# KCSE SMARTGRADE PREDICTION

## ALL SUBJECTS-2024

*Comprehensive Series of Expected KCSE 2024 Questions likely to be tested in the upcoming Final Examinations.The prediction is a result of works of Experienced KNEC Examiners & professionals, accurately anchored on statistical information available from past KCSE 2001-2023 work.*

**SUBJECTS COMPILED;**

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

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**CONFIDENTIAL**

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*For Marking Schemes/Answers*

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

# PASSWORD TO SUCCESS!

# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

233/1 Chemistry (Theory) Paper 1

**Time: 2 Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**INSTRUCTIONS TO CANDIDATES**

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

***b)*** *Mathematical table and electronic calculators may be used*

***c)*** *All workings must be clearly shown where necessary*

***d)*** *Answer all questions in English.*

**FOR EXAMINER'S USE ONLY**

| QUESTION | MAXIMUM SCORE | CANDIDATE'S SCORE |
|---|---|---|
| 1-30 | 80 | |

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*Answer all the questions*

**1.** The products formed by the action of heat on carbonates A,B, and C are shown below.

| Carbonates | Products Formed |
|---|---|
| A | Metal Oxide + Carbon (iv) Oxide |
| B | Metal, Oxygen and Carbon (IV) Oxide |
| C | No Product |

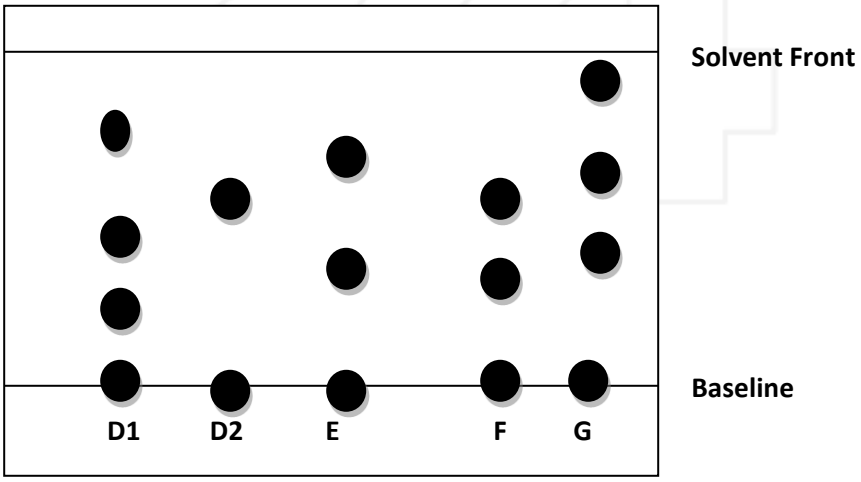
**a)** Arrange the metals in order of reactivity starting with the most reactive. **(2 mks)**

……

**b)** Which of the carbonate is soluble in water? **(1 mk)**

……

**2.** Samples of urine from three participants E, F and G at a national police recruitment exercise were spotted onto a chromatography paper alongside two illegal drugs D1 and D2. A chromatogram was run using ethanol. The diagram below shows the chromatogram.




**a)** Identify the participant who had used an illegal drug. **(1 mk)**

……

**b)** Which drug is less soluble in ethanol? **(1 mk)**

……

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**3.** Describe a simple laboratory experiment that can be used to distinguish between Sodium sulphite and Sodium Sulphate. **(3 mks)**

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**4.** Explain why burning Magnesium ribbon continues to burn in a gas jar full of sulphur (iv) Oxide while a burning wooden splint would be extinguished. **(3 mks)**

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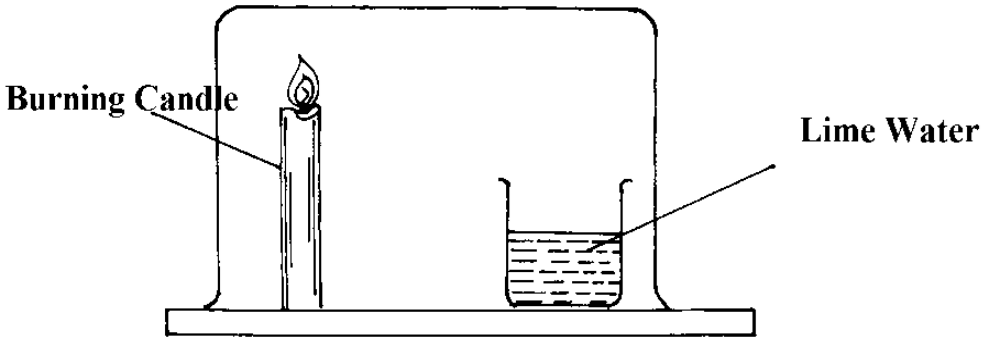
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**5.** Study the arrangement below and answer the questions that follow




State and explain what will be observed after sometime. **(2 mks)**

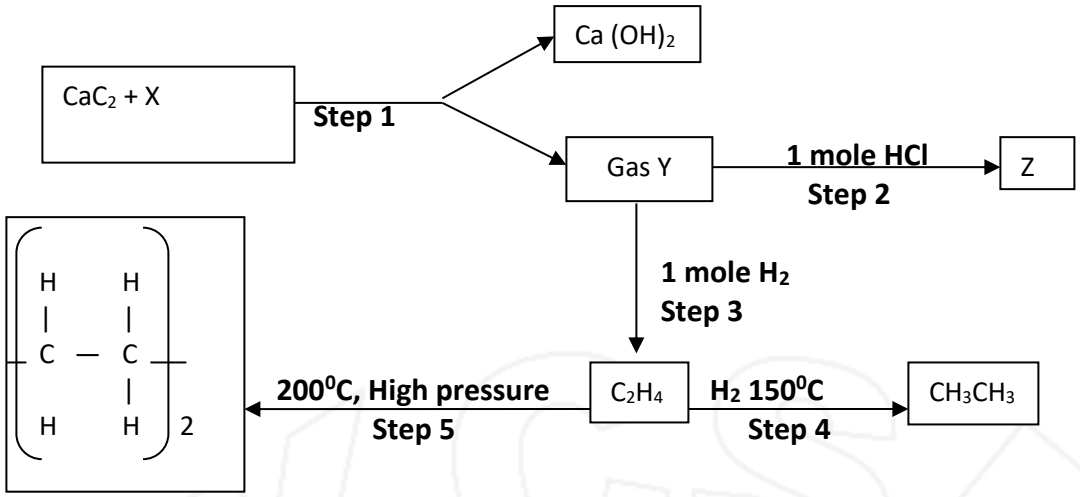
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**6.** Study the diagram below and answer the questions that follow.




**(i)** Identify reagent X. **(1 mk)**

……

**(ii)** Draw the structural formula of gas Y. **(1 mk)**

……

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**(iii)** What name is given to the process that takes place in step 5? **(1 mk)**

……

**7.** Describe a laboratory experiment that can be used to obtain aluminum chloride from a mixture of sodium chloride and aluminum chloride. **(2 mks)**

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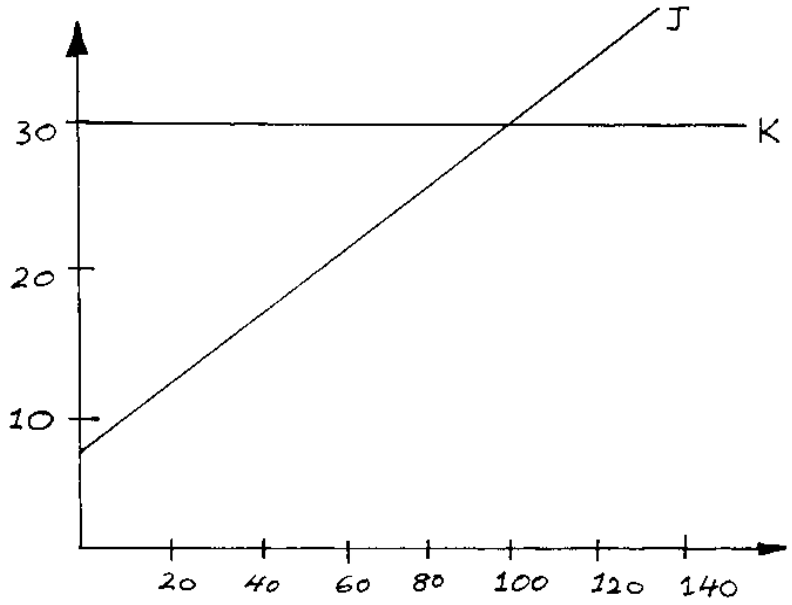
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**8.** The graph below shows the solubility curves for salts J and K.




Which of the two salts is more soluble in water? Explain **(2 mks)**

……

……

……

**9.** The electronic configuration of the ions of $L^{2+}$ and $M^{-}$ are 2.8 and 2.9 respectively.

**a)** Write the electronic configuration of atoms of element L and M. **(1 mk)**

**L**……

**M**……

**b)** Write the formula of the Oxide of L **(1 mk)**

……

**c)** Compare the atomic radius of the element M and the ionic radius of ion $M^{-}$ **(1 mk)**

……

……

**10.** Iron roofing sheets are coated with zinc as "Sacrificial" metal.

**a)** Give the name of the process by which iron sheets are coated with zinc. **(1 mk)**

……

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**b)** Give a reason why copper is not used as " sacrificial" metal in the process you have named in (a) above. **(2 mks)**

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**11.** The empirical formula of a hydrocarbon is $C_2 H_3$. It has a molecular mass of 54.

a) Determine the molecular formula of the hydrocarbon. ( C= 12, H= 1) **(1 mk)**

……

……

**b)** Draw the structural formula and name the hydrocarbon. **(2 mks)**

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**12.** Write chemical equations to show the difference between the bleaching action by chlorine and bleaching action by sulphur (IV) Oxide gases. **(2 mks)**

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**13.** Elements Q and R have atomic numbers 12 and 17 respectively.

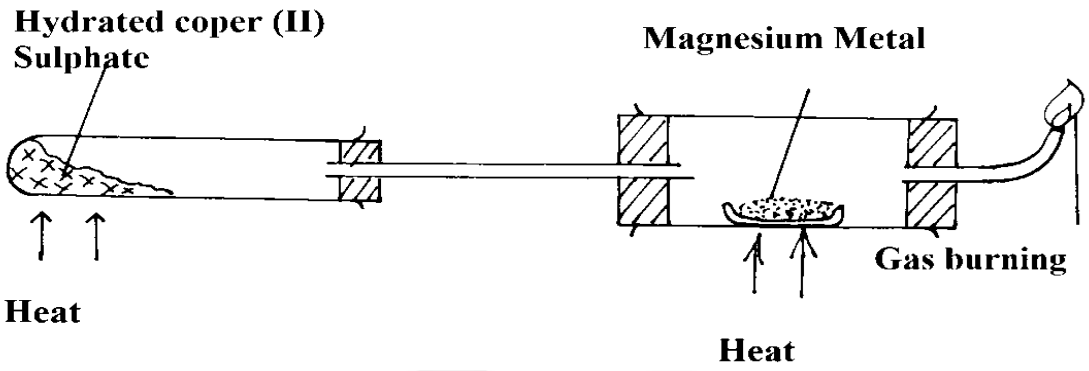
**a)i)** Which element is a metal. **(1 mk)**

……

**ii)** Which dot(.) and (x)cross to represent electrons, show the bonding between Q and R in the compound of the elements. **(2 mks)**

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**14.** Study the set- up below and answer the questions that follow:-




**a)** What is the role of hydrated copper (II) Sulphate in the set- up. **(1 mk)**

……

……

**b)** Identify Gas S? **(1 mk)**

……

**c)** Write a chemical equation for the reaction taking place in the combustion tube**.** **(1 mk)**

……

**15.** Calculate the number of aluminum ions in 250 $cm^3$ of 0.1 M aluminum sulphate.
(Avogadro's Constant = 6.0 $x10^{23}$) **(3 mks)**

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……

**16.** The table below shows solutions and their PH values.

| Solution | PH Value |
|---|---|
| T | 1.5 |
| U | 7.0 |
| V | 14.0 |

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**a)** Select any pair that would react to form a solution of PH 7. **(1 mk)**

……

**b)** Identify two solutions that would react with Alluminium hydroxide.Explain your answer.**(2 mk**

……

……

……

**17.** Name two allotropes of carbon. **(2 mks)**

……

……

**18.** 20 $cm^3$ of gas W takes 12.6 seconds to pass through a orifice. 10$cm^3$ of Oxygen gas takes 11.2 seconds to diffuse through the same orifice under same conditions of temperature and pressure calculate the molecular mass of gas W. **(2 mks)**

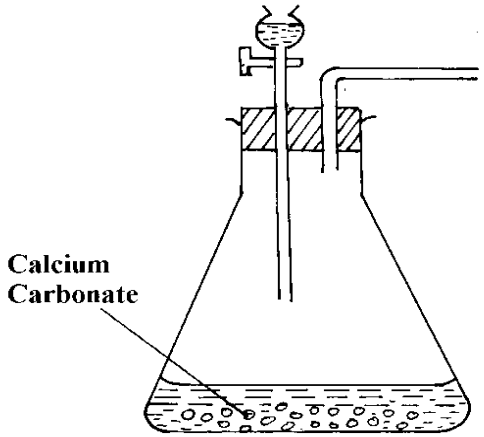
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**19.**The diagram below shows an incomplete set- up of the laboratory preparation of dry carbon (IV) Oxide. Complete the diagram. **(3 mks)**




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**20.** State three uses of Argon **(3 mks)**

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**21.** The table below shows the results obtained when halogens are bubbled into a test tube containing solutions of halides labeled A, B and C. A tick ( ✓) means reaction takes place and (x) no reaction occurs. **Halide ion in solution**

| Halogen | A | B | C |
|---|---|---|---|
| $1_2$ | X | X | X |
| $Br_2$ | X | ✓ | X |
| $Cl_2$ | X | ✓ | ✓ |

**a)** Identify the halide ions represented by letters A,B,and C **(1 ½ mks)**

**A**……

**B**……

**C**……

**b)** State the colour change for the reaction between chlorine and iodide ions and write an ionic equation for the reaction. **(1 ½mks)**

……

……

**22.** In one of the dry practicals assignment to analyze cation a salt, the following observations were made:

| | **Test** | **Observation** | **Inference** |
|---|---|---|---|
| (i) | NaOH dropwise till in excess | White ppt formed soluble in excess | |
| (ii) | $NH_3$ solution dropwise till in excess. | | Presence of $Zn^{2+}$ ions confirmed. |

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**(a)** Fill in the blanks in the table above. **(2 mks)**

**(b)** Give an ionic equation for the reaction that occurs in test (ii) when excess $NH_3$ solution is added. **(1 mk)**

……

……

**23.**Describe how you would prepare a pure sample of lead (II) carbonate starting with lead (II ) oxide. **(3 mks)**

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**24.**Explain how sodium hydrogen carbonate and ammonium chloride are separated in solvey process. **(2 mks)**

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**25.a)** What is fuel? **(1 mk)**

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**b)** Firewood is the main source of fuel in most Kenyan homes. State two effects of wood products of burning fuel on environment. **(1 mk)**

……

……

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**26.** Calculate the mass of Calcium Oxide that can be obtained from 30g of calcium carbonate if completely decomposed by strong heating. **(3 mks)**

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

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**27.** State the two ions that causes hardness in water. **(1 mk)**

……

……

**28.** Below is a table giving solubility a substance A and B at $20^0$ C and $50^0$C

| Substance | Solubility | 100g of water |
|---|---|---|
| | $20^0$C | 40C |
| A | 40 | 65 |
| B | 15 | 17 |

When aqueous mixture containing 55g of A and 12g of B at $80^0$C was cooled to $20^0$C crystals were formed

**a)** Identify the crystal formed **(1 mk)**

……

**b)** Determine the mass of the crystals formed **(1 mk)**

……

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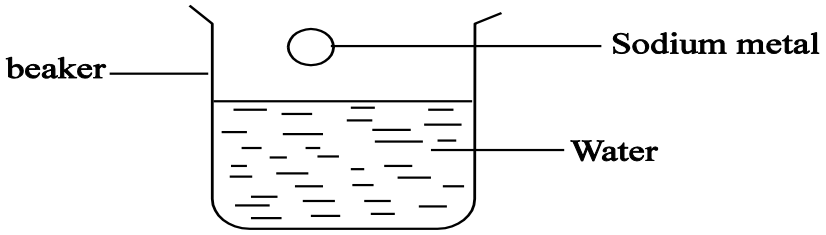
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**c)** Name the method use dot obtain the crystals **(1 mk)**

……

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**29.** The diagram below shows sodium metal being dropped in water. Study it and answer the questions that follow;




**i)** State and explain two observations made during the reaction. **(2 mks)**

……

……

……

**ii)** Write an equation for the reaction that takes place during the experiment. **(1 mk)**

……

**30. i)** In an experiment to determine solubility of solid P in water at $25^0$C, the following results were obtained.

Mass of empty evaporating dish – 24.2g

Mass of evaporating dish + saturated solution = 40.4g

Mass of evaporating dish + dry solid P = 28.4g

Using the information above calculate the solubility of solid Pat $25^0$C in g/100g of water. **(2 mks)**

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**ii)** State one precaution observed when carrying out the experiment in (i) above **(1 mk)**

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

233/2 Chemistry (Theory) Paper 2

**Time: 2 Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education*

**INSTRUCTIONS TO CANDIDATES**

***a)*** *Write your name , Adm No and Class in spaces provided above.*
***b)*** *Sign and write the date of examination in the spaces provided above*
***c)*** *Answer all the questions in the spaces provided below each question. .*
***d)*** *KNEC Mathematical tables and silent electronic calculators may be used.*
***e)*** *All working must be clearly shown where necessary.*

**FOR EXAMINERS USE ONLY**

| QUESTION | MAXIMUM SCORE | CANDIDATE'S SCORE |
|---|---|---|
| 1 | 08 | |
| 2 | 12 | |
| 3 | 12 | |
| 4 | 12 | |
| 5 | 10 | |
| 6 | 13 | |
| 7 | 13 | |
| **Total score** | **80** | |

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*Answer all the questions*

**1. (a)** The table below shows the atomic numbers of elements in the periodic table represented by the letters A to I. The letters are not the actual symbols of the elements.

| Element | A | B | C | D | E | F | G | H | I |
|---|---|---|---|---|---|---|---|---|---|
| Atomic number | 3 | 7 | 8 | 9 | 11 | 12 | 13 | 14 | 16 |

**(I)** Select two elements in the same group. **(1 mk)**

……

**(II)** Select the non-metal and the metal that would react most vigorously with each other**. (1 mk)**

……

**(b)(i)** Draw cross (X) and dots(●) diagram to show bonding in the compound formed between hydrogen and element **B** **(1 mk)**

**(ii)** The compound formed in b(i) above does not conduct electric current in gaseous form but conducts in aqueous form. Explain. **(2 mks)**

……

……

……

**(c)** Explain the difference between the melting points of the oxides of **H** and **I** **(2 mks)**

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……

**(d)** Write an equation for the reaction that takes place between elements **G** and **C**. **(1 mk)**

……

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**2.** (a) When few drops of ammonia solution was added to hydroxides of zinc, copper and Iron(III), the following solution were obtained; colourless solution, deep blue solution and brown precipitate. Identify the substances responsible for;

**(i)** Deep blue solution **(1 mk)**

……

**(ii)** Colourless solution **(1 mk)**

……

**(iii)** Brown precipitate **(1 mk)**

……

**(b)** A saturated solution of potassium chloride is to be prepared at 40$^{o}$C. Its solubility at 40$^{o}$C is 34g/100g water and 27g/100g of water at 5$^{o}$C .

