks)**

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j) Contextualize the meaning of the following expressions: **(2marks)**

1. These…these shall be my keepsakes

……

2. The silent prayers and tears

……

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4. GRAMMAR. **15 marks**

a. Rewrite the following sentences according to the instructions given. **(4marks)**

(i) Kipchoge is the most popular athlete in Kenya. **(Begin: No…)**

……

(ii) The young man was very hungry. He swallowed the food without chewing it. (**Begin: So…)**

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(iii) The teacher found out how intelligent Joel was when he started the discussion. **(Begin: It was not until...)**

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……

(iv) They were so exhausted that they could not stay awake. (**Rewrite using "too".)**

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……

b. Complete the following sentences using the appropriate form of the word in brackets.

(3marks)

(i) The winner of the race jogged**……** around the stadium waving the Kenyan flag. (**pride**)

(ii) The guard was very**……**today. **(quarrel)**

(iii) That is not the correct**…….(define)**

c. Fill in the gaps with an appropriate preposition. **(2marks**)

(i) The prefect is answerable _____ the behaviour of the class.

(ii) I have placed the coffee table _____ the shade of that tree over there.

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d. Complete each of the following sentences with one of the words in brackets. (2marks

(i) They saw _____ animals in the park than they expected. (less, fewer)

(ii) After walking for three kilometers, they were lucky to get _____ water from the stream. (little, a little)

e. Correct the error(s) in each of the sentences below. (2marks)

(i) I went for shopping yesterday.

……

(ii) How do you hope to get the lost child between so many people?

……

f. Explain the meaning of the underlined idiomatic expressions in the following sentences. (2marks)

(i) They arrived **<u>at the eleventh hour</u>**.

……

……

(ii) Most people prefer to **<u>sit on the fence</u>.**

……

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All the Best!

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

101/3

ENGLISH

PAPER 3

(Imaginative Composition and Essays based on Set Texts)

TIME: 2½ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

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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*Answer **three** questions only*

1. Imaginative composition (Compulsory) **20mks.**

a) Write a composition that ends in the following words:

… it was by the grace of God that I survived.

OR

b) Write a composition on 'How to stop bullying in schools'

2. Compulsory set text '<u>Blossoms of the Savannah</u>' by Henry Ole Kulet. **(20mks)**

'Uncontrollable desire leads to serious consequences'. Write an essay showing the truth of this statement using characters in the novel.

3. Optional set text. (Attempt only one question) **(20mks)**

a) The short story: A Silent Song and Other Stories.

'War can cause a lot of problems in our society and should be avoided at all costs' With close reference to 'Boyi' by Gloria Mwaniga , Write an essay justifying this assertion.

OR

b) The play Inheritance:

'The White man is still in control of African States long after hard fought African Independence' Write an essay showing the truth of this statement from David Mulwa's: '<u>Inheritance</u>'.

OR

c) The novel: An Artist of The Floating World

War has a way of affecting not only property but also people's lives. Drawing examples from the life of Masuji Ono in **An Artist of the Floating World,** write an essay to show the truth of this statement

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UTABIRI WA KCSE 2023

MFUATANO WA SMARTGRADE

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:

- *Andika insha mbili. Insha ya kwanza ni ya **lazima**.*
- *Kisha chagua insha **moja** nyingine kutoka hizo **tatu** zilizobaki.*
- *Kila insha isipungue Maneno **400**.*
- *Kila insha ina alama **20**.*

KWA MATUMIZI YA MTAHINI PEKEE

Swali	Upeo	Alama
1	20	
	20	
Jumla	40	

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1. **Lazima**

   Wewe ni Kiranja Mkuu Shuleni Juhudi. Umetembelewa na waandishi wa habari kutoka '**Redio Nipashe'** na '**NTV**'. Wangependa kujua changamoto zilizowakumba wanafunzi wa shule za upili nchini baada ya janga la Korona. Andika mahojiano yenu.

2. " Uvumbuzi wa rununu umeleta madhara mengi kuliko manufaa kwa vijana." Jadili.

3. Maji ukiyavulia nguo huna budi kuyaoga.

4. Andika Insha itakayoishia kwa maneno haya … Nilikuwa nimepanda shari nikavuna laana. Nilijuta kwa nini sikumtunza marehemu nyanya yangu.

KCSE 23

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UTABIRI WA KCSE 2023

MFUATANO WA SMARTGRADE

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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UFAHAMU (ALAMA 15)

Soma taarifa ifuatayo kisha ujibu maswali yanayofuta.

Ufisadi ni jinamizi ambalo limekuwapo ulimwenguni kote kwa miaka na mikaka. Madhara ya utoaji na ulaji rushwa kwa nia ya kujitajirisha au kupata upendeleo fulani haliwezi kupuuzwa. Ni jambo ambalo li kinyume na maadili au kaida za kijamii. Mojawapo ya madhara ya ufisadi ni kuwepo kwa maendeleo duni nchini. Kudorora kwa maendeleo nchini kumesababishwa na athari hasi mbalimbali za ufisadi. Kutolewa kiasi fulani cha darahima kama hongo ni kiini mojawapo cha kuwapo kwa maendeleo finyu nchini. Hii ni kutokana na ukweli kuwa chirimiri husababisha kupunguzwa kwa kiasi cha fedha za kutekeleza miradi mbalimbali. Si ajabu wafanyakazi wa kutekeleza miradi kukosa kulipwa au kupunjwa kwa kupewa mshahara wa kijingujiko, kukosa kulipwa au hata kulipwa nusu ya mshahara.

Visa vya ubadhirifu wa pesa zilizotengewa miradi mbalimbali vimeripotiwa katika maeneo tofauti tofauti nchini. Aghalabu, jambo hili hutendwa na wasimamizi wa hazina ya maendeleo. Mathalani, inasikitisha kuwa baadhi ya watumishi wa umma hutumia fedha za maendeleo katika safari humu nchini na hata ughaibuni zisizo na manufaa kwa taifa. Wao hukosa uaminifu na huongozwa na tamaa na ubinafsi uliopita mipaka. Watu hawa hupuuza ukweli kuwa tamaa huja kabla ya mauti. Jambo hili huifanya miradi lengwa kunyimwa pesa zinazohitajika.

Kutokana na ufisadi, kumekuwa na miradi ya kiwango cha chini. Hii ni kutokana na kununuliwa kwa malighafi ghushi ya kutumiwa viwandani au hata katika ujenzi wa miundombinu. Ukweli ni kuwa miradi inayotekelezwa hudumu katika hali nzuri kwa mwia mfupi tu. Hatimaye ukarabati wa miradi iliyofanywa huanza ; hali inayosababisha matumizi mabaya zaidi ya pesa za umma.

Aidha, kudinda kwa wafadhili wa miradi mbalimbali kuipa nchi pesa kuanzisha na kuendeleza miradi fulani hutokana na ufisadi. Wahisani hawa huhofia matumizi mabaya ya **ghawazi**. Matokeo yake huwa kutotekelezwa kwa miradi mikubwa ambayo huweza kuwa kitega-uchumi kwa watu wengi nchini. Kwingineko miradi mingi hukosa pesa za kutosha na kuifanya kutokamilika ipasavyo.

Isitoshe, **kupakwa mafuta viganjani** kwa wanaostahili kuhakikisha kuwa miradi inayotekelezwa imefikia kiwango kinachohitajika ni sababu nyingine ya maendeleo duni. Ni kutokana na hongo wao huidhinisha kazi duni. Kwa mfano, kuporomoka kwa majengo ambako tumeshuhudia mara kadha na kusababisha vifo kunatokana na utepetevu huu. Watu wengi hupoteza mali huku mchango wa kuleta maendeleo kwa waliolemaa ukiadimika.

Ni wazi kabisa kuwa kiasi kikubwa cha miradi dhaifu hutokana na chauchau. Serikali pamoja na wananchi wana jukumu kubwa la kuliangamiza janga hili.

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Maswali

(a) Fafanua vikwazo **vitano** vya maendeleo ya nchi na jamii **(alama 5)**

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(b) Taja na ueleze mbinu **nne** za kimtindo ambazo zimetumika katika kifungu **(alama 4)**

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(d) Eleza jinsi washikadau mbalimbali wanavyoonyesha uwajibikaji kwa mujibu wa kifungu hiki.

(alama4)

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(g) Eleza maana ya vifungu vifuatavyo kulingana na muktadha wa matumizi yake kifunguni.

(alama 2)

(i) ghawazi……

(ii) kupakwa mafuta viganjani……..

UFUPISHO **(Alama 15)**

Soma kifungu kifuatacho kisha ujibu maswali.

Kiswahili tunasema ni lugha yetu kwa sababu ndiyo lugha ya Kiafrika inayoongewa katika nchi nyingi Barani Afrika. Ni lugha yetu kwa sababu ni lugha asilia mojawapo za Afrika. Siyo lugha iliyoletwa na watu wa nchi za nje kama vile Kiingereza, Kifaransa na Kireno. Uzuri wa Kiswahili sasa ni kuwa kimeenea kote Afrika Mashariki na Kati.

Wenyeji asilia waliokuwa wakiongea lugha hii tangu awali ni Waswahili. Waswahili hawa hata leo wako na wanaendelea kuitumia lugha hii kama lugha yao ya mama, kama vile Wakikuyu watumiavyo Kikikuyu, Wakamba, Kikamba na Wadigo lugha ya Kidigo. Makao yao Waswahili tangu jadi yanapatikana kaunti za Pwani. Makao yao yameanzia upande wa Kaskazini Mashariki mwa Kenya , na wanapakana na nchi ya Somalia huko. Wameenea katika upwa huo wa Pwani, ikiwemo Lamu, Malindi, Mombasa, Pemba, Unguja, Visiwa vya Ngazija na kuendelea.

Lugha ya Kiswahili ina lahaja nyingi kulingana na sehemu wanamoishi. Kwa mfano, Waswahili wa Lamu huongea lahaja ya Kiswahili inayoitwa Kiamu. Waswahili wa Mombasa huongea lahaja ya Kimvita. Pemba wanaongea Kipemba, Ngazija lahaja ya Kingazija, Unguja lahaja ya Kiunguja na kadhalika. Kutokana na lahaja hizi na nyinginezo za Kiswahili ambazo hazikutajwa hapo, wataalamu wa lugha walitokea na Kiswahili sanifu. Hiki Kiswahili sanifu ndicho kitumiwacho katika mafunzo ya shule, uandishi wa vitabu na mawasiliano ya kiserikali na kibiashara.

Nchini Kenya, kwa muda mrefu Kiswahili hakikuthaminiwa kama Lugha ya Kiingereza. Sababu mojawapo ni kuwa Kiswahili hakikufanywa somo la lazima katika rasimu za shule, wala kutahiniwa katika shule za msingi. Hata katika shule za upili, katika kufunzwa na kutahiniwa hakikupewa umuhimu wowote. Kwa ajili hii wanafunzi wengi waliacha kujifunza Kiswahili kama somo. Hali hiyo ilifanya Kiswahili kuonekana kama lugha inayoongewa na wale watu wasio na kisomo ama elimu nyingi. Kwa ajili ya fikira hizi, watu wengi wamekuwa wakikichukia, kukidunisha na kujaribu kuongea Kiingereza kila nafasi inapojitokeza.

Miaka michache iliyopita, Kiswahili kilianza kutiliwa mkazo katika shughuli zote nchini Kenya. Kwa upande wa msimamo wa nchi lugha hii ilionekana yenye manufaa katika kuleta umoja na kuwaunganisha wananchi wote. Jambo hili ni muhimu kwa maendeleo ya nchi iwayo yote. Umoja huleta maelewano na undugu. Hali hizi mbili zinapokuwapo, amani husambaa nchini mote.

Tukitazama mfumo wa elimu wa 8-4-4, Kiswahili kimepewa nafasi sawa katika ratiba za shule kama lugha ya Kiingereza. Kiswahili kinatahiniwa kama somo muhimu kuanzia shule ya msingi hadi

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shule ya upili. Kinyume na enzi za zamani, siku hizi mwanafunzi anayesoma Kiswahili, hata asipofaulu vizuri katika lugha ya Kingereza ana nafasi sawa ya kupata kazi kama wengine.

Maswali

a) Fupisha aya tatu za mwanzo kwa maneno 80. (alama 6, utiririko 1)

Matayarisho

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Jibu

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b) Fupisha aya ya nne kwa maneno 40 **(alama 5, utiririko 1)**

Matayarisho

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Jibu

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c) Onyesha jinsi mtazamo kuhusu lugha ya Kiswahili ulivyobadilika (**maneno 50) (alama 4)**

Matayarisho

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Jibu

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3. SARUFI NA MATUMIZI YA LUGHA **(Alama 40)**

(a) i) Unda neno lenye muundo ufuatao: **(alama 2)**

Irabu ya juu, nyuma + nazali ya ufizi, ghuna + kipasuo cha ufizi, ghuna + irabu ya chini, kati

……

……

ii) Kiyeyusho cha mdomo+ irabu ya juu tandazwa + kipua cha midomoni +irabu ya chini

……

……

b) Onyesha muundo wa silabi katika neno lifuatalo: **(alama 1)**

mchwa

……

……

(c) Tia shadda katika meneno yafuatayo kuonyesha dhana katika mabano: **(alama 2)**

i) Ala (kifaa)

……

……

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ii) Ala! (kihisishi)

……

……

(d) Tunga sentensi katika wakati ujao hali ya mazoea. **(alama 2)**

……

……

(e) Andika sentensi ifuatayo katika udogo wingi **(alama 2)**

Nyundo za wazee wale zimevunjwa na mwana wake.

……

(f) Tunga sentensi ukitumia kiwakilishi cha pekee chenye dhana ya **"badala ya"** katika ngeli ya U-**ZI.** **(alama 2)**

……

……

……

(g) Akifisha ili kuonyesha usemi halisi **(alama 2)**

tanya ondoka hapa mara moja

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……

(h) Tunga sentensi ukitumia nomino dhahania inayotokana na kitenzi '**silimu**' **(alama 2)**

……

……

……

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(i) Eleza matumizi ya mofimu **'ji'** katika sentensi zifuatazo: **(alama 2)**

(i) Sauti hiyo inajirudia.

……

……

(ii) Aliliua jitu hilo kwa mshale dhaifu.

……

……

(j) Bainisha sehemu za kiuamilifu za sentensi ifuatayo. **(alama 2)**

Aliwanunulia watoto mkate jana asubuhi.

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(k) Eleza maana mbili za sentensi ifuatayo. **(alama 2)**

Mwalimu aliniambia wataenda kwake kesho.

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(l) Onyesha miundo miwili ya nomino katika ngeli ya LI –YA **(alama2)**

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(m) Chanaganua sentensi ifuatayo kwa kutumia mchoro wa matawi. **(alama 4)**

Huyu ndiye mwizi aliyewaibia watu pesa na atafikishwa mahakamani baadaye

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(n) Tunga sentensi ukitumia kishazi tegemezi chenye dhana ya kielezi cha mahali. **(alama 2)**

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(o) Kanusha **(alama 2)**

Mwamu wangu alinilea na kunielimisha.

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(p) Andika sentensi ukitumia kitenzi – **cha** katika kauli ya kutendewa. **(alama 1)**

……

……

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(q) Onyesha mofimu katika neno **(alama 3)**

Aliowapa

……

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(r) Andika kitenzi kifuatacho katika hali iliyopo mabanoni **(alama 1)**

-ja (nafsi ya pili wingi)

……

……

(s) i) Kiri ni kwa kukana na _____ ni kwa nafuu. Na sifu ni kwa_____

(alama 1)

ii) _____ ni kwa kukubaliana na jambo , simile ni kutaka kitu kinusurike na hongera ni _____. **(alama 1)**

(t) Tunga sentensi mojakuonyesha maana tofauti za neno **'ua'** **(alama 2)**

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4. ISIMU JAMII

“ Maafisa 3 wakana kusaidia mshukiwa wa mauwaji ya watoto kutoroka kituoni.

Maafisa watatu wa polisi jana walikana mashtaka ya kumsaidia mshukiwa wa mauaji ya watoto 13 kutoroka kutoka kituo cha polisi…**”**

(a) Huku ukitoa sababu mbili, tambua sajili hii. **(alama 3)**

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(b) Fafanua sifa zozote saba za sajili hii. **(alama 7)**

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UTABIRI WA KCSE 2023

MFUATANO WA SMARTGRADE

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) Jibu maswali manne pekee.
(b) Swali la kwanza ni la lazima.
(c) Maswali hayo mengine matatu yachaguliwe kutoka sehemu nne zilizobaki; yaani; Riwaya,Ushairi, Hadithi Fupi na Fasihi Simulizi.
(d) Usijibu maswali mawili kutoka sehemu moja.
(e) Majibu yote lazima yaandikwe kwa lugha ya Kiswahili

KWA MATUMIZI YA MTAHINI PEKEE.

SWALI	UPEO	ALAMA
1	20	
	20	
	20	
	20	
Jumla	**80**	

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SEHEMU YA A

Mapambazuko Ya Machweo Na Hadithi Nyingine- Clara Momanyi

SWALI LA LAZIMA

1. "Mike! Mike! Mike! Njoo! Nilijua utafanya vyema mwanangu**…"**

(a) Tambua na ueleze **toni** ya dondoo hili. **(alama 2)**

(b) Changanua mtindo katika dondoo hili. **(alama 2)**

(c) Eleza sifa **nne** za msemaji wa dondoo hili. **(alama 4)**

(d) Eleza mbinu **mbili** ulizozitumia kutambua sifa za msemaji wa dondoo hili. **(alama 4)**

(e) Tambua na ufafanue madhila yanayomsakama mhusika mkuu katika hadithi hii ya *"Sabina".* **(alama 8)**

SEHEMU YA B: RIWAYA

Chozi La Heri-Assumpta K. Matei

Jibu swali la 2 au 3

2. "Ndivyo tunavyoishi…na usidhani ni kuishi huku…ni kupapatika, kufufurishwa na matumbwe ya maisha…pole ndugu, itabidi usahau mswala kwa hii mbacha."

(a) Eleza muktadha wa dondoo hili. **(alama 4)**

(b) Andika mifano **mitatu** ya sitiari katika dondoo hili. **(alama 3)**

(c) Fafanua umuhimu wa anayeambiwa maneno haya katika kuijenga riwaya hii**. (alama 3)**

(d) Kwa kurejelea hoja **kumi** za yule anayezungumza, onyesha jinsi raia wa Wahafidhina wanavyopapatika na kufufurishwa na matumbawe ya maisha. **(alama 10)**

AU

3. "Lakini…
Wewe hushangai?
Kwani wanawashwa
Na pilipili iliyo
Kwenye uchango wa mwingine?
Kwani wasitake kukuli
Kilichotufanya mimi na wewe
Kuwa marafiki wa kufa kuzikana?"

(a) Eleza muktadha wa dondoo hili**.** **(alama 4)**

(b) Tambua mbinu **mbili** za kimtindo katika dondoo hili **(alama 2)**

(c) Eleza sifa **nne** za msemaji wa maneno haya. **(alama 4)**

(d) Jadili vyanzo na athari za matumizi mabaya ya vileo na dawa za kulevya kwa mujibu wa diwani ya Chozi la Heri huku ukitolea mifano mwafaka. **(alama 10)**

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SEHEMU YA C: TAMTHILIA

Bembea ya Maisha- Timothy Arege

Jibu swali la 4 au 5

4."…anachukua vidonge vyake na kuvimeza kabla ya kuketi kwenye kochi mpya."

(a) Weka dondoo hili katika muktadha wake. **(alama 4)**

(b) Tambua aina za taswira katika dondoo hili. **(alama 2)**

(c) Eleza umuhimu wa mandhari ya dondoo hili. (**alama 4)**

(d) Eleza nafasi ya mwanamke ukijikita katika utamaduni wa jamii ya *"Bembea ya Maisha".* **(alama 10)**

AU

5. " Wakati mwingine maisha haya hukufanya kijisikia kama abiria kwenye gari liendalo kwa kasi. Unatamani dereva apunguze mwendo lakini unakumbuka kuwa safari bado ni ndefu na hutaki kufika ukiwa umechelewa. Basi unatulia japo ndani una wasiwasi, hutulii. Lakini huwezi kushuka maana safari itaganda. Kwa hivyo, unajitahidi tena, japo wakati mwingine unajikuta umetambaliwa na uchovu, shaka na tuhuma."

(a) Eleza muktadha wa dondoo hili. **(alama 4)**

(b) Changanua mtindo katika dondoo hili. **(alama4)**

(c) Dhihirisha umuhimu wa mzungumziwa wa maneno haya katika kuijenga tamthilia ya *"Bembea ya Maisha*". **(alama 6)**

(d) Eleza namna maisha yanamfanya mzungumzaji "kujisikia kama abiria kwenye gari liendalo kwa kasi**". (alama 6)**

SEHEMU YA D: USHAIRI

Jibu swali la 6 au 7

6. ***Soma shairi lifuatalo kisha ujibu maswali.***

Jama, Jama, Jamani
Mbona twabebeshwa mateso hivi
Mizigo mikubwa ya dhiki kama
Kwamba hatuna haki ya kusema
Kukataa ndoa za lazima
Kukataa kuozwa wazee
Kukataa kukatishwa masomo
Kukataa tohara ya lazima

Jama, Jama Jamani
Iweje tuteswe mateso haya
Na watu wasio kuwa hata na haya kama
Kwamba hatuna haki ya kulalamika

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Kulalamikia kutumikishwa kama mayaya
Kulalamikia kudhalilishwa kiunyama
Kulalamikia kutolindwa na sheria

Jama, Jama, Jamani
Sasa hii ni awamu nyingine
Na macho tumeyafungua kabisa
Tumekataa kudhalilishwa kabisa
Tumekataa kuteswa kama watumwa
Tumekataa tohara ya lazima
Tumekataa kuozwa..... Tumekataa! Tumekataa
Hii awamu ya 'Haki ya mtoto wa kike'

Maswali

(a) Taja mambo **matatu** muhimu yaliyozungumziwa na mshairi kisha ueleze kila moja . **(alama 6)**

(b) Eleza muundo wa shairi hili **(alama 4)**

(c) Taja mbinu **mbili** za lugha alizotumia mshairi kisha ueleze kila moja **(alama 4)**

(d) Kwa nini mshairi huyu anasema hii ni 'awamu' nyingine? **(alama 3)**

(e) Eleza maana ya maneno haya kama yalivyotumiwa na mshairi (**alama 3)**

(i) awamu
(ii) kudhalilishwa
(iii) Dhiki

AU

7. Soma shairi lifuatalo kisha ujibu maswali yafuatayo

1. Mkata ni mkatika, harithi hatoridhiwa
Sina ninalolishika, wala ninalochukuwa
Mlimwengu kanipoka, hata tone la muruwa!
Mrithi nini wanangu?

2. Sina ngo'mbe sina mbuzi, sina konde sina buwa
Sina hata makaazi, mupasayo kuyajuwa
Sina mazuri makuzi, jinsi nilivyoachwa
Mrithi nini wanangu?

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3. Sina kazi sina bazi, ila wingi wa shakawa
Sina chembe ya majazi, mno nikukamuliwa
Nakwa'cheni upagazi, ngumu kwenu ku'tuwa
Mrithi nini wanangu?

4. Sina sikuachi jina, mkata hatasifiwa
Hata nifanye la mana, mno mi kulaumiwa
Poleni wangu sana, sana kwenu cha kutowa
Mrithi nini wanangu?

5. Sina leo sina jana, sina kesho kutwaliwa
Sina zizi sina shina, wala tawi kuchipuwa
Sina wanangu mi sina , sana la kuacha kuraduwa
Mrithi nini wanangu?

6. Sina utu sina haki, mila yangu meuliwa
Nyuma yangu ili dhiki, na mbele imekaliwa
N'nawana na miliki, hadi nitakapofukiwa
Mrithi nini wanangu?

7. Sina ila kesho kwenu, wenyewe kuiongowa
Muwane kwa nyinyi mbinu, mwende pasi kupumuwa
Leo siyo kesho yenu, kama mutajikamuwa
Mrithi nini wananngu?

MASWALI

(a) Taja mambo yoyote **mawili** ambayo mtunzi angewarithisha wanawe. **(alama 2)**
(b) Eleza sababu ya mtunzi kutoweza kuwarithisha wanawe. **(alama 3)**
(c) Andika ubeti wa nne kwa lugha nathari. **(alama 4)**
(d) Dondoa mifano **miwili miwili** ya : **(alama 2)**
(i) Inkisari
(ii) Tabdila
(e) Chambua shairi hili kwa upande wa :
(i) Dhamira **(alama2)**
(ii) Muundo **(alama 4)**
(f) Eleza maana ya vifungu vifuatavyo kama vilivyotumiwa katika shairi. **(alama 3)**
(i) Mlimwengu kanipoka
(ii) Sina konde sina buwa.
(iii) Wingi wa shakawa.

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SEHEMU YA E: FASIHI SIMULIZI

8. Soma utungo ufuatao kisha ujibu maswali.

Malaika
Nakupenda malaika x2
Ningekuoa malaika...
Ningekuoa dada...
Nashindwa na mali sina wee...

Ningekuoa malaika x2

Pesa, zasumbua roho yangu x2
Nami niafanyeje, kijana mwenzio
Nashindwa na mali sina wee...

Ningekuoa malaika x2

MASWALI

(a) Ainisha wimbo huu kwa kuzingatia kipengele cha maudhui. **(alama 2)**

(b) Andika sifa **mbili** za jamii inayosawiriwa na wimbo huu. **(alama 2)**

(c) Eleza mikakati **sita** ambayo mwimbaji angetumia kufanikisha uwasilishaji wa wimbo huu. **(alama 6)**

(d) Unanuia kutumia mahojiano kukusanya habari kuhusu nyimbo za aina hii.

(i) Eleza manufaa **matano** ya kutumia mbinu hii**.** **(alama 5)**

(ii) Eleza changamoto **tano** za kutumia mbinu hii. **(alama 5)**

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

231/1

BIOLOGY

PAPER 1 (THEORY)

TIME: 2 HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

a) *Write your name and admission number in the spaces provided above.*

b) *Sign in the spaces provided above.*

c) *Answer **ALL** questions in the spaces provided.*

d) *All workings **MUST** be clearly shown where necessary.*

FOR EXAMINERS USE ONLY

QUESTION	MAXIMUM SCORE	CANDIDATES SCORE
1 – 32	**80**	

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*Answer **ALL** questions in the spaces provided*

1. Name **one** factor in nature that increases the process of evolution. **(1mk)**

……

……

2. What is meant by the term "**oxygen debt**" **(2mks)**

……

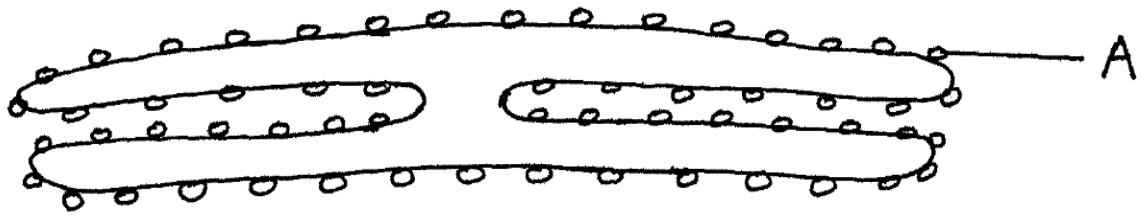
……

……

3. Differentiate between characteristics of members of Monera and those of Protoctista **(2mks)**

Monera	Protoctista

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



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

……

(b) State function of the structure labeled A **(1mk)**

……

……

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5. State two functions of the substance secreted by sebaceous glands. **(2mks)**

……

……

……

6. In an experiment, the pituitary gland of a rat was removed.

(a)State the effect that this will have on the quantity of urine produced by the rat. **(1mk)**

……

……

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

……

……

……

7. The lungs and ileum are adapted for absorption. State **three** features they have in common which facilitate absorption. **(3mks)**

……

……

……

8. State the function of the diaphragm in the light microscope. **(1mk)**

……

……

9. Explain why food is stored in an insoluble form in the cells of living things. **(1mk)**

……

……

……

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10. Name two components of blood that are not present in the glomerular filtrate. **(2mks)**

……

……

11. (a) State the importance of the following features in gaseous exchange.

(i) Cartilages in the trachea. **(1mk)**

……

……

(ii) Moisture on the surface of alveoli **(1mk)**

……

……

(b) Name **two** sites where gaseous exchange takes place in terrestrial plants. **(2mks)**

……

……

12. i. Explain how the following adaptations minimize the rate of transpiration.

(a) Sunken stomata **(1mk)**

……

……

(b) Leaf drooping **(1mk)**

……

……

ii. State **two** environmental factors that influence the rate of transpiration. **(2mks)**

……

……

……

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13. State the role of decomposition in an ecosystem. **(2mks)**

……

……

……

14. An animal is found to have large glomeruli and short loop of Henle. Account for the presence of

(i) Large glomeruli **(1mk)**

……

……

(ii) Short loop of Henle. **(1mk)**

……

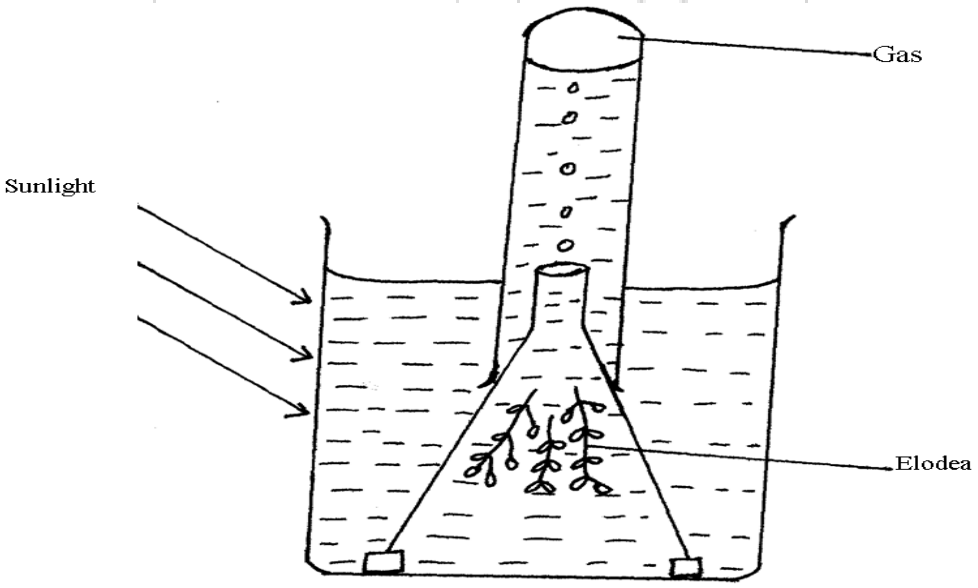
……

(iii) State the possible habitat of the above organism **(1mk)**

……

……

15. The diagram below represents a set up that was used to investigate a certain process in a plant. Both the beaker and funnel are transparent.