**(i)** What mass of water would be saturated with 8.5g of potassium chloride at 40$^{o}$C**?** **(1mk)**

……

……

……

**(ii)** What mass of potassium chloride would crystallize out if the saturated solution at 40$^{o}$C is cooled to 5$^{o}$C? **(1 mk)**

……

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**(c)** Given **two** samples of sodium carbonate and sodium hydrogen carbonate. Describe a chemical test that would distinguish them. **(2 mks)**

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**(d)** Two equal pieces of magnesium ribbon were placed in two separate test tubes, one containing $10cm^3$ of water and the other containing $10cm^3$ of methylbenzene. State and explain the observations made in the two test tubes. **(2 mks)**

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**(e) In** an experiment, soap solution was added to three separate samples of water. The table below shows the volumes of soap solution required to form lather with 2 litres of each sample of water before and after boiling.

| Sample | Sample A | Sample B | Sample C |
|---|---|---|---|
| Volume of soap before water is boiled ($cm^3$) | 30 | 3 | 13 |
| Volume of soap after water is boiled ($cm^3$) | 30 | 3 | 3 |

**(i)** Which sample is likely to be soft water? Explain. **(2 mks)**

……

……

……

**(ii)** Explain the change in volume of soap used in Sample C. **(1 mk)**

……

……

**3.** (a) $12.0cm^3$ of 0.05M hydrochloric acid reacted completely with calcium hydrogen carbonate solution.

**(i)** Write the chemical equation for the reaction. **(1 mk)**

……

**(ii)** Calculate the number of moles of hydrochloric acid used. **(1 mk)**

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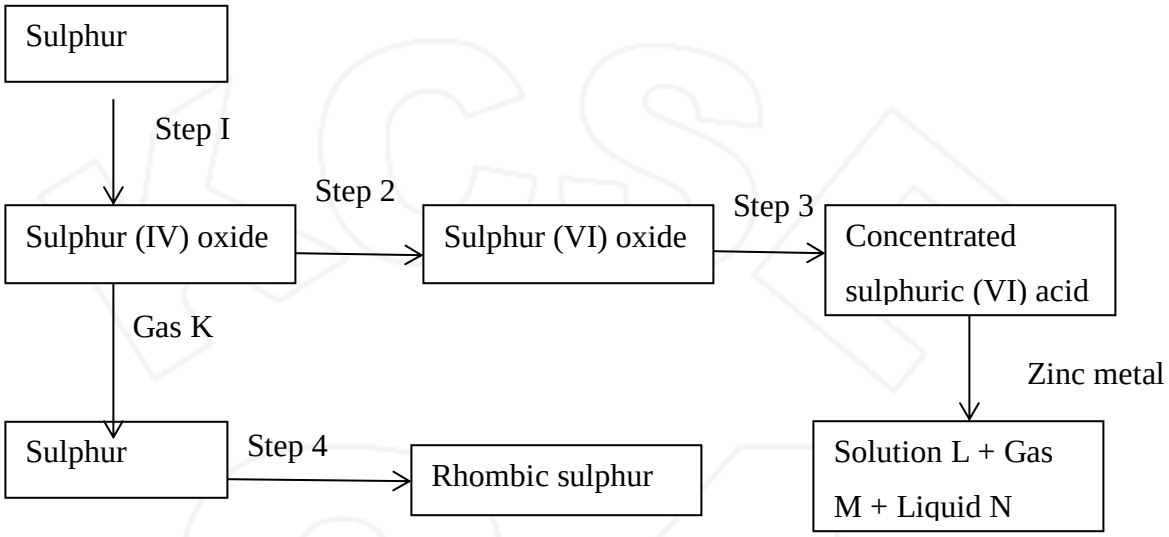
**(iii)** Determine the number of moles of calcium hydrogen carbonate used. **(1 mk)**

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




**I)** Name

**(i)** Gas K. **(1 mk)**

……

**(ii)** Gas M **(1 mk)**

……

**II)** Steps 1, 2 and 3 constitute the contact process. State optimum conditions necessary for step 2 to occur. **(1 mk)**

……

……

**III)** Explain what happens in step 4. **(2 mks)**

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**IV)** Explain why water is not used in step 3 . **(1 mk)**

……

……

**V)** Write an equation to show how pollution effects of sulphur (IV) oxide is controlled in contact process. **(1 mk)**

……

……

**VI)** State **two** uses of sulphur. **(2 mks)**

……

……

**4.** (a) Use the bond energies below to answer the questions that follow.

| Bond | Bond energy ( KJ/Mol) |
|---|---|
| H-H | 436 |
| C= C | 612 |
| C- C | 347 |
| C- H | 413 |

Determine the enthalpy for the following reaction

$C_4H_{8(g)} + H_{2(g)} \longrightarrow C_4H_{10(g)}$ **(3 mks)**

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**(b)** Molar enthalpy of combustion of propanol is -1560Kjmol$^{-1}$.

**(i)** Write a thermochemical equation for the complete combustion of propanol**.** **(1 mk)**

……

……

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**(ii)** Calculate the amount of energy in joules released when 10g of propanol is burnt in excess oxygen. (C=12, H = 1.0,O=16.0) **(2 mks)**

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**(c) (i)** State Hess' law **(1 mk)**

……

……

**(ii)** Use the information below to answer the questions that follow.

$C_{(s)} + O_{2(g)} \longrightarrow CO_{2(g)}$ $\quad \Delta H^{\theta} = -393 Kjmol^{-1}$

$H_{2(g)} + \frac{1}{2} O_{2(g)} \longrightarrow H_2O_{(l)}$ $\quad \Delta H^{\theta} = -287\ Kjmol^{-1}$

$C_3H_8 + 5O_{2(g)} \longrightarrow 3CO_{2(g)} + 4\ H_2O_{(l)}$ $\quad \Delta H^{\theta} = -2209 kj\ mol^{-1}$

**I.** What does the symbol $\Delta H^{\theta}$ represent? **(1 mk)**

……

**II.** Write the equation for the formation of propane from its constituent elements. **(1 mk)**

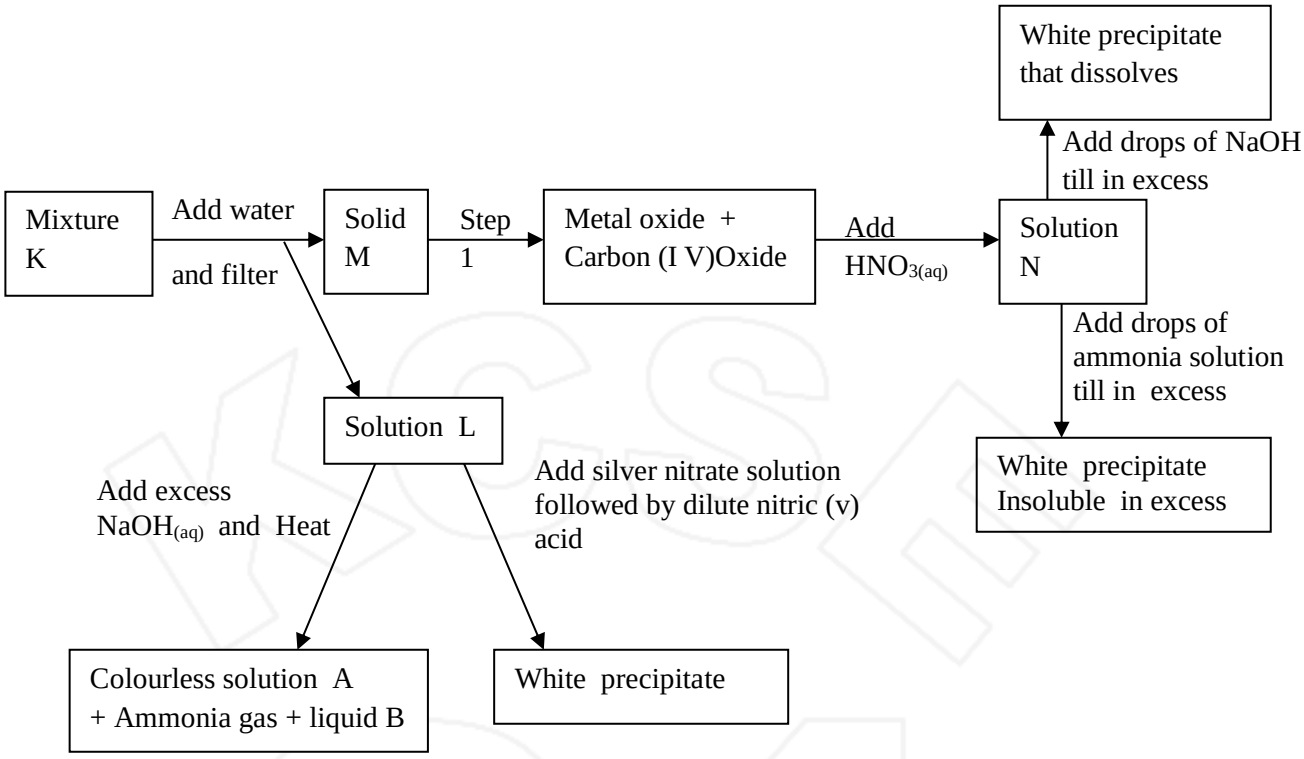
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**III.** With the aid of an energy cycle diagram, calculate the enthalpy of formation of propane. **(3 mk**

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**5.** The flow chart below shows an analysis of mixture **K** that contains two salts. Study it and answer the questions that follow.




**(a)** Identify,

**(i)** Solution **L**: **(1 mk)**

……

**(ii)** Solid **M**: **(1 mk)**

……

**(iii)** Solution **N** : **(1 mk)**

……

**(b)** What condition is necessary in step 1 **(1 mk)**

……

……

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**(c)** State the observations made in step 1 **(1 mk)**

……

……

**(d)** Write down an equation to show how;

**(i) Solution N** is formed. **(1 mk)**

……

**(ii)** Colourless solution **A** and Ammonia gas are formed. **(1 mk)**

……

**(e)** When excess $NaOH_{(aq)}$ is added to solution **N**, a white precipitate is formed which dissolves. Give the name and formula of the ion formed. **(2 mks)**

Name:……

Formula: ……

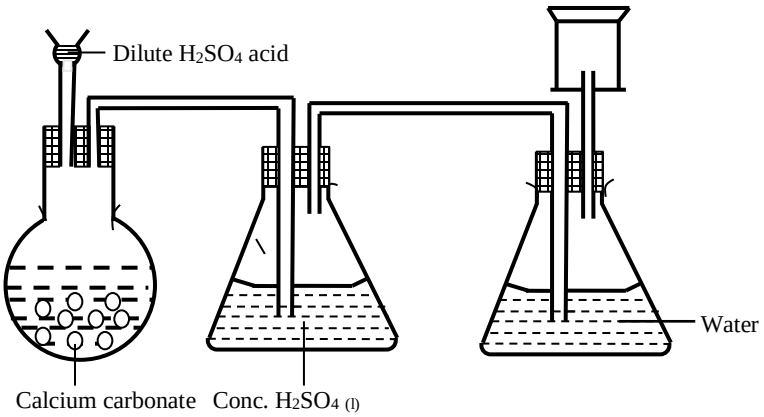
**(f)**Explain why it is necessary to add water to mixture **K** and then filter. **(1 mk)**

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**6.** A student set up the apparatus shown below to prepare and collect dry carbon (IV) oxide gas.




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**(a)**State a correction for three mistakes in the set up above **(3 mks)**

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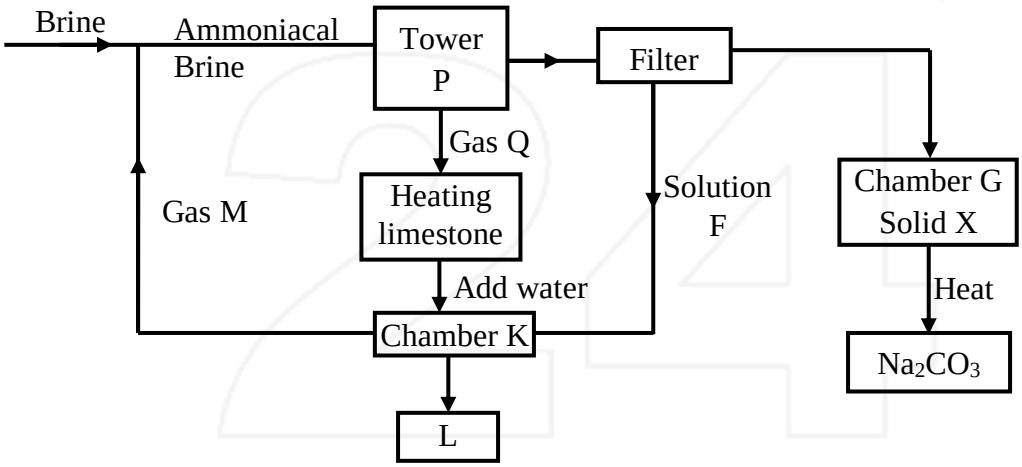
**(b)**Give two reasons why carbon (IV) oxide is used as a fire extinguisher **(2 mks)**

……

……

……

**(c)**The flow chart below is for the manufacture of sodium carbonate by the Solvay process. Use it to answer the questions that follow.




**(i)** Name gas **M: ……..** **(1 mk)**

**Q: ……..**

**(ii)** Name solution F and solid X **(1 mk)**

**F: ……..**

**X: …….**

**(iii) Name** the product L formed and give one of its uses **(2 mks)**

……

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**(iv)** Write equations of the reactions in **(2 mks)**

Tower:

……

Chamber K:

……

**(v)** Name the two raw materials required in the manufacture of sodium carbonate **(2 mks)**

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**7.** A piece of marble chip (calcium carbonate) is put in a beaker containing excess of dilute hydrochloric acid which is placed on a reading balance. The mass of the beaker and its contents is recorded every two minutes as shown in the table.

| Time (min) | 0 | 2 | 4 | 6 | 8 | 10 | 12 |
|---|---|---|---|---|---|---|---|
| Mass (g) | 126.4 | 126.3 | 126.2 | 126.1 | 126.0 | 126.0 | 126.0 |

**i)** Why is there a continuous loss of mass of the reaction mixture. **(1 mk)**

……

……

**ii)** Write an equation for the reaction taking place. **(1 mk)**

……

**iii)** State two different ways by which the reaction could have been made more rapid**. (2 mks)**

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**iv)** Why does the mass remain constant after 8 minutes **(1 mk)**

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**v)** State the observations that would be made if a few drops of lead II nitrate solution was added to 1cm$^3$ of the resulting solution followed by excess ammonia solution. **(2 mks)**

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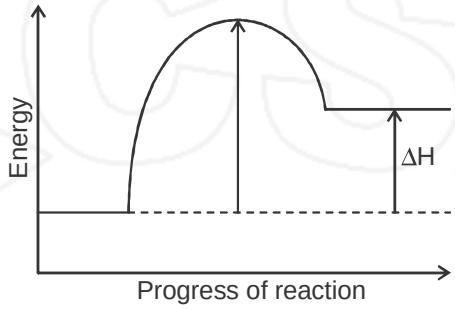
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**vi)** State one environmental effect that excess carbon (IV) oxide in the air causes**.** **(1 mk)**

……

**vii)** The energy profile for the forward direction of a reversible reaction is shown.




Sketch on the diagram the path for a catalysed reaction. **(1 mk)**

**viii)** What do you observe when you introduce the following substances in this equation

$$2CrO^{2-}_{4(aq)} + 2H^{+}_{(aq)} \rightleftharpoons Cr_2O^{2-}_{7(aq)} + H_2O_{(l)} \qquad \Delta H = -477Kj/Mol$$

Yellow Orange

**i)** Dilute hydrochloric acid solution. Explain **(2 mks)**

……

……

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**ii)** Increase heat **(2 mks)**

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

233/3 Chemistry (Practical) Paper 3

**Time: 2¼ Hours**

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**SCHOOL…… SIGN……**

## CHEMISTRY CONFIDENTIAL

**A each candidate should have the following**

***1.*** *Solid A Measures exactly 2.0g of oxalic acid*
***2.*** *Solution B 60 $cm^3$ of 0.5m oxalic acid*
***3.*** *Solution C -50$cm^3$ of 0.25M sodium hydroxide solution*
***4.*** *Solution D -100$cm^3$ of 0.02M acidified KMnO4 solution*
***5.*** *Burrette-50ml*
***6.*** *25 ml pipette*
***7.*** *Pipette filler*
***8.*** *250 $cm^3$ volumetric flask*
***9.*** *50ml measuring cylinders*
***10.*** *Thermometer (-$10^0$C-$110^0$C)*
***11.*** *2-conical flask*
***12.*** *100ml plastic beaker*
***13.*** *Accessible to about 500$cm^3$ of distilled water*
***14.*** *Means of labeling*
***15.*** *Solid G – 0.5g of oxalic acid*
***16.*** *10$cm^3$ of solution F*
***17.*** *A boiling tube*
***18.*** *Test tube holder*
***19.*** *The test tubes*
***20.*** *10$cm^3$ measuring cylinder*
***21.*** *Filter paper and filter funnel*
***22.*** *Metallic spatula*
***23.*** *Boiling tube*

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**B. <u>Accessible to the following</u>**

*1. Source of heat.*
*2. 2M sodium hydroxide solution*
*3. 2M ammonia solution.*
*4. 2M Nitric (v) acid*
*5. 0.5M Barium chloride solution*
*6. Universal indicator paper and a chart*

**<u>N/B</u>**

- ✓ All the bench solutions supplied with a dropper
- ✓ Solution F is a mixture of $Al_2(SO_4)_3$ and $Cu(No_3)_2$ in the ratio of 1.1
- ✓ O.5M oxalic acid is prepared by dissolving 63g in distilled water and making it to one litre
- ✓ 0.25M NaOH is prepared by dissolving 10g of sodium hydroxide in water and making it to one litre
- ✓ 0.02M acidified $KMnO_4$ Dissolve 3.2g of KM $nO_4$ crystals in about 500cm3 of water then acidify with about 400$cm^3$ of 1M $H2SO_4$ and make up to a litre

- ✓ 2M $NH_4OH$ Measuring 112 $cm^3$ of Ammonium solution make it up to a litre
- ✓ 0.5M Barium Chloride,Dissolve 104g in a little water then make up to 1 litre
- ✓ 2M $HN0_3$Dissolve 125$cm^3$ of conc.$HN0_3$ acid in a little water and then make it a litre

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

233/3 Chemistry (Practical) Paper 3

**Time: 2¼ Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

## *Kenya Certificate of Secondary Education*

**INSTRUCTIONS TO CANDIDATES**

*-Write your name and index number in the spaces provided above.*

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

*-You are not allowed to start working with the apparatus for the first 15 minutes of the 2 ¼ hours allowed for this paper.*

*-This time is to enable you to read the question paper and make sure you have all apparatus and chemicals that you may need.*

*-All working must be clearly shown, mathematical and electronic calculators may be used.*

**FOR EXAMINER'S USE ONLY**

| QUESTIONS | MAXIMUM SCORE | CANDIDATE'S SCORE |
|---|---|---|
| 1 | 21 | |
| 2 | 11 | |
| 3 | 08 | |
| TOTAL | 40 | |

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*Answer **ALL** the questions*

**1. You are provided with:**

-Solid A 2.0g of dibasic acid, $H_2X$.
-Solution B, 0.5M solution of dibasic acid, $H_2X$.
-Solution C, Sodium hydroxide solution
-Solution D, 0.02M acidified Potassium Manganate (VII) solution.

**You are required to determine:**

a) The heat of reaction of solid A, $H_2X$ with sodium hydroxide.

b) The number of moles of solution E that reacts with 2 moles of acidified potassium manganate (VII) solution.

**PROCEDURE 1 (A)**

Place 40$cm^3$ of distilled water into 100ml beaker. Measure the initial temperature of water and record in the table 1 below. Add all the solid A provided at once. Stir the mixture carefully with the thermometer until **ALL** the solid dissolves. Measure the final temperature and record in table 1. **TABLE 1** **(1 mk)**

| | |
|---|---|
| Final temperature ($^o$C) | |
| Initial temperature( $^0$C) | |

**a)** Determine the change in temperature $\Delta T$. **(1 mk)**

……

**b)** Calculate the

i) Heat change when $H_2X$ dissolves in water. (Assume the heat capacity of solution is 4.2J/g/$^0$C and density of the solution is 1 g/$cm^3$**).** **(1 mk)**

……

……

……

**ii)** The molar heat of solution, $\triangle H_1$ solution of the acid $H_2X$. (Molar mass of acid $H_2X$ is 126g)

**(2 mks)**

……

……

……

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## PROCEDURE 1 (B)

Place 40cm$^3$ of solution B into 100ml beaker. Measure the initial temperature and record in table II below. Measure 40cm$^3$ of sodium hydroxide solution C. Add all the 40cm$^3$ of solution at once to solution. Stir the mixture carefully with thermometer. Measure the final temperature reached and record in table II. (Keep remaining solution n B to use in procedure II)

**Table II**

| | |
|---|---|
| Final temperature($^o$C) | |
| Initial temperature( $^0$C) | |

**(1 mk)**

**a)** Determine the change in temperature, $\Delta T$. **(1 mk)**

……

……

**b)** Calculate the

**i)** Heat change for the reaction. (Assuming the heat capacity of the solution is 4.2J/g/$^0$C and density of the solution is 1g/cm$^3$) **(1 mk)**

……

……

……

**ii)** Heat for the reaction of one mole of the acid $H_2X$ with sodium hydroxide, $\Delta H_2$. **(2 mks)**

……

……

……

**c)** Given that $H_2X(s) + 2OH^-(aq) \quad 2H_2O(l) + X^{2-}(aq)$

Determine $\Delta H_3$ using an energy circle diagram**.** **(2 mks)**

……

……

……

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**PROCEDURE II**

Measure exactly 15cm$^3$ of solution B and put in 250ml volumetric flask. Add water as you shake up to the mark. Label as solution E. Using a pipette, pipette 25cm$^3$ of solution E and place in a conical flask. Warm solution E to boiling. Fill the burette with solution D and titrate with hot solution E. Stop just when a permanent change in color appears. Record your results in table III below. Repeat the procedure to complete table III below. **(4 mks)**

| | **I** | **II** | **III** |
|---|---|---|---|
| **Final burette reading (cm$^3$)** | | | |
| **Initial burette reading (cm$^3$)** | | | |
| **Volume of solution D used** | | | |

**a)** Calculate the average volume of solution D used**.** **(1 mk)**

……

……

**b)** Calculate the number moles of solution D reacting. **(1 mk)**

……

……

……

**c)** Calculate the number of moles of solution E used. **(1 mk)**

……

……

……

**d)** Calculate the number of moles of E which react with 2 moles potassium Manganate (VII). **(2 mks)**

……

……

……

……

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**2. a)** You are provided with solution F in a conical flask. Carry out the following test and record your observations and inferences in the spaces provided.