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(a) State the process that was being investigated **(1mk)**

……

(b) Name the gas collected in the gas jar **(1mk)**

……

(c) State one factor that would affect the process **(1mk)**

……

……

16. Name the sites where light and dark reactions of photosynthesis take place. **(2mks)**

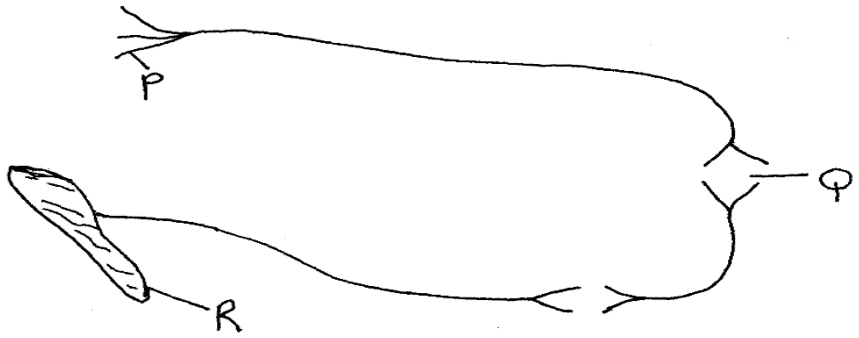
(i) Light stage reaction

……

(ii) Dark stage reaction

……

17. The diagram below represents a reflex arc in human beings



(a) Name the parts labeled Q and R. **(2mks)**

Q

……

R

……

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(b) What is the function of part labeled P? **(1mk)**

……

……

(c) Using arrows, indicate the direction of impulse transmission on the diagram **(1mk)**

18. (a) What is the meaning of the following terms as used in ecology**.** **(2mks)**

(i) Autecology

……

……

(ii) Synecology

……

……

(b) The number and distribution of stomata on three different leaves are shown in the table below.

Leaf	Number of stomata	
	Upper epidermis	Lower epidermis
A	450	0
B	185	270
C	03	15

Suggest the possible habitats of the plants from which the leaves were obtained. **(3mks)**

A ……

B ……

C ……

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19. A bone obtained from a mammal is represented by the diagram below



(a)(i) Name the bone shown above? **(1mk)**

……

(ii) State one reason for your answers in (a) (i) above **(1mk)**

……

……

(b) Name a bone articulate with bone shown in the diagram above at the notch . **(1mk)**

……

20. (a) Explain why pepsin in stomach of man is secreted in inactive/precursor form**.** **(1mk)**

……

……

(b) Which gland secrets pepsinogen. **(1mk)**

……

21. Name the regions in plants where the following take place **(2mks)**

(i) Primary growth

……

(ii) Secondary growth

……

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22. The figure below illustrates a portion of chromosome with genes E, G, H, P, Q and R

E	G	H	P	Q	R

Using diagrams similar to the one above, illustrate the changes that the above chromosome would undergo. If the following **mutations** occurred on gene H and P.

(a) Deletion **(1mk)**

(b) Inversion **(1mk)**

(c) Duplication **(1mk)**

23. (a) Name the type of skeleton that arthropods have. **(1mk)**

……

(b) What substance is the arthropods skeleton made of? **(1mk)**

……

24. In view of modern genetics, explain why Lamarck's theory is unacceptable. **(2mks)**

……

……

……

25. State two ways in which genetic engineering is applied in the field of medicine. **(2mks)**

……

……

……

26. What is the functional difference between a tendon and ligament. **(1mk)**

……

……

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27. (a) How is **fovea centralis** adapted for its function in the human eye. **(2mks)**

……

……

……

(b) A person was not able to see far objects clearly but could view near objects clearly. Name the eye – defect the person had. **(1mk)**

……

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

……

……

28. State two functions of a chloroplast. **(2mks)**

……

……

……

29. State three differences between osmosis and active transport. **(3mks)**

Osmosis	Active transport

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30. (a) State **two** functions of an ovary in a human female. **(2mks)**

……

……

(b) State **two** advantages of internal fertilization in mammals. **(2mks)**

……

……

……

31. State **two** features of petals that enhances insect pollination. (2mks)

……

……

……

32. How are halophytes adapted for survival in their habitats. **(2mks)**

……

……

……

THE END

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

231/2

BIOLOGY

PAPER 2 (THEORY)

TIME: 2 HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

(a) *Write your name, school, index number in the space provided at the top of the paper.*
(b) *Sign and write the date of examination in the space provided above.*
(c) *This paper consists of two sections, **A** and **B**.*
(d) *Answer all the questions in section **A** in the spaces provided.*
(e) *In section **B** answer question **6 (compulsory)** and either **question 7 or 8**.*

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Section	Question	Maximum Score	Candidate's Score
A	1-5	40	
B	6	20	
	7	20	
	8	20	
		80	

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SECTION A 40 MARKS

1. A potted plant was placed in each of the following conditions for a period of one hour in the order given and transpiration in each hour was measured. The air temperature was 18^0C throughout the experiment.

CONDITIONS	RELATIVE HUMIDITY	TRANSPIRATION g/hr
A) Still air in sunlight and shade	70	1.2
B) Moving air only	70	1.6
C) Still air in bright sunlight	70	3.75
D) Still air in dark chamber	100	0.20

a) Account for the rate of transpiration in

i) Condition C **(3mks)**

……

……

……

……

……

ii) Condition D **(3mks)**

……

……

……

……

……

b) Name the apparatus used to measure the rate of transpiration. **(1mark)**

……

c) Give one modification in the stomata of xerophytes that reduce the rate of transpiration. **(1 mks)**

……

……

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2. **Sickle cell anaemia** is a disease in which people produce abnormal haemoglobin in their red blood cells. Letter **H** represents the gene for normal haemoglobin while letter **S** represent the gene for abnormal haemoglobin. Heterozygous individuals are said to have **sickle cell trait**.

a) If both parents have sickle cell trait, work out the proportion of their offspring that have sickle cell anemia. **(5marks)**

……

……

……

……

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……

b) Explain why sickle cell trait is more prevalent in tropical countries than temperate countries. **(2marks)**

……

……

……

……

(c) Name any other disease caused by gene mutation. **(1mk)**

……

……

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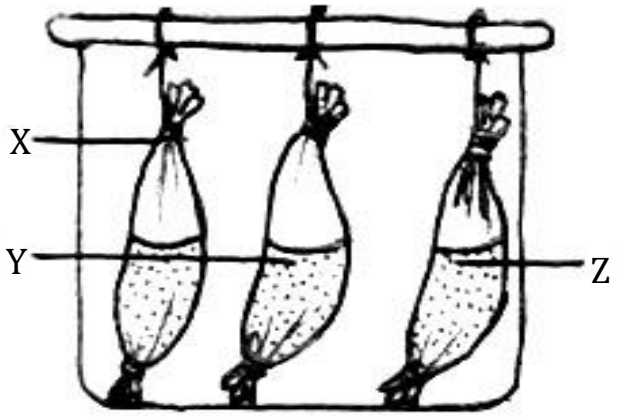
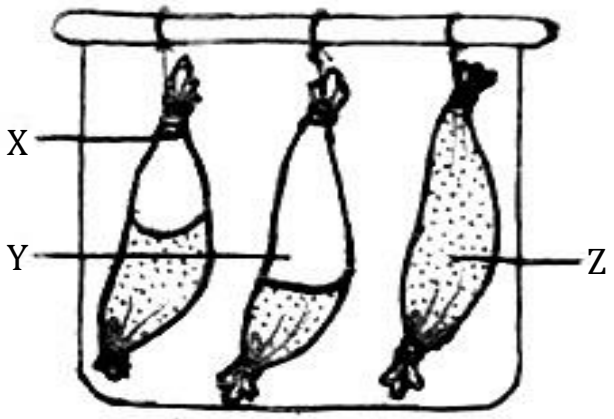
3. Equal volumes of three different sugar solutions were placed in visking tubings X, Y and Z. The tubings were placed in a beaker containing 5%sugar solution. The set up was left for two hours. The results were as shown in the diagram below.



Start of the experiment



End of the experiment

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

……

b) What is the significance of set up X in the experiment? **(1mark)**

……

……

c) Account for the observations in set up Y and Z. **(4mks)**

Y

……

……

……

……

Z

……

……

……

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d) Name a structure in cells that can be compared to the visking tubing. **(1mark)**

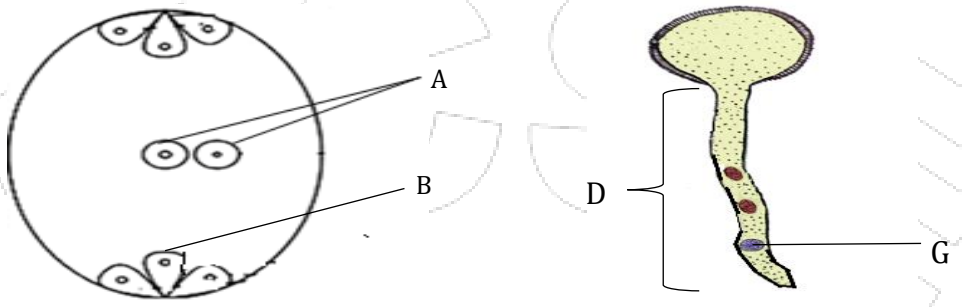
……

e) Explain how high temperature above 40^0C will affect the process being investigated in the cells of organism. **(1marks)**

……

……

4. The diagrams below show changes in the life cycle of a flowering plant.



a) Name the parts labelled A, B and G. **(3marks)**

A……

B-……

G-……

b) State the function of the part labelled D. **(1mark)**

……

……

c) (i) What will part A develop into after fertilization? **(1mark)**

……

(ii) Define the term parthenocarpy. **(1mark)**

……

……

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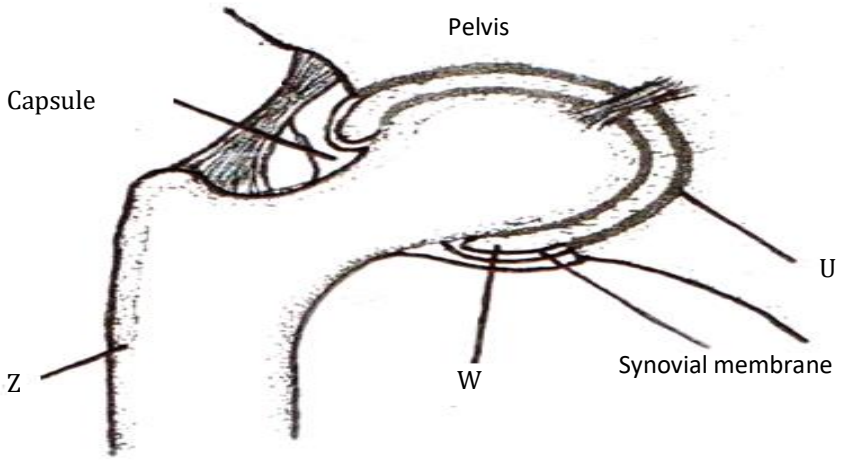
d) Name two features in flowering plants that prevent self-fertilization **(2marks)**

……

……

……

5. The diagram below represents one of the joints in the mammalian body.



a) Name the type of joint shown in the diagram. **(1mark)**

……

b) Name each of the parts labeled Z and U. **(2marks)**

Z-……

U-……

c) State two functions of the fluid found in W. **(2marks)**

……

……

……

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d) Identify the type of muscle found attached to bone Z. **(1mark)**

……

……

e) State two differences between the muscle identified in (d) above and those found in the gut.

(2marks)

……

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……

……

SECTION B (40MARKS)

Answer question 6 (compulsory) and either question 7 or 8

6. In an experiment to investigate a certain process in a given plant species, the rate of carbon (IV) oxide consumption and the rate of carbon (IV) oxide released were measured over a period of time of the day. The results of the investigation are shown in the table below.

Time of day	6am	8am	10am	12pm	2pm	4pm	6pm	8pm	10pm	12am
CO_2 consumption(mm^3/min)	0	43	69	91	91	50	18	0	0	0
CO_2 release (mm^3/min)	38	22	10	3	3	6	31	48	48	48

(a) On the same axis, plot graphs of volume carbon (IV) oxide against time **(7mk**

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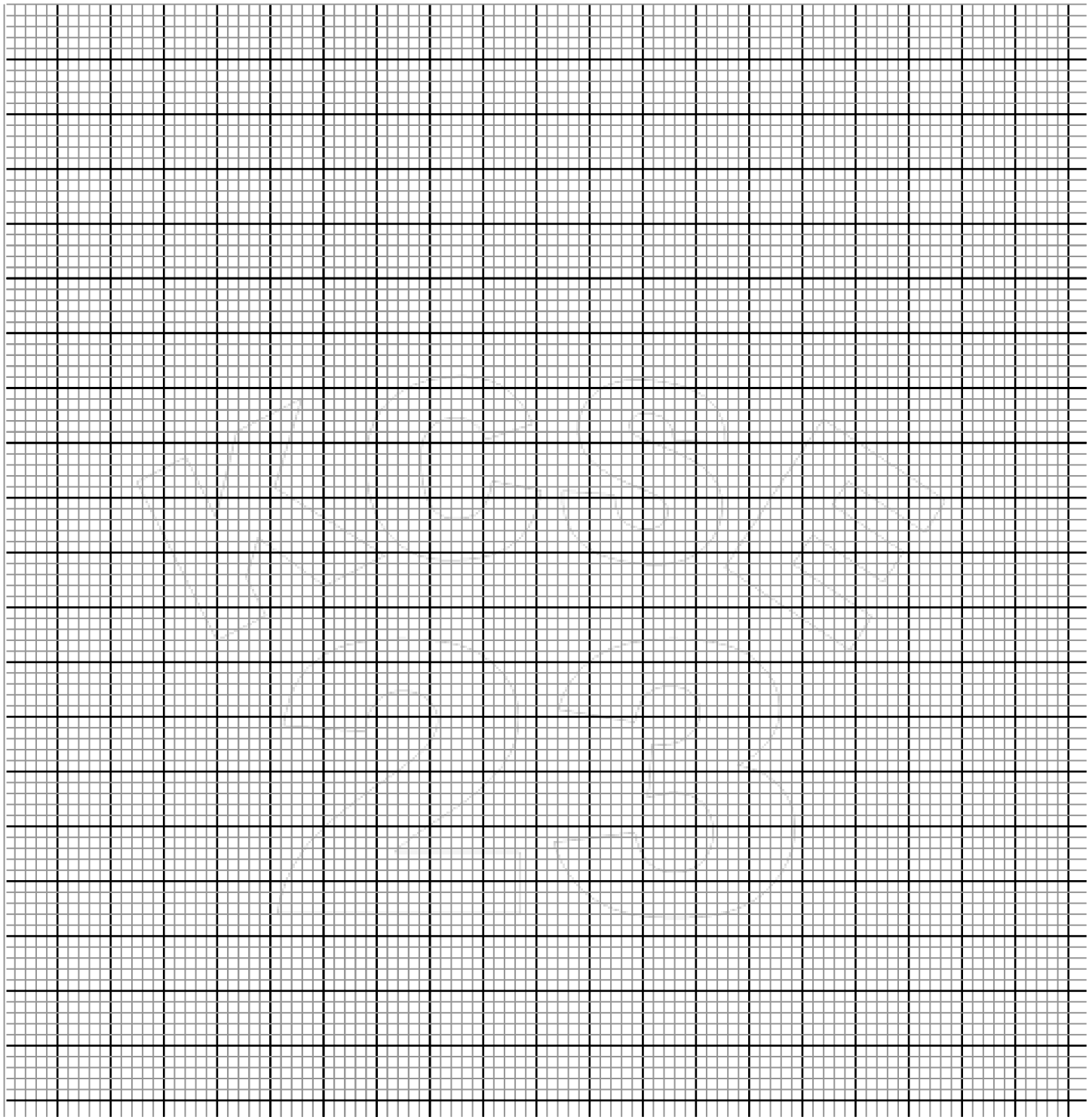

b) Name the biochemical process represented by:

i) Carbon (IV) oxide consumption **(1 mark)**

……

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ii) Carbon (IV) oxide released **(1 mark)**

……

……

c) Account for the shape of the curve for:

i) Carbon (IV) oxide consumption **(3 marks)**

……

……

……

……

……

ii) Carbon (IV) oxide released **(3marks)**

……

……

……

……

……

d) (i) What is meant by the term compensation point? **(1marks)**

……

……

……

(**ii)** From the graph state the time of the day when the plant attains compensation point**(2 mark)**

……

……

……

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e) Explain how temperature affects the rate of CO_2 consumption in a plant. **(2 marks)**

……

……

……

7. a) Explain how the villi in the small intestines are adapted to their functions. **(10 marks)**

b) Describe the photosynthetic theory as a mechanism of opening and closing of the stomata. **(10marks)**

8. a) Explain how ultrafiltration occurs within the kidneys. **(5marks)**

b) Describe water pollution under the following headings:

i) Causes **(5marks)**

ii) Effects **(5marks)**

iii) Control measures. **(5marks)**

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

231/3

BIOLOGY

PAPER 3 (PRACTICAL)

TIME: 1¾ HOURS

Kenya Certificate of Secondary Education.

CONFIDENTIAL

Each candidate should be supplied with the following;

- *Four test tubes in a test tube rack*
- *Visiking tubing*
- *Two pieces of thread*
- *Two 50 ml empty beakers*
- *10 ml measuring cylinder*
- *Two labels*
- *About 20ml Starch solution Labelled Solution Q -Should be prepared using warm water)*
- *About 50ml Concentrated glucose solution labelled solution W*

Each candidate should have access to the following

1.Iodine solution

2. Benedict's solution

3.Source of heat

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

231/3

BIOLOGY

PAPER 3 (PRACTICAL)

TIME: 1¾ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

1. *Write your name, Index number and your other details in the spaces provided above.*
2. *Spend the first 15 minutes of the time allocated to read through the question paper.*
3. *Answer all the questions in the spaces provided only.*
4. *Wrong spelling especially of biological terms will be penalized.*

FOR EXAMINER'S USE ONLY

QUESTION	MAXIMUM SCORE	CANDIDATE'S SCORE
1	18	
2	10	
3	12	
TOTAL	**40**	

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1. (a) You are provided with solution Q, Solution W, Visiking tubing and a thread. Divide solution Q and W into two halves in separate beakers. Use one half for **Procedure 1** and second half for **Procedure II.**

Procedure 1

- Using reagents provided and one half of solution Q, carry out tests to determine the food substance present in solution Q.
- Record the procedure, observations and conclusions in the table below.
- Repeat the same procedure using the half of solution W. (10mks)

Test	Food Solution	Procedure	Observation	Conclusion
Starch	**Q**			
	W			
Reducing sugars	**Q**			
	W			

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Procedure II

(Clean and rinse properly any of the beakers that contained Solution **W** or Solution **Q** for use in this procedure)

- Tie one end of visking tubing provided with a thread tightly.
- Measure about 5ml of solution **Q** into the visking tubing (**Stir the solution thoroughly before use**).
- Tie the other end tightly to ensure that there is no leakage.
- Immerse the visking tubing and its content into a beaker containing solution **W.**
- Allow it to stand for 20 minutes.
- After 20 minutes empty the content of the visking tubing into a clean empty beaker.

b) Use the solution that was in the visking tube to test for starch and reducing sugars. Record the observations and conclusions in the table below:

Test	Observations	Conclusions
Starch test		
Reducing sugars test		

(4mks)

i) Name the physiological process being investigated in the experiment. **(1mark)**

……

ii) Which structure in the living organism is represented by the visking tubing? **(1mark)**

……

iii) Account for the observation made in the table (b) above. **(2marks)**

……

……

……

……

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2 a) Study the photograph below. The specimen had been placed in adequate light at a horizontal position for one week.



i) What was the aim of this experiment? **(1 mark)**

……

……

ii) What would be the result if seedling is placed on a working klinostat**?** **(1 mark)**

……

……

iii) Explain how the growth curvature occurred**.** **(3 marks)**

……

……

……

……

……

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b) Study the Photographs below and answer the questions that follows :





i) Name the type of relationship in Photograph E and F:

Photograph **E** …… **(1mk)**

Photograph **F** …… **(1mk)**

ii) What is the importance of the relationship taking place in Photograph **E.** **(1mk)**

……

……

……

iii) Using observable features only explain two ways in which the flower is adapted for the activity taking place in Photograph F**.** **(2mks)**

……

……

……

……

……

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3. The photographs below shows bones obtained from different regions of a mammalian body. The photographs are in different views.



Anterior view of bone A



Dorsal lateral view of Bone B



Anterior view of bone C

a) Identify the bones. **(3 marks)**

A……

B……

C……

b) Name the regions from which bone B was obtained from. **(1 marks)**

……

……

c) State **two** distinguishing features of the bone in photograph labeled B. **(2 marks)**

……

……

……

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d) State the significance of the part labeled T in the photograph of bone **A.** **(1 mark)**

……

……

e) With reason state the type of joint formed at the distal and proximal ends of specimen C.

(4 marks)

i) Distal end ……..…….

Reason

……

……

ii) Proximal end. ……..……

Reason

……

……

f) Name the bone that articulates with the proximal end of the bone in photograph labelled C.

(1 mark)

……

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

233/1

CHEMISTRY

PAPER 1 (THEORY)

TIME: 2 HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

1. *Write your name and index number in the spaces provided above.*
2. *Answer all the questions in the spaces provided.*
3. *All working must be clearly shown.*
4. *Non-programmable silent electronic calculators and KNEC mathematical tables may be used.*

FOR EXAMINER'S USE ONLY

Questions	Maximum score	Candidates score
1 - 25	80	

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ANSWER ALL QUESTIONS

1. The pH values of some solutions labeled **E** to I are given in the table **below**. Use the information to answer the questions that follow.

pH	14.0	1.0	9.0	6.5	5.0
Solution	E	F	G	H	I

(a) Identify the solution with the highest concentration of hydroxide ions. Explain **(1mk)**

……

……

(b). Which solution can be used as a remedy for acid indigestion in the stomach? Explain **(1mk)**

……

……

(c) Which solution would react explosively with Potassium metal? **(1mk)**

……

2. a) Distinguish between ionization energy and electron affinity **(2mks)**

……

……

……

……

b) The table below shows first ionization energies of metals represented by letters A, B, C and D. The metals are in the same group of the periodic table.

Metal	A	B	C	D
1st ionization energy (kJ/mole	402	496	520	419

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Which of the metals has the largest atomic radius? Explain. **(2mks)**

……

……

……

3. An element: $^{23}_{11}M$

(a) To which chemical family does it belong? **(½mk)**

……

(b) Write the electron arrangement of the atom. **(½mk)**

……

(c) Draw the structure of its ion. **(1mk)**

4. (a) Define electrolysis. **(1mk)**

……

……

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

Anode -…… **(1mk)**

Cathode -…… **(1mk)**

5. In an experiment to determine the percentage purity of Sodium carbonate produced in the Solvay process , 2.15g of the sample reacted with exactly 40.0cm^3 of 0.5M Sulphuric(VI)acid. Determine the percentage purity of sodium carbonate in the sample.

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6. **Y** is a product of gaseous reaction which results in an equilibrium mixture being formed.

Reactants $\rightleftharpoons$ **Y**

The percentage of **Y** in equilibrium at various temperatures and pressure is shown in the following table.

Temperature (^{0}C)	1 atm	100 atm	200 atm
550	**0.77**	**6.70**	**11.9**
650	**0.032**	**3.02**	**5.71**
750	**0.016**	**1.54**	**2.99**
850	**0.09**	**0.87**	**1.68**

Use this data to deduce, giving a reason for each case;

a) Whether production of Y is exothermic or endothermic. **(2mks)**

……

……

……

b) Whether production of Y **involves** an increase or a decrease in number of moles of gas present. **(2mks)**

……

……

……

7. State and explain what is observed when moist red flowers are dropped in a gas jar containing Sulphur (IV) oxide. **(3mks)**

……

……

……

……

……

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8. A sample of water collected from **River Nzoia** is suspected to contain chloride ions. Describe an experiment that can be carried out to determine the presence of the chloride ions. **(2mks)**

……

……

……

……

9. During distillation in a laboratory the distillate can be collected either by a beaker or a conical flask.

(a) Define the term distillate. **(1mk)**

……

……

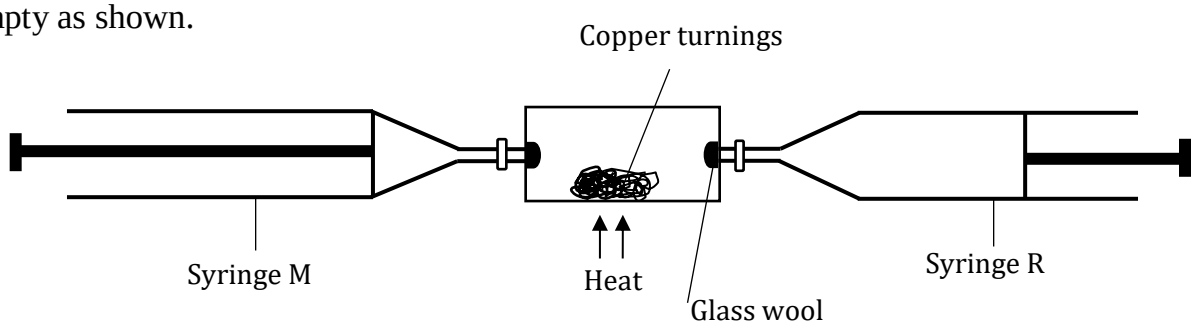
(b) Explain why a conical flask is the most preferred apparatus for the collection of the distillate. **(1mk)**

……

……

(c) Draw the diagram of a graduated conical flask. **(1mk)**

10. In an experiment to determine the proportion of oxygen in air, copper turnings were packed in excess in a long combustion tube connected to two syringes of $110cm^3$ each in volume. At the beginning of the experiment, syringe R contained $110cm^3$ of air while syringe **M** was closed and empty as shown.



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Air was passed over the heated copper slowly and repeatedly until there was no further change in volume. 97.5cm^3 of air remained in syringe M.

(a) State and explain the observation made in the combustion tube. **(2mks)**

……

……

……

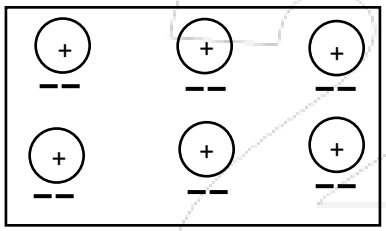
(b) If the volume of air in the **combustion tube** at the beginning of the experiment was 23.8cm^3 and at the end of the experiment reduced to 10cm^3, calculate the percentage of the active part of air. **(2mks)**

……

……

……

11. Below is a structure of an element X. Use it to answer the questions that follow.



(a) Name the chemical family to which element X belongs. Give a reason. **(2mks)**

……

……

……

(b) (i) Define covalent bond. **(1mk)**

……

……

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(ii) Using dots (●) of cross (**x**) diagram, show bonding in Carbon (II) Oxide. **(1mk)**

12. (a) (i) State ***two*** allotropes of Carbon. **(1mk)**

.....

.....

(ii) Explain the differences in their densities. **(2mks)**

.....

.....

.....

(b) (i) Name the process used for large scale production of Sodium Carbonate using brine as raw material. **(1mk)**

.....

(ii) Write the overall chemical equation for the reaction in the carbonator. **(1mk)**

.....

.....

(c) Name two gases recycled in the above process **(1mk)**

.....

.....

13. Name the following compounds using the IUPAC system. **(3mks)**

(i) $CH_3\ CH_2\ CH_2\ CH_2\ C = CH$

$\qquad\qquad\qquad\qquad\qquad\qquad\quad |\qquad\quad |$

$\qquad\qquad\qquad\qquad\qquad\quad Br\qquad CH_3$

.....

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(ii) $CH_3CH_2CH_2COOCH_2CH_2CH_3$

……

(iii)

$$\begin{array}{l} \quad\quad CH_3 \\ \quad\quad\quad | \\ CH_3CHCHCHCH_3 \\ \quad\quad | \quad\quad | \\ \quad Cl \quad\quad Cl \end{array}$$

……

14. Describe how to prepare Ethane gas starting with soda lime **(3mks)**

……

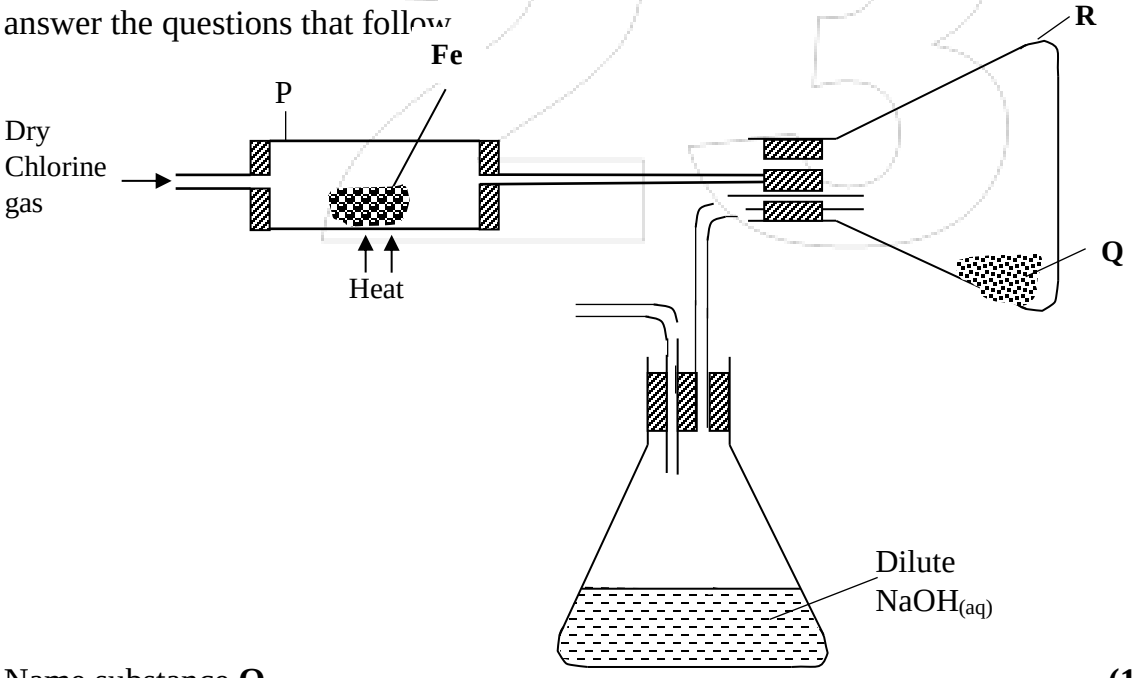
……

……

……

……

15. The diagram below shows how chlorine reacts with metals in the laboratory. Study it and answer the questions that follow



(a) Name substance **Q**. **(1mk)**

……

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(b) Give a reason why substance Q is not collected in the combustion tube P. **(1mk)**

……

……

(c) Write chemical equation for the reaction that occurs in the conical flask containing Sodium hydroxide. **(1mk)**

……

16. (a) Water sample is found to contain Mg^{2+},Cl^{-}, SO_4^{2-} , and Ca^{2+}. Identify the type of water hardness **(1mk)**

……

(b) Which type of detergent is more suitable with the water sample above. Give a reason **(2mks)**

……

……

……

(c) Permanent water hardness cannot be removed by boiling. Explain **(1mk)**

……

……

……

17. Starting with lead metal, write procedure on preparation of lead(II) nitrate crystals **(3mks)**

……

……

……

……

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18. The following chemical equations show the effects of heat on nitrates.

$2B(NO_3)_{2(s)} \longrightarrow 2BO_{(s)} + 4NO_{2(g)} + O_{2(g)}$

$2ANO_{3\,(s)} \longrightarrow 2ANO_{2(s)} + O_{2(g)}$

$2CNO_{3(s)} \longrightarrow 2C_{(s)} + 2NO_{2(s)} + O_{2(g)}$

a. Arrange elements A, B and C from the most reactive to the least reactive. **(1 1/2mks)**

……

Give one example of element A, B and C. **(1 1/2mks)**

……

……

……

19. Copper (II) sulphate crystals, a boiling tube, a test-tube, a beaker and other necessary requirements were used in an experiment to determine the type of change that occurred when the crystals were heated.

(a) Draw a labelled diagram to represent the set-up at the end of the first part of the experiment. **(3mks)**

(b) After the second part of the experiment was done, state the conclusion that was made about the type of change undergone by copper (II) sulphate crystals when heated. **(1mk)**

……

……

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20. (a). Distinguish between chromatography and a chromatogram. **(1mk)**

……

……

……

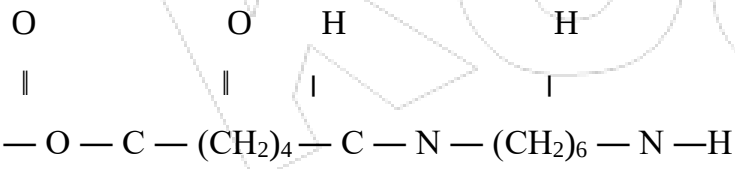
(b) State the role of chromatography in the administration of international athletics competitions.

(1mk)

……

……

21. Study the polymer shown below.



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

……

b) Identify two monomers that make up the polymer. **(2mks)**

……

……

c) Give one use of the **polymer** **(1mark)**

……

……

22. (a) State Charles law. **(1mk)**

……

……

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(b) A gas occupies 450cm^3 at 27^{0}C. What volume would the gas occupy at 177^{0}C if its pressure remains constant? **(2mks)**

……

……

……

……

23. A colourless liquid was suspected to be water. State two ways to confirm.

(i) Purity of the water. **(1mk)**

……

……

……

(ii) That the liquid was water. **(2mks)**

……

……

……

……

24. Use the following information to answer the questions that follow

$\Delta H_{lattice}$ $MgCl_2$ = +2489 kJ/ mol

$\Delta H_{hydration}$ Mg^{2+} = - 1891 kJ/ mol

$\Delta H_{hydration}$ Cl^- = -384 kJ/ mol

a) Calculate the heat of solution of magnesium chloride. **(2mks)**

……

……

……

……

……

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b) Draw an energy level diagram for the dissolving of magnesium chloride **(2mks)**

25. i) A solution of aqueous sodium hydroxide is added to a gas jar of nitrogen (IV) oxide and shaken. State and explain the observation made **(2mks)**

……

……

……

……

ii) Write the chemical equation for the reaction above **(1mk)**

……

……

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

233/2

CHEMISTRY

PAPER 2 (THEORY)

TIME: 2 HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

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) *Answer all the questions in the spaces provided in the question paper.*

(d) ***Non-programmable*** *silent electronic calculators and* ***KNEC*** *mathematical tables may be used.*

(e) *All working must be clearly shown where necessary.*

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Question	Maximum score	Candidate's score
1-27	80	

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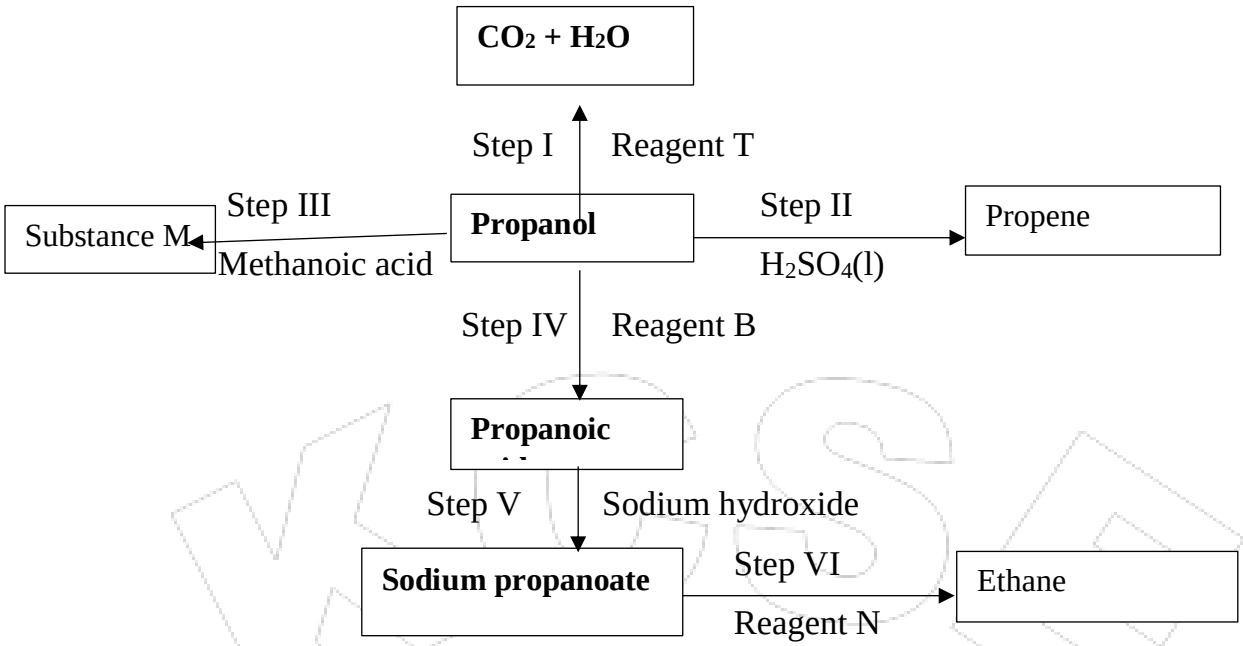
Answer all the questions in the spaces provided

1. The flow diagram below shows some reactions starting with propanol. Study it and use it to answer the questions that follow.



a. Name the process in step; **(3 marks)**

I ……

III ……...

IV ……..

b. Write an equation for the reaction in step **(2 marks)**

I ……

V ……

c. Give the name and structural formula of substance M **(2 marks)**

Name ……

Structural formula

……

……

……

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d. Name the reagent; **(2 marks)**

B ……

N ……

e. State the condition necessary for reaction in step II **(1 mark)**

……

f. The diagram below shows the structure of a detergent.



i. Identify the detergent **(1 mark)**

……

ii. A sample of water was found to contain magnesium ions. Explain why the detergent above is a suitable reagent to be used in the water. **(1 mark)**

……

……

2. a.The table below shows properties of four substances. Study it and use it to answer the questions that follow.

Substance	Melting point (^{0}C)	Electrical conductivity	
		Solid	Molten
A	– 33	Poor	Poor
B	801	Poor	Good
C	1083	Good	Good
D	1417	Poor	Poor

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i. Identify the structure in the following: **(2 marks)**

A ……

C ……

ii. Explain the conductivity in substance B **(2 marks)**

……

……

……

iii. Give a reason why substance D has a h-igh melting point. **(1 mark)**

……

……

b.Draw dot and cross diagram showing bonding in the following; **(2 marks)**

i. Ammonia gas (N=7, H=1)

ii. Sodium sulphide (Na=11, S=16)

c. Explain the following; **(3 marks)**

i. Magnesium and sulphur are in the same period of the periodic table. However, magnesium oxide is a solid while sulphur (IV) oxide is a gas at room temperature (**Mg = 12, S=16, O=8)**

……

……

……

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ii. Ethanol is molecular but it dissolves in water

……

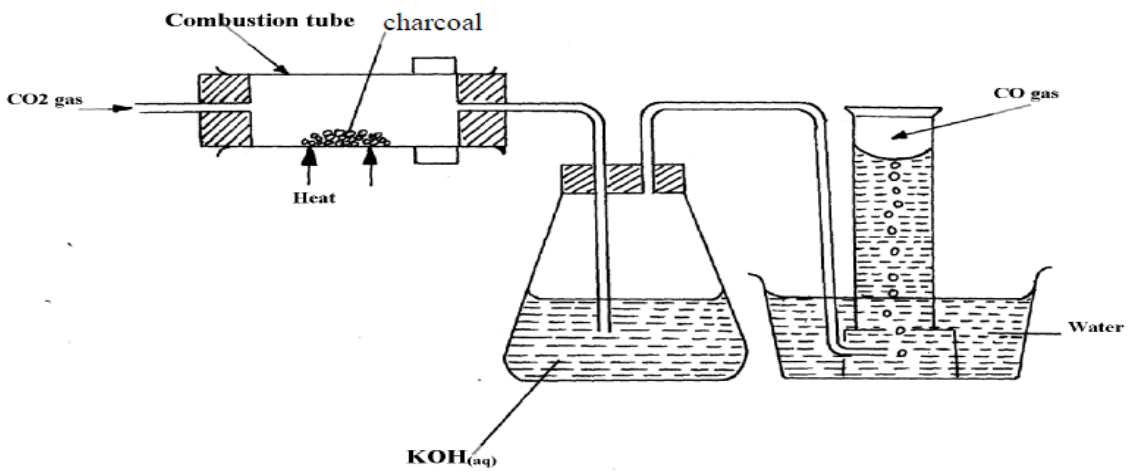
……

iii. Solid copper metal is a better electrical conductor than molten copper

……

……

3. a.The diagram below shows the set-up used to test a property of carbon in the laboratory. Study it and use it to answer the questions that follow.



i. State the role of potassium hydroxide solution **(1 mark)**

……

……

ii. Write an equation for the reaction in the combustion tube **(1 mark)**

……

……

iii. State the property of carbon being investigated. **(1 mark)**

……

……

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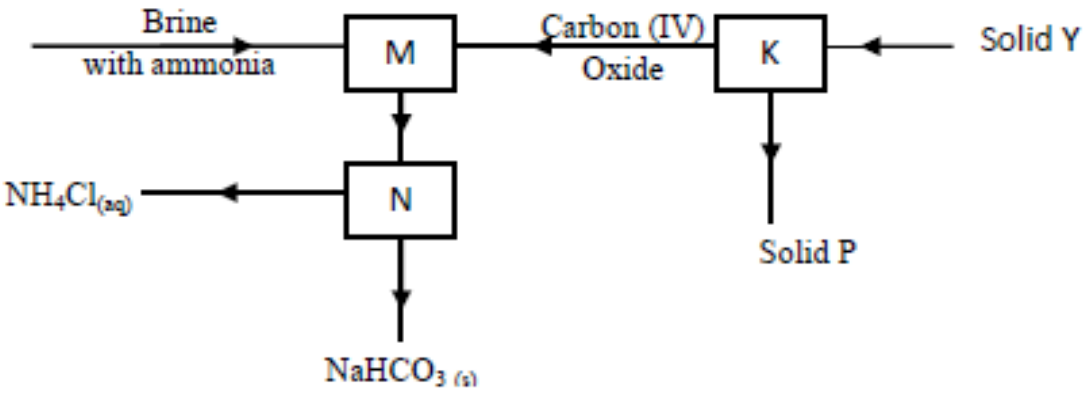
b.Sodium carbonate is prepared industrially using Solvay process. The flow diagram below shows some of the reactions in the process. Study it and use it to answer the questions that follow.



i. Identify; **(2 marks)**

Solid Y ……

Solid P ……

ii. Write an equation for the reaction taking place in chamber M **(1 mark)**

……

……

iii. Name the process taking place in chamber N. **(1 mark)**

……

iv. State two uses of sodium carbonate **(2 marks)**

……

……

……

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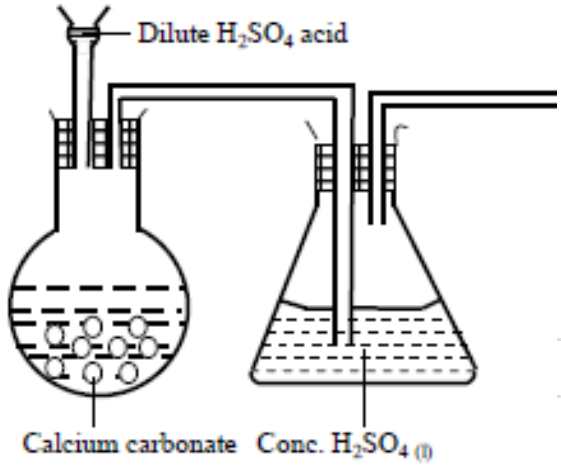
c. The set-up below was used to prepare carbon (IV) oxide gas in the laboratory. Study it and answer the questions that follow.



i. Identify the mistake in the set-up and suggest a possible correction. **(2 marks)**

……

……

……

ii. Complete the diagram showing how the gas can be collected **(1 mark)**

4. The list below shows reduction potentials of element M, N, P and Q

	E^{θ}(volts)
$M^{2+}_{(aq)}+2e \rightarrow M_{(s)}$	; -0.76
$N^{2+}_{(aq)}+2e \rightarrow N_{(s)}$	;-2.37
$P^{+}_{(aq)}+2e \rightarrow P_{(s)}$	; +0.80
$Q^{2+}_{(aq)}+2e \rightarrow Q_{(s)}$	;-0.14

a. Identify the element that is strongest reducing agent **(1 mark)**

……

b. Which elements would form an electrochemical cell with the highest e.m.f. **(1 mark)**

……

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c. The half cells of M and P were combined to form an electrochemical cell.

i. Draw the electrochemical cell formed **(3 marks)**

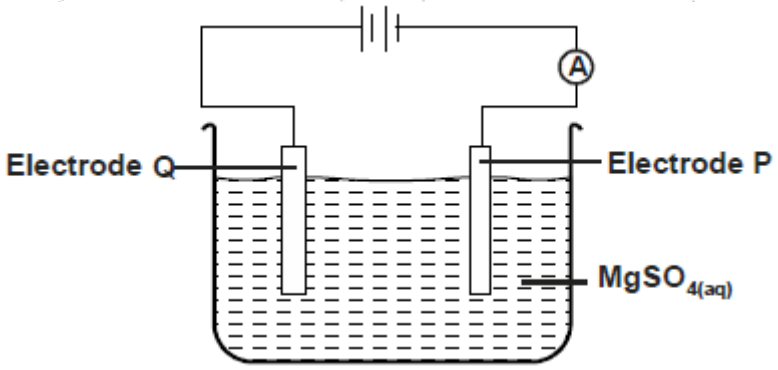
ii. Calculate the e. m. f of the cell formed **(1 mark)**

……

……

……

d. The set-up below was used during the electrolysis of a solution of Magnesium sulphate using inert electrodes.



i. State the observation made in electrode Q. Explain **(2 marks)**

……

……

……

Write an equation for the reaction in electrode P **(1mark)**

……

……

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ii. A current of 0.5 Amperes was passed through the cell for 16 minutes and 5 seconds. Calculate the volume of product at the anode at RTP (1M= 24l ,I F=96500C) **(3 marks)**

……

……

……

……

……

e. Give one application of electrolysis **(1 mark)**

……

……

5. a) Define molar heat of neutralization **(1mark)**

……

……

……

b) The table below shows temperature reached when equal volumes of an alkaline solution of 1.5M concentration was reacted with 0.95M sulphuric (VI) acid.

Total volume of Sulphuric VI acid added	0	5	10	15	20	25	30	35	40
Volume of alkaline solution	30	30	30	30	30	30	30	30	30
Highest temperature reached	23	24	25	26	27	28	28	27	26

Plot a graph of temperature against volume of acid used **(3mks)**

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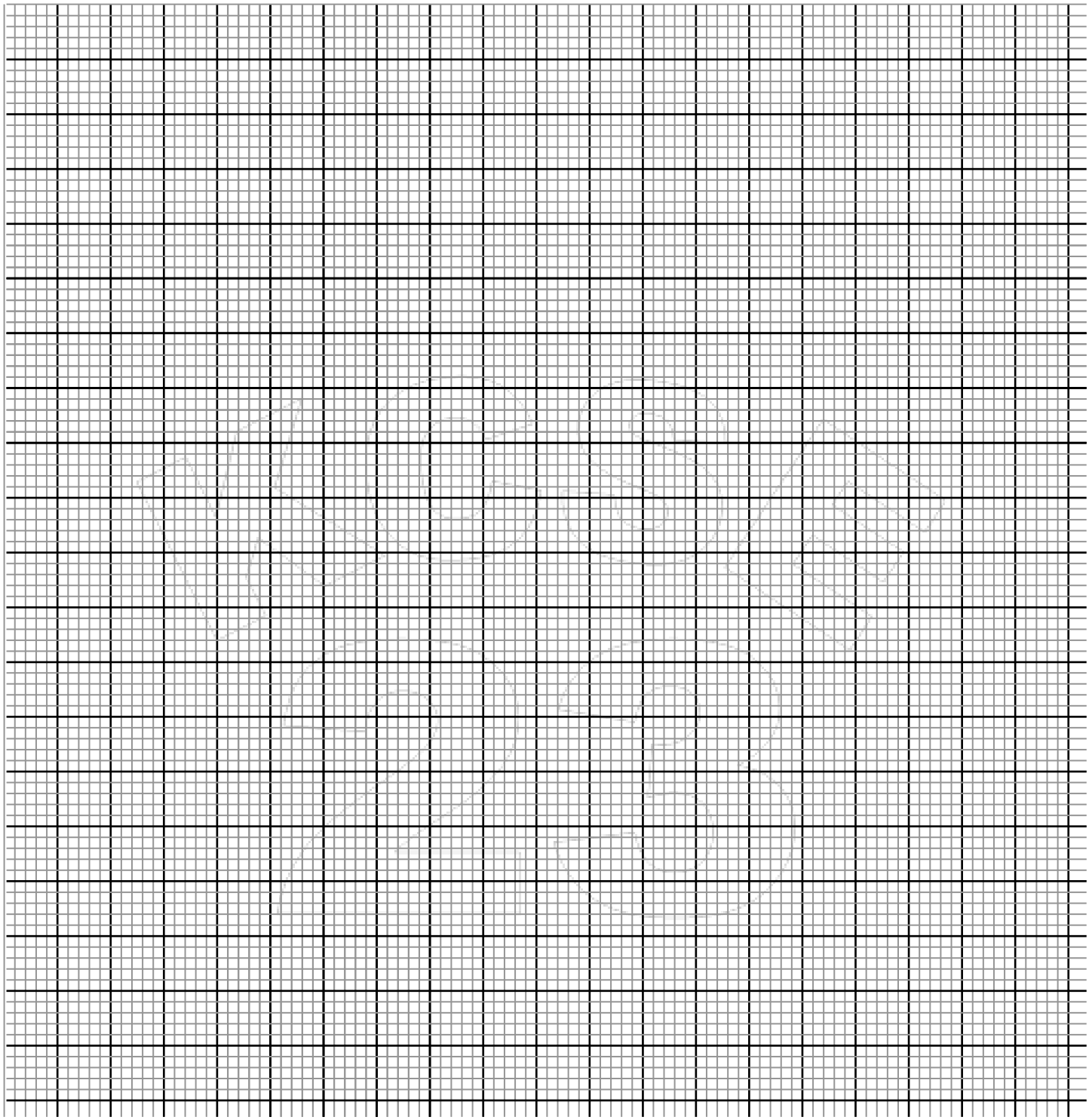

c. From the graph determine

i. the volume of sulphuric VI acid needed to completely neutralize 30cm^3 of the alkali solution

(1mk)

……

……

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the temperature change **(1mk)**

……

……

d. Calculate the heat change for the above reaction density of solution 1g/cm^3, Specific Heat Capacity 4.2g/J/K **(2mks)**

……

……

……

e. Calculate the molar heat of neutralization for the reaction **(2mks)**

……

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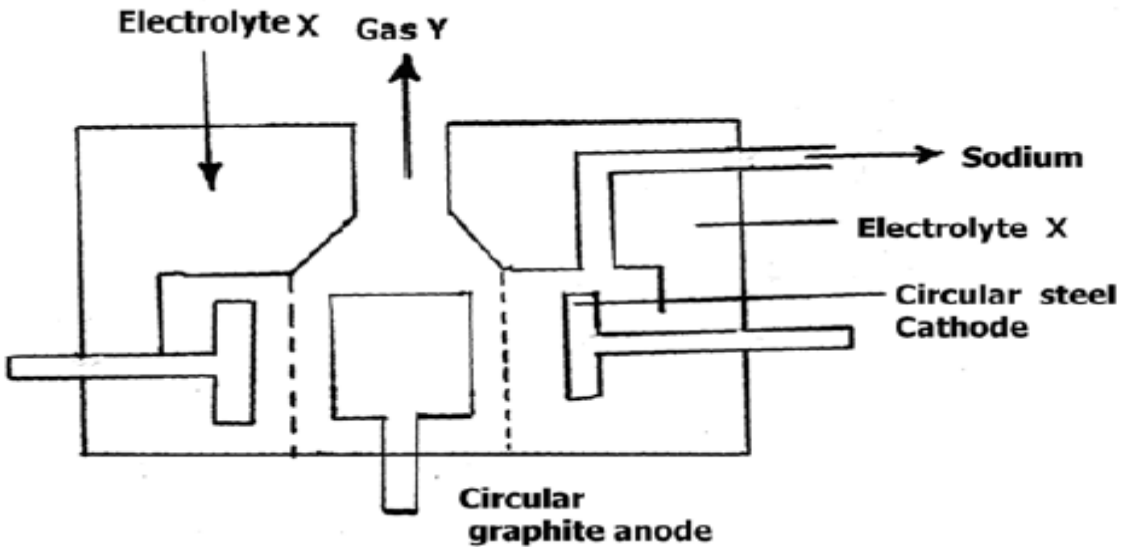
……

6. The diagram below shows the set-up used to extract sodium metal.



a. Identify; **(2 marks)**

i. Electrolyte X

……

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ii. Gas Y

……

b. During extraction of sodium using the down's process, calcium chloride is added to the ore. Give a reason for the addition of calcium chloride. **(1 mark)**

……

……

c. State two uses of sodium **(2 marks)**

……

……

d. Give a reason why sodium is extracted using electrolysis **(1 mark)**

……

……

e. Why is the anode made of graphite and not steel? **(1 mark)**

……

……

f. On the diagram, label the steel diaphragm. **(1 mark)**

g. State the role of the steel diaphragm **(1 mark)**

……

……

h. State and explain two observations made when sodium metal is placed in a trough of cold water. **(3 marks)**

……

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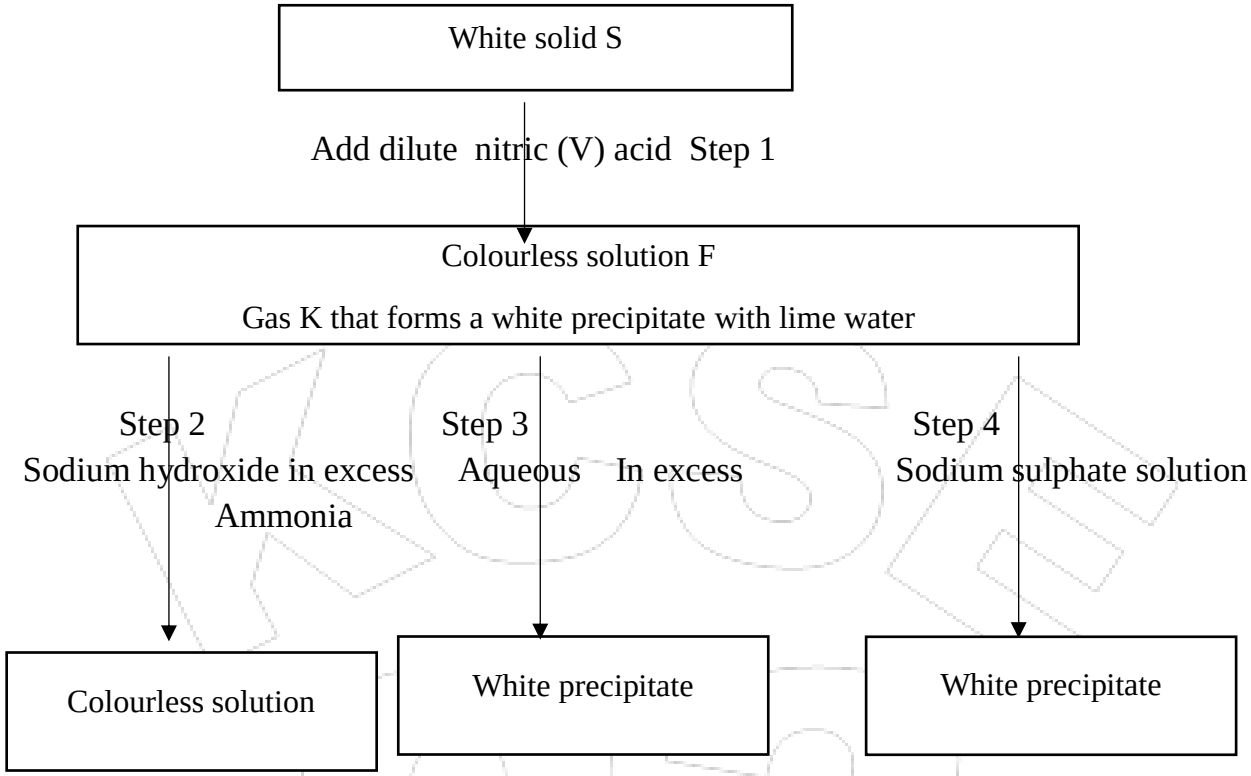
7. a. The figure below shows some properties and reactions starting with solid S. Study it and answer the questions that follow.



i. Identify; **(2 marks)**

Solid S

……

Gas K

……

ii. Write an equation for the reaction in step 1 **(1 mark)**

……

iii. State the property of solution F that makes the reaction in step 2 possible. **(1mark)**

……

……

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iv. Write an **ionic equation** for the reaction in step 2 **(1 mark)**

……

……

b. Starting with Zinc oxide, describe how a dray sample of zinc carbonate can be prepared in the laboratory **(3 marks)**

……

……

……

……

……

c. Name the process taking place when the following reactions take place **(3 marks)**

i. Calcium chloride placed on a watch glass overnight forms a solution

……

ii. Sodium hydroxide reacts with sulphuric (VI) acid to form a colourless solution

……

iii. Silver nitrate and potassium chloride react to form a white solid

……

KCSE 2023

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

233/3

CHEMISTRY

PAPER 3 (PRACTICAL)

TIME: 2¼ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

CHEMISTRY PRACTICAL

CONFIDENTIAL INSTRUCTIONS

Instructions to schools;

The information contained in this paper is to enable the head of the school and the teacher in chargeof chemistry to make adequate preparation for Chemistry practical examination. NO ONE ELSE should have access to this paper or acquire knowledge of it's content. Great care must be taken to ensure that the information herein does NOT reach the candidates either directly or indirectly. The teacher in charge of chemistry should not perform any of the experiments in the same room as the candidates nor make the results of the experiments available to the candidates or give any other information related to theexperiment to the candidates. Doing so will constitute an examination irregularity which isPUNISHABLE.

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Instructions to schools;

The information contained in this paper is to enable the head of the school and the teacher in charge of chemistry to make adequate preparation for Chemistry practical examination. NO ONE ELSE should have access to this paper or acquire knowledge of it's content. Great care must be taken to ensure that the information herein does NOT reach the candidates either directly or indirectly. The teacher in charge of chemistry should not perform any of the experiments in the same room as the candidates nor make the results of the experiments available to the candidates or give any other information related to the experiment to the candidates. Doing so will constitute an examination irregularity which is **PUNISHABLE**.

In addition to the normal laboratory fittings and apparatus, each candidates should have the following:

Requirements;

1. 250cm³ of solution W; 2.0 $HCl_{(aq)}$
2. Five 2cm long magnesium ribbons.
3. 120cm³ of solution R; 0.5M $Na_2CO_{3(aq)}$.
4. One 100ml and one 10ml measuring cylinders.
5. Three conical flasks.
6. One stop watch.
7. A piece of label
8. 500ml distilled water.
9. One burette (50ml).
10. One 25ml pipette and pipette filler.
11. One complete retort stand.
12. One white tile.
13. About 1.0g of solid K
14. Six test tubes and one boiling tube on a test-tube rack.
15. Bunsen burner and lighter.
16. Blue litmus
17. Red litmus
18. Two boiling tubes.
19. About 0.2g of $NaHCO_3$ solid.
20. About 1.0g of solid S
21. Metallic spatula

ACCESS TO

1. Methyl orange indicator.
2. 2M $NaOH_{(aq)}$
3. 0.5M $NaCl_{(aq)}$
4. 2M $NH_4OH_{(aq)}$
5. 0.5M $Ba(NO_3)_{2(aq)}$
6. 2M $HNO_{3(aq)}$
7. $MnO^-_{4(aq)}$ /$H^+_{(aq)}$
8. Bromine water.

PREPARATIONS:

1. Solid K is hydrated aluminium ammonium sulphate.
2. Solid S is maleic acid.
3. Preparation of $KM_nO_{4(aq)}$ / $H^+_{(aq)}$
   Dissolve 3.16 of solid $KMnO_{4(S)}$ in 200cm³ of $2MH_2SO_{4(aq)}$ making it up to one litre using distilled water.
4. Preparation of bromine water.
   Dissolve 1.0ml of bromine liquid in 100cm³ of distilled water.

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

233/3

CHEMISTRY

PAPER 3 (PRACTICAL)

TIME: 2¼ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

Instructions to Candidates

a) *Write your name and index number in the spaces provided.*

b) *Sign and write the date of examination in the spaces provided.*

c) *Answer **ALL** questions in the spaces provided in the question paper.*

d) *You are **NOT** allowed to start working with the apparatus for the first 15 minutes of the 2¼ hours allowed for this paper. This time is to enable you to read the question paper and make sure you have all the chemicals and apparatus you may need.*

e) *Mathematical tables and silent electronic calculators may be used.*

f) *All working must be clearly shown where necessary.*

FOR EXAMINER'S USE ONLY

Question	Maximum score	Candidate's score
1	22	
2	11	
3	07	
Total score	**40**	

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1.You are provided with :

- 2M hydrochloric acid, solution W
- 5 pieces of magnesium ribbon, each 2cm long
- 0.5M sodium carbonate, solution R

You are required to determine:

i) the rate of reaction between hydrochloric acid and magnesium

ii) the mass of 2cm of magnesium ribbon

Procedure 1

I. Using a clean measuring cylinder, measure 60cm^3 of 2M hydrochloric acid, solution W and place it into a clean conical flask. Take one piece of 2cm piece of magnesium ribbon provided and place it in the hydrochloric acid and immediately start the stopwatch.

II. Measure and record the time taken for the magnesium ribbon to react completely with hydrochloric acid in table 1 below.

Retain the contents of conical flask 1 for use in procedure II. Label this solution P

III. Repeat the procedure using 50cm^3, with 10 cm^3 of water , 40 cm^3 and 20cm3 of water ,, 30cm3 and 20cm3 of water , portions of 2M hydrochloric acid adding distilled water to make up to 60cm3 of solution and complete the table below.