**i)** Add 20cm$^3$ of 2M sodium hydroxide solution to solution F in the flask; shake well. filter the mixture in a clean boiling tube. Retain the filtrate and the residue.

| **Observation** | **Inferences** |
|---|---|
| (1 mk) | (1 mk) |

**ii)** Place about 2cm$^3$ of the filtrate in a test tube. Add 2M nitric (v) acid drop wise until in excess. Retain the mixture.

| **Observation** | **Inferences** |
|---|---|
| ( 1 mk) | (1 mk) |

**iii)** Divide the mixture in (ii) above into two portions. To one portion add 2M sodium hydroxide solution drop wise until in excess.

| **Observation** | **Inferences** |
|---|---|
| ( 1 mk) | (1 mk) |

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**iv)** To portion two, add 2M ammonia solution drop wise until in excess.

| **Observation** | **Inferences** |
|---|---|
| ( 1 mk) | ( 1 mk) |

**v)** Place about $2cm^3$ of filtrate in a test tube. Add 3 drops of barium chloride solution.

| **Observation** | **Inferences** |
|---|---|
| (½ mk) | ( ½ mk) |

**vi)** To the residue add about $5cm^3$ of 2M nitric (v) acid a and filter into a test tube. Place about $2cm^3$ of this filtrate in a test tube. Add 2M ammonia solution drop wise until in excess.

| **Observation** | **Inferences** |
|---|---|
| ( 1 mk) | ( 1 mk) |

**b)** You are provided with solid G. Carry out the tests below and record your observations and inferences in the spaces provided.

**i)** Using a metallic spatula heat half spatula end full of solid G in a non-luminous flame. Remove it when it ignites.

| **Observation** | **Inferences** |
|---|---|
| (1 mk) | ( 1mk) |

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**ii)** Put the remaining solid G in a boiling tube. Add about $5cm^3$ of distilled water and shake vigorously. (Keep the content for the next test)

| **Observation** | **Inferences** |
|---|---|
| (1 mk) | (1 mk) |

**iii)** Divide the resulting solution into two portions. To the first portion add two drops of acidified potassium Manganate (VII) solution and shake vigorously.

| **Observation** | **Inferences** |
|---|---|
| ( 1 mk) | ( 1 mk) |

**iv)** Test pH of the second portion using pH indicator paper.

| **Observation** | **Inferences** |
|---|---|
| (1 mk) | ( 1 mk) |

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

232/1 Physics (Theory) Paper 1

**Time: 2 Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**INSTRUCTIONS TO CANDIDATES**

- *Answer **ALL** the questions in the spaces provided.*
- ***ALL** working **MUST** be clearly shown.*
- ***ALL** numerical answers **MUST** be expressed in decimal forms.*

**FOR EXAMINER'S USE ONLY**

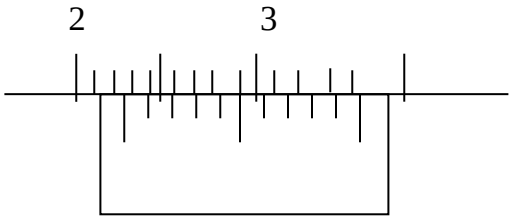
| SECTION | QUESTION | MAXIMUM SCORE | SCORE |
|---|---|---|---|
| A | 1-12 | 25 | |
| B | 13 | 12 | |
| | 14 | 11 | |
| | 15 | 12 | |
| | 16 | 12 | |
| | 17 | 08 | |
| TOTAL SCORE | | 80 | |

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## SECTION A (25 MARKS)

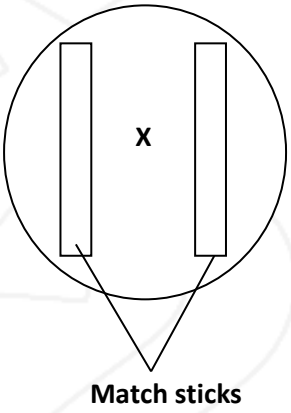
***Answer all the questions in this section in the spaces provided.***

**1.** The Figure below shows part of a scale of vernier calipers. What is the reading indicted by the scale? **(2 marks)**




……

**2.** The Figure shows two match sticks placed on water in a basin a few centimeters apart.




State and explain the observation made when a drop of soap solution is placed at a point marked x. **(2 marks)**

……

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**3.** When a body of mass 0.35kg is acted upon by a force, its velocity changes from 3.5m/s to 6.0m/s.Determine the power developed by the force. **(2marks)**

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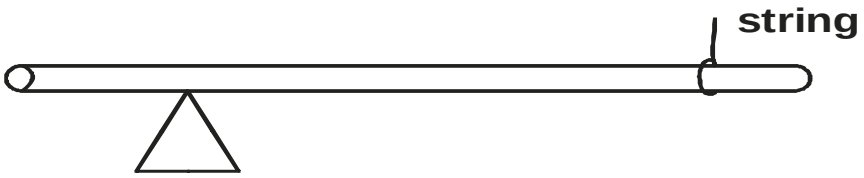
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**4.** Figure below shows a uniform rod 4m long and of mass 2kg. It is pivoted 1m from one end and balanced horizontally by a string attached near the other end.




Determine the position where a mass of 5kg should be placed on the rod so that the rod remains horizontal and the tension in the string is zero. **(3 marks)**

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**5.** Water flows steadily along a horizontal pipe at a volume rate of $8 \times 10^{-3}$ $m^3/s$. if the area of cross-section of the pipe is 20 $cm^2$. Calculate the velocity of the fluid. **(2marks)**

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**6.** State any two states of equilibrium. **(2 marks)**

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……

**7.** A ball is thrown from the top of a cliff 20m high with a horizontal velocity of $10ms^{-1}$. Calculate the distance from the foot of the cliff to where the ball strikes the ground. **(3 marks)**

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**8.** Explain o**n**e advantage of mercury over alcohol as a thermometric liquid. **(1mark)**

……

……

**9.** A body of mass **M** is allowed to slide down an inclined plane. State **two** factors that affect its final velocity at the bottom of the inclined plane. **(2marks)**

……

……

……

**10.** For an enclosed system with a liquid, a force is applied at one point.

**a)** Briefly explain how force is transmitted to other parts of the system. **(1 marks)**

……

……

**b)** State one application of such a system. **(1 marks)**

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……

**11.** A 150g mass tied on a string is whirled in a vertical circle of radius 30cm with a uniform speed. At the lowest position the tension in the string is 9.5N, Calculate the velocity of the mass. **(2 marks)**

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**12.** A spring of elastic constant K has its length increased from 4.00m when unloaded to 4.25m when loaded with a 75N weight. Assuming that the elastic limit is not exceeded, determine the value of K. **(2 marks)**

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## SECTION B: 55 MARKS

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

**(b)** Find:

**(i)** Velocity ratio (V.R.**)** **(1mark)**

……

……

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

**a.** Mechanical advantage (M.A) **(2marks)**

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**b.** Efficiency of the pulley system. **(2marks)**

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**(iii)** All the wasted energy is used to raise the lower block and to overcome frictional force between the pulleys and moving parts; determine the weight of the lower block if the frictional force is 3.6N. **(2marks)**

……

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

**(2marks)**

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

……

……

**14.**

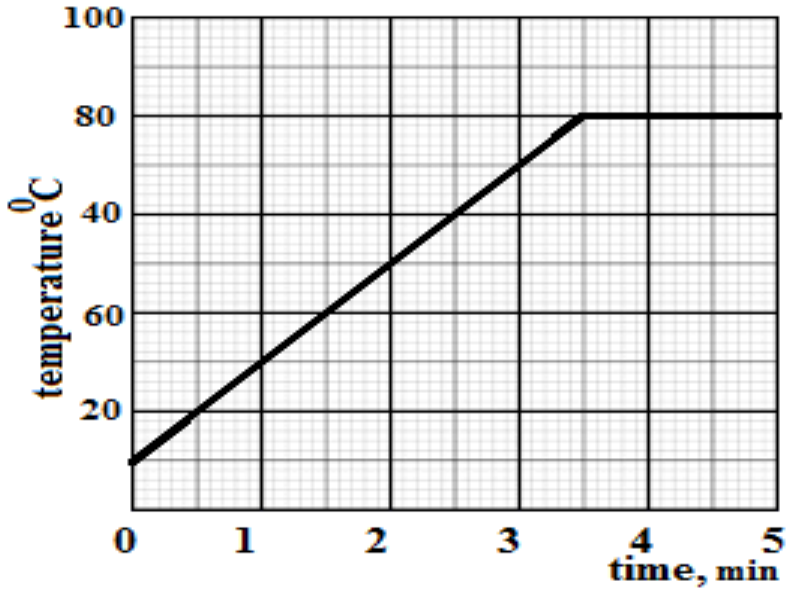
**a)** State two factors that affect the boiling point of a liquid **(2 marks)**

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**b)** 100g of a liquid at a temperature of $10^0$ C is poured into a well lagged calorimeter. An electric heater rated 50W is used to heat the liquid. The graph in figure shows the variation of the temperature of the liquid with time.




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**(i)** From the graph, determine the boiling point of the liquid **(1 mark)**

……

**(ii)** Determine the heat given out the by the heater between the times t = 0.5 minutes and t = 5.0 minutes **(2 marks)**

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**c)** From the graph determine the temperature change between the times t = 0.5 minutes and t = 5.0 minutes, hence determine the specific heat capacity of the liquid. **(3 marks)**

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**d)** 1.8 g of vapor was collected from above the liquid between the times t= 3.5 minutes and t= 4.5 minutes. Determine the specific latent heat of vaporization of the liquid. **(3 marks)**

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**15.** a) Define "absolute zero temperature" for an ideal gas **(1 mark)**

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**b)** Using kinetic theory, explain Boyle's law for an ideal gas. **(2marks)**

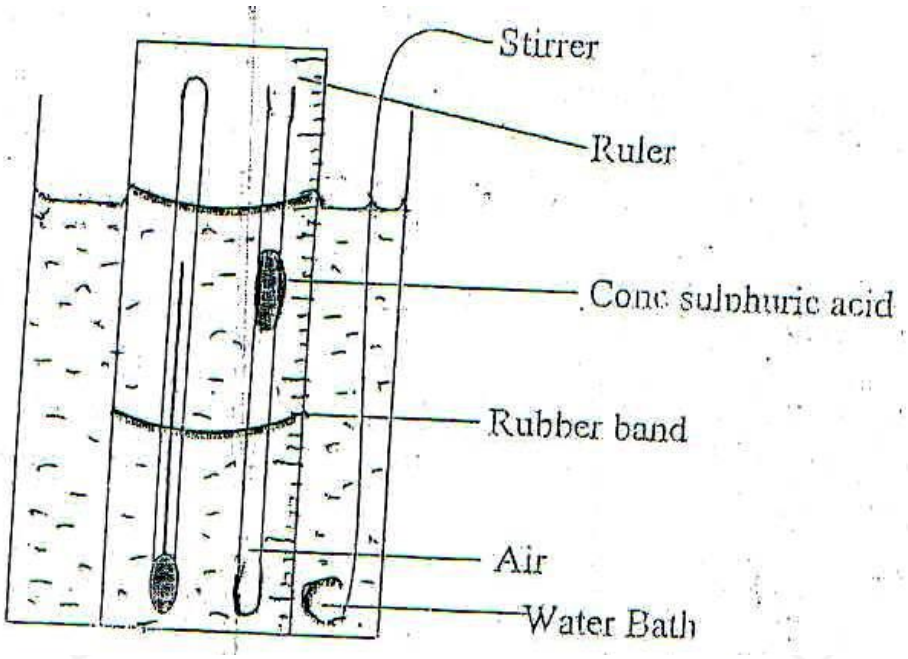
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**c)** The diagram shows an experiment to investigate the relationship between volume and temperature of a fixed mass of gas at constant pressure.




**i)** Explain the function of;

(I) Concentrated sulphuric acid **(1 mark)**

……

……

(II) Stirrer **(1 mark)**

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……

**ii).** Explain how the set up above can be used to verify Charles law for an ideal gas **(3marks)**

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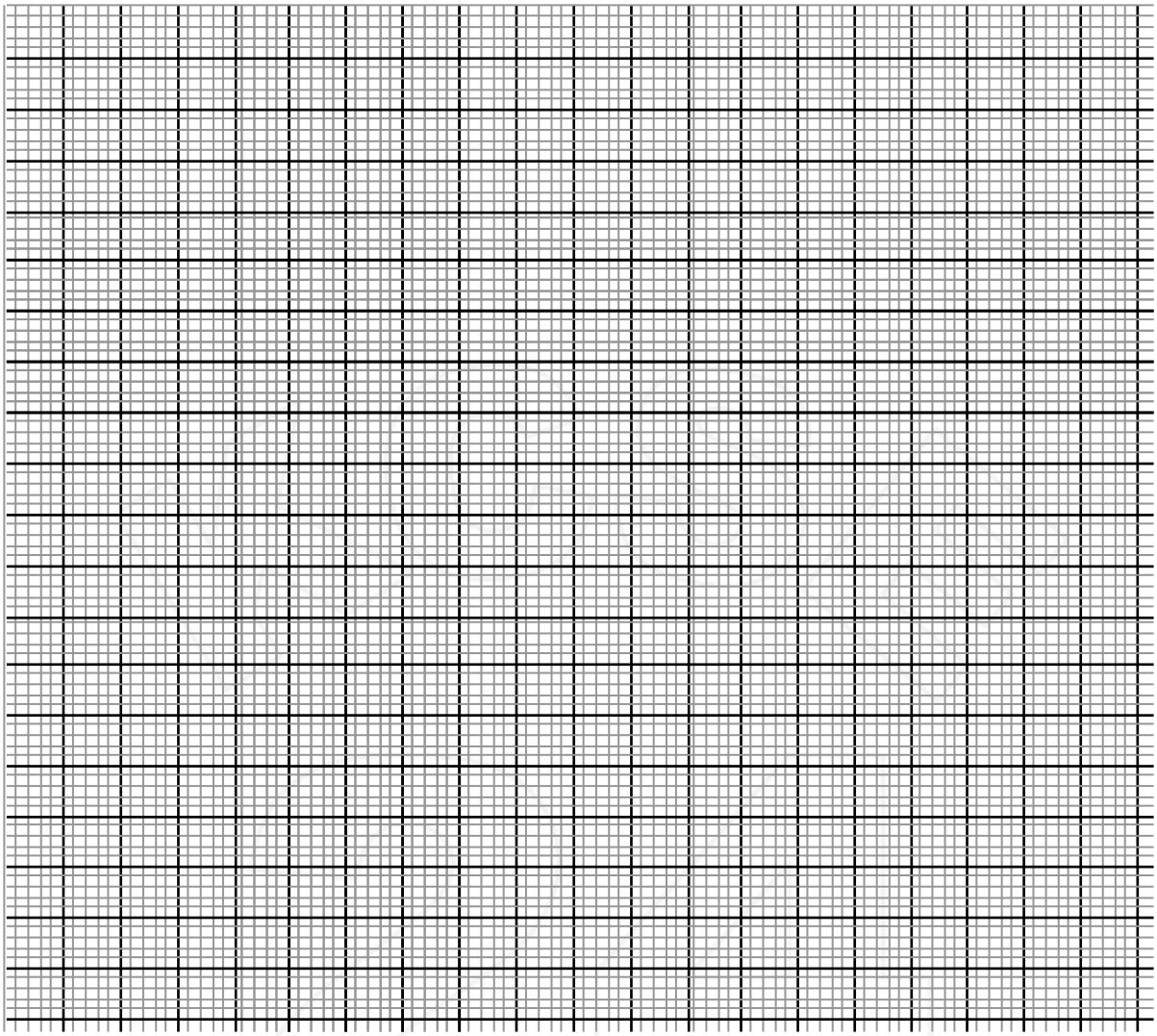
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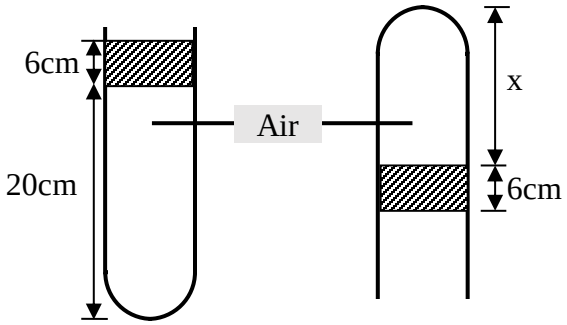
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**iii.** On the grid below sketch a graph of volume ($cm^3$) against temperature ($^0c$). Mark with letter T the absolute zero temperature. **(2 marks)**



**(d)**A column of air 20cm long is trapped by mercury thread 6cm long as shown in figure below.




If the tube is now inverted, determine column X in figure b).Take atmospheric pressure as 76cm of mercury. **(2marks)**

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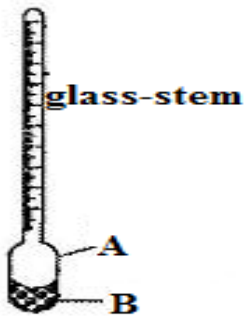
**16.**

**a)** State the law of floatation **(1 mark)**

……

……

**b)** Figure below shows a simple hydrometer




A ……

B ……

**i.** Identify the parts labelled A and B **(2 marks)**

**ii.** State the purpose of the part labelled B **(1 mark)**

……

……

**c)** How would the hydrometer be made more sensitive? **(1 mark)**

……

……

**d)** Describe how the hydrometer is calibrated to measure relative density. **(3 marks)**

……

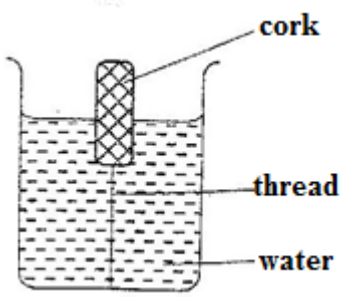
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**e)** Figure shows a cork floating on water and held to the bottom of the beaker by a thin thread.

**i.** Name the forces acting on the cork **(2 marks)**




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**ii.** Describe how each of the forces mentioned in(i) above changes when water is added until the container is completely filled **(2 marks)**

……

……

……

**17.** (a) (i) What is meant by perfectly inelastic collision. **(1 mark)**

……

……

**(ii)** A minibus of mass 1600kg travelling at a constant velocity of 20mls collides with a stationary car of mass 800kg. The impact takes 2 seconds before the two moves together and come to rest after 15 seconds. Determine.

**(a)** The common velocity**.** **(3marks)**

……

……

……

……

**(b)** The distance moved after the impact. **(2 marks)**

……

……

……

**(iii)** The impulse force. **(2 marks)**

……

……

……

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

232/2 Physics (Theory) Paper 2

**Time: 2 Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**INSTRUCTIONS TO CANDIDATES**

- *This paper consists of **13** questions.*
- *Answer **ALL** the questions in the spaces provided.*
- ***ALL** working **MUST** be clearly shown.*

**For Examiner's Use Only**

| SECTION | QUESTION | MAXIMUM SCORE | SCORE |
|---|---|---|---|
| A | 1-11 | 25 | |
| B | 12 | 12 | |
| | 13 | 10 | |
| | 14 | 09 | |
| | 15 | 13 | |
| | 16 | 11 | |
| TOTAL SCORE | | 80 | |

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## SECTION A: 25marks

**1.** The chart below shows an arrangement of different parts of the electromagnetic spectrum.

| | | | | | |
|---|---|---|---|---|---|
| Radio wave | A | Infrared rays | B | Ultra-violet | $\chi$-Rays |

Name the radiation represented by

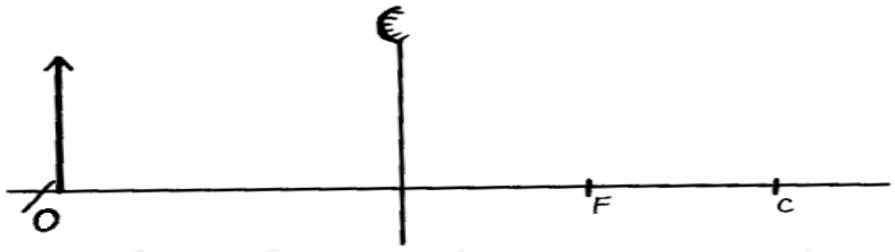
**A …….** **(1mark)**

State one use of radiation represented by B **(1mark)**

**……**

**……**

**2.** An object O is placed in front of convex mirror as shown in the diagram below. Complete the diagram to locate the position of the image, 1. **(3 marks)**




**3.** The figure below shows a wire carrying current whose direction is out of the paper. The wire is placed in a magnetic field.




**(a)Indicate** on the figure the direction of the force F, acting on the wire**.** **(1mark)**

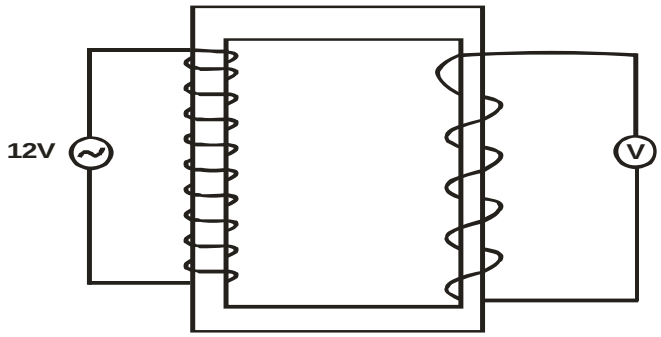
**(b)State** what would be observed on the wire if the direction of the current is reversed. **(1 mark)**

**……**

**……**

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**4.** Figure 5 below shows a simple transformer connected to a 12v a.c source and an a.c voltmeter.




Determine the reading on the voltmeter. **(3marks)**

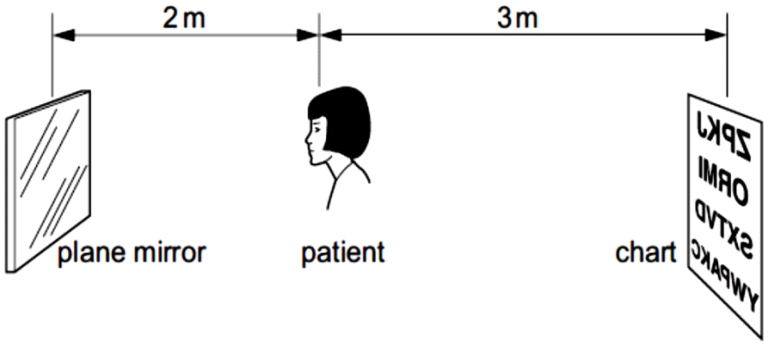
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**5.** The diagram shows a patient having her eyes tested. A chart with letters on it is placed behind her and she sees the chart reflected in a plane mirror.




Determine how far away from the patient, the image of the chart is seen. **(2marks)**

……

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**6.** State Snell's law**.** **(2mark)**

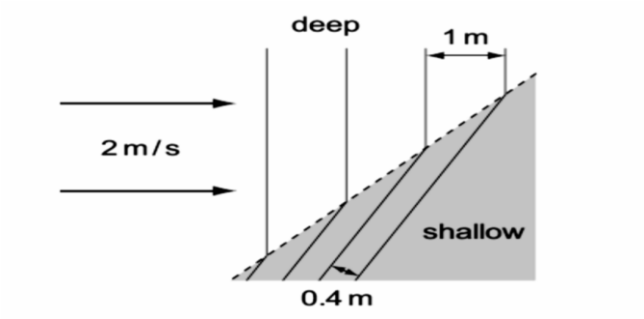
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**7.** Waves pass from deep water to shallow water and refraction occurs.




Calculate the speed of the waves in the shallow water. **(3marks)**

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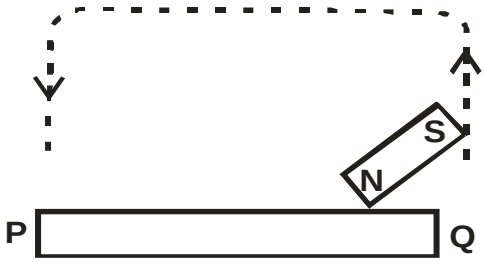
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**8.** The diagram below shows a ray of light striking the plane at $35^o$ as shown below.

State the angle of reflection. **(1 mark)**




**9.** a) The figure below shows an iron bar being magnetized by stroking it with a magnet.




Indicate on the iron bar the polarity of resulting magnet. **(1mark)**

**b)** State two uses of soft magnetic materials. **(2marks)**

……

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**10.** An echo sounder of a ship transmits sound waves to the depth of the sea and receives the echo after 2.4 seconds. If the speed of sound in water is $1600ms^{-1}$, determine the depth of the sea. **(3 marks)**

……

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**11.** It is observed that when a charged body is brought near the cup of a positively charged electroscope, the divergence of the leaf increases. State the type of charge on the body. **(1mark)**

……

……

## SECTION B: 55 MARKS

**12.** a) A student stands some distance from a high wall and claps his hands

**i)** What two measurements would need to be made in order to determine the speed of sound? **(2marks)**

……

……

……

……

**ii)** Describe how you would make use of these measurements **(2marks)**

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**iii)** The speed of sound in air is 330m/s. How far from the wall would you stand? Choose an answer from the following distances 10m, 200m,500m. Give reasons why you did not choose each of the other two distances. **(3marks)**

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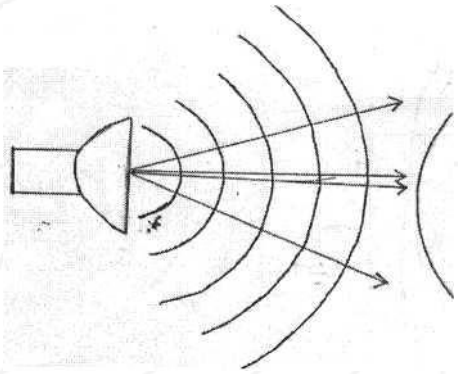
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**b)** The balloon filled with carbon dioxide can act like a lens and focus sound from a loud speaker. On to the microphone, Figure 6 show waves produced by loud speaker moving toward the balloon.



**i)** Complete the diagram to show what happens to the sound waves when they have passed through the balloon and moves towards the microphone. **(2marks)**

**ii)** The loud speaker is now moved toward the balloon. This results in less sound at the microphone. Explain why there is less sound at the microphone **(1mark)**

……

……

**iii)** The frequency of the sound emitted by the loud speaker is 1020Hz. Calculate the wavelength of the sound wave in air where its velocity is 340m/s **(2marks)**

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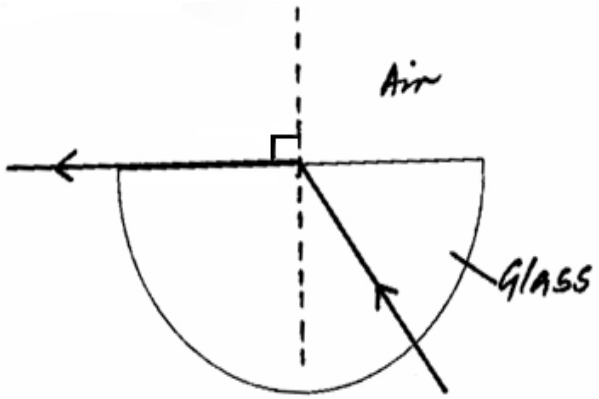
**13.** (a) State the meaning of the term critical angle as applied in refraction of light. **(2mks)**

……

……

……

**(b)** The figure shows a ray of light incident on a glass-air interface.




**(i)** Show on the diagram the critical angle, **c**. **(1mark)**

(ii) Given that the refractive index of the glass is ${}_a\eta_g$, and that the critical angle **c** = 42°, determine the value of is ${}_a\eta_g$. **(3 marks)**

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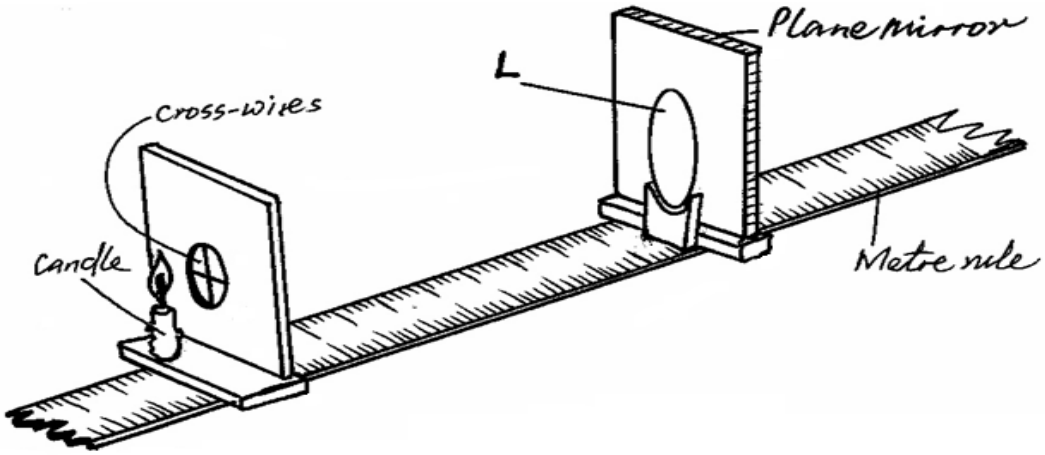
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**(c)** The figure shows an experimental set up consisting of a mounted convex lens **L**, cardboard screen with cross-wires at the centre, a plane mirror, a metre rule and a candle.




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Describe how the set-up may be used to determine the focal length, f, of the lens. **(4 marks)**

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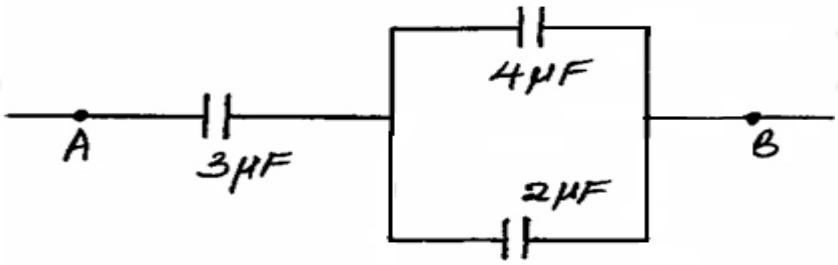
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**14.** (a) State **two** properties of electric field lines. **(2marks)**

……

……

**(b)** The figure below shows part of a circuit containing three capacitors.




**(i)** Calculate the effective capacitance between **A** and **B**. **(3marks)**

……

……

……

……

**(ii).** Given that the potential difference (p.d.) across AB is 10V, determine the total charge flowing through the circuit. **(2marks)**

……

……

……

**(c)** State how an increase in thickness affects electrical resistance of a conductor. **(2marks)**

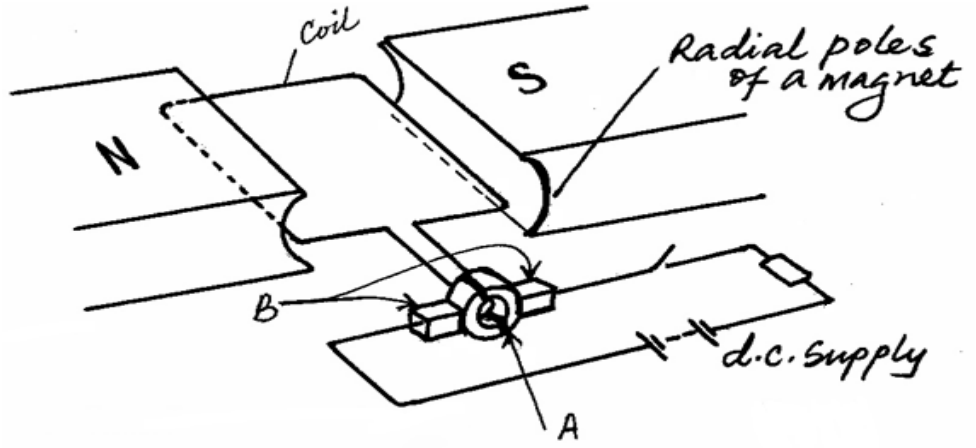
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**15.** (a) The figure below shows parts of a simple electric motor.




**(i)** Name the parts labeled **A** and **B**. **(2marks)**

**A**

**B**

**(ii)** State the function of each of the parts named in part (i) abov**e.** **(2marks)**

**A**

**B**

**(iii)** State the advantage of using curved poles of a magnet over plane poles. **(1mark)**

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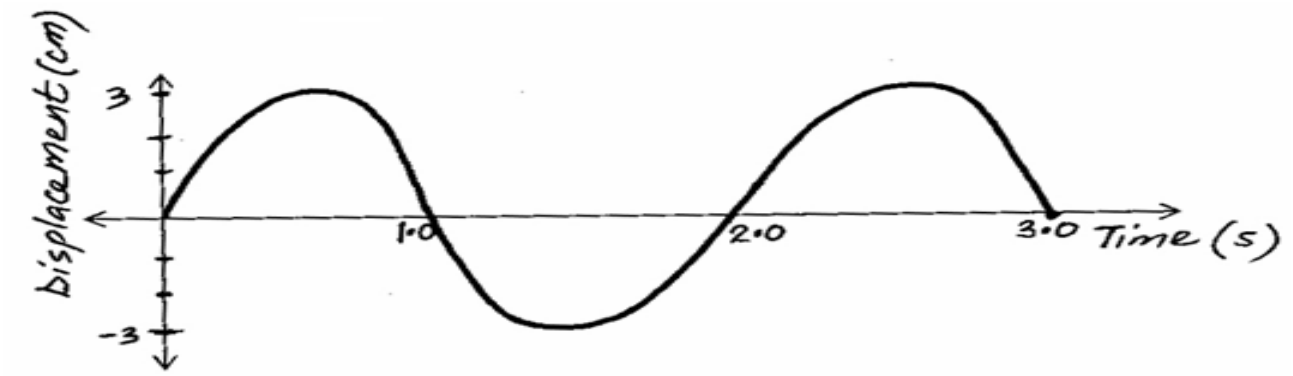
**(iv)** Explain the significance of copper coil as part of an electric motor. **(2marks)**

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**b).** The graph in the figure below shows the displacement of a pendulum bob from its rest position as it varies with time.




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**(i)** Determine the amplitude of the oscillation. **(1mark)**

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……

……

**(ii)** Determine the time for one complete oscillation. **(1mark)**

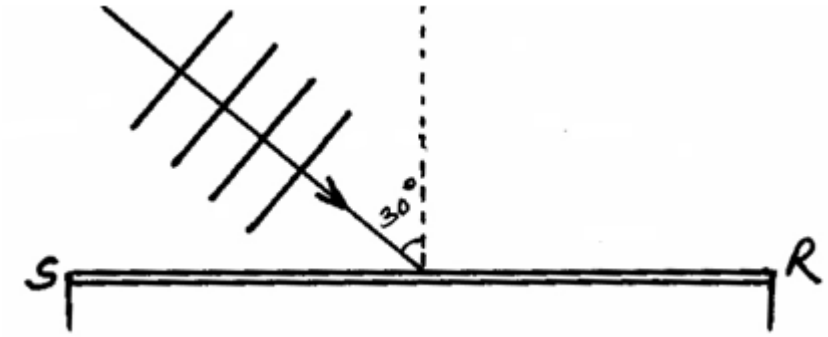
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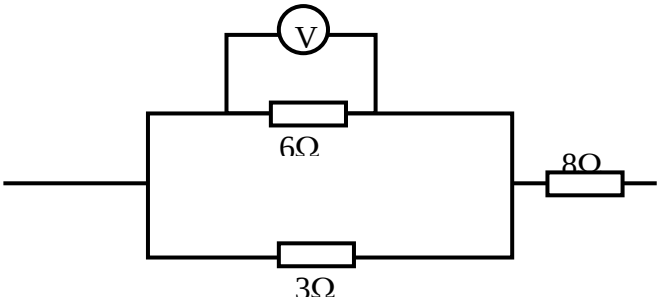
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**(ii)** On the same graph, draw a sketch graph which represents a pendulum swinging with half the amplitude and twice the frequency. **(2marks)**

**c)** Plane water wave fronts are incident onto reflector **SR** as shown in the figure below. Show on the diagram the nature and direction of the reflected wave fronts. **(2marks)**




**16.** (a) The figure below shows three resistors as shown.




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If the voltmeter reads 4V, find the

**(i)** Effective resistance **(3marks)**

……

……

……

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

……

……

……

**(iii)** Potential difference across the 8Ω resistor if the voltage total voltage in the circuit is 10V **(1 mark)**

……

……

……

**(c) (i)** What is meant by the term "terminal voltage" as used in current electricity? **(1mark)**

……

……

……

**(ii)** A cell supplies a current of 2.0A when connected to a 0.6Ω resistor and 1.5A when the same cell is connected to a 0.9Ω resistor. Find the e.m.f and the internal resistance of the cell. **(4mks)**

……

……

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

232/3 Physics (Practical) Paper 3

**Time: 2½ Hours**

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## 232/3 CONFIDENTIAL

**QUESTION 1**

**1.** Rectangular glass block.
**2.** Optical pins.
**3.** Soft board.
**4.** Protractor
**5.** 30cm ruler.
**6.** Plain paper
**7.** Plane mirror
**8.** Some dry sand.
**9.** Water in a measuring cylinder labelled L.
**10.** Vernier calipers. (*To be shared*).
**11.** Half metre rule.
**12.** Tissue paper.
**13.** Weighing machine (to be shared).
**14.** A boiling tube

**Question 2**

- A cell and cell holder
- Switch
- A resistance wire mounted on a millimeter scale**( Gauge 28 or 32)**
- Six connecting wires each with a crocodile clip on one end.
- An ammeter (0- 1A)
- A voltmeter ( 0- 2.5V or 5V)
- A micrometer screw gauge**( May be shared)**

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

232/3 Physics (Practical) Paper 3

**Time: 2½ Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**INSTRUCTIONS TO CANDIDATES:-**

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

| QUESTION | MAXIMUM SCORE | CANDIDATE'S SCORE |
|---|---|---|
| 1 | 20 | |
| 2 | 20 | |
| 40 | | |

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## QUESTION 1 (PART A)

You are provided with the following apparatus:

- A rectangular glass block.
- Four optical pins.
- A soft board.
- A protractor.
- 30cm ruler.
- 2 white plain papers.
- A plane mirror.
- A vernier calipers (to be shared)

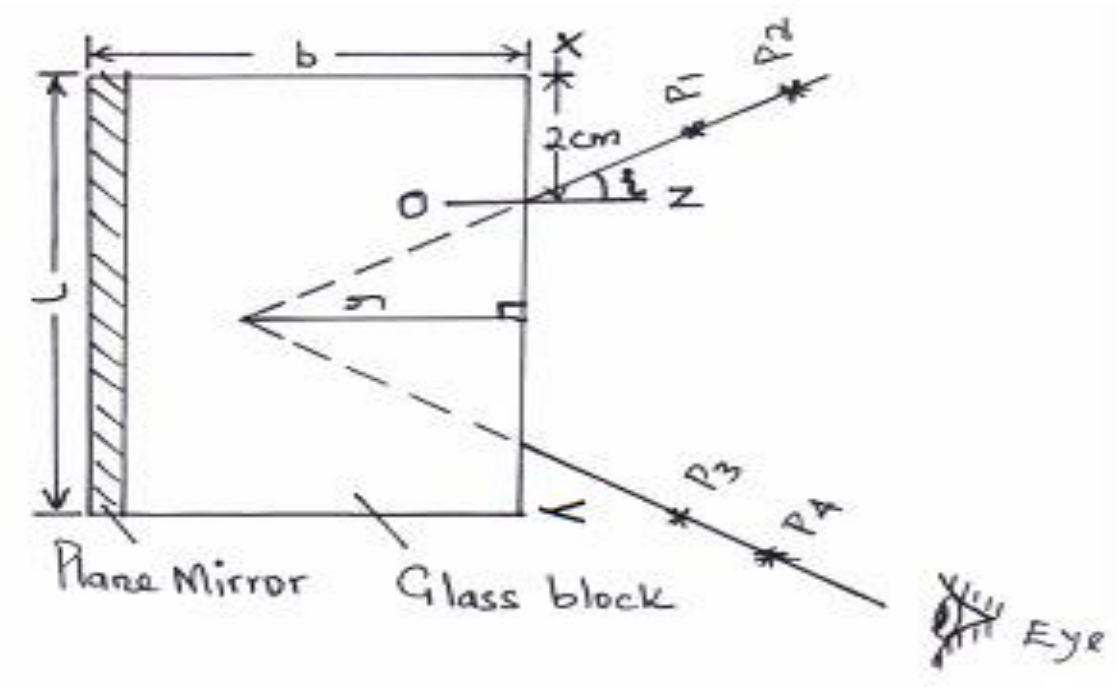
## PROCEDURE

**(a)** Trace the outline of the glass block on the white paper.

**(b)** Draw a normal ON, 2cm from point X on side XY.

**(c)** Measure an angle (i) 10º from the normal.

**(d)** Place back the glass block on the outline and fix a plane mirror vertically along the length of the glass block on the opposite side of XY using a cello tape as shown in the figure below.




**(e)** Fix two pins $P_1$ and $P_2$ as shown in the figure.

**(f)** By observing image of $P_1$ and $P_2$, locate two pins $P_3$ and $P_4$ such that they appear to be in line with images of $P_1$ and $P_2$.

**(g)** Remove the pins and the block. Join $P_3P_4$ and produce the line to meet line $P_1P_2$ produced

**(h)** Measure the perpendicular distance y.

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**(i)** Repeat the same for angles of 15º, 20º, 25º, 30º, 35º and 40º and record the results in table 2 below.