NOTE: Do not retain the contents of the conical flask in experiments 2, 3, 4 and 5. Table 1

Experiment number	1	2	3	4	5
Volume of 2M hydrochloric acid(cm^3)	60	50	40	30	20
Volume of water added	0	10	20	30	40
Time taken for ribbon to disappear (s)					
1/time (sec $^{-1}$)					

(6mks)

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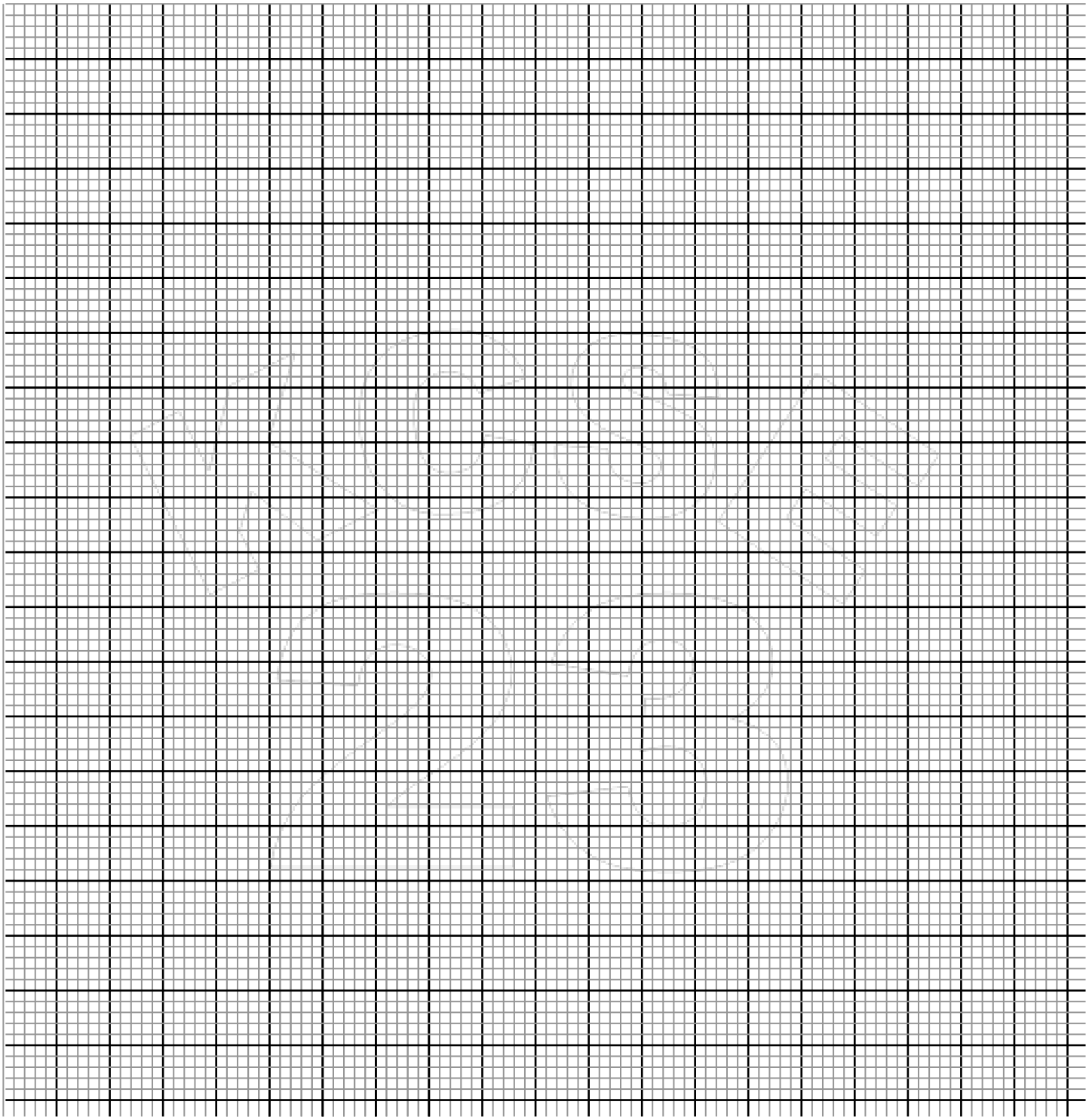
a) Plot a graph 1/time (sec^{-1}) against volume of 2M hydrochloric acid **(3mks)**



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b) From your graph, determine the time taken for the ribbon to disappear when 36cm^3 of 2M hydrochloric acid were used. **(1mks)**

……

……

c) In terms of rate of reaction, explain the shape of your graph. **(1 mks)**

……

……

……

Procedure II

a) Using a clean measuring cylinder measure 40cm^3 of distilled water and add it to the contents of the conical flask retained in procedure I labeled solution P

b) Fill a burette with solution P. Pipette 25.0cm^{3}of solution R 0.5M sodium carbonate and place it into a clean flask. Add 2-3 drops of methyl orange indicator to solution R. Titrate with solution P and record your results in table II below. Repeat the titration two more times and complete the table.

Table II

	1	2	3
Final volume(cm^3)			
Initial volume (cm^3)			
Final- initial volume (cm^3)			

(4mks)

Calculate the :

i. Average volume of solution P used. **(1 mks)**

……

……

……

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i. Number of moles of sodium carbonate solution R used. **(1 mks)**

……

……

……

ii. Number of moles of hydrochloric acid used. **(1 mks)**

……

……

……

iii. Number of moles of hydrochloric acid present in $100cm^3$ of solution P. **(1 mks)**

……

……

……

iv. Number of moles of hydrochloric acid present in $60cm^3$ of solution W. **(1 mks)**

……

……

……

v. Number of moles of hydrochloric acid that reacted with 2cm magnesium ribbon. **(1 mks)**

……

……

……

vi. Mass of magnesium present in 2cm ribbon. (Mg = 24.0) **(1 mks)**

……

……

……

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2. You are provided with solid K. Carry out the following tests below. Write your observations and inferences in the spaces provided.

a) Place about one half of solid K in a dry test tube. Heat gently then strongly. Test any gases produced with blue and red litmus papers

observation	inference
(1mk)	**(1mk)**

b) Place the remaining amount of solid K in a boiling tube. Add about 10cm3 of distilled water and shake the mixture.

observation	inference
(1mk)	**(1mk)**

c) Divide solution K above into four portions of 2cm3 each in separate test tubes. Use the portions for tests (i) to (iv) below.

i) To the first portion add sodium hydroxide solution dropwise until in excess.

observation	inference
(1mk)	**(1mk)**

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ii) To the second portion add about $1cm^3$ of sodium chloride solution

observation	inference
(1mk)	**(1mk)**

iii) To the second portion add aqueous ammonia drop wise till excess

observation	inference
(½mk)	**(½mk)**

iv) To the second portion add three drops of aqueous barium nitrate followed by five drops of nitric (v) acid .

observation	inference
(1mk)	**(1mk)**

3.You are provided with an organic substance S. Carry out the following tests and record your observations and inferences in the spaces provided.

a) Place about one third of substance S on a metallic spatula and ignite it with a bunsen burner flame.

observation	inference
(1mk)	**(1mk)**

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Place the remaining amount of substance S in a boiling tube. Add about $10cm^3$ of distilled water and shake well. Use about $2cm^3$ portions of the mixture obtained for tests (i) to (iii) below.

i) To the first portion add solid sodium hydrogen carbonate.

observation	inference
(½mk)	**(½mk)**

ii) To the second portion add two drops of acidified potassium manganite (VI) solution.

observation	inference
(1mk)	**(1mk)**

iii) To the third portion add 3 drops of bromine water

observation	inference
(1mk)	**(1mk)**

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

232/1

PHYSICS

PAPER 1 (THEORY)

TIME: 2 HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

i) *Write your name and admission number in the spaces provided above.*

ii) *Sign and write the date of examination in the spaces provided above*

iii) *This paper consists of **TWO** sections **A** and **B.***

iv) *Answer **ALL** the questions in section **A** and **B** in the spaces provided.*

v) *All working **MUST** be clearly shown.*

vi) *Non programmable silent calculators may be used.*

vii) *ALL numerical answers must be expressed in decimal notation.*

Constant: g=10N/kg or 10m/s^2

FOR OFFICIAL USE

Section	Question	Max. Score	Candidate's score
A	1-13	25	
B	14	12	
	15	14	
	16	09	
	17	08	
	18	12	
TOTAL SCORE		**80**	

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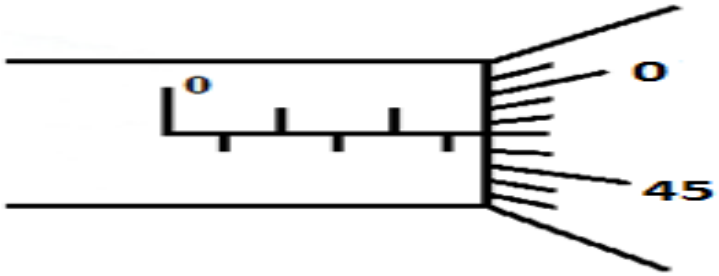
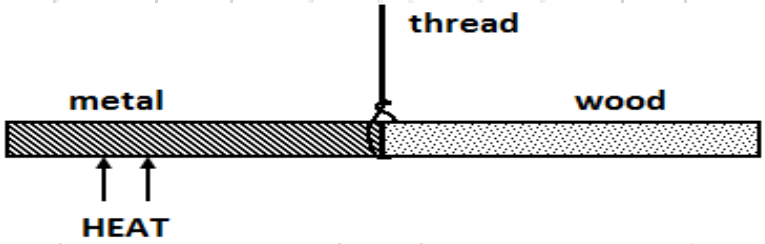
SECTION A: 25 MARKS

1. The figure below shows a part of micrometer screw gauge with a zero error of -0.04mm. Write down the exact length measured. **(2 marks)**



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



The side made of metal is now heated with a Bunsen flame. State and explain the observation that will be made after some time. **(2marks)**

3. Estimate the size of an oil molecule if a drop of oil of volume 6.0×10^{-10} m^3 forms a patch of diameter 32 cm on a water surface. **(2marks)**

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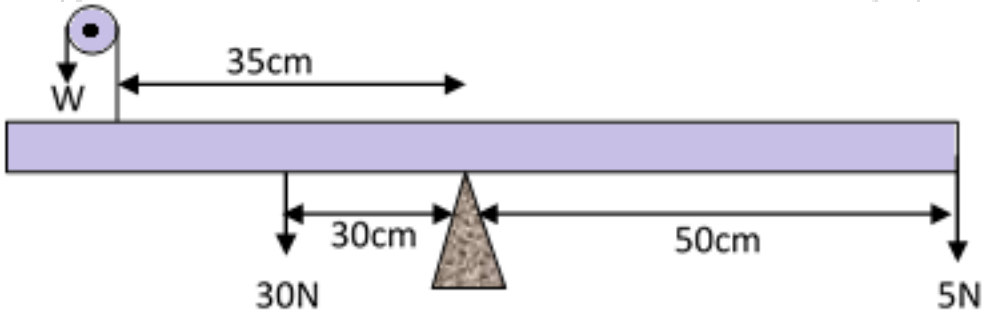
4. An immersion heater rated at 180W is placed in a liquid of mass 2kg. When the heater is switched on for 7.5 minutes the temperature of the liquid rises by 40°C. Determine the specific heat capacity of the liquid. **(3marks)**

5. Other than increase in temperature state one other way of lowering the surface tension of a liquid. **(1mark)**

6. The figure below shows a uniform bar pivoted at its centre and is at equilibrium.



Determine the value of W. **(3marks)**

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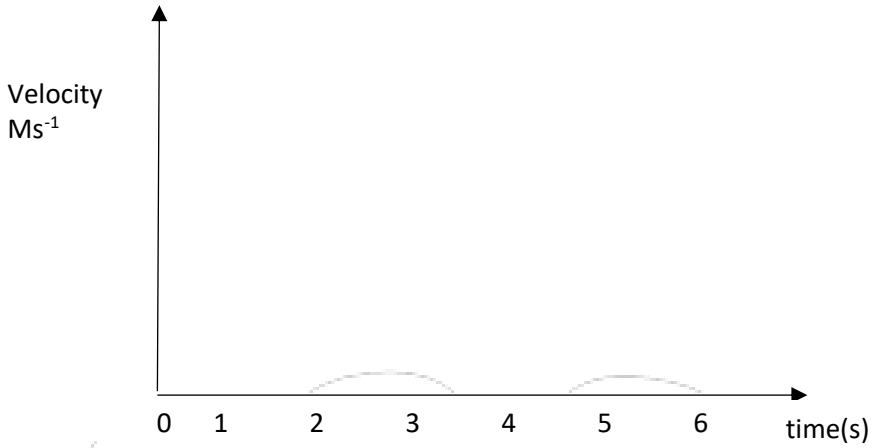
7.(i) Sketch a velocity – time graph on the axes provided for an object thrown vertically upwards with initial velocity 20 ms^{-1} and takes 2 seconds to reach maximum height. **(1 mark)**



(ii) Calculate the maximum height attained by the object in 7 (i) above **(2 marks)**

8. In an experiment to demonstrate Brownian motion, smoke was placed in a smoke cell and observed under a microscope. State and explain the observation. **(2marks)**

9. State a reason why a burn from steam at 100^0C is more severe than a burn from boiling water at the same temperature **(1 mark)**

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10. Explain why the rate of heat flow in a conductor increases with increase in cross-section area.

(1 mark)

11. A piece of paper is held in front of the mouth and air blown horizontally over the paper, it is observed that the paper get lifted up. Give reason for the observation. **(1mark)**

12. In the study of free fall, it is assumed that the gravitational force F acting on a given body of mass, m is given by F = mg. State two other forces that act on the same body. **(2marks)**

13. A girl in a school in Nakuru plans to make a barometer using a liquid of density $1.25gcm^{-3}$. If the atmospheric pressure in the school is $93750Nm^{-2}$. Determine the minimum length of the tube that she will require? **(2 marks)**

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SECTION B (55MARKS)

ANSWER ALL QUESTIONS IN THIS SECTION

14a) (i) State Archimedes' Principle. **(1mk)**

(ii) A metal block weighs 1.04N in air, 0.64N when fully immersed in water and 0.72N when fully immersed in a liquid. If the density of water is 1000 kg m^{-3}, find:

I) the density of the liquid. **(2mks)**

II) The density of the metal block. **(2mks)**

b) A crane lifts a load of 2000Kg through a vertical distance of 3.0m in 6 seconds.

Determine the;

i) Work done by the crane. **(2mks)**

ii) Power developed by the crane. **(2mks)**

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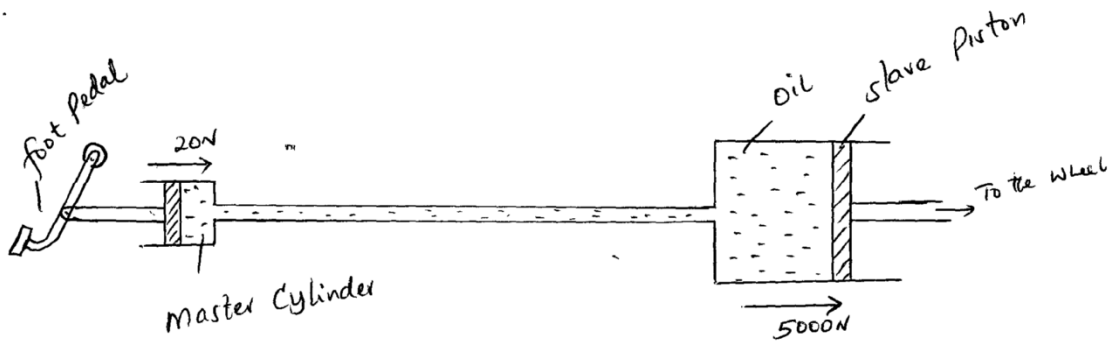
iii) Efficiency of the crane given that it is operated by an electric motor rated 12.5kW.

(2mks)

15. (A) The figure below shows a hydraulic brake system.



A force of 20 N is applied on the foot pedal connected to a master cylinder piston of area 500cm^2. This causes a stopping force of 5,000N on one wheel. Calculate.

i) Pressure on the master cylinder **(2 marks)**

ii) Area of the slave cylinder piston. **(2 marks)**

iii) Velocity ratio of the system. **(2 marks)**

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B) I) State the reason why a body in uniform circular motion is said to be accelerating. **(1 mark)**

II) A particle moving along a circular path of radius 5cm describes an arc of length 2cm every second. Determine:

(i) Its angular velocity. **(1mark)**

(ii) Its periodic time. **(2marks)**

c) A stone of mass 150g is tied to the end of a string 80cm long and whirled in a vertical circle at 2rev/s. Determine the maximum tension in the string. **(3marks)**

(d) State **one** factor affecting centripetal force **(1mark)**

16a) Define "specific heat capacity" of a substance **(1mark)**

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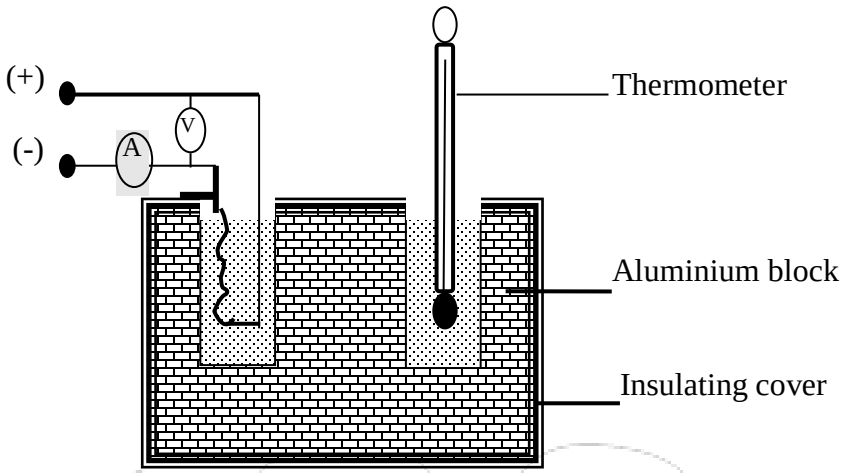
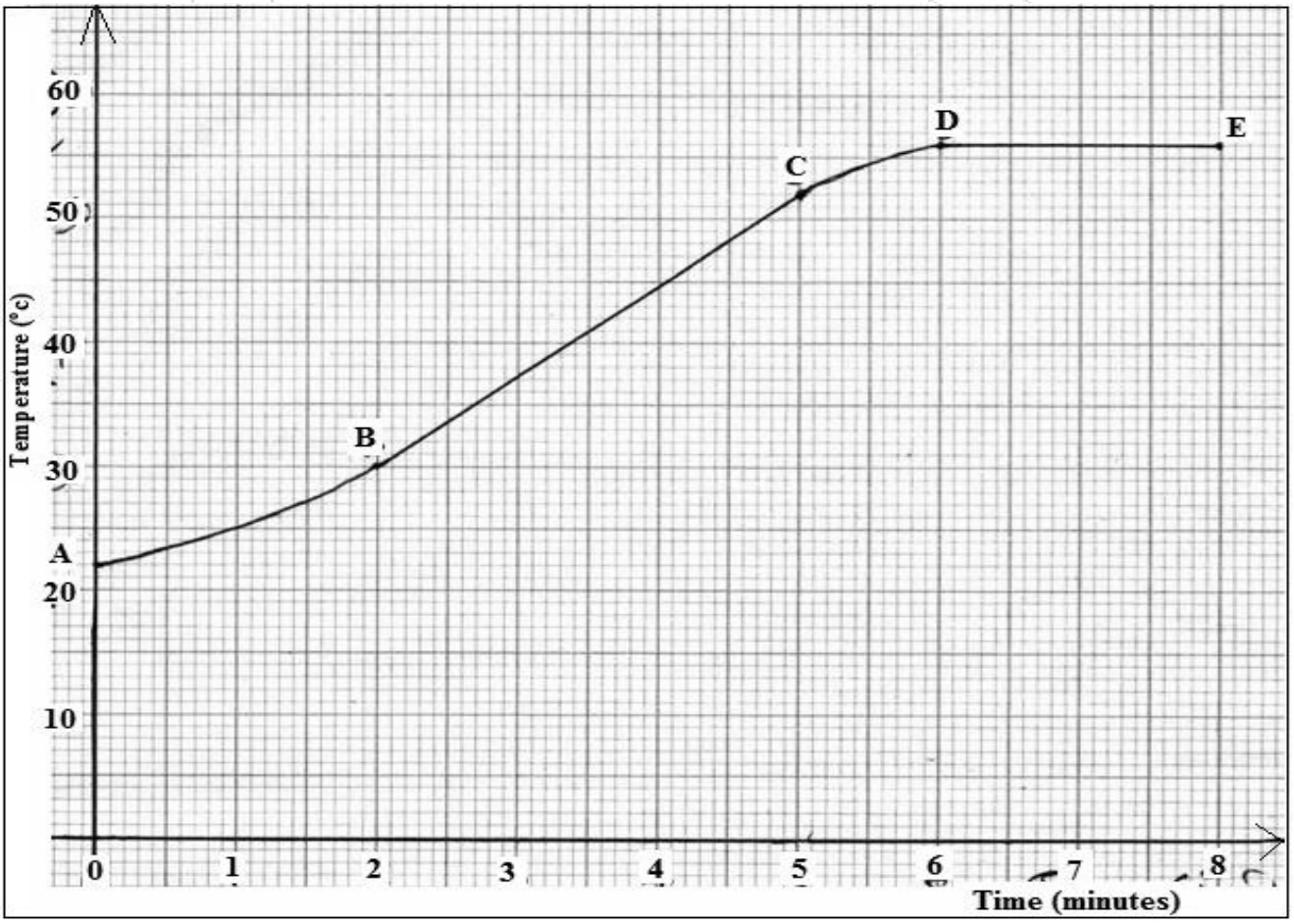
b) In an experiment, an aluminum block of mass 2kg was heated using an immersion heater as shown in figure below.



The temperature of the block was recorded every minute for exactly five minutes and then the heater was switched off. A graph of temperature in ^{o}C against time in minutes for the experiment is shown below.



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Using the graph, Suggest why;

i) The reading in the thermometer rose relatively slowly between point A and B. **(1mark)**

ii) The temperature continued to rise after the heater was switched off **(1mark)**

iii) Use the straight portion of the graph (B to C) to calculate the specific heat capacity of the aluminum given that the voltmeter reads 22.0 V and ammeter 10.0 A throughout the experiment. **(3 marks)**

c) Giving a reason explain why the value calculated in b) (iii) will not be accurate. **(1 mark)**

d) A faulty thermometer reads 40^0Cwhen dipped in pure melting ice and 240^0C when in contact with steam above pure boiling water. What would the same thermometer read when put in water at 50^0C? **(2 marks)**

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17(a) A stone is thrown horizontally with a velocity of 45m/s from the top of a vertical tower 50m high. Determine:

i.The time taken by the bullet to reach the bottom of the ground **(2 marks)**

ii. The maximum horizontal distance covered by the bullet **(2marks)**

b) i) Distinguish between elastic and inelastic collision. **(1mark)**

ii) A car of mass 800 kg collides heads on with a truck of mass 5000kg travelling at 40 m/s. The car is thrown to the bonnet of the truck which continues to move after impact at 10 m/s in the original direction. How fast was the car moving? **(3marks)**

KCSE 2023

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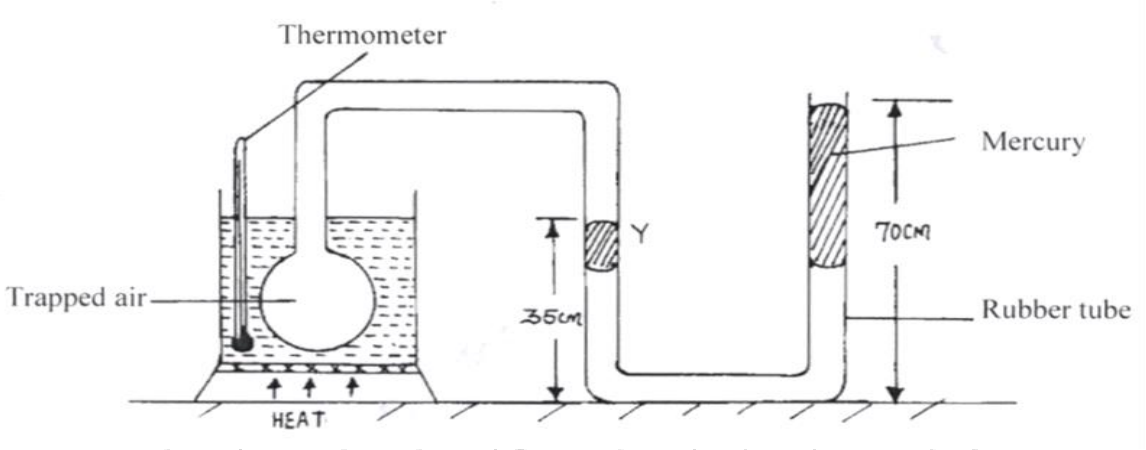
18. Figure below shows the apparatus that a student used to investigate the relationship between temperature and pressure of a fixed mass of a gas at constant volume.



a) i) Describe how the student should ensure that all air trapped has the same temperature as indicated by the thermometer. **(2 marks)**

ii) Give a reason why it is necessary to ensure that before taking any reading on pressure, the liquid level should reach the level marked Y. **(1 mark)**

KCSE 23

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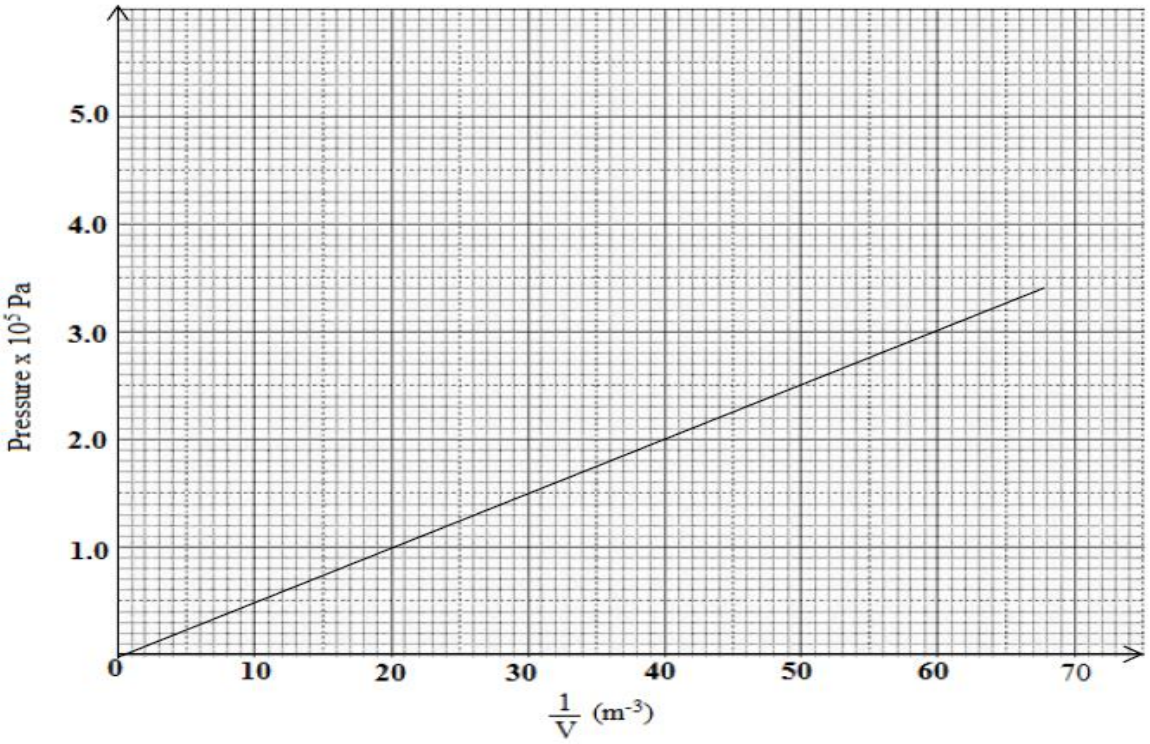
(b) The pressure P of a fixed mass of a gas at a constant temperature of T = 200K is varied continuously and values of corresponding volume recorded. A graph P against $\frac{1}{V}$ is shown on grid below.



(i) determine the volume of the gas when the pressure reads 2.8 x **10^5pa** **(2 marks)**

(ii) find the value of R given that the pressure P and volume V of the gas are related by the equation $T = \frac{PV}{2R}$, where R is a constant **(4 marks)**

(c) The pressure of the air inside a car tyre increases if the car stands out in the sun for some time on a hot day. Explain the pressure increase in terms of the kinetic theory of gases. **(2 marks)**

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(d) A gas is put into a container of fixed volume at a pressure of 3.6×10^5 Nm^{-2} and temperature 27°C. The gas is then heated to a temperature of 177°C. Determine the new pressure **(3 marks)**

KCSE 23

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

232/2

PHYSICS

PAPER 2 (THEORY)

TIME: 2 HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- *Write your name, admission number, class and date in the spaces provided at the top of the page.*
- *This paper consists of two sections A and B.*
- *Answer all the questions in the two sections in the spaces provided after each question*
- *All working must be clearly shown.*
- *Electronic calculators, mathematical tables may be used.*
- *All numerical answers should be expressed in the decimal notations.*

SECTION	QUESTION	CANDIDATE'S SCORE
A	1 – 12	
B	13	
	14	
	15	
	16	
	17	
TOTAL		

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SECTION A: (25 MARKS)

Answer all questions in the space provided

1. What is meant by virtual image? **(1mk)**

……

……

2. i) Arrange the following electromagnetic waves in order of their increasing wavelength

visible light, X-rays, Microwaves, infrared radiation. **(1 mk).**

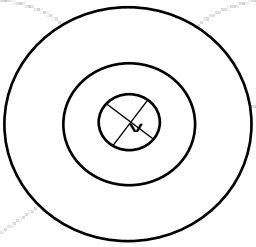
……

ii) Name one device that can be used to detect infrared radiation. **(1mk)**

……

3. Indicate the direction of the magnetic field in the conductor carrying current shown below.

(1mk)

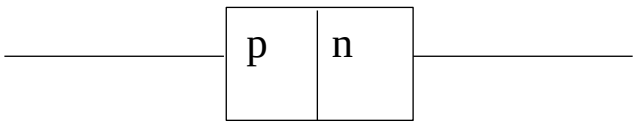


4. i) Define the term 'doping'. **(1mk)**

……

……

ii) The diagram below shows a p – n junction diode.



Complete the diagram above to show how the diode can be connected in reverse bias mode**. (1mk)**

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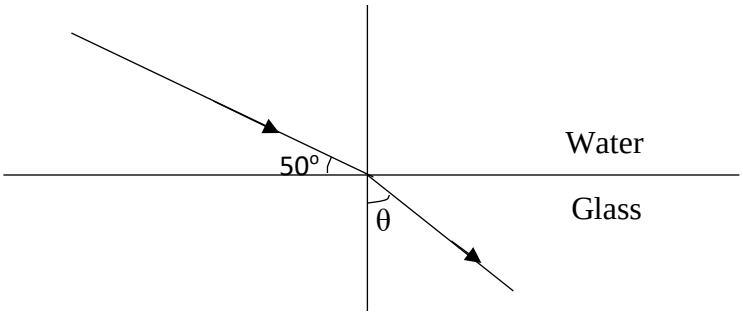
5. Given that the refractive index of glass is 3/2 and that of water is 4/3. Determine the value of angle in the figure below. **(3mks)**



……

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……

……

6. State two factors that determine how far X- rays penetrate a given material. **(2mks)**

……

……

7. i) Uranium $^{238}_{92}U$ emits an alpha particle to become another element X as shown in the equation below.

$$^{238}_{92}U \longrightarrow {}^{a}_{b}X + \text{alpha particle}$$

Determine the values of a and b. **(2mks)**

……

……

……

……

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ii) State two sources of background radiation. **(2mks)**

……

……

8. i) Explain why Nichrome wire is used as a heating element rather than copper. **(1mk)**

……

……

ii) An electric bulb is rated 240V, 100W. Calculate the amount of current through its filament. **(2mks)**

……

……

……

iii) If ten such bulbs were used in a house for lighting, determine the most suitable fuse value. **(1mk)**

……

……

9. State two conditions for the formation of a stationary wave. **(2mks)**

……

……

10. A gun is fired and an echo heard at the same place 0.6s later. How far is the barrier which reflected the sound from the gun? (Speed of sound in air = 330m/s). **(3mks)**

……

……

……

……

……

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11. State how polarization is reduced in a dry cell. **(1mk)**

……

……

12. A negatively charged rod is brought near the cap of lightly charged electroscope. The leaf divergence first reduces but as the rod comes nearer, it diverges more. State the charge of the electroscope. **(1 mk)**

……

……

SECTION B (55 MARKS).