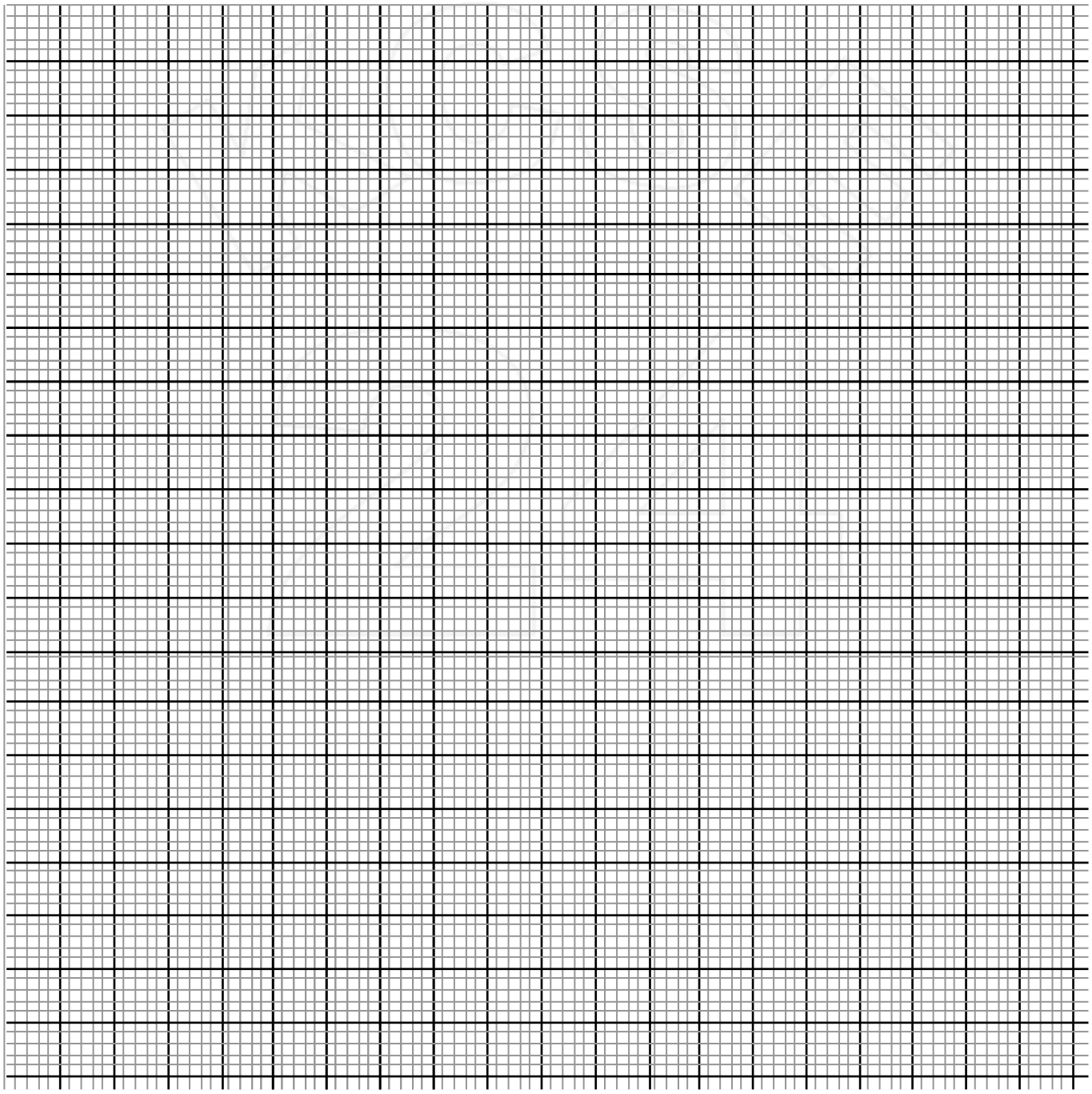
**(NB: The paper work must be submitted together with the question paper).**

**Table 2**

| Angle i | 10º | 15º | 20º | 25º | 30º | 35º | 40º |
|---|---|---|---|---|---|---|---|
| y(cm) | | | | | | | |

**(6marks)**

**(j)** Plot a graph of y(cm) against angle i. **(5marks)**



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**i)** Use the graph to determine $y_o$ the value of y when i = $0^o$

$y_o$ = …… cm **(1mark)**

ii) Measure and record the breadth (b) of the glass block

b = ……. Cm **(1mark)**

(ii) Determine the value of η given that

$\eta = \frac{b}{y_O}$ **(1marks)**

……

……

……

……

**PART B**

You are provided with the following:-

- A boiling tube.
- Some dry sand.
- A liquid in a measuring cylinder labelled L.
- Half metre rule.
- A vernier calipers (to be shared).
- A weighing machine (to be shared).
- Tissue paper.
- A measuring cylinder.

**Proceed as follows:**

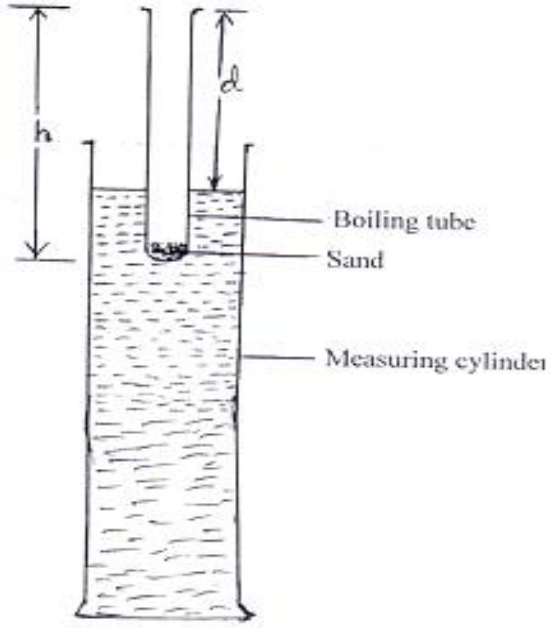
a) Measure the length of the boiling tube.

h = ……. cm **(1mark)**

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**b)** Put a little amount of sand in the boiling tube and place it in the measuring cylinder which is almost filled with liquid L. Add sand, little by little until the tube floats upright as shown in figure below.

Fig.1




Measure the length, d, of the boiling tube which is above the liquid using half metre rule

**d = …… cm** **(1mark)**

**c).**Determine the length, t, of the boiling tube which is immersed in the liquid using half metre rule

**t = …….. cm** **(1mark)**

**d)** **R**emove the boiling tube from the measuring cylinder, wipe it dry (on the outside) and measure its mass, m, including the sand inside.

**m = …….. g** **(1mark)**

**e)** Measure the external diameter, D, of the boiling tube.

**D = …….. cm** **(1mark)**

**f)** Determine the external radius, R.

**R = …… cm** **(1mark)**

**g)** Using the formula $m = 12\rho\pi R^2$, determine $\rho$ for the liquid. **(1marks)**

……

……

……

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**QUESTION 2**

*You are provided with the following:*

- An ammeter (**0** – **1 A**)
- A voltmeter (**0** – **3 V** or **0** – **5 V**)
- A variable resistor
- A **10Ω** carbon resistor
- A piece of resistance wire
- Two new dry cells
- A cell holder
- A switch
- Seven connecting wires

***Proceed as follows:***

a) Take the resistant wire and coil it around the biro pen to make a coil.

b) Set up the apparatus as shown **Figure 5** below such that the **10Ω** carbon resistor and the coil are in parallel connection.

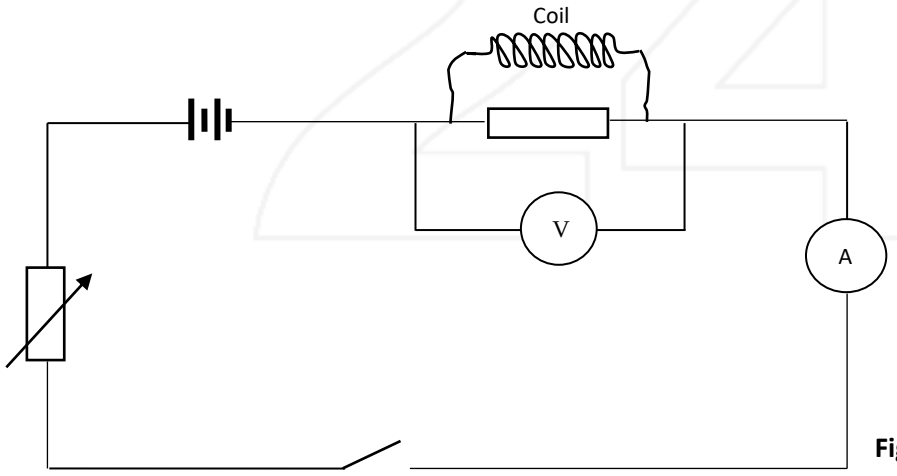



**Figure 5**

c) Close the switch and the adjust the variable resistor such that the ammeter read a current of $I_1$=**0.08A** and record the corresponding voltmeter reading $\mathbf{V_1}$

i) $\mathbf{V_1}$ **=**…… **(1mark)**

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**ii)** Calculate resistance $\mathbf{R_1 = \frac{V_1}{I_1}}$ **(1mark)**

d) Repeat (c) above for current of $I_2$ = **0.16A** and record the corresponding voltmeter reading $\mathbf{V_2}$

i) $\mathbf{V_2}$ **=**…… **(1mark)**

ii) Calculate resistance $\mathbf{R_2 = \frac{V_2}{I_2}}$ **(1mark)**

**e)** Find the average value of resistance **R** **(1mark)**

**f)** Determine the resistance, **C** of the coil **(2marks)**

**g)** Now set up the apparatus as shown in **Figure 6** below such that the voltmeter is connected across the cells, **10Ω** carbon resistor and the coil are in parallel connection.

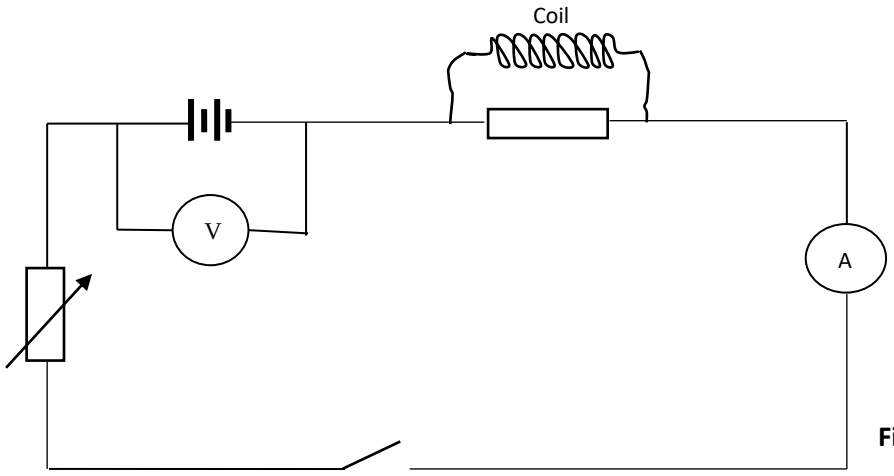



**Figure 6**

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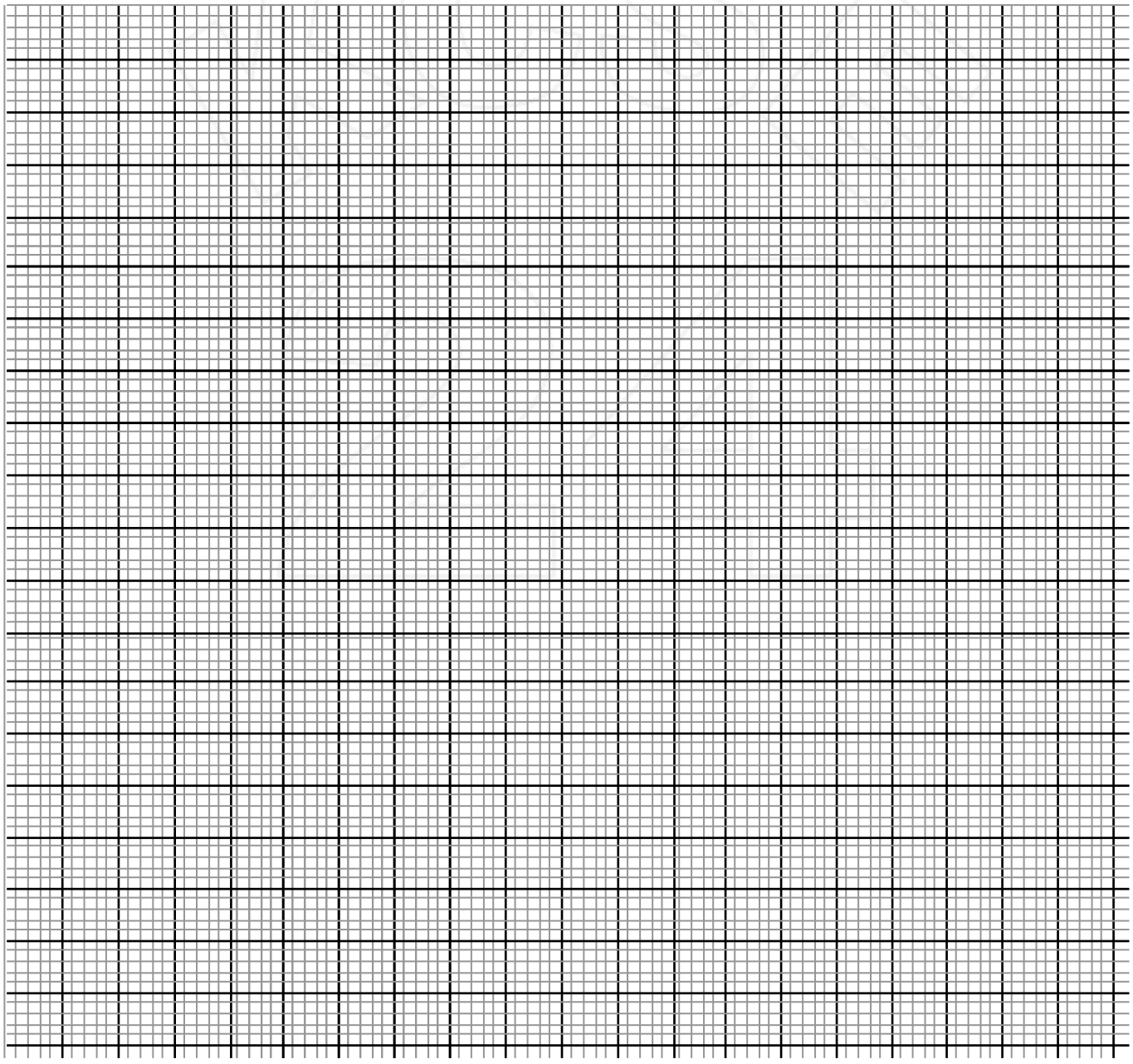
**h)** Close the switch and the adjust the variable resistor such that the ammeter reads a current of **0.04A** and note the corresponding voltmeter reading. Record the value in the **Table 4** below.

i) Repeat (h) above for other values of current and voltage and complete the **Table 4** below

| **Current, I (A)** | **0.04** | **0.08** | **0.12** | **0.16** | **0.20** | **0.24** |
|---|---|---|---|---|---|---|
| **Voltage, V(V)** | | | | | | |

**(4marks) Table 4**

j) On the grid provided plot a graph of **Voltage, V (V)** against **Current, I (A)** **(5marks)**



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**k)** Determine the slope of the of the graph **(2marks)**

**l)** Given that graph is related to equation $\mathbf{E = V + Ir}$ where **E** and **r** are the emf and internal resistance of the cells respectively, use your graph to determine the value of:

**E** =…… **(1mark)**

**r** =……. **(1mark)**

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

231/1 Biology (Theory) Paper 1

**Time: 2 Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**INSTRUCTIONS TO CANDIDATES**

***1.*** *Write your name and index number in the spaces provided on this page above*

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

**FOR EXAMINER'S USE ONLY**

| QUESTION | MAXIMUM SCORE | CANDIDATE'S SCORE |
|---|---|---|
| 1 – 27 | 80 | |

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*Answer **ALL** the questions*

**1.** What is the function of the following in a microscope?

**(a)** Mirror **(1mk)**

……

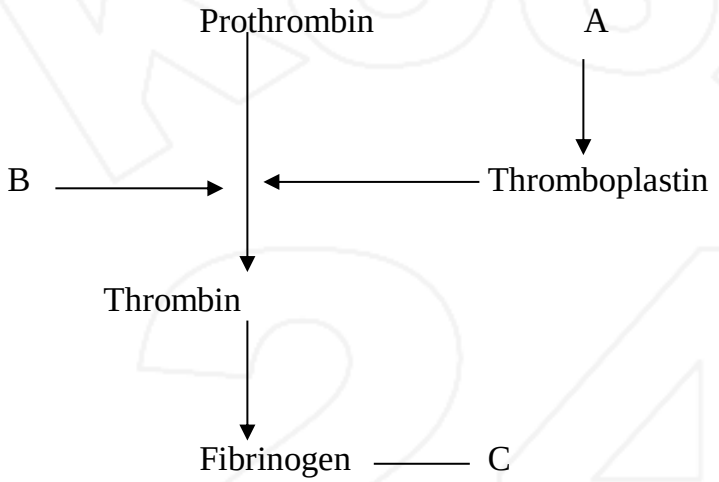
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**(b)** Diaphragm **(1mk)**

……

……

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




**Name: -**

**(a)** The blood cell represented by A **(1mk)**

……

**(b)** Metal ion represented by B **(1mk)**

……

**(c)** End product represented by C **(1mk)**

……

**3.** Below is a nucleotide strand

**A – A – G – T – C**

**(a)** Is it a DNA or RNA strand? Give a reason **(2mks)**

……

……

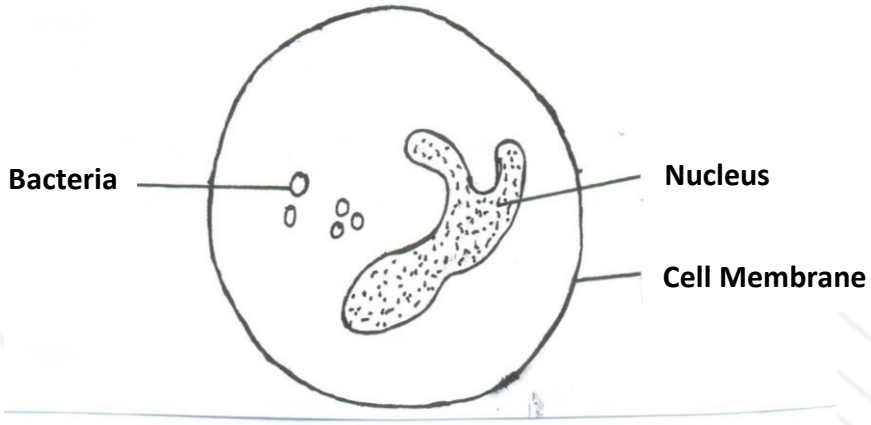
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**(b)** Give the bases which would appear on the complimentary nucleotide strand **(1mk)**

……

……

**4.** Below is a diagram of a white blood cell.




**(a)** Describe how the bacteria got into the cell **(2mks)**

……

……

……

**(b)** What happens to the bacteria once in the cell? **(1mk)**

……

……

**5.** Give three reasons why mitosis is important in living organisms **(3mks)**

……

……

……

……

**6.** Give the characteristics which adapt flowers for wind pollination **(4mks)**

……

……

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**7.** Name one waste product that is :

**(a)** Almost absent in the renal vein but is present in the renal artery **(1mk)**

……

**(b)** Transported in the blood but not removed by the kidneys **(1mk)**

……

**8.** State two functions of the large intestines in human beings **(2mks)**

……

……

……

**9.** Identify the mode of feeding of the animal whose dental formula is given below.

$\mathbf{i}_{3}^{0}, \mathbf{C}_{1}^{0}, \mathbf{Pm}_{3}^{3}, \mathbf{M}_{3}^{3} = 32.$

**a)** Mode of feeding **(1mk)**

……

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

……

……

……

**10.** Name the agent that causes:-

**(a)** Cholera **(1mk)**

……

**(b)** Typhoid fever **(1mk)**

……

(c) Amoebic dysentery **(1mk)**

……

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**11.** Outline three roles of active transport in the human body **(3mks)**

……

……

……

**12.** State three ways in which nitrogen in the air is made available for plant use **(3mks)**

……

……

……

……

**13.** In an attempt to estimate the number of weaver birds in a small woodland 435 were captured , marked and released. Three days later , 620 were captured 75 of which were marked.

**a)** What is the name of the sampling method described above. **(1mk)**

……

**b)** Calculate the approximate size of the weaver bird population in the woodland. **(2mks)**

……

……

……

**c)** Give one disadvantage of this method. **(1mk)**

……

……

**14.** (a) Name the hard body covering found in organisms in Arthropoda **(1mk)**

……

**(b)** State three uses of the structure mentioned in (a) above **(3mks)**

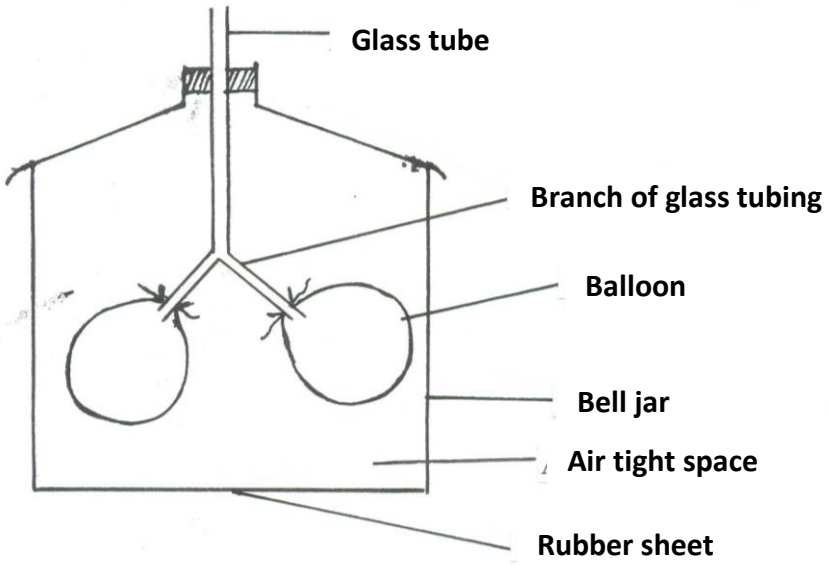
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**15.** Study the diagram below and use it to answer the questions that follow




**(a)** Mention the equivalent of the following in the mammalian breathing mechanisms:-

**(i)** Bell jar **(1mk)**

……

**(ii)** Balloons **(1mk)**

……

**(b)**Does the diagram represent inhalation or exhalation? Give one reason for your answer**(2mk)**

……

……

……

**16.** Explain **two** advantages of endoderms like man over ectoderms like lizards **(2mks)**

……

……

……

……

**17.** **(a)** Name the property that enables lipids to be stored in tissues of organisms **(1mk)**

……

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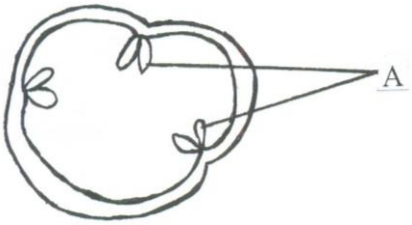
**(b)** State **two** reasons why a camel stores large fat reserves in its body **(2mks)**

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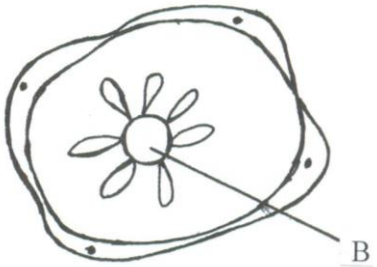
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**19.** Below are cross sections of two fruits. Study them and answer the questions that follow




**Fruit P**




**Fruit Q**

**(a)** Name the parts labelled

**A**…… **(1mk)**

**B** …… **(1mk)**

**(b)** Name the type of placentation in fruit **(2mks)**

**P**……

**Q**……

**18.** Which region of mammalian digestive tract does digestion of fats begin? **(1mk)**

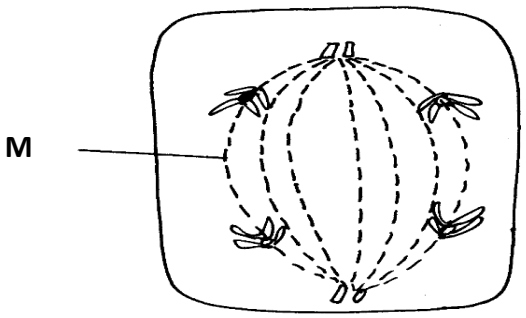
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**19.** A Rhesus positive man, heterozygous for the trait is married to a rhesus negative woman. Carry out a genetic cross to show the offsprings of this couple

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**20.** The diagram below represents a stage during cell division.




**i)** Identify the stage of cell division. **(1mk)**

……

**ii)** Give two reasons for your answer (a)i) above **(2mks)**

……

……

**iii)** Name the structure labelled M. **(1mk)**

……

**21.** State two organelles absent in members of kingdom monera but present in members of kingdom protoctista **(2mks)**

……

……

**22.** Name the substance produced during anaerobic respiration in animals and state why it should be got rid off immediately **(2mks)**

……

……

**23.** What makes it difficult for seeds to germinate at the following temperatures:

**(a) $0^0$c**

……

……

**(b) $47^0$c**

……

……

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**24.** State two major functions of adipose tissue (fat) in mammals **(2mks)**

……

……

**25.** Below is an equation for respiration

$$C_{57}H_{104}O_6 + 80O_2 \longrightarrow 57CO_2 + 52H_2O + \text{Energy}$$

**(i)** Name the type of respiration taking place **(1mk)**

……

**(ii)** Calculate the respiratory quotient (RQ) **(2mks)**

……

……

……

**(iii)** Identify the type of food being metabolized. **(1mk)**

……

**26.** State one significance of interphase in cell division **(1mk)**

……

……

**27.** (a) What is the role of light in the light stage of photosynthesis? **(1mk)**

……

……

**(b)** What are the products of the light stage of photosynthesis? **(2mks)**

……

……

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

231/2 Biology (Theory) Paper 2

**Time: 2 Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**INSTRUCTIONS TO CANDIDATES**

- *Write your name and Index Number in the spaces provided above.*
- *This paper consists of **two** sections. Section **A** and section **B.***
- *Answer **ALL** questions in section **A** in the spaces provided. In section **B** answer question **6** (compulsory) and either question **7** or **8** in the spaces provided after question 8*

**FOR EXAMINERS USE ONLY.**

| Section | Question | Maximum score | Candidates score |
|---|---|---|---|
| A | 1 | 8 | |
| | 2 | 8 | |
| | 3 | 8 | |
| | 4 | 8 | |
| | 5 | 8 | |
| B | 6 | 20 | |
| | 7/8 | 20 | |
| | Total score | 80 | |

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## SECTION A (40 MARKS)

*Answer all the questions*

**1.** The equation below represents a metabolic process that occurs in a certain organ in the mammalian body.

Ammonia + carbon (IV) oxide $\longrightarrow$ enzyme organic compound Q + water

**(a)** Name the process represented in the equation above. **(1 mk)**

……

**(b)** Name the organ in which the process occurs. **(1mk)**

……

**(c)** Why is the process important to mammals **(1mk)**

……

**(d)** Identify the organic compound Q. **(1mk)**

……

**(e)** Explain the source of ammonia in the organ named in (b) above. **(2mks)**

……

……

……

**(f)** What happens to organic compound Q.? **(2mks)**

……

……

……

**2.** An athlete training to take part in an international competition moved to a high altitude area where he was to train for twelve (12) days before the competition. He took his pulse rate per minute daily and tabulated them as shown below

| DAY | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Pulse per minute | 72 | 78 | 89 | 92 | 92 | 90 | 86 | 80 | 77 | 74 | 72 | 72 |

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**(a)** Other than pulse rate, name one other process which was affected by change in altitude.

**(1mrk)**

……

**(b)** Account for the change in pulse rate from.

**(i)** Day 1 to day 7 **(1mrk)**

……

……

……

**(ii)** Day 8 to day 12 **(1mrk)**

……

……

……

**(c)** Explain the advantage this athlete has over the one who trains in a lower altitude area. **(2mks)**

……

……

……

**(d)** The equation below represents a reaction which takes place during rapid muscular movements in humans.

Glucose $\longrightarrow$ lactic acid + 150kj

**(i)** State two effects of this reaction to an individual **(2mks)**

……

……

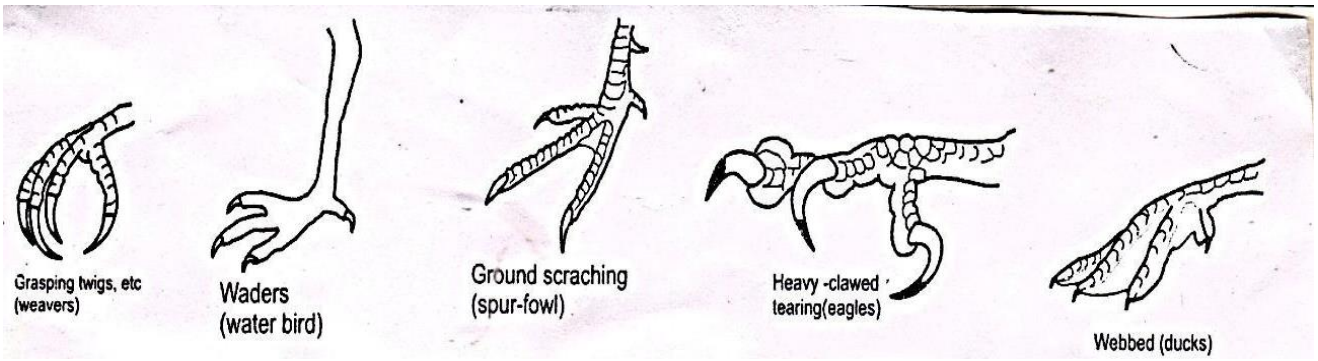
**(ii)** How is lactic acid finally eliminated from the muscle tissue after the muscle return to normal movement **(1 mk)**

……

……

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**3.** Study the diagram below and answer the questions that follows




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

……

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

……

……

**(c)** **(i.)** What are vestigial structures? **(1mk)**

……

……

**(ii).** State an example of vestigial structure in humans **(1mk)**

……

……

**(d)** **(i)** What is natural selection? **(2mks)**

……

……

**(ii)** Give one example of nature selection in action **(1mk)**

……

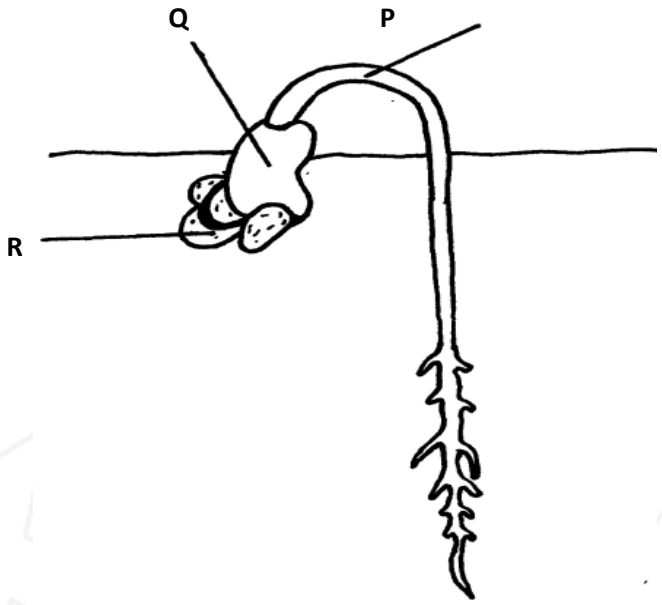
**(e)**Explain comparative serology as evidence of evolution. **(1mk)**

……

……

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**4.** The diagram below represents a stage of growth in a seed during germination.




**(a)** (i) Name the type of germination illustrated above **(1mk)**

……

**(ii)** Give a reason for your answer in (i) above **(1mk)**

……

……

**(b)** Name the part labellled R in the above diagram. **(1mk)**

……

**(c)** Give **two** functions of the part labeled Q **(2mks)**

……

……

……

**(d)** Explain how the part labeled P straightens. **(3mks)**

……

……

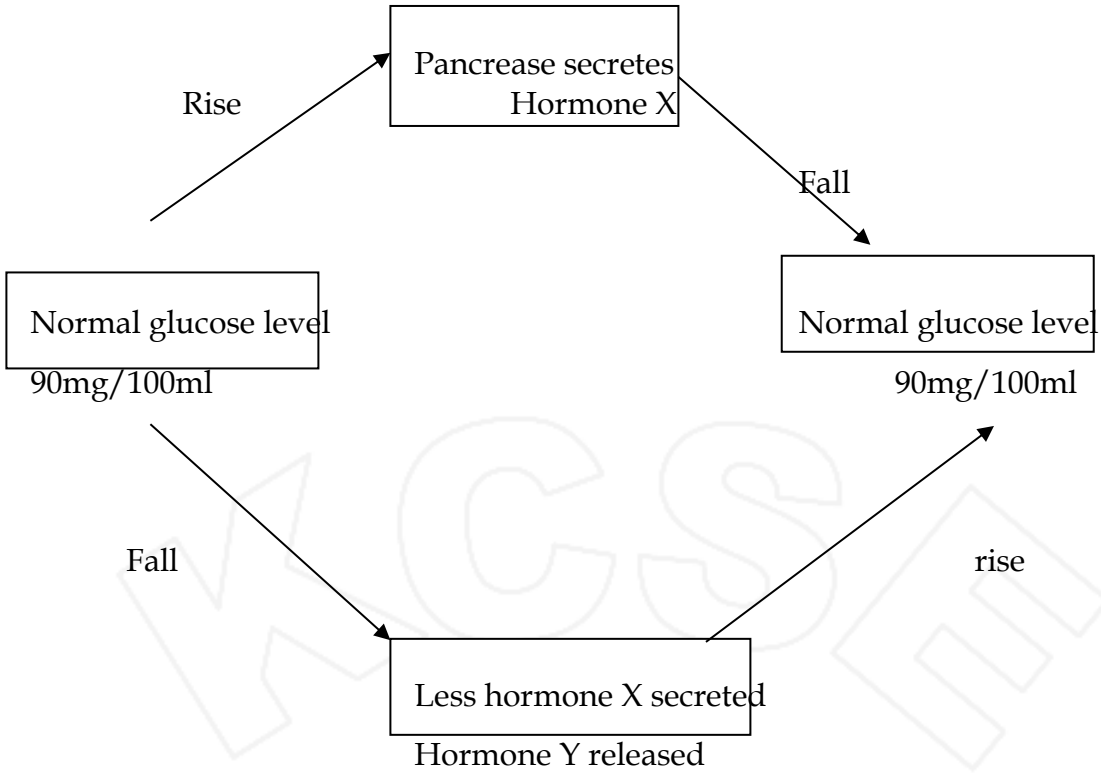
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……

……

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**5.** The diagram below shows how blood glucose in mammalian body is regulated.




**(a)** Name the hormone X and Y **(2mks)**

X _____

Y _____

**(b)** State two ways by which hormone X lowers glucose level in the blood when it rises above 90mg/100ml **(2mks)**

……

……

……

……

**(c)** Name the organ that produces hormone Y **(1mk)**

……

**(d)** Suppose there is deficiency of hormone X, state the disease the person would suffer from **(1mk)**

……

……

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**(e)** Explain how the disease mentioned in (d) above can be controlled. **(2mks)**

……

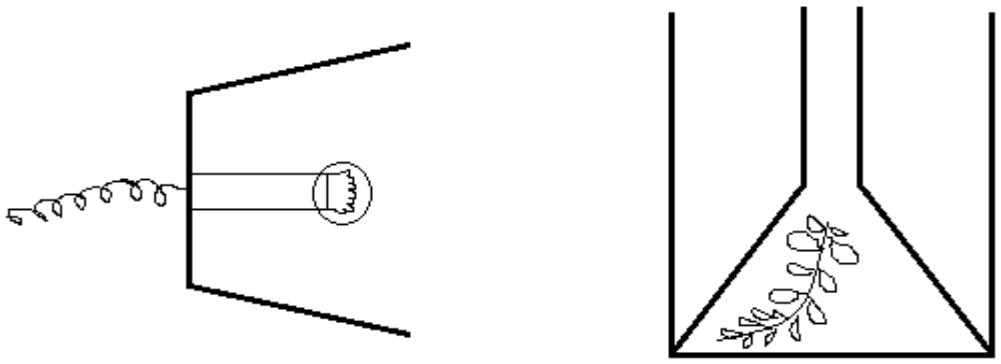
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## SECTION B

***Answer question 6 compulsory and either question 7 or 8 in the space provided***

**6.** The diagram below shows an experiment that was carried out to measure rate of photosynthesis in a water plant when exposed to different light intensities.



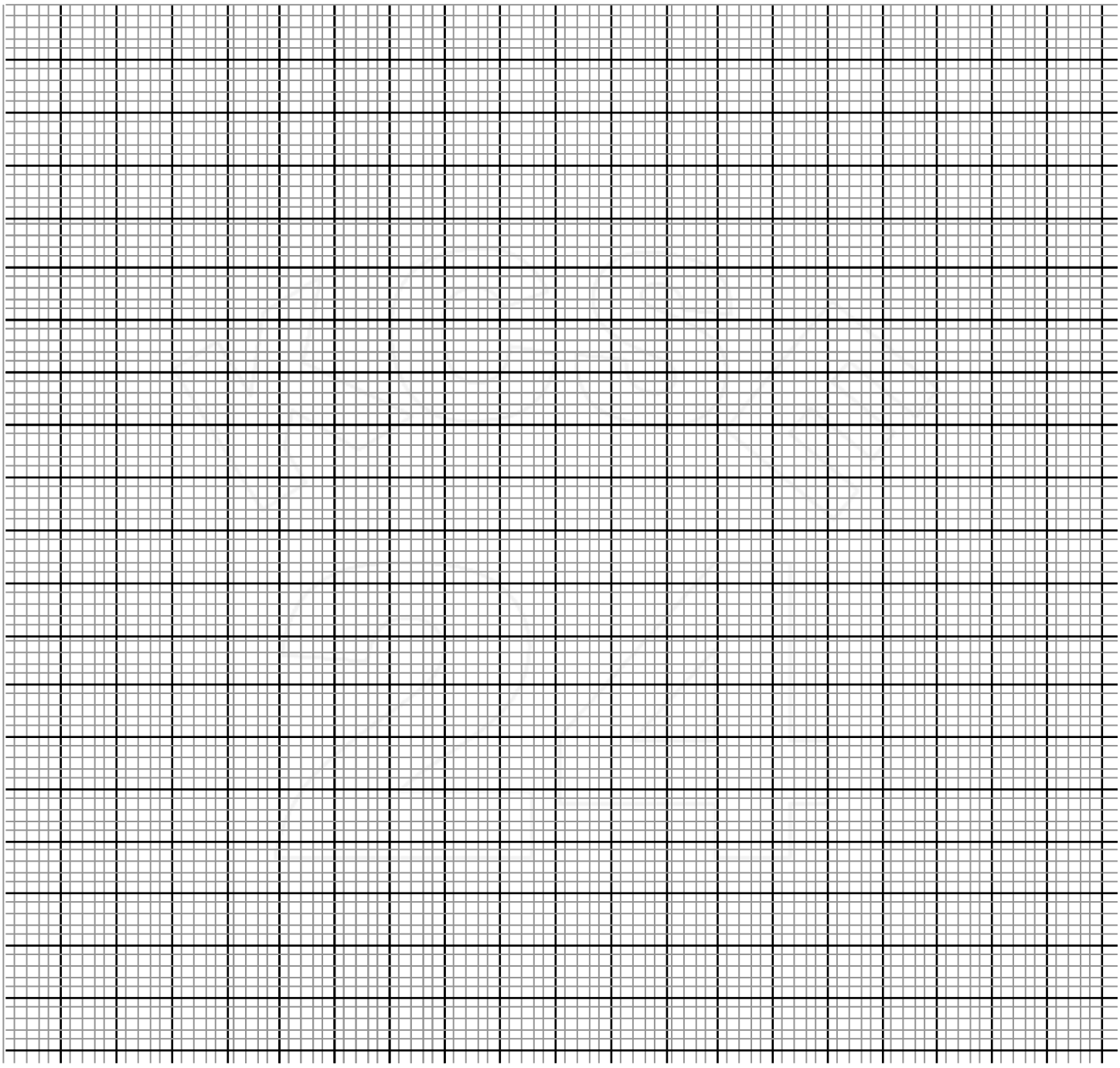
The shoot was exposed to different light intensities and the rate of photosynthesis estimated by counting the number of bubbles of the gas leaving the shoot per minute. The results are tabulated below.

| | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Number of bubble per minute | 7 | 14 | 20 | 24 | 26 | 27 | 27 | 27 |
| Light intensity (arbitrary units) | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

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**a)** Draw the graph of the number of bubbles produced per minute against light intensity.

**(6 marks)**



**b)** At what light intensity did the shoot produce

**i)** 18 bubbles per minute **(1mk)**

……

**ii)** 25 bubbles per minute **(1mk)**

……

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**c)** Give two better ways of measuring the rate of photosynthesis other than counting bubbles produced per minute. **(2mks)**

……

……

**d)** What is role of light intensity in photosynthesis **(2mks)**

……

……

**e)** Account for the expected results if the experiment was done at the following temperatures.

**(i)** $4^0$c **(2mks)**

……

……

……

**(ii)** **$34^0$** **(2mks)**

……

……

……

**(iii)** **$60^0$** **( 2mks)**

……

……

……

**f)** Apart from light intensity and temperature, name other <u>two</u> factors that affect the rate of photosynthesis. **(2mks)**

……

……

**7.** (a) How are lungs adapted to their function? **(10mks)**

(b) Describe the mechanism of opening and closing of the stomata using the photosynthesis theory.

**8.** (a) Describe the various mechanism of fruit and seed dispersal. **(12mks)**

(b) Describe the various events that occur in a flower after fertilization. **(8mks)**

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

231/3 Biology (Practical) Paper 3

**Time: 1¾ Hours**

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**SCHOOL…… SIGN……**

*Kenya Certificate of Secondary Education.*

## BIOLOGY PP3 CONFIDENTIAL

***1.*** *Distilled water 4cm$^3$ per student.*

***2.*** *Salt solution 4cm$^3$ per student.*

***3.*** *Hydrogen peroxide.*

***4.*** *Dilute HCL.*

***5.*** *Raw potatoes one per student.*

***6.*** *Stop watch.*

***7.*** *Motor and pestle.*

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

231/3 Biology (Practical) Paper 3

**Time: 1¾ Hours**

---

**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**INSTRUCTIONS TO CANDIDATES**

***a)*** *Answer **all** the questions.*
***b)*** *You are required to spend the first 15 minutes of the 1¾ hours allowed for the paper reading the whole paper carefully before commencing your work.*
***c)*** *Answers must be written in the spaces provided in the question paper.*
***d)*** *Additional pages must not be inserted.*

**FOR EXAMINER'S USE ONLY**

| Questions | Maximum score | Candidate's score |
|---|---|---|
| Question 1 | 16 | |
| Question 2 | 13 | |
| Question 3 | 11 | |
| **Total score** | **40** | |

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*Answer **ALL** the questions*

**1.** You are provided five with potato cylinders each measuring 5cm long, liquid $S_1$ and $S_2$, Hydrogen Peroxide, dilute Hydrochloric Acid, and test tubes labeled A,B and C.