Answer all the questions in the spaces provided

13. a) State one condition under which ohm's law is obeyed in a metal conductor. **(1mk)**

……

b) You are provided with three resistors R_1, R_2 and R_3 connected in parallel. If the p.d across them is V, show that an expression for the effective resistance of the three resistors is given by.

$\frac{1}{R_T} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}$ **(3mks)**

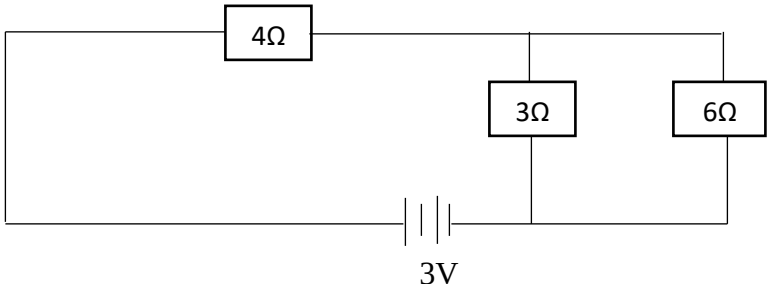
……

……

……

……

c) The diagram below shows the resistors connected in a circuit.



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Calculate:

i) The total resistance in the circuit. **(2mks)**

……

……

……

ii) Total current flowing in the circuit. **(2mks)**

……

……

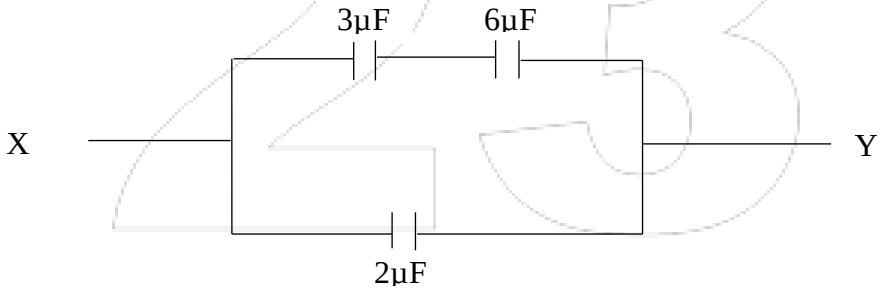
……

d. i) State one way of increasing the capacitance of a parallel plate capacitor. **(1mk)**

……

……

ii) The diagram below shows a simple network of capacitor.



If the potential difference between X and Y is 12V, calculate the total charge stored by the capacitors. **(3mks)**

……

……

……

……

……

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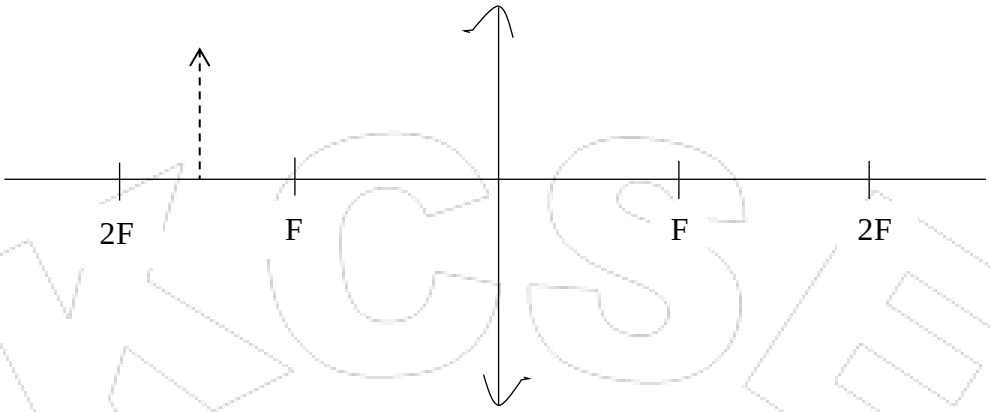
14. a) Define Principal focus of a biconcave lens

……

……

b)The diagram below shows a virtual image of an object placed in front of a biconvex lens



Draw appropriate rays to locate the objects. **(3mks)**

c). A convex lens forms a real image five times the size of the object on a screen. If the distance between the object and screen is 120cm.

Determine:

i. Image distance **(1mk)**

……

……

……

ii. Focal length. **(2mks)**

……

……

……

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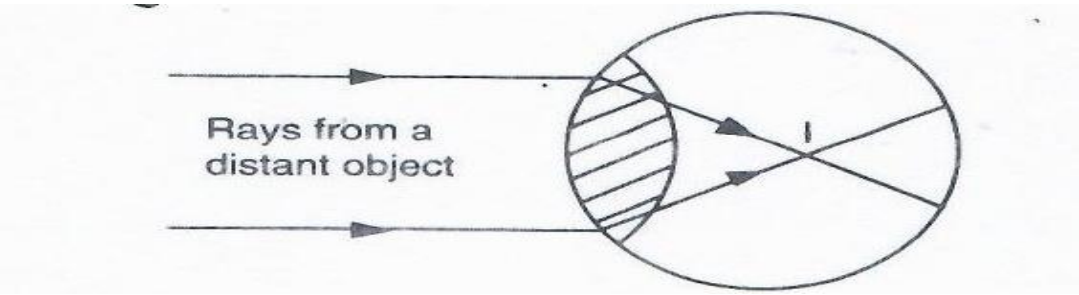
d) The diagram below shows a defect in human eye.



(i) Name the defect. **(1mk)**

……

ii) State one cause of the defect. **(1mk)**

……

iii) How can the defect be corrected? **(1mk)**

……

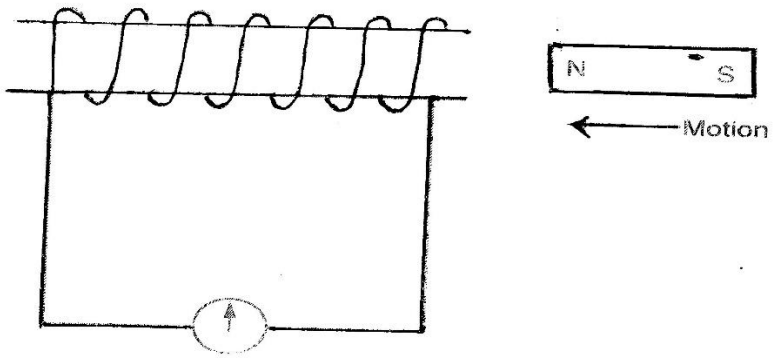
……

15. a) State Lenz's law of electromagnetic induction. **(1mk)**

……

……

b) The figure below shows a bar magnet being moved into a coil connected to a galvanometer in the direction indicated.



KCSE 2023

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State the observation made on the galvanometer when:

i. The magnet is moved into the coil at a steady speed. **(1mk)**

……

……

ii. The magnet is held stationary inside the coil. **(1mk)**

……

……

c) How is a transformer designed to minimize energy losses through flux leakage? **(1mk)**

……

……

d) The primary coil of a transformer has 2000 turns and is connected to a 240V a.c supply. The secondary coil has 400 turns.

i. State with a reason the type of the transformer. **(1mk)**

……

……

ii. Determine the voltage in the secondary coil. **(2mks)**

……

……

……

iii. If the current flowing in the primary coil is 0.5A and in the secondary coil is 2.0 A determine the efficiency of the transformer. **(2mks)**

……

……

……

……

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e) Electrical energy is transmitted at very high voltage and low current.

i. State how the high voltages are attained. **(1mk)**

……

……

ii. State two reasons why aluminum wires are preferred to copper wires for transmission over long distances. **(2mks)**

……

……

……

……

16. a) What is thermionic emission? **(1mk)**

……

……

b) Explain why a cathode ray tube is evacuated. **(1mk)**

……

……

c) Heated cathodes are coated with oxides of such metal as barium, Strontium or thorium. Explain. **(1mk)**

……

……

d) State one property of cathode rays. **(1mk)**

……

……

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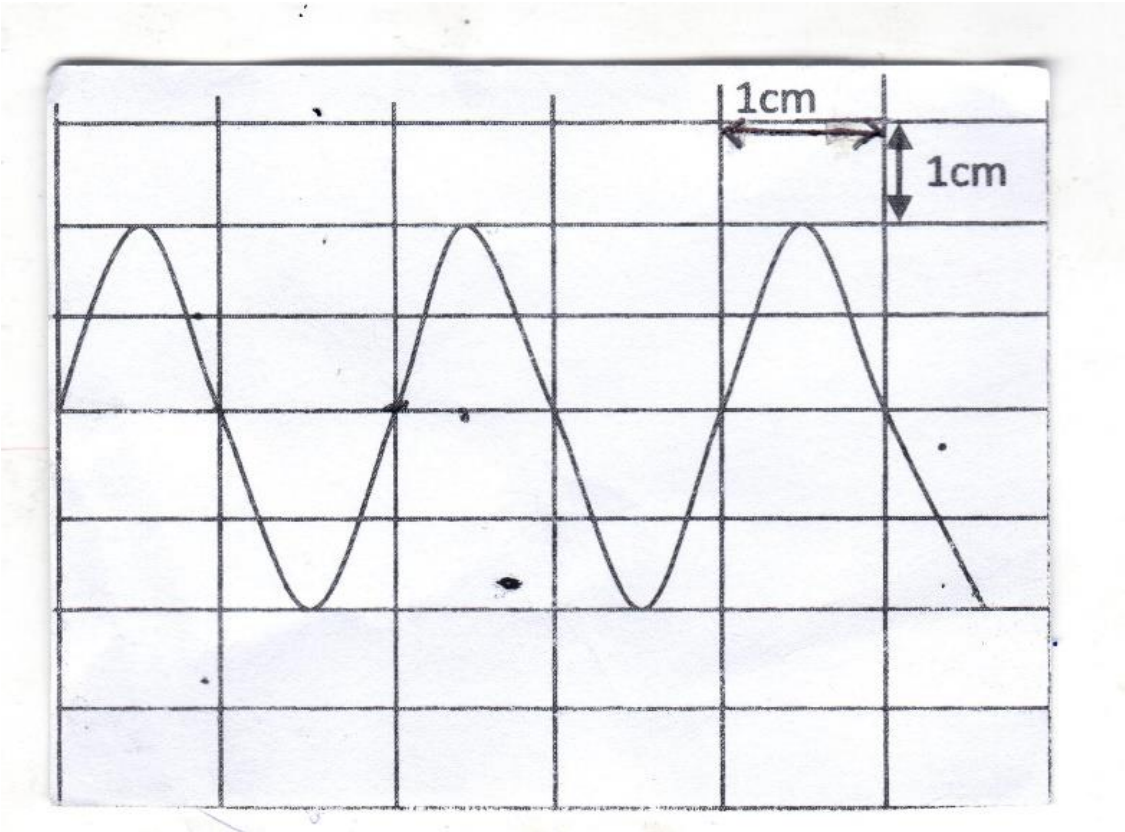
e) The figure below shows the waveform displayed on C.R.O screen when an alternating voltage is applied on the Y – input. The time – base is at 1ms/cm and the Y- gain at 10v/cm.



Calculate :

i. The pick voltage of the input signal. **(2mks)**

……

……

……

……

……

ii. The frequency of the a.c signal. **(2mks)**

……

……

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……

……

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f) In a certain X- ray tube, the electrons are accelerated by p.d of 12kv. Assuming that all the energy goes to produce X-rays, determine the frequency of the X rays produced.
(take planck's constant h = 6.62 x10 $^{-34}$ Js, and the charge of an electron e = 1.6 x 10 $^{-19}$ C) **(3mks)**

……

……

……

……

17. a) It is observed that when ultra – violet radiation is directed onto a clean Zinc plate connected to the cap of a negatively charged leaf electroscope, the leaf falls.

i. Explain this observation. **(1mk)**

……

……

ii. Explain why the leaf of the electroscope does not fall when infrared radiation is directed onto the zinc plate. **(1mk)**

……

……

b) State the effect on the electrons emitted by the photoelectric effect when the intensity of incident radiation is increased. **(1mk)**

……

……

c) The maximum wavelength required to cause photoelectric emission on a metal surface is 8.0 x 10 $^{-7}$ m. The metal surface is irradiated with light of frequency 8.5 x 10 ^{14} Hz.
(Take lev = 1.6 x 10 $^{-19}$ J , c = 3.0 x 10 ^{8} m/s , h= 6.63 x 10 $^{-34}$ Js)
Determine:

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i). The threshold frequency. **(2mks)**

……

……

……

……

ii) .The work function of the metals in electron volts. **(2mks)**

……

……

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……

iii) . The maximum Kinetic energy of the electrons. **(3mks)**

……

……

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……

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

232/3

PHYSICS

PAPER 3 (PRACTICAL)

TIME: 2½ HOURS

SIGN: ……

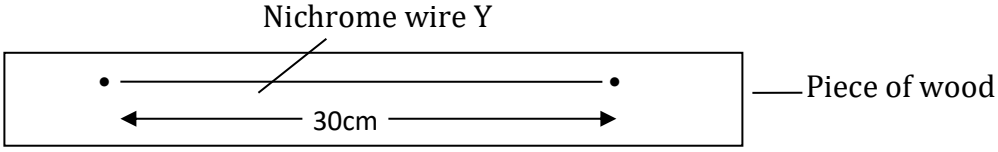
Kenya Certificate of Secondary Education.

PHYSICS CONFIDENTIAL

QUESTION 1

Each candidate will require

- Centre zero galvanometer
- One new size D dry cell & cell holder
- A switch
- Eight connecting wires each with crocodile clip at one end.
- A piece of nichrome wire swg 28 (diameter 0.32 mm) of length 30cm. Teacher to mount the piece of wire on piece of wood and label it Y see



- A resistance (nichrome wire gauge 30) wire labeled AB 100cm long mounted on a millimeter scale

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- Six 10 Ohms carbon resistors.
- A jockey (a crocodile clip may be used)
- A micrometer screw gauge

QUESTION 2

Each candidate will require:

- A spiral spring of **spring constant of approximately 10.0N/m.**
- A complete stand
- A metre rule.
- Lens (**focal length = 10cm**) and a lens holder.
- A candle
- Screen
- Three masses (one 100g and two 50g masses)
- A stop watch

KCSE 23

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

232/3

PHYSICS

PAPER 3 (PRACTICAL)

TIME: 2½ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

(a) *Write your name and admission number in the spaces provided.*

(b) *Answer **ALL** questions in the spaces provided in the question paper.*

(c) *You are supposed to spend the first **15 minutes** of the* $2\frac{1}{2}$ *hours allowed for this paper reading the whole paper carefully before commencing the work.*

(d) *Marks are given for a clear record of the observations actually made, their suitability, accuracy and the use made of them.*

(e) *Candidates are advised to record their observation as soon as they are made.*

(f) *Non programmable silent electronic calculators may be used.*

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Question 1

	d	e	f	g	h	i	j
Maximum Score	6	5	2	2	2	1	2
Candidate's Score							

TOTAL ☐

Question 2

	b	c	d	e	f	h	i	j
Maximum Score	1	5	5	2	1	3	2	1
Candidate's Score								

TOTAL ☐

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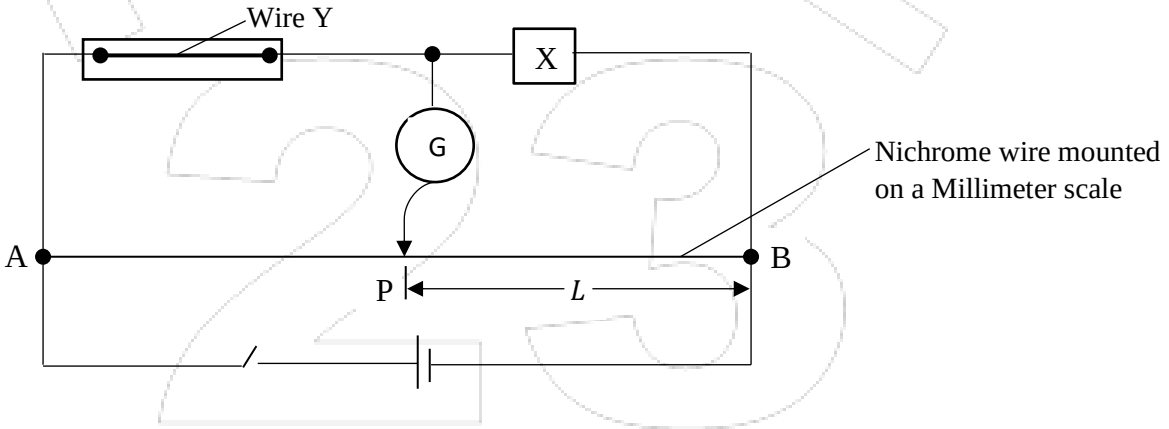
QUESTION 1 (20 marks)

1. You are provided with the following;

- A galvanometer
- A dry cell and a cell holder
- A switch
- A wire labelled Y mounted on a piece of wood.
- Eight connecting wires each with a crocodile clip at one end.
- A resistance wire labelled AB mounted on a millimeter scale.
- Six 10 Ohm carbon resistors
- A jockey or crocodile clip
- Micrometer screw gauge (to be shared)

Proceed as follows:

(a) Set up the circuit as shown in figure below, with X being one of the 10 ohms carbon resistors.



(b) Close the switch. Tap the jockey at various points on the wire AB and locate point P at which the galvanometer shows zero deflection, measure and record in table below the length, l where l= PB.

(c) Repeat the procedure in (b) using X as two 10Ω resistors, three resistors, four resistors, five resistors and six resistors. **X is the effective resistance for the parallel combination**

i.e. $\mathbf{X = \frac{10}{n}}$ where **n** is the number of resistors in parallel.

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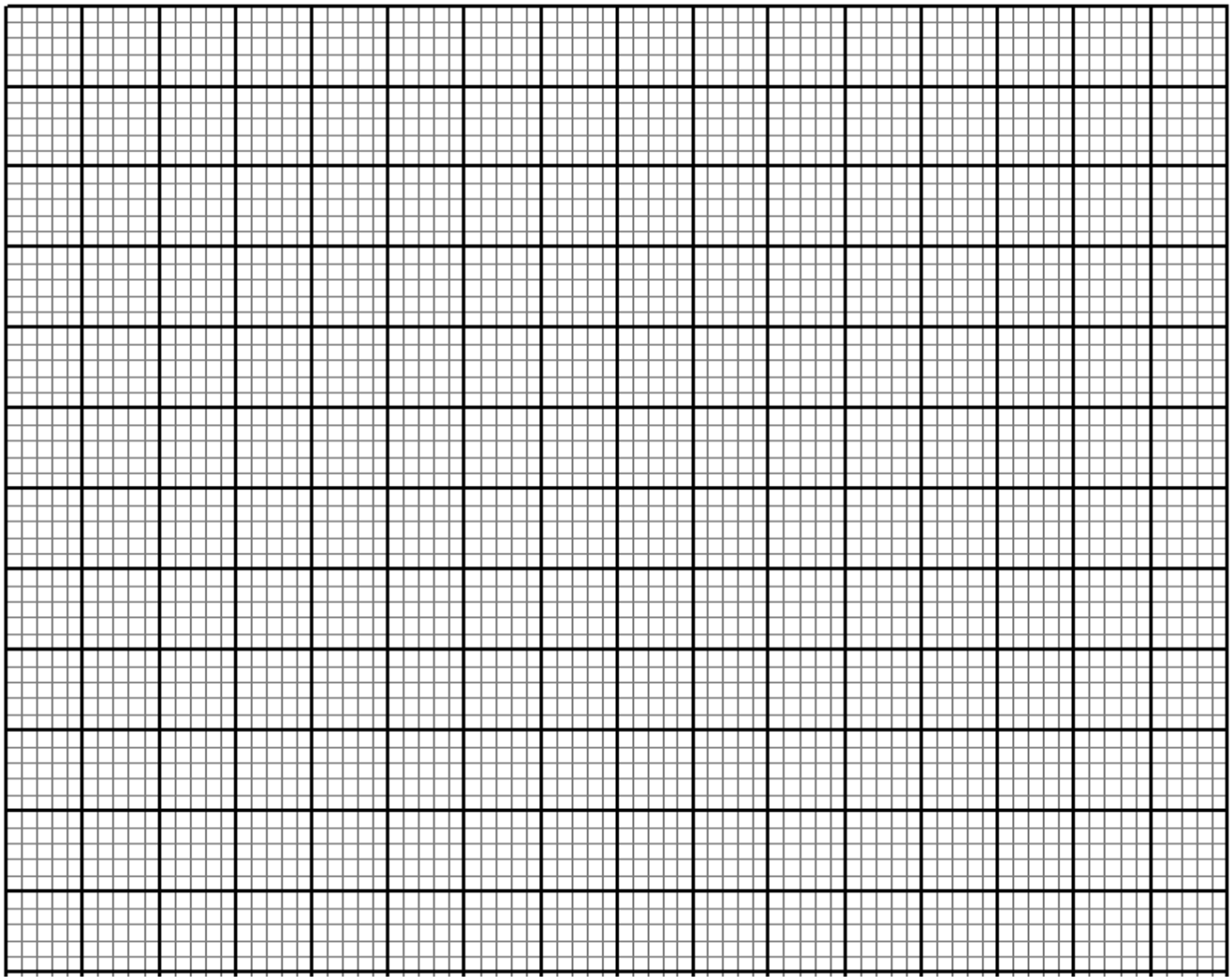
(d) Record your readings in table below. **(6mks)**

TABLE

Number of **10Ω** Carbon resistor	**One**	**Two**	**Three**	**Four**	**Five**	**Six**
X (Ω)						
L (cm)						
$\frac{1}{X}$ (Ω^{-1})						
$\frac{1}{L}$ (cm^{-1})						

(e) Plot a graph of $\frac{1}{L}$ (y-axis) against $\frac{1}{X}$. **(5mks)**



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(f) Determine the slope m of the graph. **(2mks)**

(g) Given that $\frac{1}{L} = \frac{R}{KX} + \frac{1}{K}$ where K = 100cm. Use the graph to determine R. **(2mks)**

(h) Measure the diameter d and the length l of wire Y. **(2mks)**

l =…..……..……..….m

d = …….…….. m

(i) Determine its cross-sectional area A of the wire Y. **(1mk)**

A =…… m^2

(j) Determine the resistivity ρ of the wire Y given that its Resistance, $R = \rho \frac{l}{A}$. **(2mks)**

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QUESTION 2 (20 marks)

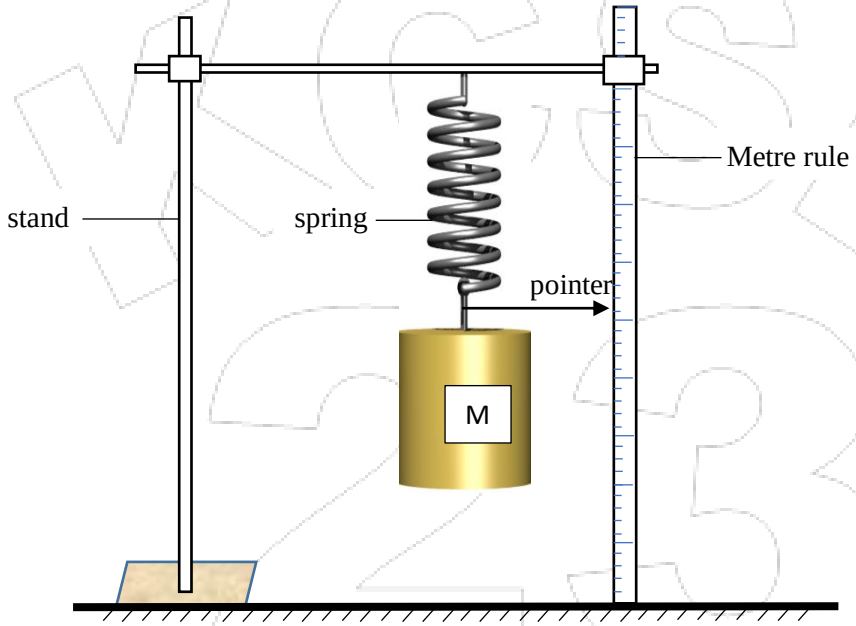
PART A

You are provided with the following;

- Meter rule
- Retort stand, clamp and boss
- A spring and with a pointer
- Three masses (a 100 g and two 50g masses)
- Stop watch

Proceed as follows

a) Set the apparatus as shown below.



b) Hang the unloaded spring and record the pointer readings

x_o.....**m.** **(1mk)**

c) (i) Load a mass of 150 g and determine the extension of the spring, e_1.

e_1.....m. **(1mk)**

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(ii) Displace the 150 g mass slightly downwards and release it to oscillate vertically. Time 20 oscillations and obtain time t_1.

t_1 …….. **(1mk)**

(iii) Find periodic time T_1

T_1……. **(1mk)**

(iv) Use the equation $\mathbf{T = 2\pi\sqrt{\frac{e}{p}}}$ to find the value of P_1**.** **(2mks)**

d) (i) Load a mass of 200 g and determine the extension of the spring, e_2.

e_2……m. **(1mk)**

(ii) Displace the 200 g mass slightly downwards and release it to oscillate vertically. Time 20 oscillations and obtain time t_2.

t_2 …….. **(1mk)**

(iii) Find periodic time T_1

T_2……. **(1mk)**

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(iv) Use the equation $\mathbf{T = 2\pi\sqrt{\frac{e}{p}}}$ to find the value of P_2. **(2mks)**

e) Find the average of P

$\mathbf{P_{av} = \frac{P2+p1}{2}}$ **(2mks)**

PART B

Apparatus

- Lens and a lens holder.
- A candle
- Screen
- A metre rule.

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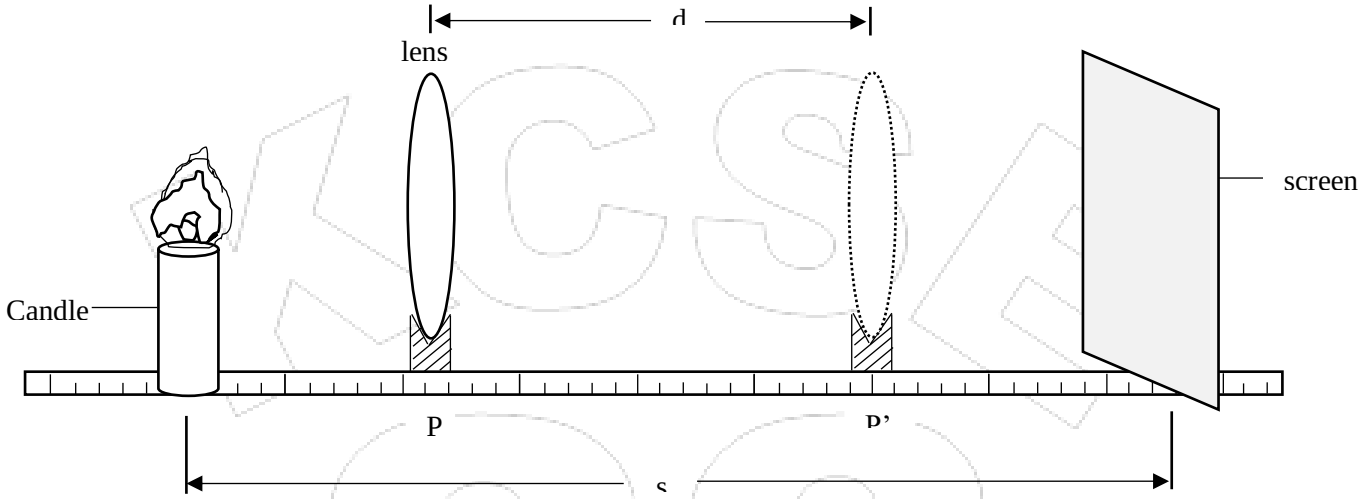
Procedure

f) Focus a distant object and estimate the focal length, **f** of the lens

f ……. mm. **(1mk)**

g) Set up the apparatus as shown below.



h) Set the distance **s= 60 cm.**

i) Adjust the position of the lens to position **p** where a magnified sharp image is formed on the screen**.** Record position P.

P =……. cm. **(1mk)**

ii) Maintaining distance **s,** adjust the lens to position **P'** where a diminished sharp image is formed on the screen. Record position, **P'.**

P' = …… cm. **(1mk)**

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iii) Find distance **d,** between the original position and final position of lens

d = …….. cm **(1mk)**

i) Using the formula $s^2 - d^2 = 4qs$. Find the value of **q.** **(2mks)**

j) What physical quantity do **q** represent **(1mk)**

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

121/1

MATHEMATICS

PAPER 1

TIME: 2½ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

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) *This paper consists of **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 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 (50 MARKS)

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

1. (a) Evaluate 94344 – 36425 ÷ 5 [**1*mark***]

(b) Write the total value of the digit in the thousands place of the result obtained in (a) above [**1*mark***]

2. In a game park $\frac{1}{5}$ of the animals are rhinos and ¾ of them are zebras. $\frac{2}{3}$ of the remaining animals are lions and the rest are warthogs. Find the fraction of warthogs in the game park. [**3*marks***]

3. The volume of a cube is $2744cm^3$. Calculate the length of the diagonal of a face of the cube giving your answer in surd form. [**3*marks***]

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4. Without using mathematical tables or a calculator, evaluate

$27^{\frac{2}{3}} \times \left(\frac{81}{16}\right)^{-\frac{3}{4}}$ [**3*marks***]

5. Using ruler and a pair of compasses only, construct triangle ABC in which AB = 6cm and angle ABC = 105^0 and angle BAC = 45^0. Measure length of BC. [**3*marks***]

6. An empty specimen bottle has a capacity of $300ml$ and a mass of $280g$. Calculate the mass of the bottle when it is full of a liquid whose density is $1.2g/cm^3$. [**3*marks***]

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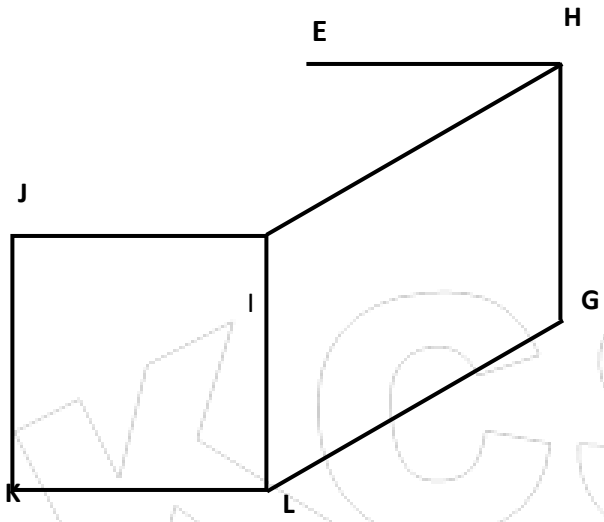
7. The figure below shows a sketch of a solid cuboid EFGHIJKL. Complete the sketch. [$2marks$]



8. Find the rate per annum at which a certain amount doubles after being invested for a period of 5 years compounded semi-annually [$3marks$]

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9. The sum of the interior angles of a regular polygon is 40 times the size of the exterior angle.