**a)** i) Place one cylinder in a beaker containing liquid labeled $S_1$ and another in the liquid labeled $S_2$. Allow to stand for 30 minutes, then remove the cylinders, wipe them dry using blotting paper. Measure each cylinder in centimeters and record their length and texture in the table given below. **(4 marks)**

| CYLINDER | LENGTH IN CM | TEXTURE |
|---|---|---|
| **LIQUID $S_1$** | | |
| **LIQUID $S_2$** | | |

**ii)** Account for the results obtained in a (i) above **(4marks)**

……

……

……

……

……

**b)** Using a scalpel cut one of the cylinders into 5 parts each one centimeter long. Put the pieces into test tube A. Crush the other two using mortar and pestle into a paste. Divide the paste into two equal lots.Put one lot into test tube B and the other into test tube C.

To each of the test tubes A and B add $2cm^3$ of hydrogen peroxide and to test tube C add 1 $cm^3$ of dilute Hydrochloric Acid, then $2cm^3$ of hydrogen peroxide. Record your observation below. **(3marks)**

Test tube A

……

……

Test tube B

……

……

Test tube C

……

……

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**(ii)** Write a word equation for the reaction that occurs in the test tubes **(1mark)**

……

**(iii) Account** for the rate of reaction in test tube A, B and C. **(4 marks)**

**A**

……

……

**B**

……

……

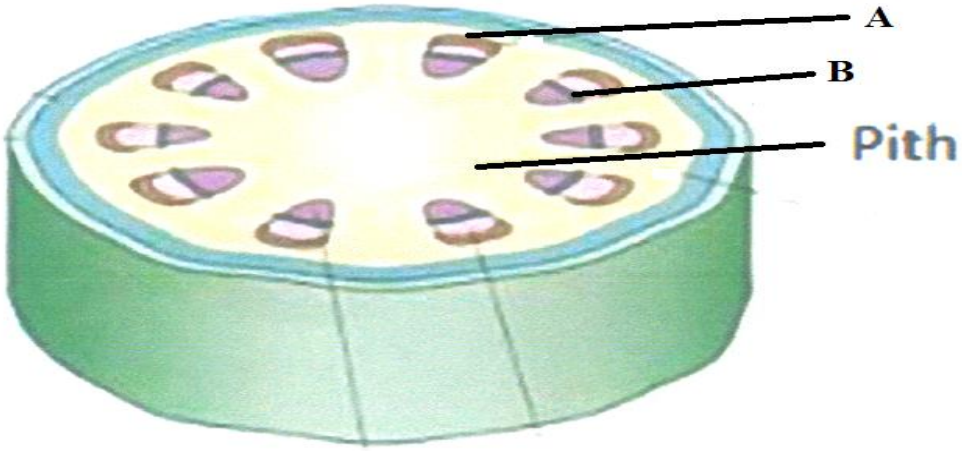
**C**

……

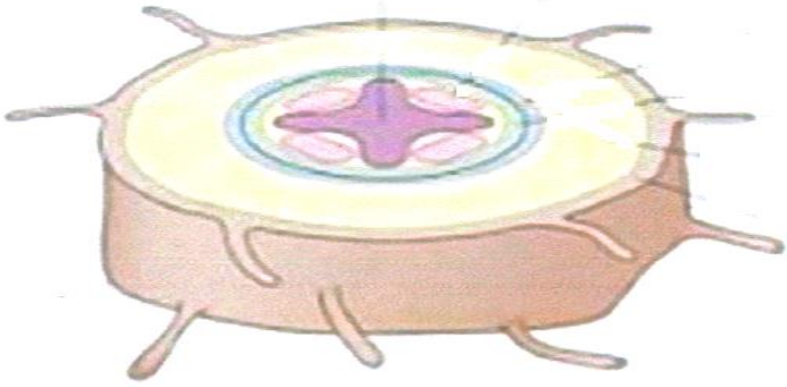
……

**2.** Below are sections of a dicotyledonous plant organs labeled **X** and **Y**.

**X**




**Y**



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**(a)** Give **three** observable differences between the sections. **(3 marks)**

……

……

……

……

……

**(b)** On the diagram, label any **three** parts of section Y. **(3 marks)**

(c) Identify and state the functions of the parts labeled **A** and **B**. **(4 marks)**

**A**

……

Function

……

……

**B**

……

Function

……

……

**(d)** How would section **X** compare with that of a monocotyledonous plant? **(3 marks)**

……

……

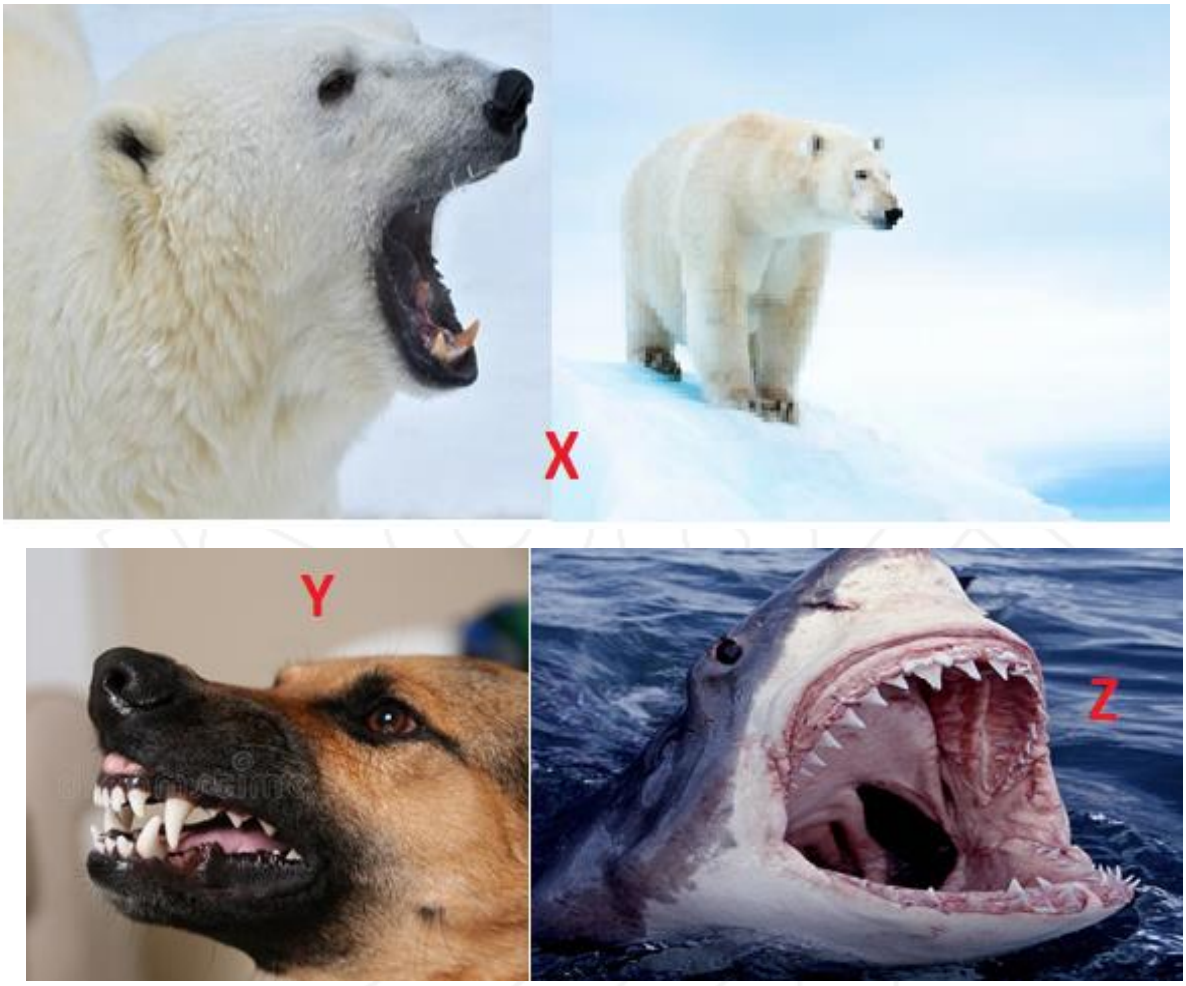
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**3.** Study the photographs below and answer the questions that follow.




**(a)** Give **two visible** survival adaptive features for the organism in photograph **X. (2 marks)**

……

……

……

**(b)** Identify the dentitions exhibited in photograph **Y** and **Z** **(2 marks)**

**Y** ……

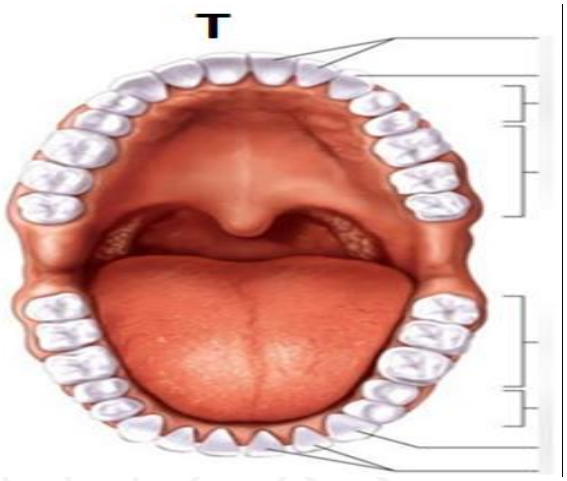
**Z** ……

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**(c)** Study the photographs below showing a certain type of tooth and teeth arrangement in man.

**S**




**(i)** Label any **three** parts of the tooth in photograph **S.** **(3 marks)**

……

……

……

**(ii)** Give **two** adaptations of the tooth to its function. **(2 marks)**

……

……

……

……

**(iii)** Write the **dental formula** for the teeth arrangement in photograph **T.** **(1 mark)**

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

443/1 Agriculture Paper 1

**Time: 2 Hours**

---

**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**INSTRUCTIONS TO CANDIDATES.**

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

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

***(c)*** *This paper consists of **3** sections**; Section A, B and C respectively.***

**FOR EXAMINER'S USE ONLY**

| SECTION | QUESTION | MAXIMUM SCORE | SCORE |
|---|---|---|---|
| A | 1 – 19 | 30 | |
| B | 20 – 23 | 20 | |
| C | 24 – 26 | 40 | |
| Total Score | | 90 | |

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## SECTION A (30MKS)

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

**1.** State two reasons why farmers should be encouraged to practice organic farming. **(1mk)**

……

……

**2.** State two ways in which crop rotation controls weeds**.** **(1mk)**

……

……

**3.** Name two methods of sowing pasture crops. **(1mk)**

……

……

**4.** State four qualities considered when selecting seeds for planting. **(2mks)**

……

……

……

……

**5.** State four advantages of crop rotation. **(2mks)**

……

……

……

……

……

**6.** State three physical agents of weathering in soil formation. **($1\frac{1}{2}$)**

……

……

……

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**7.** Give four reasons for land fragmentation. **(2mks)**

……

……

……

……

**8.** State two mechanical methods used in separating soil in soil analysis**.** **(1mk)**

……

……

**9.** State three ways in which inorganic fertilizers are classified. **(1½ )**

……

……

……

……

**10.** State three effects of raindrops on bare soil. **($1^1/_2$)**

……

……

……

**11.** Give three reasons why layering would be preferred to the use of cutting as a method of raising planting materials. **($1^1/_2$)**

……

……

……

**12.** State the forms in which nitrogen is absorbed by plants. **(1mk)**

……

……

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**13.** Outline four factors which effects herbicidal selectivity. **(2mks)**

……

……

……

……

**14.** State four natural factors that may influence soil erosion. **(2mks)**

……

……

……

……

**15.** Name four disadvantages of zero grazing. **(2mks)**

……

……

……

……

**16.** Outline four factors which encourage soil erosion. **(2mks)**

……

……

……

……

**17.** Give three properties of foliar fertilizer which makes it possible to be used as a foliar feed.

**($1\frac{1}{2}$)**

……

……

……

……

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**18.** Give three reasons why Banana should be pruned. **($1\frac{1}{2}$)**

……

……

……

……

**19.** State four factors considered when classifying crop pests. **(2mks)**

……

……

……

……

## SECTION B (20MKS)

**20.** Students in an agriculture class set out to investigate the constituents of soil sample from school. They carried out a series of tests on various portions of the sample. They then prepared a table as shown below:

| **Description** | **Quantity** |
|---|---|
| Mass of an empty evaporating disk | 10g |
| Fresh soil on evaporating disk | 35g |
| Mass of dried soil at 105oC on evaporating disk | 28g |
| Vol. of water in the tin | 250$cm^3$ |
| Vol. of water and soil after stirring | 410$cm^3$ |
| Mass of empty silica disk | 15g |
| Mass of silica disk and soil after ignition | 65g |
| Mass of silica disk and dried soil before ignition | 500$cm^3$ |
| Volume of water and soil before stirring | |

**a)** Calculate the percentage of soil water in the sample. **(1mk)**

……

……

……

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**b)** Why was soil heated at 105$^{o}$C? **(1mk)**

……

……

**c)** Calculate the percentage of soil air in the sample? **(1mk)**

……

……

……

**d)** Calculate the percentage of soil organic matter in the sample. **(1mk)**

……

……

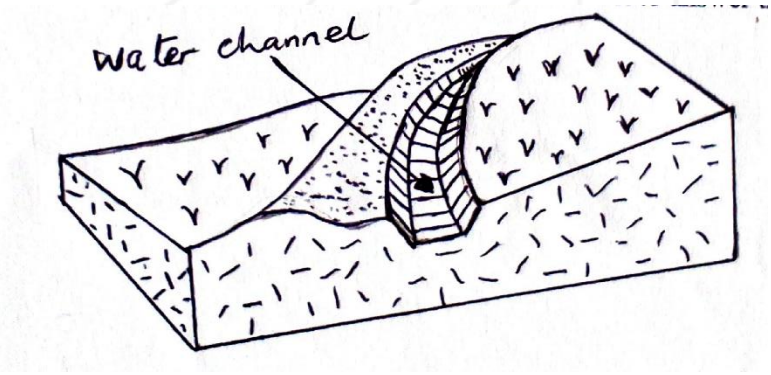
……

**e)** Name one other soil constituent not tested above. **(1mk)**

……

**21.** The diagram below shows a construction on farm. Use it to answer the questions that follow.

**a)** Identify the above structure. **(1mk)**




……

**b)** State four areas where water in the channel is directed to: **(4mks)**

……

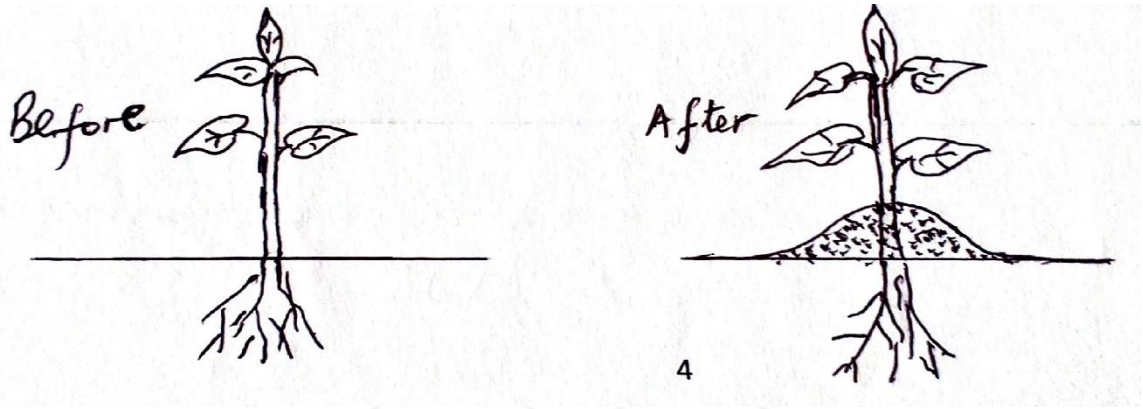
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**22.** The diagram below shows a field practice in crop production.




**a)** Identify the practice. **(1mk)**

……

**b)** State two advantages of the practice named in (a) above to Irish potatoes. **(2mks)**

……

……

**c)** Name two other crops that require the above practice. **(2mks)**

……

……

**23.** Use the diagram below to answer the questions.



**(a)** Identify the sorghum variety shown above. **(1mk)**

……

**(b)** State two bird pests that commonly attack the crop. **(2mks)**

……

……

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**(c)** Name two other varieties commonly grown by farmers. **(2mks)**

……

……

## SECTION C (40MKS)

**24.** (a) Outline the procedure for soil sampling. **(8mks)**

(b) Give five reasons for ridging sweet potatoes. **(5mks)**

(c) Outline seven properties of nitrogenous fertilizers. **(7mks)**

**25.** (a) Discuss five benefits of weeds to the farmer. **(10mks)**

(b) Discuss five importance of draining a waterlogged area. **(10mks)**

**26.** (a) Discuss five factors influencing crop rotation. **(10mks)**

(b) Discuss five government policies that regulate production, marketing and distribution of agricultural products. **(10mks)**

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

443/2 Agriculture Paper 2

**Time: 2 Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**INSTRUCTIONS TO CANDIDATES.**

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

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

***(c)*** *This paper consists of **3** sections**; Section A, B and C respectively.***

**FOR EXAMINER'S USE ONLY**

| Section | Question | Maximum Score | Candidates Score |
|---|---|---|---|
| A | 1 – 19 | 30 | |
| B | 20 – 23 | 20 | |
| C | 24 – 26 | 40 | |
| Total Score | | 90 | |

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## SECTION A (30 MARKS

*Answer all questions in this section.*

**1.** State four characteristics of exotic dairy breeds. **(2mks)**

……

……

……

……

**2.** Differentiate between the following terms; **(2mks)**

**(a).** Steer and a bullock.

……

……

……

**(b).** Boar and Sow.

……

……

……

**3.** Name two tools used for dehorning. **(1mk)**

……

……

**4.** Name two hormones that control milk let- down. **(1mk)**

……

……

**5.** State four signs of farrowing in pigs. **(2mks)**

……

……

……

……

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**6.** Outline four management practices carried out while rearing a heifer. **(2mks)**

……

……

……

……

**7.** State two effects caused by Keds in sheep. **(1mk)**

……

……

**8.** Outline four characteristics of an African wild bee. **(2mks)**

……

……

……

……

**9.** Name the breeding terms used to describe parturition in the following farm animals; **(2mks)**

**(a)** Sheep. ……

**(b)** Cattle. ……

**(c)** Rabbit. ……

**(d)** Goat. ……

**10.** Name four routes through which the vaccines can be administered. **(2mks)**

……

……

……

……

**11.** State two abnormalities observed during egg candling. **(1mk)**

……

……

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**12.** State four advantages of natural incubation. **(2mks)**

……

……

……

……

**13.** Outline four disease causing micro-organism. **(2mks)**

……

……

……

……

**14.** State two factors that determine amount of water required by a dairy cow. **(1mk)**

……

……

**15.** Name two dual purpose sheep breeds. **(1mk)**

……

……

**16.** Name four parts found in a piggery unit. **(2mks)**

……

……

……

……

**17.** State four advantages of embryo transplant. **(2mks)**

……

……

……

……

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**18.** Name four disorders caused by mineral imbalances in cattle. **(2mks)**

……

……

……

……

**19.** Outline two physiological body functions that indicate illness in livestock. **(1mk)**

……

……

## SECTION B: (20 MARKS)

**20.** (a) A farmer was advised to prepare 180kg of calf ration containing 20% DCP. Using Pearson's square method, calculate the amount of maize containing 10% DCP and sunflower containing 40% DCP the farmer needs to use. Show your working. **(4 mks)**

**(b)** State two factors considered when formulating a livestock ration. **(2 mks)**

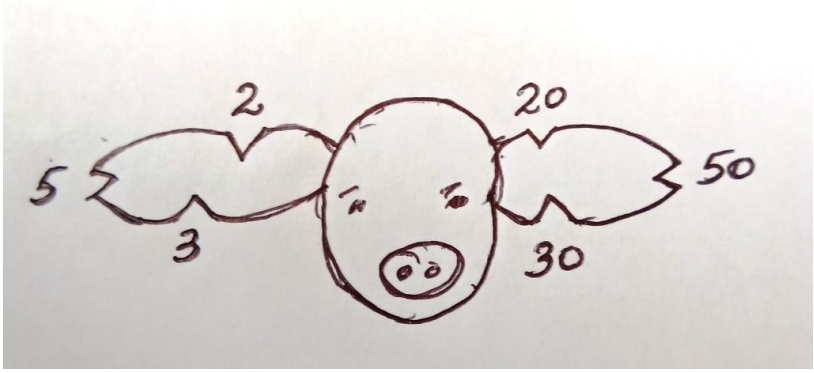
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**21.** Study the diagram below and answer the questions that follow.




**(a)** Name the type of identification illustrated above. **(1 mk)**

……

**(b)** Give the identification number of the pig illustrated above. **(1 mk)**

……

……

**(c)** Using a diagram, illustrate how animal number 83 can be identified using the above method. **(2 mks)**

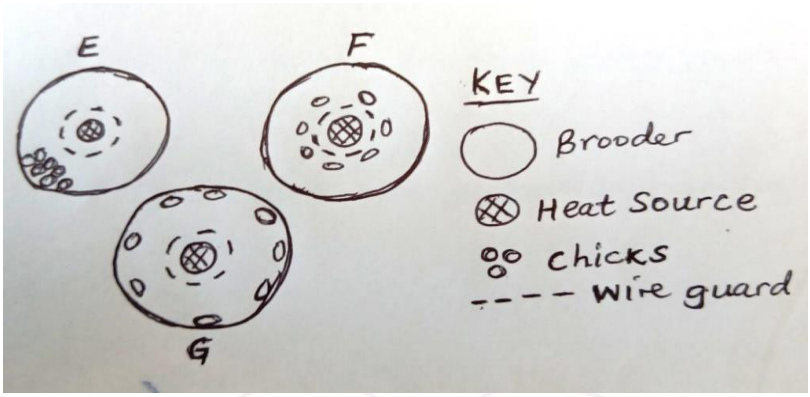
**(d)** What is the use of metal rails in a farrowing pen? **(1 mk)**

……

……

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**22.** The diagrams below show the behaviour of chicks in a brooder in response to heat.