(a) Find the number of sides of the polygon. [**3*marks***]

(b) Name the polygon [**1*mark***]

10. The data below shows the number of pupils in Nairutia Primary School

42	43	48	40	46	42	44	48	39	40	42
41	47	46	45	49	45	42	40	38	39	40
46	47	42	40	41	43	44	45	46	48	

(a) Using a class size of 2 organize the data in a grouped frequency table. [**2*marks***]

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(b) Determine the mean of the data. [**2*marks***]

11. Given that q = 5t – 3f where t = $\begin{pmatrix}-2\\-3\end{pmatrix}$ and f = $\begin{pmatrix}1\\-2\end{pmatrix}$ find:

(a) the column vector q [**2*marks***]

(b) Given that T^{I} (3,2) is the image of T (0,-2) under a translation, find the translation. [**1*mark***]

12. Given that a = -5 b = 3 and c = $-\frac{1}{3}$, evaluate: $\frac{5a^2-2b-4c}{\frac{1}{3}(b^2+2a)}$ [**3*marks***]

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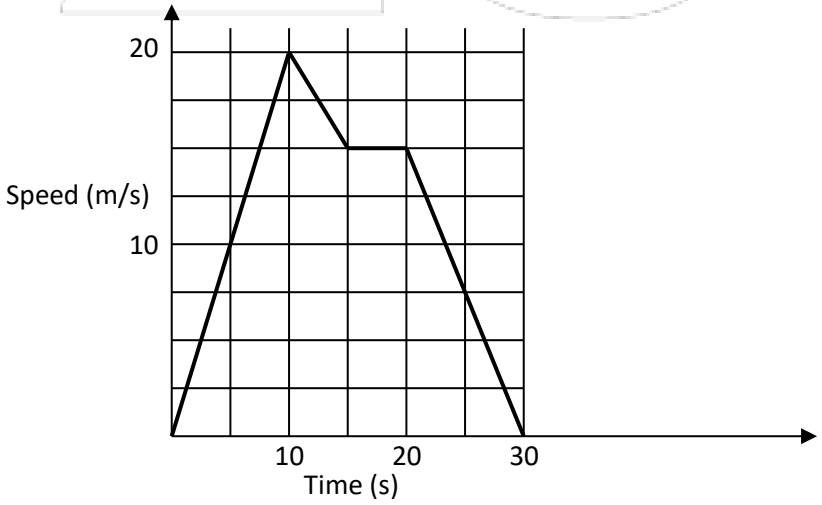
13. Find the value of x in the equation $\cos(3x - 180^o) = \frac{\sqrt{3}}{2}$ in the range listed below.

$0^o \leq x \leq 180^o$ [**3marks**]

14. Simplify the expression

$$\frac{4t^2 - 25a^2}{6t^2 + 9at - 15a^2}$$ [**3marks**]

15. The figure below represents the speed-time graph of a tuktuk. Use it to answer the questions (a) and (b)



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(a) Calculate the acceleration of the tuktuk. [**2*marks***]

(b) Find the total distance travelled for the whole journey [**2*marks***]

16. A farmer has a piece of land measuring 840m by 396m. He divides it into square plots of equal size. Find the maximum area of one plot. [**3*marks***]

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SECTION (50 MARKS)

Answer any five questions in this section in the spaces provided.

17. In the year 2001 the price of a sofa set in a shop was KSh. 12,000

(a) Calculate the amount received from the sales of 240 sofa sets that year. [**2*marks***]

(b) In the year 2002 the price of each sofa set increased by 25% while the number of sets sold decreased by 10%.

(i) Calculate the percentage increase in the amount received from the sales [**3*marks***]

(ii) If at the end of the year 2002, the price of each sofa set changed in the ratio 16:15. Calculate the price of each sofa set in the year 2003. [**2*marks***]

c) The number of sofa sets sold in the year 2003 was p% less than the number sold in the year 2002. Calculate the value of P given that the amount received from the sales in the year were equal [**3*marks***]

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18. A line L passes through points (-2,3) and (-1,6) and is perpendicular to a line P at (-1,6)

(a) Find the equation of L. [**2*marks***]

(b) Find the equation P in the form ax + by = c where a, b and c are constants. [**2*marks***]

(c) Given that another line Q is parallel to L and passes through point (1,2), find the x and y - intercepts of Q. [**3*marks***]

(d) Find the point of intersection of lines P and Q. [**3*marks***]

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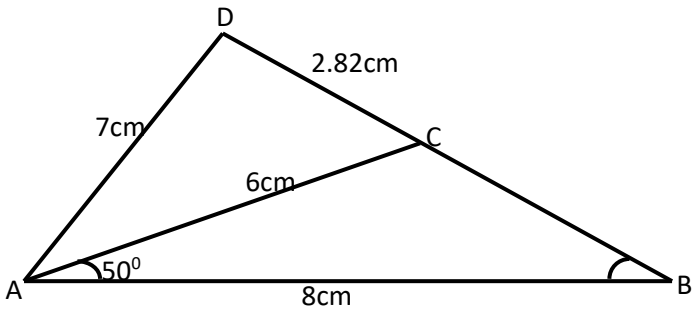
19. In the figure below (not drawn to scale) AB = 8cm, AC = 6cm, AD = 7cm, CD = 2.82cm and angle CAB = 50^0.



Calculate to 2 decimal places

(a) the length BC [$\boldsymbol{3marks}$]

(b) the size of angle ABC [$\boldsymbol{2marks}$]

(c) the size of angle CAD [$\boldsymbol{3marks}$]

(d) the area of triangle ACD [$\boldsymbol{2marks}$]

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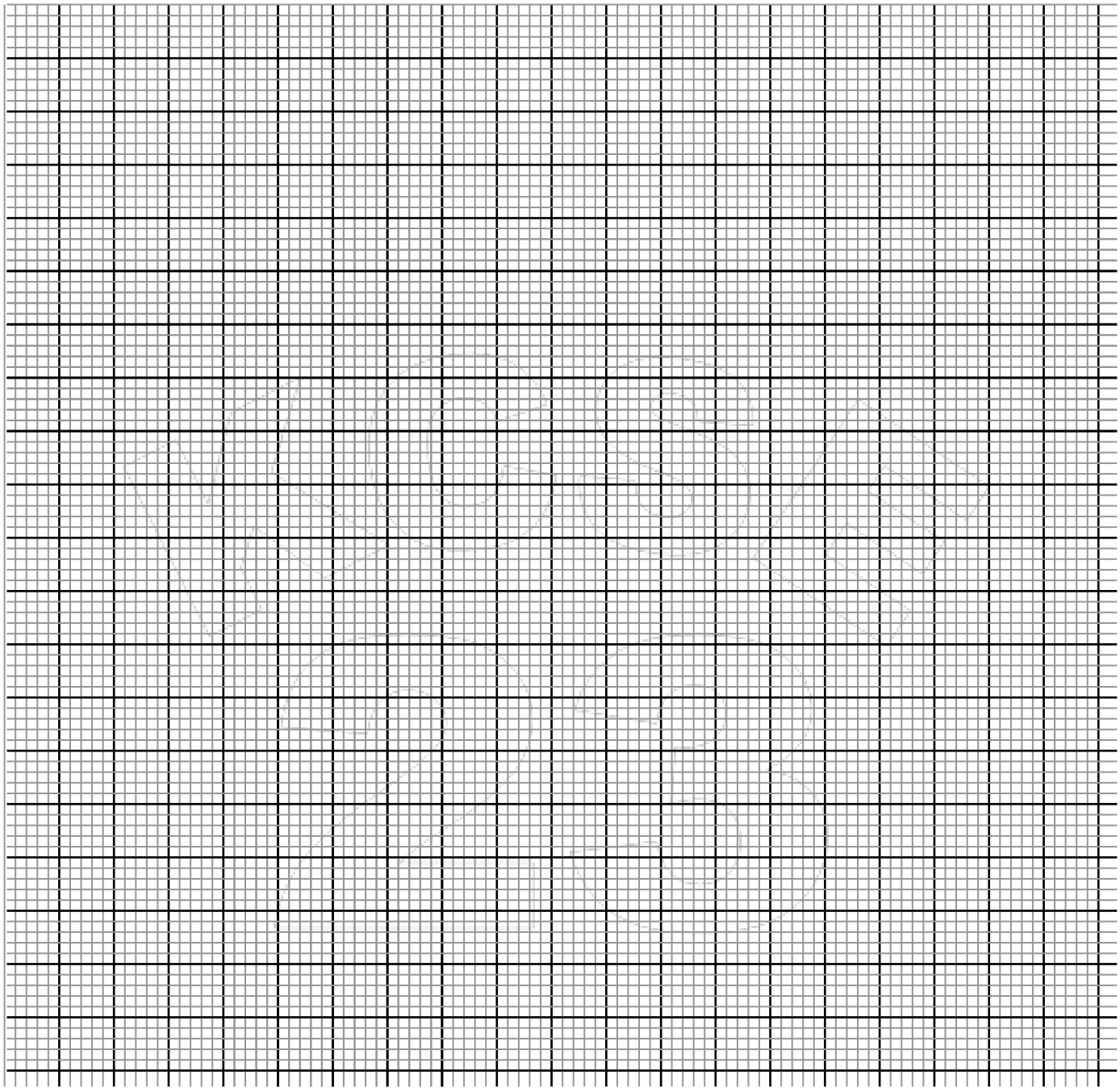
20. The coordinates of a triangle ABC are A(1, 1) B(3, 1) and C (1, 3).

(a) Plot the triangle ABC. [**1** $\boldsymbol{mark}$]



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(b) Triangle ABC undergoes a translation vector $\begin{pmatrix} 2 \\ 2 \end{pmatrix}$. Obtain the image of A' B' C ' under the transformation, write the coordinates of A' B' C'. [**2 *marks***]

(c)A' B' C' undergoes a reflection along the line X = 0, obtain the coordinates and plot on the graph points A" B" C", under the transformation. [**2 *marks***]

(d) The triangle A" B" C" , undergoes an enlargement scale factor -1, centre origin. Obtain the coordinates of the image A"' B"' C"'. [**2 *marks***]

(e) The triangle A"' B"' C"' undergoes a rotation centre (1, -2) angle 120^0. Obtain the coordinates of the image A^{iv} B^{iv} C^{iv}. [**2 *marks***]

(f) Which triangles are directly congruent. [**1 *mark***]

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21. Three warships $P, Q \text{ and } R$ leave port X at 9:00am, ship P sails at a steady speed on a bearing of 070º, 100km from port X, while ship Q sails on a bearing of 320º, 80km from X. Ship R is on a bearing of 150º from port X and due south of ship P.

a) Use scale drawing to show the position of $P, Q, R \text{ and } X$ [$\boldsymbol{4marks}$]

KCSE 23

b) Use the scale drawing to determine

i) The distance and bearing of ship P from ship Q [$\boldsymbol{2marks}$]

ii) The distance of ship R from port X [$\boldsymbol{2marks}$]

iii) The distance of ship R from ship P [$\boldsymbol{2marks}$]

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22. A rectangular tank whose internal dimensions are $2.04m\ by\ 1.68m\ by\ 26.4\ m$ is $\frac{7}{8}$ full of milk

a) If the tank is made of metal of thickness $3mm$. Calculate the external volume of the tank in m^3 when closed. [**3*marks***]

b) Calculate the volume of milk in the tank in cubic metres. [**2*marks***]

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c) The milk is to be packed in small packets. Each packet is in the shape of a Right - Pyramid on an equilateral triangular base of side $19.2cm$. The height of each packet is $13.6\ cm$. Full packets obtained are sold at $kshs.35$ per packet. Calculate;

i) The volume of milk, in cubic centimeters contained in each packet to 4 significance figures. Hence find the number of full packets. [$\boldsymbol{3marks}$]

ii) The exact amount that will be realized from the sale of all the packets of milk. [$\boldsymbol{2marks}$]

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23. (a) Find the inverse of the matrix [**2*marks***]

$$\begin{bmatrix} 2 & 5 \\ 4 & 3 \end{bmatrix}$$

(**b**) A transport company has two types of vehicles for hire: Lorries and buses. The vehicles are hired per day. The cost of hiring two lorries and five buses is Sh. 156,000 and that of hiring 4 lorries and three buses is Sh. 137,000.

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

(ii) Use matrix method to determine the cost of hiring a lorry and that of hiring a bus. [**3*marks***]

(c) Find the value of x given that $\begin{bmatrix} 2x-1 & 1 \\ x^2 & 1 \end{bmatrix}$ is a singular matrix [**3*marks***]

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24. a) (i) Find the co-ordinates of the stationary points of the curve $y = x^3 - 3x + 2$. [**4*marks***]

(ii) For each stationary point determine its nature [**2*marks***]

(b) Determine the y-intercept [**2*marks***]

(c) In the space provided sketch the graph of the function $y = x^3 - 3x + 2$ [**2*marks***]

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

121/2

MATHEMATICS

PAPER 2

TIME: 2½ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

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) *This paper consists of **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 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 (50 MARKS)

Answer ALL the questions in this section.

1. Use logarithms to evaluate:

$$\sqrt[3]{\frac{45.3 \times 0.00697}{0.534}}$$

(4 marks)

2. a) Expand $\left(1 - \frac{1}{2}x\right)^6$ up to fourth term. **(2 marks)**

b) Use the expansion above to evaluate $(0.98)^6$ **(2 marks)**

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3. The data below represents the ages in months at which 11 babies started walking:

9,15 , 12, 9, 8, 13, 7, 11, 13, 14 and 10.

Calculate the interquartile range of the above data **(3 marks)**

4. The fifth term of an arithmetic progression is 11 and the twenty fifth term is 51.

Calculate the first term and the common difference of the progression**.** **(3 marks)**

5. If $\frac{\sqrt{3}-2\sqrt{2}}{3\sqrt{2}+\sqrt{3}} = a\sqrt{b} + c$ Find the values of a, b and c. **(3 marks)**

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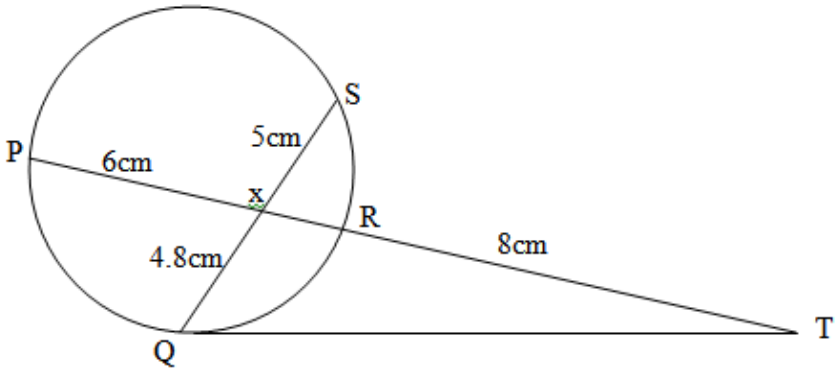
6. In the figure below QT is a tangent to the circle at Q. PXRT and QXS are straight lines.

PX = 6cm, RT = 8cm, QX = 4.8cm and XS = 5cm.



Find the length of QT **(3 marks)**

7. Solve for x in the equation below:

Log 3(x + 3) = 3 log 3 + 2 **(3 marks)**

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8. Pipe A can fill a tank in 2 hours, Pipe B and C can empty the tank in 5 hours and 6 hours respectively. How long would it take:

a) To fill the tank if A and B are left open and C is closed. **(2 marks)**

b) To fill the tank with all pipes open. **(2 marks)**

9. A transformation is represented by the matrix $\begin{bmatrix} 1 & 3 \\ 4 & 2 \end{bmatrix}$. This transformation maps a triangle ABC of the area 12.5cm^2 onto another triangle A′B′C′. Find the area of triangle A′B′C′. **(3marks)**

10. Make P the subject of the formula $XY^P = Q^{PX}$ **(3 marks)**

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11. The coordinates of the end points of diameter are A(2,4) B(−2,6). Find the equation of a circle in the form $ax^2 + by^2 + cx + dy + e = 0$ **(3 marks)**

12. A bag contains 10 balls of which 3 are red, 5 are white and 2 green. Another bag contains 12 balls of which 4 are red, 3 are white and 5 are green. A bag is chosen at random and a ball picked at random. Find the probability the ball so chosen is red. **(3 marks)**

13. Use the trapezium rule with seven ordinates to find the area bounded by the curve $y = x^2 + 1$ lines x = -2, x = 4 and x – axis **(3 marks)**

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14. Wanjiku pays for a car on hire purchase in 15 monthly instalments. The cash price of the car is Ksh.300, 000 and the interest rate is 15%p.a. A deposit of Ksh.75, 000 is made. Calculate her monthly repayments. **(3 marks)**

15. The length and breadth of a rectangular floor garden were measured and found to be 4.1m and 2.2m respectively. Find the percentage error in its area. **(3 marks)**

16. The gradient function of a curve is given $\frac{dy}{dx} = 3x^2 - 8x + 2$. If the curve passes through the point, (2, –2), find its equation. **(3 marks)**

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SECTION II (50 MARKS)

Answer five questions only from this section

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

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

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

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

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

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

WCPS at 2% of the basic salary

Loan repayment Ksh.1325

NHIF sh.480

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

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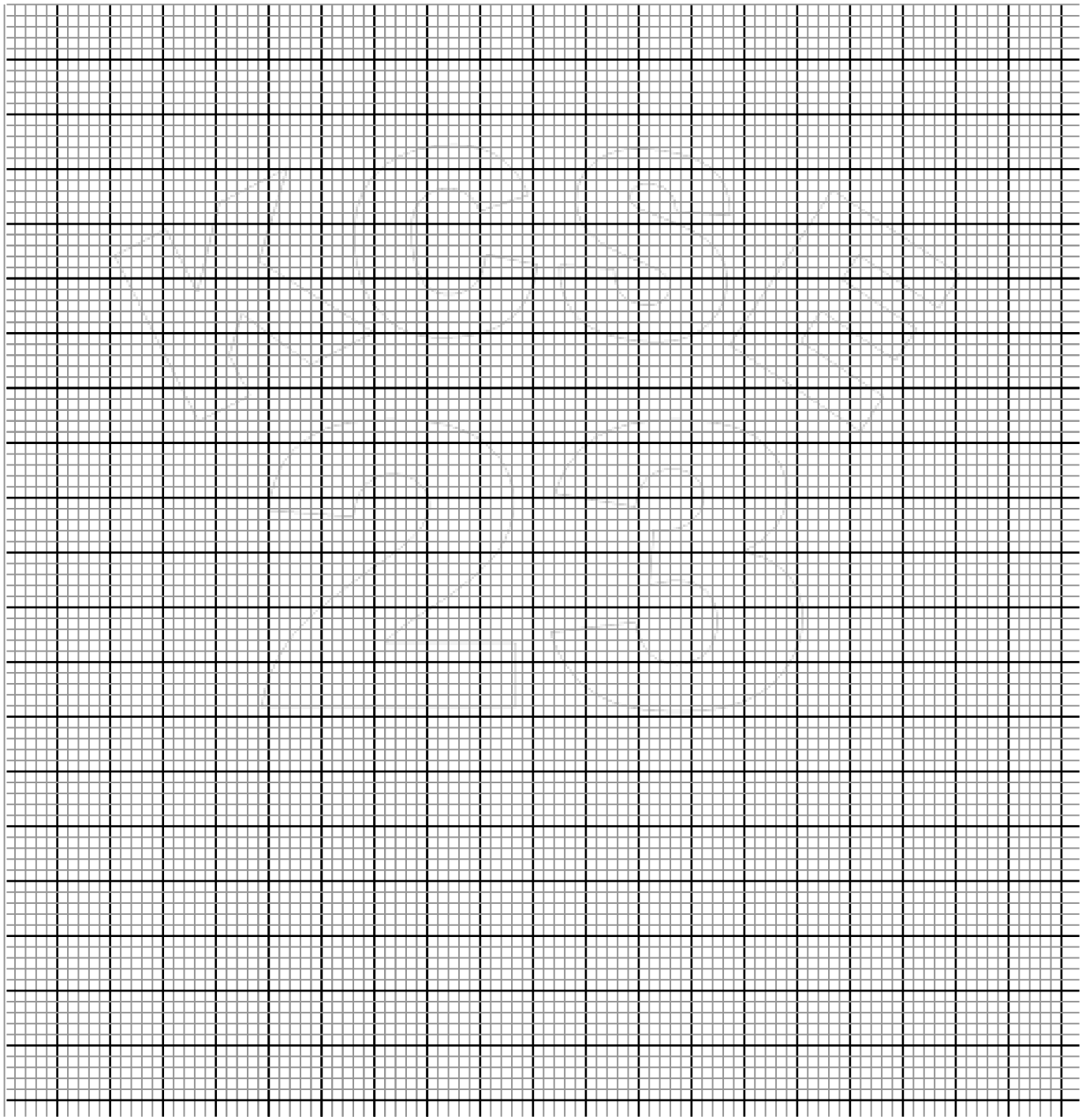
18. a) Complete the table below for y=sin 2x and y=sin (2x + 30) giving values to 2d.p

X	0	15	30	45	60	75	90	105	120	135	150	165	180
Sin 2x	0				0.87				-0.87				0
Sin (2x + 30)	0.5				0.5				-1				0.5

(2 marks)

b) Draw the graphs of y=sin 2x and y = sin (2x + 30) on the axis. **(4 marks)**



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c) Use the graph to solve $sin\ (\ 2x\ +\ 30) - sin\ 2x\ =\ 0$ **(1 mark)**

d) Determine the transformation which maps $sin\ 2x\ onto\ sin\ (2x\ +\ 30)$ **(1 mark)**

e) State the period and amplitude of $y\ =\ sin\ (\ 2x\ +\ 30)$ **(2 marks)**

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19. A plane S flies from a point P (40^0N, 45^0W) to a point Q (35^0N, 45^0W) and then to another point T (35^0N, 135^0E).

a) Given that the radius of the earth is 6370km find the distance from P to Q in Km.

(Take $\pi = \frac{22}{7}$) **(2 marks)**

b) Find in nm

(i) The shortest distance between Q and T. **(2 marks)**

(ii) The longest distance between Q and T (to the nearest tens) **(2 marks)**

c) Find the difference in time taken when S flies along the shortest and longest routes if its speed is 420 knots **(4 marks)**

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20. The following table shows the distribution of marks obtained by 50 students.

Marks	45 – 49	50 – 54	55 – 59	60 – 64	65 – 69	70 – 74	75 – 79
No. of students	3	9	13	15	5	4	1

By using an assumed mean of 62, calculate

a) the mean **(5 marks)**

b) the variance **(3 marks)**

c) the standard deviation **(2 marks)**

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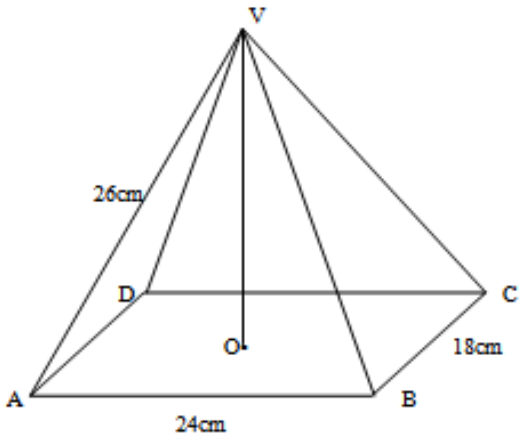
21. The diagram below represents a pyramid standing on rectangular base ABCO. V is the vertex of the pyramid and VA = VB = VC = VD = 26 cm. M is the midpoints of BC and AC respectively. $AB = 24\ cm$ and $BC = 18\ cm$.



Calculate:-

a) The length of the projection of line VA on plane ABCD **(2marks)**

b) The angle between line VA and the plane ABCD. **(2marks)**

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c) The size of the angle between the planes VBC and ABCD. **(2marks)**

d) The vertical height of the pyramid. **(2marks)**

e) The volume of the pyramid **(2marks)**

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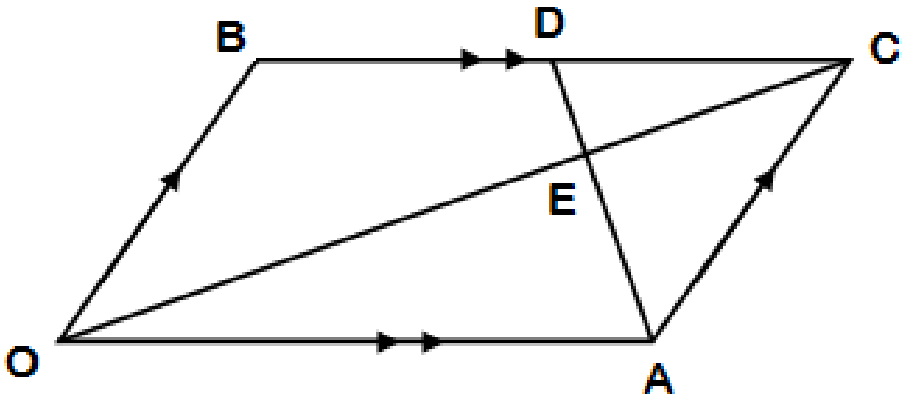
22. A parallelogram OACB is such that **OA** = **a**, **OB** = **b.** D is the mid-point of BC. **OE** = h**OC** and **AE** = k**AD**.



(a) Express the following in terms of **a**, **b**, h and k.

(i) OC **(1 mark)**

(ii) OE **(1 mark)**

(iii) AD **(1 mark)**

(iv) AE **(1 mark)**

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(b) Find the values of h and k. **(4 marks)**

(c) Determine the ratios:

(i) AE : ED **(1 mark)**

(ii) OE : OC **(1 mark)**

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23. A uniform distributor is required to supply two sizes of skirts to a school: medium and large sizes. She was given the following conditions by the school.

(i) The total number of skirts must not exceed 600.

(ii) The number of medium size skirts must be more than the number of large size skirts.

(iii) The number of medium size skirts must not be more than 350 and the number of large size skirts must not be less than 150. If the distributor supplied χ medium size and y large size skirts.

(a) Write down, in terms of χ and y, all the linear inequalities representing the conditions above. **(4mks)**

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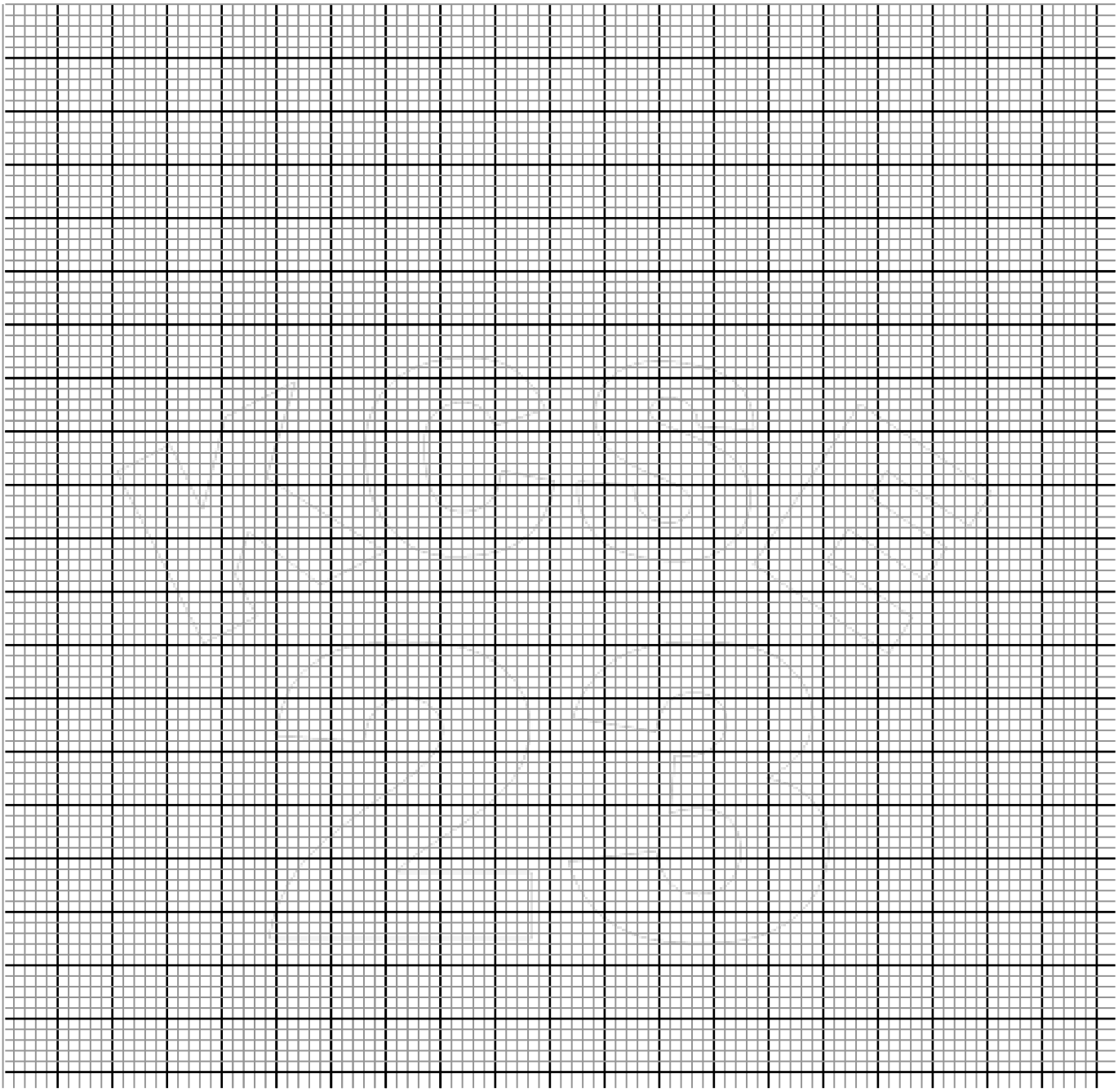
(b) On the grid provided, represent the inequalities in (a) above by shading the unwanted regions. **(4mks)**



The distributor made the following profits per skirt.: Medium size = Sh.300., Large size = Sh.250. Determine the maximum profit. **(3mks)**

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24. (a) On the same diagram construct:-

i) Triangle PQR such that PQ = 9cm, PR = 7cm and triangle RPQ = 60^0 **(2 marks)**

ii) The locus of a point M such that M is equidistant from P and Q. **(1mark)**

iii) The locus of a point N such that RN $\leq$ 3.5cm. **(1 mark)**

b) On the diagram in part (a)

i) Shade the region B, containing all the points enclosed by the locus on M and the locus of N such that PM $\geq$ QM. **(2marks)**

ii) Find the area of the shaded region in (i) above **(4marks)**

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

451/1

COMPUTER STUDIES

PAPER 1

(THEORY)

TIME: 2½ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

1. *Write your name and Admission number in the spaces provided above*
2. *Answer all questions in section A*
3. *In section B, **answer question 16(compulsory)** and **any other three** questions*
4. ***Candidates should answer the questions in English.***

FOR EXAMINER'S USE ONLY

SECTION	QUESTION	CANDIDATE'S SCORE
A	1-15	
B	16	
	17	
	18	
	19	
	20	
TOTAL SCORE		

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SECTION A (40 Marks)

Answer all questions in this section

1. **Name** the storage device that was introduced in each of the following computer generations

a) Second Generation **(1 mark)**

……

b) Third Generation **(1 mark)**

……

c) Fourth generation **(1 mark)**

……

d) Fifth generation **(1 mark)**

……

2. Mr. Tom, a games teacher at Tatu secondary school wants to invite several schools for basketball tournament. He was advised to use mail merging technique to create invitation letters for the respective schools to be invited. **State two** advantages of using this technique to create the letters. **(2 marks)**

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3. Susan came across the following examples of software while revising for her computer studies exam: *Linux, Quickbooks, Lotus wordpro, Windows 7,*

Classify each as either system software or application software. **(2 marks)**

Linux……..

Quickbooks…….

Lotus wordpro……

Windows 7…….

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4. Figure 1 below shows symbols of ports in a computer system. **Identify** the peripheral device that is connected to each of them.

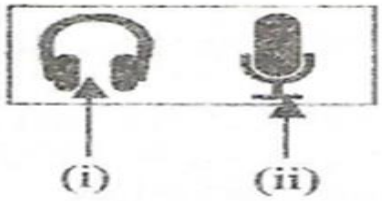

Figure 1

i)…….. (1 mark)

ii)…….. (1 mark)

5. Distinguish between *main memory* and *secondary memory* as used in computers **(2 marks)**

……

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A Five star hotel has decided to pay its suppliers using electronic payment method. **State two** benefits the hotel will benefit from making this decision. **(2 marks)**

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6. Annet would like to develop system documentation that will assist users when learning how to use her system. **State four** contents that such documentation should have. **(4 marks)**

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7. State a circumstance under which the following features could be applied to a publication

a) Text wrapping **(1 mark)**

……

……

……

b) Object grouping **(1 mark)**

……

……

8. Kennedy would like to edit a document prepared using word processing program. **Name four** editing keyboard keys that he could use to achieve his objective. **(2 marks)**

……

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9. a) **State two** ways an inserted formula can be applied to other cells in a spreadsheet **(2 marks)**

……

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……

b) Suzzie, a secretary at Achievers secondary school carries out her daily duties using computers and suffers wrist strain. **State two** ways she would use to reduce wrist strain. **(2 marks)**

……

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10. Sarah noticed that after copying a video file in her flash disk from a cyber café in town, the video file self-replicated in the flash disk filling all the available memory space.

a) State one possible cause for such occurrence **(1 mark)**

……

b) State two ways that can be used to prevent the occurrence of such incidences **(2 marks)**

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11. Kirundi Secondary school would like to introduce the use of internet in the school's computer lab. **Explain three** security issues that the students are likely to be exposed to. **(2 marks)**

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12. a) **State two** characteristics of a primary key field in a database system **(2 marks)**

……

……

b) **State one** advantage of the *auto save* feature in a word processing program **(1 mark)**

……

……

State two advantages of using random file organization method in storage devices**. (2 marks)**

……

……

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a) Wireless Fidelity (WiFi) has become one of the most popular modes of internet connection in recent days. **State two** reasons for this trend. **(2 marks)**

……

……

……

b) Explain a reason why *bcc* option could be used when sending an email **(2 marks)**

……

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SECTION B (60 Marks)

Answer question 16 (Compulsory) and any other three questions

13. a) Andrew would like to develop a system using a programming language. **State three** factors he should consider when selecting the appropriate language **(3 marks)**

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b) State the **meaning** of the following terms as used in programming:

i) Interpreter **(1 mark)**

……

……

ii) Editor window **(1 mark)**

……

……

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c) Dennis designed the pseudo code below for a program that would be used for calculating the sum and average of all even numbers between 50 and 100 and display the results.

```
START
    Set sum to 0
    FOR num = 0 to 100 DO
        num = num + 1
        Sum = num + sum
        Average = sum/count
    END
    PRINT Sum, Average
STOP
```

i) After carrying out a dry run of the pseudocode, Dennis found out errors in it. **Identify three** logical errors that he might have found. **(3 marks)**

……

……

……

ii) Draw a flowchart for a corrected version of the pseudo code in part (i) above **(7 marks)**

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14. `a) The table below shows items extracted from David's retail shop spreadsheet. Use it to answer questions (i) to (ii)

	A	B	C	D
1	**Item**	**Unit Price**	**Quantity**	**Total Cost**
2	Bread	60	10	
3	Milk	50	15	
4	Matchbox	20	10	
5	Toothpaste	120	10	
6			**TOTAL AMOUNT**	

i) Using cell references only, write a function that would be used to calculate the total cost of milk **(2 marks)**

……

……

……

ii) Using a cell references only, write a formula that would be used to calculate the total amount spent on all items. **(2 marks)**

……

……

……

b) **Distinguish** between *hacking* and *cracking* as used in computer security **(2 marks)**

……

……

……

c) State the **function** of each of the following parts of a spreadsheet window

i) Formula bar **(1 mark)**

……

……

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ii) Name box **(1 mark)**

……

……

d) State the circumstance under which OLE object data type is suitable when designing a table in a database **(1 mark)**

……

……

e) **Explain** the function of a flowchart in system design **(2 marks)**

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f) Distinguish between *multi user operating system* and *multi-tasking operating system* **(2 mks)**

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g) When purchasing a printer, Atieno was advised to consider its *compatibility* and that it should be *plug and play*. **State** the meaning of these two terms:

i) Compatibility **(1 mark)**

……

……

ii) Plug and play **(1 mark)**

……

……

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15. a) **Explain one** challenge likely to be experienced in a closed system **(1 mark)**

……

……

b) Every organization requires an information system

i) Define an information system **(1 mark)**

……

……

ii) Explain two reasons an organization may change an existing information system **(4 marks)**

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c) Testing systems after construction is a very critical process in systems development. **State three** areas an effective testing should cover. **(3 marks)**

……

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d) Using suitable examples, **distinguish** between layout based DTP software and graphical based DTP software. **(3 marks)**

……

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e) The use of ICT has affected every aspect of human life. **State three** ways ICT in which ICT can be used to enhance physical fitness of the members of the society. **(3 marks)**

……

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16. a) **Distinguish** between *freeware* and *open source* software **(2 marks)**

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……

b) **Describe** how operating systems handle the following in a computer system

i) Errors **(1 mark)**

……

……

ii) Interrupts **(1 mark)**

……

……

c) State the purpose of the following in a computer

i) Cache Memory **(1 mark)**

……

……

ii) System clock **(1 mark)**

……

……

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iii) Motherboard **(1 mark)**

……

……

d) Mark, an employee of an institution used his computer to access his boss's computer to get some confidential information and gave it to one of its clients at a fee.

i) State the type of crime committed by Mark **(1 mark)**

……

ii) State two ways of protecting data against the crime committed by Mark **(2 marks)**

……

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……

e) Using two's complements, **perform** the calculation 41_{10} - 15_{10} leaving your answer in decimal notation **(5 marks)**

……

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17. a) **Identify four** data collection methods that may be used in data processing cycle **(2 marks)**

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b) **State three** benefits of using time sharing data processing mode in a leaning institution**(3 mks)**

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c) Differentiate between *webmaster* and *web designer* **(2 marks)**

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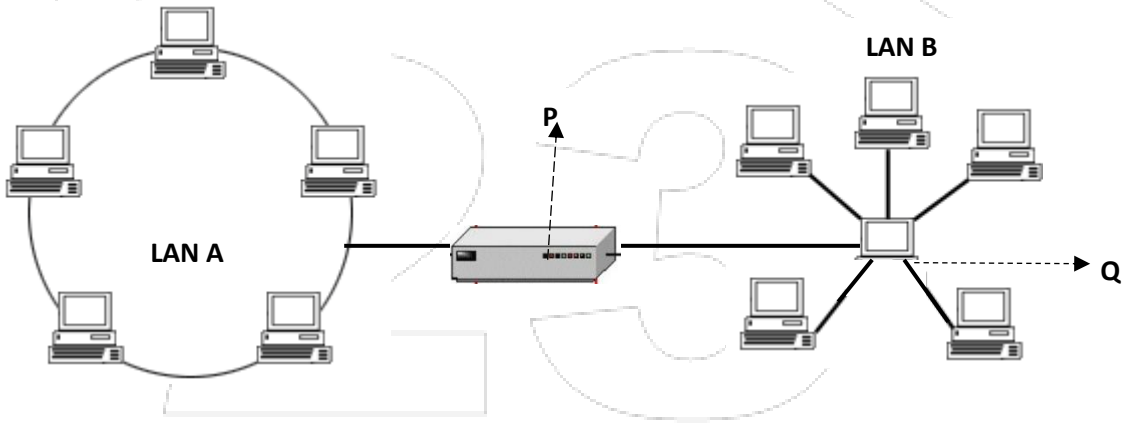
d) The network set up below is formed by combining two LANs. Use it to answer the questions (i) – (v) belo



i) Identify the network devices labelled:

P ……. **(1 mark)**

Q…….. **(1 mark)**

ii) State the importance of device P in the network **(1 mark)**

……

……

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iii) What is the name given to the combined topology in the figure above **(1 mark)**

……

……

……

iv) Identify the network topology A and B

P ……. (1 mark)

Q…….. (1 mark)

v) State two problems a network administrator may encounter in management of LAN A **(2 marks)**

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KCSE 23

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

451/2

COMPUTER STUDIES

PAPER 2

(PRACTICAL)

TIME: 2½ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

a) *Indicate you name and index number at the top right hand corner of each printout.*

b) *Write your name and index number on the CD/Removable provided.*

c) *Write the name and version of the software used for each question attempted in the answer sheet.*

d) *Answer all the questions*

e) *All questions carry equal marks.*

f) *Passwords **should not be used** while saving in the CD/Removable provided.*

g) *All answers must be saved in your CD/Removable provided.*

h) *Make a printout of the answers on the answer sheet.*

i) *Arrange your printouts and staple them together.*

j) *Hand in all the printouts and the CD/Removable used.*

k) ***Candidates should answer the questions in English.***

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1. a)Type the following passage as it appears using Times new roman and save it as CFSK

(35 marks)

Computer for Schools Kenya

Computers for Schools Kenya (CFSK), is a non-profit organization established in October 2002 with the vision of establishing an information-rich Kenyan society actively contributing to sustainable national development.

CFSK believes in the power of education and that it is possible to teach, train, feed and ensure sustainable development for the nation through application of technology and the innovations it ensures.

The CFSK program thus creates a forum for community development that is led by community members and sustained by a multiplier effect

In the nine years of existence, CFSK has sourced over 45,000 personal computers that have been deployed in nearly 2,000 learning institutions.

The annual awards for leadership in ICT in Africa were handed out in November 2007 and 2008 at a televised gala in Johannesburg, South Africa

During this period of time, we have also carried out training for over 12,000 heads of schools and Education Officers, teachers/tutors, and members of Schools' Boards of Governors and Parents/Teachers Associations.

Website

http://www.cfsk.org

Year established

2002

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Automation basic activities in education, like grading.

In lower grades, teachers often find that grading takes up a significant amount of time, time that could be used to interact with students, prepare for class, or work on professional development.AI can be used to automate grading systems and present the output in tables .

GRADE THREE COMMON EXAMINATION				
SURNAME	**LANGUAGE SKILLS**	**COMPUTING SKILLS**	**ENVIRONMENTAL SKILLS**	***Total Score***
Macmillan	87	50	78	
Trevor	92	95	76	
Johnstone	73	85	90	
Kathleen	67	56	75	
Count				
Highest Scores				

b) Copy CFSK to a new document and save as **CFSK1** **(2marks)**

c) Apply 1.5 line spacing to the entire document **(3marks)**

d) Page number the document as follows

i) Page number position: Bottom centre **(2 marks)**

ii) Number format: Capital roman numbers **(2 marks)**

f) Save the changes made in CFSK1 **(2 marks)**

g) Print the documents CSFK, and CSFK1 **(1 mark)**

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2. Excel school ordered computer accessories and the following suppliers provided the following As illustrated below.

	A	B	C	D
1	**Name**	**Item Sold**	**Amount**	**Date**
2	Joseph	Mouse	200.00	2/11/2011
3	Peter	System unit	5,000.00	3/11/2011
4	Tony	Keyboard	200.00	4/11/2011
5	Mike	CD Writer	2,000.00	5/11/2011
6	Joseph	Computer1 System	2,000.00	6/11/2011
7	Peter	Mouse	200.00	7/11/2011
8	Tony	Mouse	200.00	8/11/2011
9	Mike	System Unit	2,500.00	9/11/2011
10	Joseph	Keyboard	200.00	10/11/2011

(a)Restrict all the cells in the Amount column to allow entry of amounts Between 0 and 6000. A message, "Input amount <= 6000" should be displayed whenever a cell is selected. In case of an invalid entry, the message, "Amount >6000", should be Displayed. Put an inside and outside border on data on sheet 1. **(5mks**

(b) Save it (the workbook) as **Excel**. **(11mks)**

(c) Copy the content of Sheet 1 to Sheet 2 into the exact position and rename it as **New price**.

Insert a new row after the Amount row and label it "New price". The suppliers of the items decided to, increase all their items by 20%. Enter the percentage into cell A18.
Using absolute referencing, calculate the new price of each of the items in the "New price" column. **(7mks)**

(d) Copy the content of Sheet 1 to Sheet 3 and rename it as Subtotals. Using subtotals sheet Find subtotals for each supplier and display the Grand Total. **(6mks)**

(e) Using the subtotals sheet, Create a column graph (bar graph) to compare the total cost of all items bought from each supplier. The x-axis should be labeled as "Names" and the y-axis "cost items'. Each bar should display a total value it represents on top of it and the supplier's Name below it. The title of the graph should read, SUPPLIERS COMPARISON TOTALS. Place the graph on a new sheet and rename the sheet as **BAR GRAPH (8mks)**

(f) Insert a new sheet into the workbook. Rename this sheet as "Filtered". Open the subtotals Sheet. Filter the records of all suppliers whose New price is greater than or equal to 6000 or less than 250. Copy the results onto the "Filtered" sheet. (6mks)

(g) Put the sheet name as the header and your name. School and index number as footer for every sheet in your workbook. Save your work on a removable storage media and p**rint ALL the worksheets**

KCSE 2023 PREDICTION

SMARTGRADE SERIES

441/1

HOME SCIENCE

PAPER 1

(THEORY)

TIME: 2½ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

INSTRUCTION TO CANDIDATES

a. *Write your name and index in the spaces provided.*
b. *This paper consists of **3** sections **A, B** and **C.***
c. *Answer **ALL** questions in section **A.***
d. *Section **B** is compulsory.*
e. *Choose **ANY 2** questions in section **C.***
f. *Answers to all questions must be written in the spaces provided.*
g. *Candidates should answer all questions in English.*

FOR EXAMINER'S USE ONLY

Section	Question(s)	Maximum score	Candidate's score
A	1-18	40	
B	19	20	
C		20	
		20	
TOTAL SCORE		**100**	

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SECTION A: (40MARKS)-COMPULSORY

1. Differentiate between a wear and a tear. **(2mks)**

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……

……

2. Give two reasons why it is important to dry white clothes outdoor in the sun. **(2mks)**

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3. State two general rules followed when repairing clothes. **(2mks)**

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4. Suggest two reasons for becoming a vegetarian. **(2mks)**

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5. Mention two careers that are open to a home science graduate. **(1mk)**

……

……

6. Highlight two reasons for wearing socks. **(2mks)**

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7. a) Your sister has taken up a modelling career. She has been inducing vomiting after eating in order to slim. What disorder is she suffering from? **(1mk)**

……

……

b) Suggest one way of managing the disorder. **(1mk)**

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……

8. Mention one function of bodkin. **(1mk)**

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9. Give two reasons why hot water is used when rinsing glassware. **(2mks)**

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10. Mentions two advantages of breastfeeding to the mother. **(2mks)**

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11. Outline three characteristics of a good layette. **(3mks)**

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12. State two effects of charcoal production on the environment. **(2mks)**

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13. Suggest three reasons why electricity is the best type of artificial lighting. **(3mks)**

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14. List four items to include when setting a tea tray for two. **(2mks)**

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15. Identify four time and labour-saving equipment likely to be found in a fast-food restaurant. **(2mks)**

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16. State three ways of meeting the emotional needs of the sick at home. **(3mks)**

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17. Define the following terms as used in home science.

a) Ventilation. **(2mks)**

……

……

……

b) Flower arrangement. **(2mks)**

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18. State three pieces of information found on labels on packed goods. **(3mks)**

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SECTION B :(20 MARKS)-COMPULSORY

19. You have been left to take care of the home while your parents are away.

a) Outline how you would use charcoal as an abrasive in cleaning a stained aluminium sufuria. **(6mks)**

b) Clean a duster that has been used to clean a dusty surface. **(6mks)**

c) Launder your mother's silk dress. **(8mks)**

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SECTION C: (40 MARKS)

Answer any TWO questions in this section in the spaces provided after question 22.

20. a) Explain the first aid procedure you would administer to your brother who has got a deep cut and bleeding is severe. **(6mks)**

b) Suggest ***four*** advantages of constructing traditional houses. **(4mks)**

c) Mention ***four*** ways in which a chef/ a cook can contaminate food. **(4mks)**

d) Outline the procedure of working shirring on the yoke of a baby's dress. **(6mks)**

21. a) Name ***four*** methods of steaming cassava. **(4mks)**

b) Your friend has chosen dry-cleaning as her main method of laundering her clothes. Give ***three*** reasons why you would discourage her from such a decision. **(3mks)**

c) State ***four*** disadvantages of open drains. **(4mks)**

d) With the aid of well-labeled diagrams, explain the procedure of working a French seam. **(9mks)**

22. a) List ***four*** individual needs of family members to observe when planning meals. **(4mks)**

b) Give ***three*** points on how you would take care of your younger sister's plastic doll. **(3mks)**

c) Discuss ***three*** ways a lactating mother should take care of herself. **(6mks)**

d) Outline the procedure of preparing a set-in sleeve ready for attachment. Use one labeled diagram to illustrate. **(7mks)**

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

441/2

HOME SCIENCE

PAPER 2

(PRACTICAL)

TIME: 2½ HOURS

Kenya Certificate of Secondary Education.

441/2

HOME-SCIENCE (CLOTHING CONSTRUCTION)

PAPER 2

(PRACTICAL)

CONFIDENTIAL INSTRUCTIONS

The following materials will be provided by the school.

1. A plain lightweight cotton fabric measuring 65cm long by 90cm wide.
2. Sewing thread to match the fabric.
3. One large envelope.
4. KCSE 2011 paper 2 pattern.

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For Marking Schemes Contact 0746-222-000 / 0742-999-000

KCSE 2023 PREDICTION

SMARTGRADE SERIES

441/2

HOME SCIENCE

PAPER 2

TIME: 2½ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

441/2

HOMESCIENCE

PAPER 2

CLOTHING CONSTRUCTION

TIME: 2 ½ HRS

INSTRUCTIONS TO CANDIDATES

1. The paper consist of three pages
2. Candidates should check the question paper to ascertain that all pages are 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, instruction 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 long by 90cm wide.
3. Sewing thread to match the fabric
4. One large envelope.

THE TEST.

Using the material provided, cut out and make the **RIGHT HALF** of a child's dress to show the following processes; -

a) Cutting out **(14 ½ marks)**

b) Attaching the front yoke to the dress front using an overlaid seam. Neaten **half** of the seam using overcasting stitches; **(8 ½ marks)**

c) Join of the shoulder seam using an open seam (**do not neaten**) **(4marks)**

d) Joining of the side seam using an open seam; **(8marks)**

e) Preparing of the sleeves;

i) Making an inverted pleat; **(7marks)**

ii) Joining the underarm seam using plain seam.(**do not neaten**) **(6 ½ marks)**

iii) Attaching the binding and holding it using slip hemming (slip hem **half** the binding); **(9 ½ marks)**

f) Attaching of sleeve onto the garment (**do not trim or neaten**); **(7marks)**

g) Attaching the facing on the neckline. **(18 ½ marks)**

h) Presentation **(6 ½ marks)**

At the end of the examination, firmly sew on your work, on a single fabric, a label bearing your name and index number. Remove needles, and pins from your work then fold your work neatly and place it in the envelope provided. Do not put scraps of fabric in the envelope.

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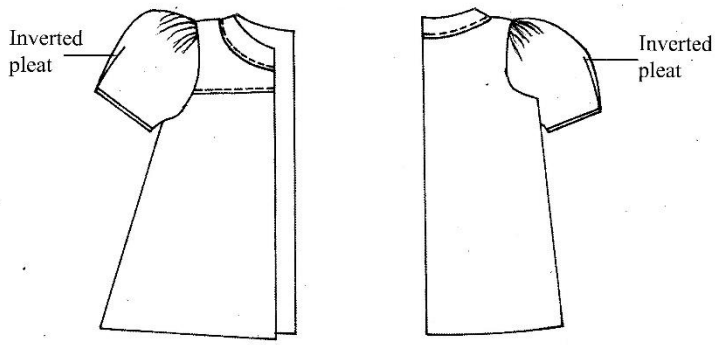
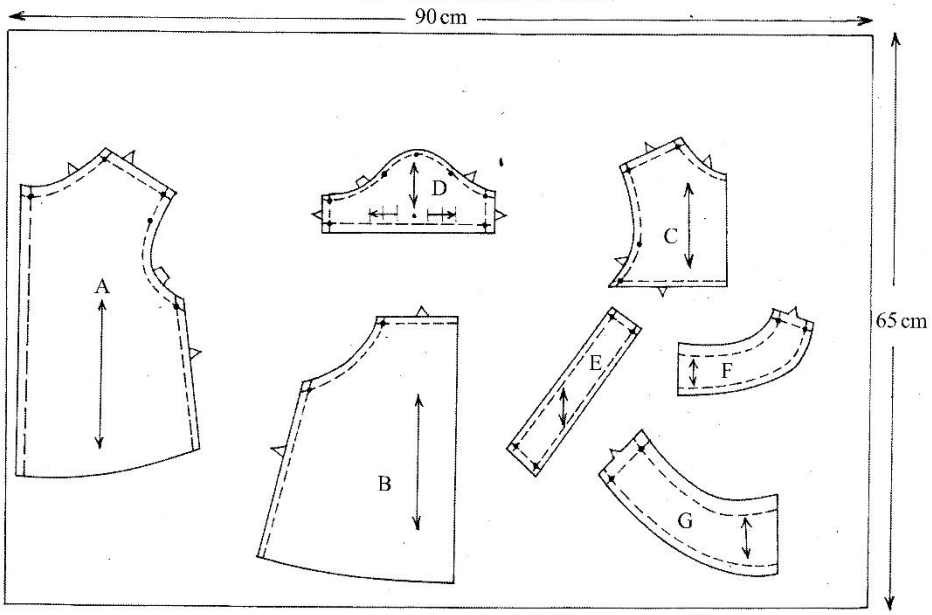
For Marking Schemes Contact 0746-222-000 / 0742-999-000

FRONT VIEW BACK VIEW



THE LAYOUT (NOT DRAWN TO SCALE)



THIS IS THE LAST PRINTED PAGE.

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

441/3

HOME SCIENCE

PAPER 3

FOODS AND NUTRITION

TIME: 1¾ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

PLANNING SESSION: 30 minutes

PRACTICAL TEST SESSION: 1¾ hours

Instructions to candidates

(a) Read the test carefully.

(b) Write your name and index number on every sheet of paper used.

(c) Text books and recipe books 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

Your elderly aunt visited your home and will spend the evening in your home then leave for the hospital in the morning. Using the ingredients listed below, prepare, cook and serve: A one-course dinner for two, include a stimulating drink.

Ingredients

Maize meal/Irish potatoes

Chicken/minced beef

Cabbage

Milk

Tea leaves

Onions

Tomatoes

Green pepper

Dhania

Cooking oil/fat

Salt

Sugar

PLANNING SESSION – 30 MINUTES

Use separate sheets of paper for each task listed below and a carbon paper to make duplicate copies.

Then proceed as follows.

1. Identify the food items and write down their recipes.
2. Write down your order of work
3. Make a list of food stuffs, materials and equipment you will require

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

314/1

ISLAMIC RELIGIOUS EDUCATION

PAPER 1

TIME: 2½ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

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) This paper consists of SIX questions

d) Answer any FIVE questions in the spaces provided at the end of question six

e) Candidates should check the question paper to ascertain that all the questions are available

f) Candidates should answer the questions in English

FOR EXAMINER'S USE ONLY

QUESTION	1	2	3	4	5	6	TOTAL SCORE
CANDIDATE'S 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

SMARTGRADE SERIES

314/2

ISLAMIC RELIGIOUS EDUCATION

PAPER 2

TIME: 2½ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

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) This paper consists of SIX questions

d) Answer any FIVE questions in the spaces provided at the end of question six

e) Candidates should check the question paper to ascertain that all the questions are available

f) Candidates should answer the questions in English

FOR EXAMINER'S USE ONLY

QUESTION	1	2	3	4	5	6	TOTAL SCORE
CANDIDATE'S 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

SMARTGRADE SERIES

488/1

ELECTRICITY

PAPER 1

TIME: 2½ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

1. *Write your name, index number and class in the spaces provided above.*
2. *The paper contains two sections: **Section A** and **Section B***
3. *Section A carries **52 marks** while section B carries **48 marks***
4. *Answer **ALL** the questions in **section A** and **ANY FOUR** questions in **section B***
5. *All the answers and working must be written on the question paper in the spaces provided below each question.*
6. *Non-programmable silent electronic calculators are allowed for use*

For examiner use only

Section A

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

Section B

15	17	15	19	28

GRAND TOT

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SECTION A (52 Marks)

1. (a). Name four prime movers used in the process of generation electricity in Kenya **(2 marks)**

……

……

……

……

(b). State two responsibilities of the following job groups **(2 marks)**

i. Artisan

……

……

ii. Technician

……

……

2. (a). State four main components of a business **plan** **(2 marks)**

……

……

……

……

(b). State four causes of electric shock in a workshop **(2 marks)**

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KCSE 2023

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3. (a). State two safety precaution that needs to be put in place to avoid accidents from overhead power lines **(2 marks)**

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(b). Draw a common base transistor configuration circuit **(1 mark)**

4. The **figure 1** shows a logic gate

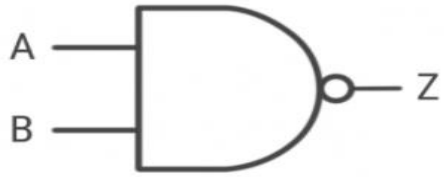

Figure 1

a. Give the name of the logic **gate** **(1 mark)**

b. Draw the truth table for the logic gate shown **(2 marks)**

5. (a). Differentiate between a conductor and a semi-conductor**.** **(1 mark)**

……

……

……

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(b). State one area of application for each of the above **materials** **(2 marks)**

6. State four uses of ohmmeter function of a multimeter in trouble shooting circuits **(2 marks)**

……

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7. (a). Using a schematic diagram, show how a lamp can be controlled from two different **position** **(2 marks)**

(b). Find the resistance of a resistor whose color code is:

(2 marks)

i). Grey, Red, Gold, Gold

ii). Green, White, Black, Gold

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8. With aid of a diagram, differentiate between repulsion and attraction type moving iron meter **(4 marks)**

9. A single phase step-down transformer has a ratio of 8:1, a primary voltage of 3.3kV and a load of 6.6kVA. Ignoring losses, calculate; **(6 marks)**

i. Secondary voltage

ii. Secondary current

10. Sketch the symbol for the following circuit symbol **(2 marks)**

i. Zener diode

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ii. Incandescent lamp

11. (a). State the meaning of capacitance **(1 mark)**

(b). State three factors that affect the capacitance of a capacitor **(3 marks)**

12. (a). What is an autotransformer **(1 mark)**

(b). An autotransformer has 1200 turns connected to 250V a,c to supply a 60V load. Calculate the number of turns in the secondary section **(2 marks)**

13. (a). Three inductors of 60mH, 120mH and 75mH respectively, are connected together in a parallel combination. Calculate the total inductance of the parallel combination **(1 mark)**

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(b). Find the total energy in the circuit given that the total current is 2.5A.

(2 marks)

14. (a). State three parts of a machine **($1\frac{1}{2}$ marks)**

(b). An alternating current completes ten cycles in 0.1 seconds. Calculate the period and frequency of the current. **($1\frac{1}{2}$ *marks*)**

15. In a 12V dc system a 40W solar panel is exposed to the sun for six hours daily. Calculate the number of days it will take to fully charge a 60 ampere-hour battery **(4 marks)**

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SECTION B (48 Marks)

16. **Figure 2** shows and RLC circuit. **(12 marks)**

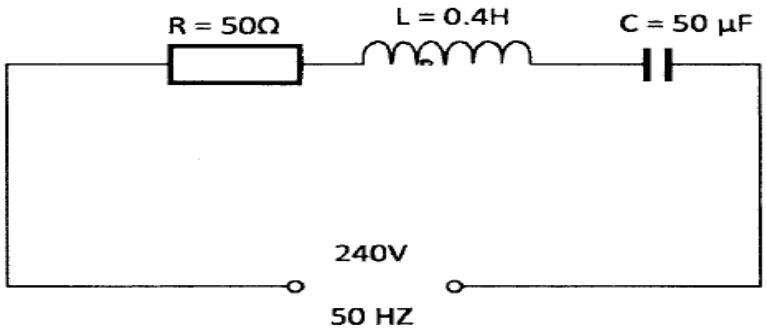

Figure 2

Calculate the:

i. Inductive reactance

ii. Capacitive reactance

iii. Circuit impedance

iv. Circuit current

v. Power dissipated in the circuit

KCSE 23

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17. (a). With aid of a labelled diagram, explain the principle of operation of a trembler bell.

(9 marks)

(b). With aid of a diagram, differentiate between shunt generator and series d.c generator

(3 marks)

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18. Figure 3 shows the isometric view of a towing hook.

Draw, full size, in third angle projection: **(12 Marks)**

(a). front elevation in the direction of arrow A;

(b). end elevation in the direction of arrow B

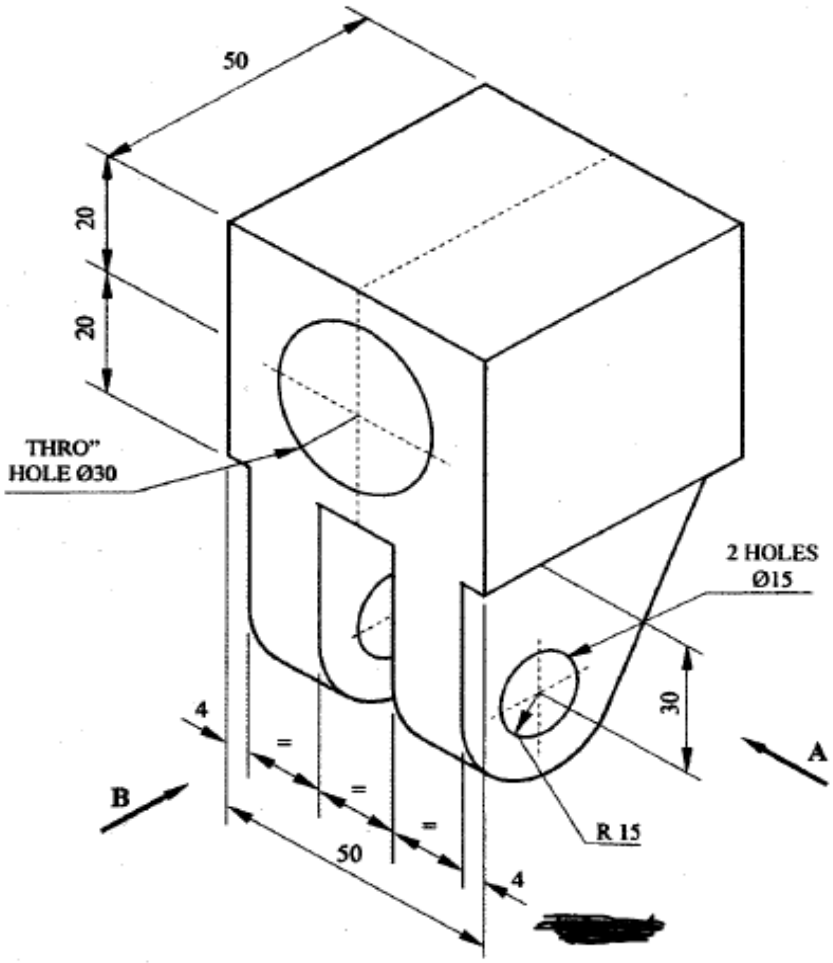

Figure 3

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19. (a). With reference to Sinusoidal waveforms, explain each of the following terms **(3 marks)**

i. Amplitude

ii. Period

iii. Frequency

(b). A Sinusoidal voltage trace displayed on an oscilloscope has peak voltage of 48V and a period of 80 ms. **(9 marks)**

Draw the waveform and calculate:

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i. Frequency

ii. Average value

iii. RMS value

20. (a) Explain why a series motor develops high torque when subjected to a heavier load

(5 marks)

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(b) A 240V/120V, 1.2kVA transformer delivers power to a load. Calculate the:

i. Transformation ratio

ii. Rated secondary current

iii. Primary impedance at the rated load

iv. Number of turns in secondary winding if the primary winding induces 0.2V per turn

(7 marks)

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

488/2

ELECTRICITY

PAPER 2

TIME: 2½ HOURS

CONFIDENTIAL

NO	ITEM	TYPE	No. OF ITEMS	PRICE(KSH)
1	Diodes	1n4007	8	100
2	Potentiometer	1 kΩ	8	300
3	Resistor	1kΩ 4.7kΩ 10kΩ	8 8 8	100 100 100
4	Switch	Power Rocker SPST Switch One-way, one gang	8 8	400 500
5	Iron Box	Soarin Electric Dry Iron Box	4	4000
6	Top plug		4	200
7	Cables	Three core flexible cable	4 pieces	250

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		1.5mm PVC twin earth cable	2.4 m	3000
8	Metal sheet	1.5 x 1.0 m	1 Sheet	
9	Junction box		8	900
10.	Transistors	BC547	10	100
10	Lamp holder		10	500
11	Lamps	50W Filament lamps	4	250
	TOTAL			**10,050**

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

488/2

ELECTRICITY

PAPER 2

TIME: 2½ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

a) *Write your name, index number and class in the spaces provided above.*

b) *The paper contains **7 PRINTED** pages make sure all **PAGES ARE PRINTED** and **NON IS MISSING***

c) *Non-programmable silent electronic calculators are allowed for use*

d) *This paper consists of **5 EXERCISES***

e) *Each exercise should be done in **30 MINUTES***

For examiner use only

EXERCISE 1	EXERCISE 2	EXERCISE 3	EXERCISE 4	EXERCISE 5

GRAND TOTAL

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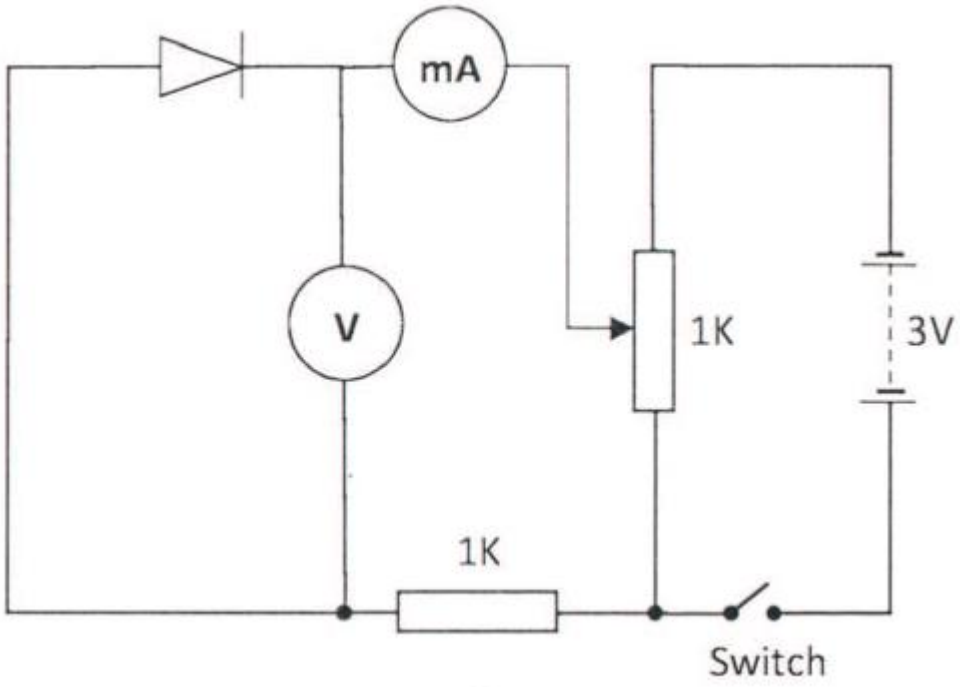
EXERCISE 1

Using the components, materials and equipment provided, perform the following tasks

a. Connect the figure as shown below. Let the examiner check your work (6 marks)



b. Close the switch. Adjust the potentiometer to obtain voltage reading shown in the table below. For each voltage obtained, measure and record the corresponding current values

(5 marks)

Voltage (V)	0	0.5	0.7	0.9	1.3	1.7
Current (mA)						

c. Plot a graph of current against voltage**.** **(6 marks)**

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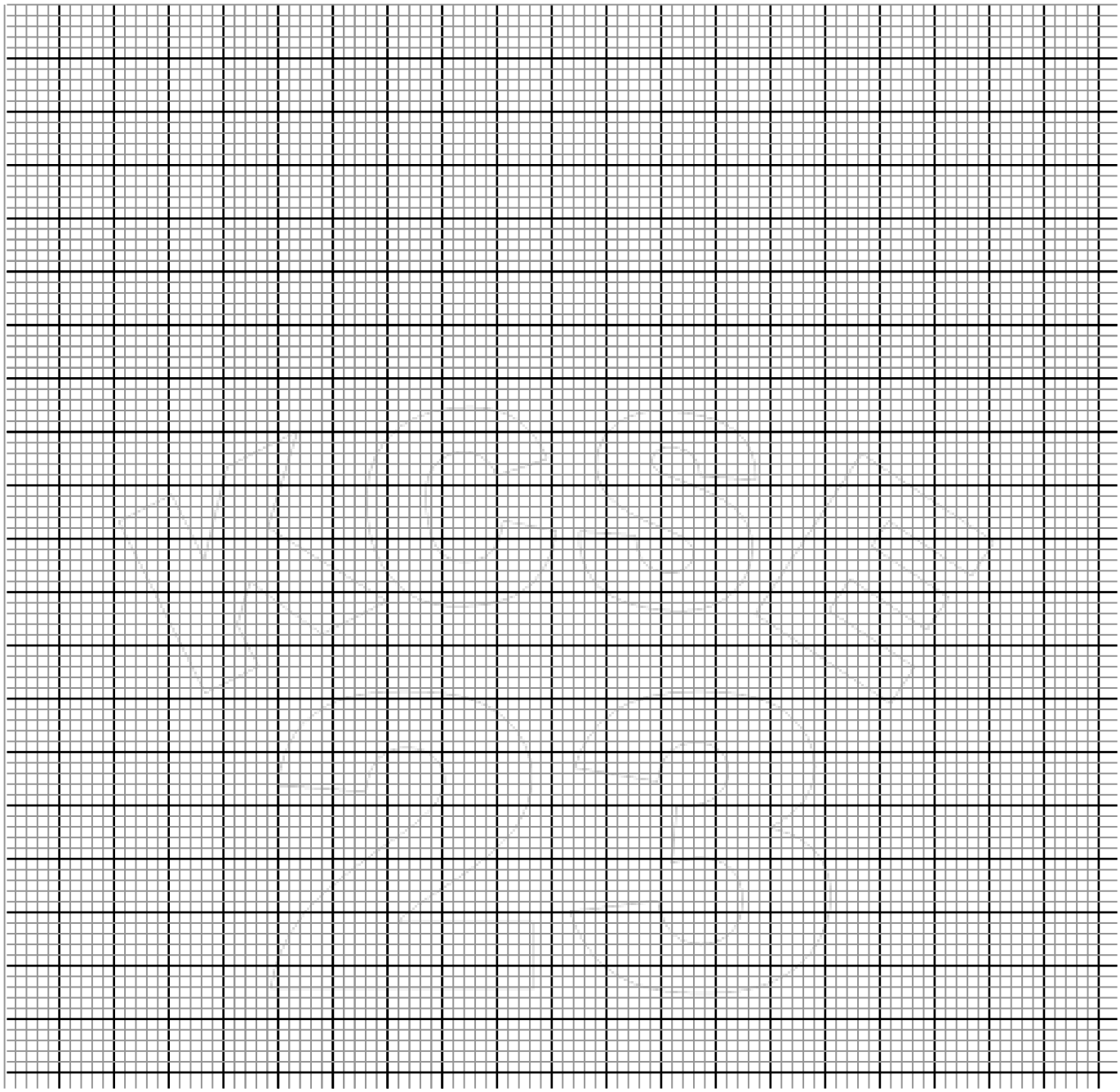

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d. From the graph:

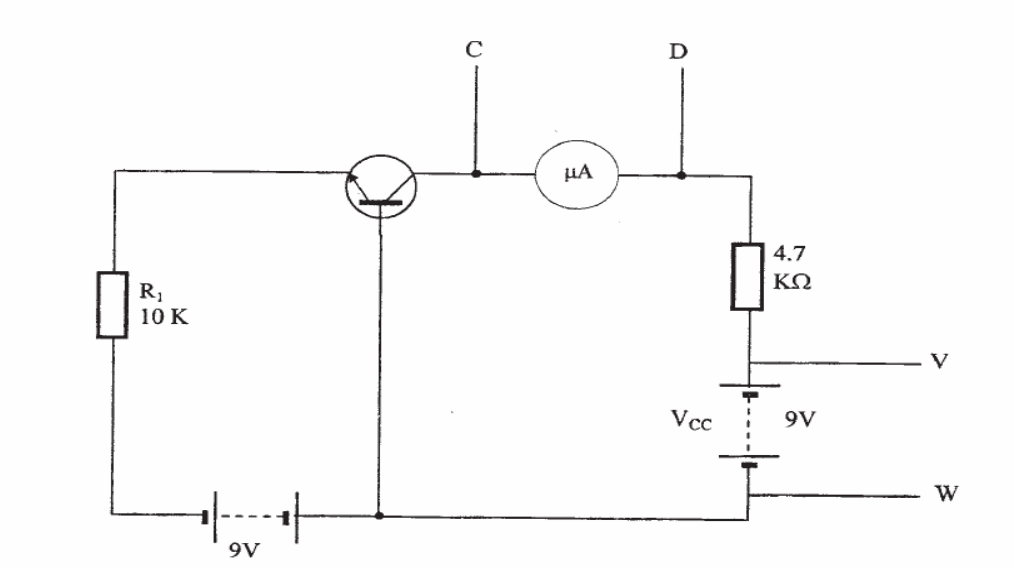
i. Determine the resistance when the voltage is 1.3V

ii. Give a reason for the shape of the graph **(3 marks)**

EXERCISE 2

Using the components, materials and equipment provided, carry out the following tasks:

a. Connect the circuit as shown in the figure below



Let the examiner check your work**.** **(5 marks)**

b. Adjust V_{cc} to the values shown in the table below and for each voltage value measure and record the corresponding value of the collector current, Ic **6 marks)**

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V_{cc}	9	7	5	3	1	0.5
I_c (mA)						

c. Repeat step in (b) above for the values shown in the table below and complete the table

V_{cc} (V)	10	8	6	4	2	0.5
I_c (mA)						

d. From the results obtained in (b) and (c) above, make two comments about the collector current I_c. **(4 marks)**

e. State **two** factors that determine the value of collector current **(2 marks)**

EXERCISE 3

Using the tools, materials and equipment provided, carry out the following tasks:

a. Terminate the three-core flexible cable to the top plug and iron box (15 marks)

b. Turn the thermostat switch to ON position, measure and record the values of resistance between;

i. Live and Neutral at plug……Ohms

ii. Live and earth at plug……...Ohms

iii. Earth at plug and iron box body……..Ohms

iv. Neutral at plug and at iron box…….Ohms

(5 marks)

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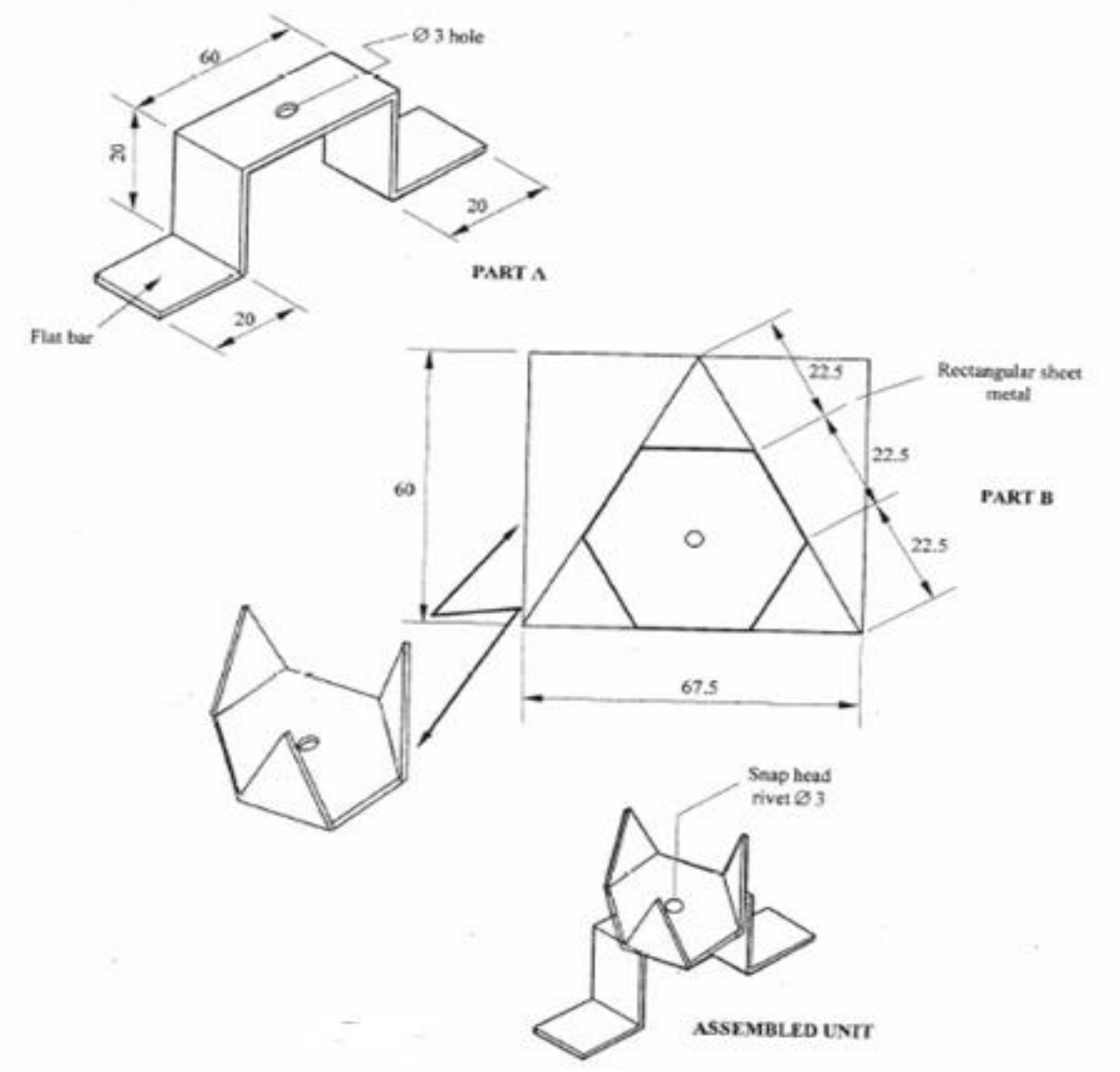
EXERCISE 4

Using the tools, material and equipment provided, fabricate the stand as shown in the figure below. (20 marks)



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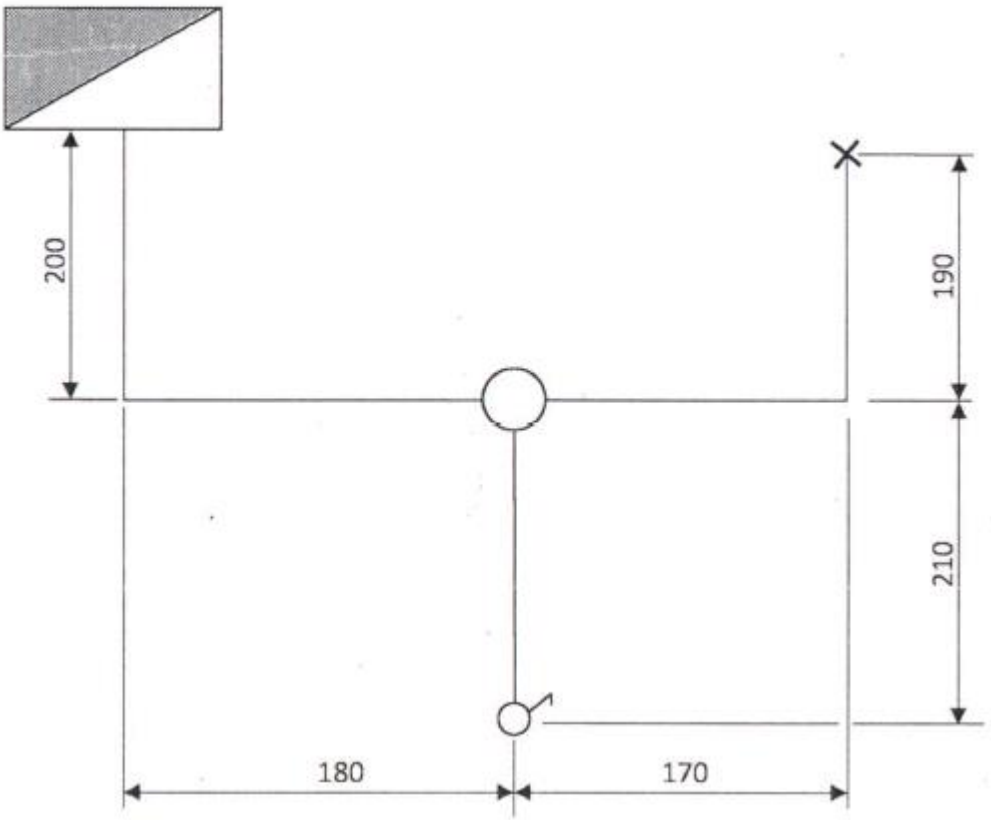
EXERCISE 5

The figure below shows the layout of a final circuit. Using PVC sheathed cables, install the lamps to controlled by one-way switch (20 marks)



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KCSE 2023 PREDICTION

SMARTGRADE SERIES

501/1

FRENCH

PAPER 1

TIME: 2 HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- *This paper has 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 question 7.*
- *Answer all the questions in the spaces provided.*

For Examiners' use only

Section	Maximum score	Candidates score
I	15	
II	5	
III	15	
	Total Score	

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SECTION I: Listening Comprehension (15 marks)

Write answers to questions 1-5 in the spaces provided.

1. Passage 1.

a) (i) Qu'est-ce que Paul et Nadine vont faire samedi?

…… [1 point]

(ii) Où vont-ils dimanche ?

…… [½ point]

b) Quand est-ce que Paul travaille ? …… [½ point]

c) Vendredi, Paul est invité à …… [½ point]

d) Paul s'intéresse aux quels sports ?

i. …….. [½ point]

ii. …… [½ point]

Passage 2

a) La personne que la police cherche est un …… [½ point]

b) Donnez deux aspects physiques de cette personne.

i. …… [½ point]

ii. …… [½ point]

c) Cette personne porte une …… d'oreille et un …… [1 point]

d) Cette personne est blessée au …… [½ point]

Passage 3

a. D'après l'enquête, la personne interviewée préfère

i. …… comme loisir. [½ point]

ii. …… comme sport. [½ point]

iii. ……. comme musique . [½ point]

iv. …… comme sortie. [½ point]

b. Qu'est-ce qu'elle fait pour ses enfants ?

…… [1 point]

c. Si elle avait les moyens, elle aimerait

…… [½ point]

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Passage 4

a) On demande la direction pour aller chez

…… [½ point]

b) Au feu rouge il faut

i. aller …… [½ point]

ii. traverser …… [½ point]

iii. passer …… [½ point]

iv. tourner …… [½ point]

c) L'appartement se trouve au numéro …… [½ point]

Passage 5

a. De quel produit s'agit-il dans le texte ?

…… [½ point]

b. Donnez deux avantages de ce produit.

i. …… [½ point]

ii. …… [½ point]

c. Quand peut-on l'acheter ?

A partir du …… [½ point]

SECTION II: Dictation (5points)

6) Write the dictation passages in the spaces provided.

……

……

……

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SECTION III: Composition (15marks)

7) Write your composition in the spaces provided. Indicate clearly whether your choice is 7 (a) or 7 (b).

In **150 to 180** words, write in French on:

Either:

a) Beginning as follows :

Samedi dernier, je suis sortie avec mes copains. Nous ……

Or

b) Beginning as follows :

Quand on a annoncé que ma tante venait nous rendre visite, j'ai ……

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SMARTGRADE SERIES

501/2

FRENCH

PAPER 2

TIME: 2½ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

INSTRUCTIONS TO CANDIDATES

- *This paper has **THREE** sections*
- *Answer all the questions in the spaces provided.*

SECTION I: READING COMPREHENSIONS ***(15 marks)***

Read the following passages then answer the questions after each passage.

PASSAGE 1

Les championnes kenyanes Vihiga Queens ont passé un après-midi difficile. L'équipe de Women Premier League est éliminée de la première édition de la ligue des champions féminine de la CAF ce vendredi. Ceci, après sa défaite 4-0 contre les Rivers Angels du Nigeria au stade du 30 juin au Caire.

En entamant cette rencontre, les quadruples championnes du Kenya étaient dans état d'esprit de concéder un match nul, ce qui n'a pas été le cas. Un match nul ou une autre victoire contre le club ouest-africain qui a perdu ses deux matchs, était tout ce dont Vihiga avait besoin pour une éventuelle qualification en demi-finale de la compétition. Mais c'est raté pour le kenyanes.

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Questions

a) Pourquoi était-il un après-midi difficile pour Vihiga Queens ? (1 mk)

……..

b) Nommez les pays d'origines de ces équipes. (1 mk)

……., ……..

c) Cet évènement s'est passé où ? (½ mk)

…….

d) Que signifie cette expression, « les quadruples championnes… » (1 mk)

……

e) Trouvez dans le texte l'antonyme de ces mots

(i) facile ……. (½ mk)

(ii) défaite ……. (½ mk)

PASSAGE II

Au cours des dernières années, la technologie a grandement changé la manière de travailler. En effet, elle est utilisée d'une manière ou d'une autre dans toutes les entreprises pour accomplir des tâches spécifiques, pour réduire les erreurs humaines et transmettre plus rapidement des informations.

Cependant, rien n'est pas parfait et il arrive que les technologies entraînent certains effets négatifs au travail.

Questions

a) Le texte, il s'agit de quoi ? (½ mk)

……..

b) Selon le texte, quels sont les avantages de la technologie ? (1½ mks)

……

……

……

c) Donnez des noms qui correspondent aux verbes suivants

(i) accomplir ……. (½ mk)

(ii) entraîner ……. (½ mk)

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PASSAGE III

Une sécheresse dévastatrice à Madagascar, de graves inondations en Afrique de l'Est et de puissants cyclones au Mozambique. Ces récentes catastrophes naturelles ne sont qu'un avant-goût de ce qui attend l'Afrique avec l'intensification de la crise du climat.

Le changement climatique est à l'origine de phénomènes météorologiques de plus en plus extrêmes et perturbe les précipitations sur le continent. Les populations et les économies ressentiront de plus en plus les effets du changement climatique au travers des précipitations- quand celles-ci inonderont les habitations et les entreprises, perturberont les chaînes d'approvisionnement, réduiront les rendements agricoles, et quand les communautés seront privées d'eau potable.

Questions

a) On parle du quel continent ? (½ mk)

…….

b) Énumérez les effets du changement climatique selon ce texte. (1½ mks)

……

……

……

c) Trouvez dans le texte le synonyme de ces mots

(i) aridité …… (½ mk)

(ii) forts …… (½ mk)

(iii) productions …… (½ mk)

d) Trouvez dans le texte l'antonyme de ce mot

(i) arrière-goût …….. (½ mk)

PASSAGE IV

Tous les nutritionnistes sont d'accord : le petit-déjeuner est le repas qui a le plus d'impact sur votre santé. Pour une raison simple: la plupart des gens mangent exactement la même chose tous les matins. Donc si vous avez le malheur de vous tromper d'aliments, vous encrassez votre corps, lentement mais sûrement.

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Si vous prenez un « mauvais » petit déjeuner, vous vieillissez plus vite après 50 ans, vous risquez de provoquer des douleurs articulaires, la fragilisation de vos os ou même la dégénérescence de votre cerveau. C'est dramatique, mais c'est ce qui se passe aujourd'hui, aujourd'hui en 2020, pour des millions de français.

Questions

a) De quoi s'agit-il, ce texte ? (½ mk)

……

b) Nommez les effets d'un « mauvais » petit-déjeuner. (2 mks)

……

……

……

……..

c) Donnez de verbes qui correspondent aux noms suivants.

(i) fragilisation …… (½ mk)

(ii) dégénérescence …… (½ mk)

SECTION II: GRAMMAR *(15 marks)*

Beginning as indicated, complete the sentences below, making all appropriate changes.

a) « Ne traversez pas la rue maintenant ! » (1 mk)

Qu'est-ce que tu dis ?

Je vous dis……..

b) Elise : Maman, c'est nécessaire d'aller chez le médecin ? (1 mk)

Mère : Oui, il faut que ……..

c) Vous avez achetés des vêtements de noël ? (1 mk)

Non,……

d) Les fermiers ont cultivé la terre puis ils ont planté les légumes. (1 mk)

Avant de ……

e) Martin est sorti. Il n'a pas pris son déjeuner. (1 mk)

Sans …….

f) Mes cousins se sont assis sur le banc. (1 mk)

Et maintenant ?

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Maintenant,…… dans le fauteuil.

g) Les enfants jouent et ils crient à tue-tête. (1 mk)

En …….

*Fill in the blanks with **one** word only.* *(5 marks)*

Bientôt une semaine que j'ai été élue grâce (i)…….. vous. Je (ii)…….remercie énormément pour tous vos petits messages de soutien (iii)…… me font tellement chaud (iv) ……. cœur.

Je (v)…….. prépare doucement au voyage qui (vi)…….déroulera à la Réunion et à Miss France qui sera (vii) ……. année à Caen. Je (viii)…… tellement fière de pouvoir représenter (ix)……. magnifique île Mayotte, j'espère(x) …….. tout cœur ne pas vous décevoir.

Match the following questions in column « A » with the answers in column « B »

COLUMN A	**COLUMN B**
a) Vous écrivez quelque chose?	i) Très tôt le matin
b) Qui travaille chez Total?	ii) Elle est arrivée en retard.
c) Quand part l'avion?	iii) On peut y aller par le train.
d) Pourquoi est-ce que Daniel arrive en retard?	iv) Bien sûr, nous sommes dix.
e) Comment allez-vous à Mombasa?	v) Il ne s'est pas réveillé de bonne heure.
f) Votre famille est nombreuse n'est-ce pas?	vi) J'en ai dix.
	vii) Oui, une histoire.
	viii) Chez les amis.
	ix) C'est Jean Paul.

a	b	c	d	e	f

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SECTION III: Composition (10 marks)

*Write your composition in the spaces provided. Indicate clearly whether your choice is **a** or **b***

In 120 -150 words, write in French on**:**

Either :

(a) L'école Bidii a invité votre école pour une journée française. Vous êtes le chef du club de français. Ecrivez une lettre pour accepter l'invitation et pour demander des détails particulaires.

Or

(b) Vous avez vu l'annonce ci-dessous dans le journal « Daily Mail » du 17 novembre 2021 et vous êtes au chômage. Posez votre candidature.

LE LODGE SAFARI
B.P. 45-10610, KISANGANI
CHERCHE
RECEPTIONISTE BILINGUE
FRANCAIS OBLIGATOIRE
EXPERIENCE – 2ANS
ADRESSEZ LETTRE MANUSCRIPTE
AU CHEF DU PERSONNEL

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KCSE 2023 PREDICTION

SMARTGRADE SERIES

501/3

FRENCH

PAPER 3

TIME: 2½ HOURS

NAME…… ADM NO; ……

CLASS…… DATE……

SIGN: ……

Kenya Certificate of Secondary Education.

501/3

FRENCH

PAPER 3

Reading aloud

Card A

Samedi après-midi, un groupe de touristes allemands, en faisant un tour d'un parc national Kenyan dans un minibus, s'est fait dérober des bijoux anciens d'une valeur de 3000 euros. Ces bijoux se trouvaient dans un sac de plage. Deux hommes dans un camion ont profité d'un arrêt de minibus des touristes pour ouvrir la portière et s'emparer du sac. Le chauffeur du minibus les a poursuivis mais sans succès. Finalement, les victimes ont décidé de ne pas porter plainte. Ils ont au contraire promis une récompense de 500 euros à toute personne qui leur permettrait de récupérer leurs bijoux.

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501/3

FRENCH

PAPER 3

Card B

Mombasa la deuxième plus grande ville du Kenya après la capitale, Nairobi est une destination touristique de grande valeur. Cette île de corail situé sur la côte du pays a une population de presque un million de gens. Dans la région, Mombasa est très connu pour son rôle commercial comme le plus grand port et l'entrée dans les régions des grands lacs. Situé au sud de l'équateur à côté de l'Océan Indien, Mombasa a un climat tropical avec les températures de 22°C minimum. A part le soleil qui attire un grand nombre de vacanciers, cette ville offre d'autres plaisirs, par exemple Bamburi Nature Trail : une grande espace verte avec beaucoup de facilités de recréation comprenant une piste de cyclage et un sanctuaire d'animaux, le monument Fort Jésus construit dans la vieille ville avec ses magasins et les nombreuses mosquées et les rues étroites tous donnent l'histoire de la ville.

501/3

FRENCH

PAPER 3

Card C

Les voyages

C'est certainement le moment des vacances. Au guichet, des agences où se pressent les voyageurs. Il ne reste plus que quelques places. A l'aéroport, les taxis défilent. Venant des quatre coins de la ville, tandis que sur la piste décolle un avion toutes les dix minutes. Les radars indiquent d'où proviennent les charters qui demandent à atterrir, mais certains attendent longtemps avant de recevoir l'autorisation de se poser. Pendant ce temps, des terrasses, ceux qui n'avaient pas la chance de partir regardaient en rêvant de ce spectacle étonnant.

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501/3

FRENCH

PAPER 3

Card D

Chez les grands-parents

Toute la famille est réunie au salon. C'est un moment certainement spécial. C'est la fête du grand-père et de la grand-mère qui sont assis sur le canapé. Un beau feu de bois rougit dans la cheminée. Les flammes dansent. Charles fait un petit discours : « cher grand-père, chère grand-mère, dit-il, je vous aime beaucoup. Je vous souhaite une bonne fête, une bonne santé… il ne peut pas finir sa phrase, mais les parents applaudissent, et Henriette offre un joli bouquet à sa grand-mère. Les grands-parents sont heureux, ils embrassent leur petit-fils et leur petite-fille. La mère est debout entre les rideaux de la fenêtre, près de la table. Et le père ? lui, il est derrière les enfants.

501/3

FRENCH

PAPER 3

Exposé

Card A

Vous êtes le chef du club de sport. Expliquez aux membres l'importance de pratiquer le sport.'

501/3

FRENCH

PAPER 3

Exposé

Card B

Décrivez les moyens de transport utilisés dans votre village/quartier

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501/3

FRENCH

PAPER 3

Exposé

Card C

Le téléphone portable a beaucoup d'avantages. Qu'en pensez-vous ?

501/3

FRENCH

PAPER 3

Exposé

Card D

Expliquez comment on détruit l'environnement au Kenya

501/3

FRENCH

PAPER 3

Exposé

Card E

Quels sont les problèmes qui affectent les jeunes ?

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THE END

CALL/TEXT/WHATSAPP

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0742-999-000

kcsepredictions@gmail.com

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