**(a)** Explain the behaviour of chicks in brooder;

**E –** **(1 mk)**

……

……

**F –** **(1 mk)**

……

……

**G –** **(1 mk)**

……

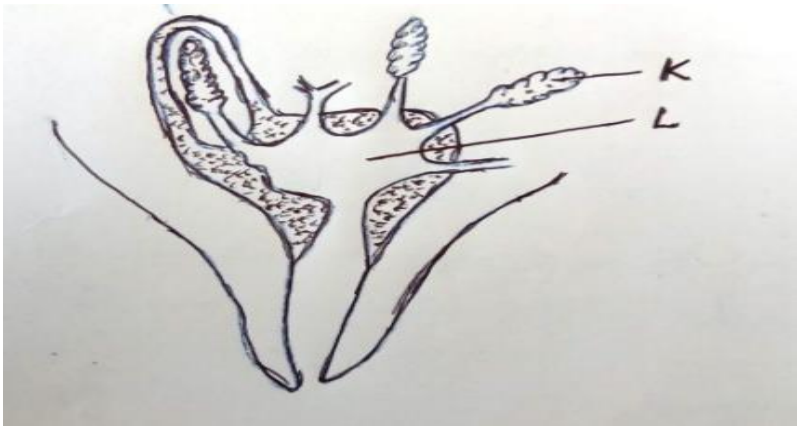
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**(b)** Explain why the brooder is rounded. **(1 mk)**

……

……

**23.** The diagram below shows the structure of the udder of a cow. Study it then answer the questions that follow.




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**(a)** Identify parts labeled K and L. **(2 mks)**

**K –……**

**L –……**

**(b)** Name two hormones that control milk let-down in a dairy cow. **(2 mks)**

**……**

**……**

**(c)** Name one disease that attack part labeled L. **(1 mk)**

**……**

## SECTION C: (40 MARKS

*Answer ONLY TWO questions from this section.*

**24.** **(a)** Describe the physical characteristics of a good dairy cow for breeding. **(10 mks)**

(**b)** (i) State five functions of water in the body of livestock. **(5 mks)**

**(ii)** Explain the advantages of a four-stroke cycle engine. **(5 mks)**

**25.** **(a)** Explain five factors that affect milk composition in dairy cattle. **(5 mks)**

**(b)** Describe five factors that may lead to failure of a cow to conceive after service. **(5mks)**

**(c)** Explain the factors that a farmer should consider when selecting materials to construct a zero-grazing unit. **(10 mks**

**26.** **(a)** Describe milk fever under the following sub-headings:

(i) Animal affected. **(1 mk)**

(ii) Cause of disease. **(1 mk)**

(iii) Symptoms. **(5 mks)**

(iv) Control measures. **(3 mks)**

**(b)** Outline the advantages of artificial insemination in cattle. **(10 mks)**

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

565/1 Business Studies Paper 1

**Time: 2 Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**INSTRUCTIONS TO CANDIDATES**

*Answer all the questions in the spaces provided.*

**FOR EXAMINER'S USE ONLY(100 MARKS)**

| Question No | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Marks | | | | | | | | | | | | | |

| 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | |

**ACHIEVED**

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*Answer **ALL** the questions*

**1.** Highlight four ways in which a well laid out business structure is likely to lead to the success of the business. **(4mks)**

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**2.** List **four** characteristics of money. **(4mks)**

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**3.** Give the following transactions, indicate the account to debit and the account to credit. **(4mks)**

| **Transaction** | **AA/c to Dr** | **AA/c to Cr** |
|---|---|---|
| ii} Received damaged goods from a customer (Ukweli traders) | | |
| ii} Received an invoice from a wholesaler Upendo traders | | |
| iii} Issued a credit note to Pwani traders | | |
| iv} Received rent by cheque | | |

**4.** State four non- price competitions that firms in oligopoly market structures may engage in as an attempt to capture more customers and realize greater sales volume. **(4mks)**

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**5.** List four errors which may make the trial balance fail to balance. **(4mks)**

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**6.** The following information was extracted from the books of Juma stores on 31st march 2010

| | Sh |
|---|---|
| Stock 1st april 2010 | 8000 |
| Stock 31st march 2011 | 9000 |
| Purchases | 4500 |
| Sales | 21000 |

Calculate

**i.**Margin **(2mks)**

**ii.**Rate of stock turnover. **(2mks)**

**7.** State four factors that are likely to lead to a young population in a country. **(4mks)**

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**8.** Record the following transaction in the relevant ledger account. **(4mks)**

**(i)** Kibet started business with sh.100, 000 in cash on 1st Jan 2008.

**(ii)** Bought motor van for sh.27, 500 cash on 2nd Jan 2008.

**(iii)** Fixtures bought on credit from shop flitters for sh.11, 500 on 3rd Jan 2008.

**(iv)** Paid amount owing in cash to shop flitters on 7th Jan 2008.

**9.** Match the following types of advertising with its appropriate description in the table below.

Product advertising, informative advertising, institutional advertising, competitive advertising.

**(4mks)**

| | Description | Type |
|---|---|---|
| (a) | Treats awareness about a product. | |
| (b) | Promotes the name of manufacturer. | |
| (c) | Persuade the consumer to buy a product. | |
| (d) | Promotes a particular brand of product. | |

**10.** Calculate the net profit or loss made from the following details: **(4mks)**

| | | |
|---|---|---|
| Drawing during the year | 20,000 | |
| Additional capital | 120,000 | |
| Capital on 31.12.2010 | | 300,000 |
| Investment | | 80,000 |

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**11.** Give **four** reasons why the government levy taxes. **(4mks)**

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**12.** State **four** reasons why Railway transport is unpopular in Kenya when compared to road. **(4mks)**

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**13.** For each of the following cases, name the motive for holding money. **(4mks)**

| **Case** | **Motive** |
|---|---|
| a) To meet daily transport expenses. | |
| b) To meet any unforeseen circumstances. | |
| c) To take advantage of anticipated future in price. | |
| d) To pay for daily food requirement. | |

**14.** Enumerate four reasons why an insured may not be compensated despite an insured risk occurring. **(4mks)**

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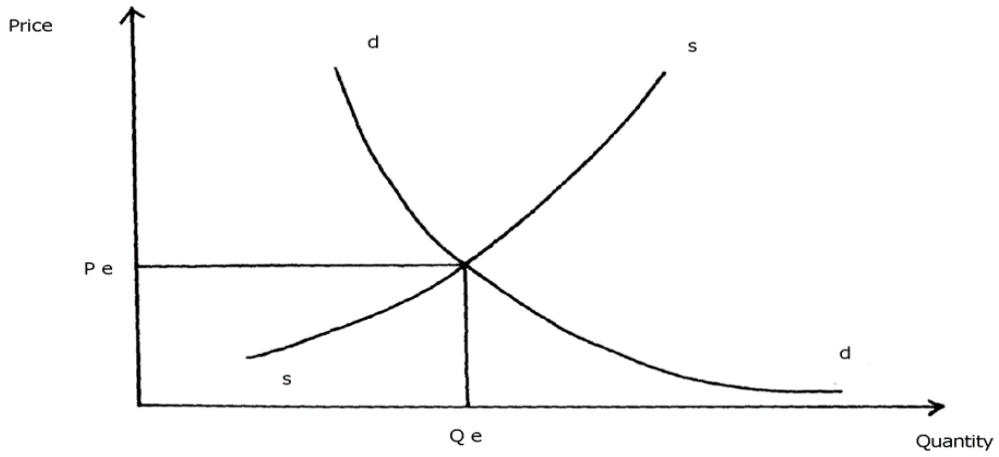
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**15.** The following diagram shows demands and supply curve of commodity.




State **four** things that will happen if the supply of the commodity is increased while demand remains constant. **(4mks)**

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**16.** Highlight **four** ways in which the utility / usefulness of a product can be increased. **(4mks)**

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**17.** Mention **four** ways in which the Kenyan government is creating an enabling environment to attract investments. **(4mks)**

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**18.** Give four differences between an ordinary share and a preference share. **(4mks)**

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**19.** Trimer limited has opened a factory in a rural shopping Centre called Massawa. Outline four ways in which the people living in the surrounding areas may benefit from the factory. **(4mks)**

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**20.** For each of the following transaction of Kinyua traders, identify the source document and the journal in which the information is recorded. **(4mks)**

| | **Transaction** | **Source document** | **Journal** |
|---|---|---|---|
| (a) | He bought goods worth ksh.40,000 on credit from jitahidi | | |
| (b) | Kinyua returned some goods in jitahidi traders worth ksh. 2000 | | |
| (c) | Peter a customer bought goods worth ksh.5,000 on credit | | |
| (d) | Peter returned goods worth Ksh. 1000 to Kinyua traders | | |

**21.** State four roles of intermediaries in the chain of distribution. **(4mks)**

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**22.** Name four types of printed messages that may be sent through facsimile **(4mks)**

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**23.** Highlight four benefits of national income statistics to a country **(4mks)**

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**24.** Outline four ways in which natural resource may be of benefit to a country. **(4mks)**

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**25.** Outline four difficulties faced by human being in satisfying their wants. **(4mks)**

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# KCSE SMARTGRADE PREDICTION

## KCSE 2024 SERIES

565/2 Business Studies Paper 2

**Time: 2½ Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

## *Kenya Certificate of Secondary Education*

**INSTRUCTIONS TO THE CANDIDATES**

- Answer ***any five* questions.**
- Write your answer in the answer booklet provided.
- **All** questions carry equal marks.

**FOR EXAMINER'S USE ONLY:-**

| Question | 1 | 2 | 3 | 4 | 5 | 6 | TOTAL |
|---|---|---|---|---|---|---|---|
| Marks | | | | | | | |

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## *Questions*

**1.** (a) Explain **FIVE** importance of a business plan to an entrepreneur. **(10mks)**

(b) Explain **FIVE** sources of monopoly power. **(10mks)**

**2.** (a) Explain **FIVE** measures to undertake in order to increase efficiency of warehouse. **(10mks)**

(b) Explain **five** limitations of barter trade that led to the evolution of money. **(10mks)**

**3.** (a) Explain **FIVE** reasons why Omwami would choose to start as sole proprietorship other than joining a Public Limited Company. **(10mks)**

**(b)** Optimist Investment operates a wholesale business and the following information relates to various transactions during the month of Jan, 2023.

Jan 3 sold goods on credit to Anyimba sh 60,000
8 purchased goods on credit from Mjuaji stores sh 120,000
12 returned goods bought on credit from Mjuaji stores sh 6,000
16 purchased goods on credit from Mjuaji stores sh 160, 000
22 sold goods on credit to Mafala retailers sh 150,000
23 bought a new motor vehicle from Mashariki motors worth sh 3,200,000 on credit
24 Anyimba returned goods worth sh 10,000 to the business
29 sold equipment worth sh 840,000 on credit to Chap Chap limited.

Record these transactions into Optimist investment books of original entry. **(10mks)**

**4.** (a) Explain five advantages of using direct taxes to collect revenue in a country. **(10mks)**

(b) Explain five importance of filing documents in an organization. **(10mks)**

**5.** (a) Explain **FIVE** reasons for the existence of small firms despite competition from large scale firms

b) Describe the procedure of obtaining an insurance claim. **(10mks)**

**6.** a) Explain **FIVE** ways in which the government may positively influence that attract business activities to a given area. **(10mks)**

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**b).** The following trial balance was extracted from books of A bass stockists as at 31st December **2022.** **(10mks)**

| Details | Dr shs | Cr shs |
|---|---|---|
| Opening stock | 30,000 | |
| Purchases | 275,000 | |
| Sales | | 390,000 |
| Debtors | 47,000 | |
| Commission received | | 36,000 |
| Returns inwards | 10,000 | |
| Returns outwards | | 6,000 |
| Carriage inwards | 16,000 | |
| Carriage outwards | 8,000 | |
| Advertising | 3,000 | |
| Salaries | 19,000 | |
| Rates | 12,000 | |
| Premises | 450,000 | |
| Machinery | 180,000 | |
| Loan | | 210,000 |
| Insurance | 20,000 | |
| Discounts | 5,000 | 7,000 |
| Drawings | 25,000 | |
| Cash | 40,000 | |
| Bank | 250,000 | |
| Creditors | | 52,000 |
| Capital | | 689,000 |
| | 1,390,000 | 1,390,000 |

Additional information;
Closing stock – shs. 50,000
Required: Prepare Abass stockist trading profit and loss account for the period ended **31/12/2022**

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

313/1 Christian Religious Education Paper 1

**Time: 2½ Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

## *Kenya Certificate of Secondary Education*

### INSTRUCTIONS TO CANDIDATES

***a)*** *Write your name; admission number; Index number; class and date in the spaces provided above.*

***b)*** *This paper consists of six questions.*

***c)*** *Answer any **FIVE** questions in the answer sheet provided*

***d)*** *Each Question carries 20 marks*

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

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*Answer any **FIVE** questions*

**1. (a)** State the Deutero-canonical books of the Catholic bible. **(6mks)**

**(b)** Give reasons why the bible is viewed as one complete book and not two different sub-sections. **(7mks)**

**(c)** Mention any **seven** ways in which Christians use the Bible to spread the gospel today. **(7mks)**

**2.** (a) Describe how the Israelites broke the covenant they had made with God while at Mount Sinai **(Exodus 32:1-30)** **(8mks)**

(b) State **Six** commandments that guide on human relationships **(6mks)**

(c) Outline **Six** forms of worship that were practiced by the Israelites in the wilderness that are found in Christian worship today **(6mks)**

**3.** (a) Give reasons why Elijah was forced to escape from Israel. **(7mks)**

(b) Explain the main features of Canaanite Religion **(7mks)**

(c) What can Christians learn from the happenings at the Mt. Carmel contest about the, nature of God. **(6mks)**

**4.** (a) Describe the call of Amos to become a prophet of God **(6mks)**

(b) Outline the teaching of prophet Amos on social justice and responsibility. **(8mks)**

(c) How is the church promoting social justice in Kenya today. **(6mks)**

**5.** (a) Explain the different occasions when Nehemiah prayed. **(8mks)**

(b) Give six reasons why Nehemiah carried out religious reforms in Judah. **(6mks)**

(c) What is the importance of prayer in the life of a Christian today. **(6mks)**

**6.** (a) State the traditional African understanding of Spirits. **(5mks)**

(b) Outline ways through which a marriage partner is chosen in traditional African communities. **(8mks)**

**(c)** Give **seven** changes that are taking place in property ownership in Traditional African communities. **(7mks)**

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

313/2 Christian Religious Education Paper 2

**Time: 2½ Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

## *Kenya Certificate of Secondary Education*

### INSTRUCTIONS TO CANDIDATES

- *Write your name; admission number; Index number; class and date 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*

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

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*Answer any **FIVE** questions*

**1.** (a) State Jeremiah's prophecy about the messiah. **(6mks)**

(b) Explain Simeon's prophetic message about Jesus during His dedication. **(7mks)**

(c) From Mary's song, the Magnificat give seven ways in which the church can help to uplift the lives of less fortunate. **(7mks)**

**2.** (a) Describe the temptations of Jesus in the wilderness before he began his public ministry. **(6mks)**

(b) State **seven** problems that Jesus encountered as a result of performing miracles. **(7mks)**

(c) State **seven** problems that Christian leaders face in their work in Kenya today. **(7mks)**

**3.** (a) Give **six** reasons why Jesus cleansed the temple of Jerusalem (Luke 22:8-13). **(6mks)**

(b) Outline the preparations that Jesus made for the last supper. **(7mks)**

(c) Give reasons why peter denied Jesus. **(7mks)**

**4.** (a) Identify the fruits of the Holy spirit in *Galatians 15:22-23.* **(5mks)**

(b) Explain what the teachings of Jesus about the vine and the branches reveal about the unity of believers in *John 15: 1-10.* **(8mks)**

(c) Give **seven** ways in which Christians can prevent divisions in the church in Kenya today. **(7mks)**

**5.** (a) Outline basis of Christian ethics. **(7mks)**

(b) Give reasons why life skills are important? **(6mks)**

(c) Mention factors that have led to challenges of bringing up children**.** **(7mks)**

**6.** (a) Give the Christian teaching on human sexuality. **(7mks)**

(b) Outline the effects of rape. **(7mks)**

(c) Give reasons why rape cases are on the increase in Kenya today. **(6mks)**

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# KCSE SMARTGRADE PREDICTION

# (KCSE 2024 SERIES)

311/1 History and Government Paper 1

**Time: 2½ Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

## *Kenya Certificate of Secondary Education*

**INSTRUCTIONS TO CANDIDATES**

- ***(a)*** *This paper consists of* ***three*** *sections* ***A***, ***B*** *and* ***C.***
- ***(b)*** *Answer* ***ALL*** *the questions in section* ***A***, ***THREE*** *questions from section* ***B*** *and* ***TWO*** *questions from Section* ***C.***
- ***(c)*** *Answers to* ***all*** *the questions* ***must be*** *written in the answer booklet provided.*
- ***(d)*** *Candidates should answer the questions in English.*

**FOR EXAMINER'S USE ONLY**

| SECTION A | 18 | 19 | 20 | 21 | 22 | 23 | 24 | TOTAL |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |

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## SECTION A (25 marks)

*Answer ALL the questions in this section.*

**1.** Give **two** limitations of using anthropology as a source of information on History and Government. **(2 mks)**

**2.** Name anyo place where the remains of homo sapiens were found in Kenya. **(2 mk)**

**3.** Name the dispersal area of the Eastern Bantu. **(1 mk)**

**4.** Name the section of the maasai that practiced mixed economy. **(1 mk)**

**5.** Give the **main** factor that enabled the early visitors to come to the Kenyan coast by 1500. **(1 mk)**

**6.** Give **two** ways in which education has promoted national unity in Kenya**.** **(2 mks)**

**7.** Identify **two** key changes contained in the New 2010 Constitution. **(2 mks)**

**8.** Name any **two** groups that monitor human rights in Kenya. **(2 mks)**

**9.** State **one** method that the British used to administer the Kenyan colony. **(1 mk)**

**10.** What was the **main** contribution of Thomas Joseph Mboya to the history of Kenya? **(1 mk)**

**11.** Identify **two** duties of the British Governor in Kenya during the colonial period**.** **(1 mk)**

**12.** Name ***one*** political association formed in Kenya before 1939. **(1 mk)**

**13.** Give ***two*** reasons why the Kenya Parliament is regarded as supreme. **(2 mks)**

**14.** State ***one*** source of Nyayo Philosophy. **(1 mk)**

**15.** Identify ***one*** way in which the government promotes Kenyan culture. **(1 mk)**

**16.** Name ***one*** organ of the County Government. **(1 mk)**

**17.** Give **two** challenge facing the health sector in Kenya today. **(2mks)**

## SECTION B: (45 MARKS):

*Answer Any Three Questions In This Section.*

**18. (a)** Outline five reasons for the migration of the Luo form their original homeland. **(5mks)**

**(b)** Describe the political organization of the luo during the pre-colonial period. **(10mks)**

**19.(a).** State three terms of the Anglo-German Agreement of 1886. **(3mks)**

**(b).** Explain six problems experienced by the imperial British East Africa company to establish colonial rule in **Kenya** **(12mk)**

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**20. (a)** Give five factors that undermined the activities of the Kenya African union in the struggle for independence **(5mks)**

(b) Describe five political roles played by African elected members of parliament during the struggle for **independence** **(10mks)**

**21. (a)**State three challenges that hinder government effort to eradicate illiteracy in Kenya **(3mks)**

(b) Explain six factors which have undermined the provision of the health services by the government of **Kenya** **(12mks)**

## SECTION C (30 MARKS)

*Answer any two questions from this section*

**22a)** State three ways in which the constitution promotes national **unity** **(3mks)**

**b)** Explain the importance of National Integration in Kenya **(12mks)**

**23 (a)** Give three functions of a constitution. **(3mks)**

**b)** Describe the key stages in the constitution making process in Kenya. **(12Mks)**

**24 a)** Identify three conditions one must fulfill to be declared as a winner in the presidential Election **(3mks)**

(b)Explain six powers and function of the president in Kenya **(12 mks)**

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

311/2 History and Government Paper 2

**Time: 2½ Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

## *Kenya Certificate of Secondary Education*

**INSTRUCTIONS TO CANDIDATES**

- ***(a)*** *This paper consists of* ***three*** *sections* ***A***, ***B*** *and* ***C.***
- ***(b)*** *Answer* ***ALL*** *the questions in section* ***A***, ***THREE*** *questions from section* ***B*** *and* ***TWO*** *questions from Section* ***C.***
- ***(c)*** *Answers to* ***all*** *the questions* ***must be*** *written in the answer booklet provided.*
- ***(d)*** *Candidates should answer the questions in English.*

**FOR EXAMINER'S USE ONLY**

| SECTION A | 18 | 19 | 20 | 21 | 22 | 23 | 24 | TOTAL |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |

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## SECTION A:(25MARKS)

*Answer ALL the questions in this section.*

**1.** Identify the theory explaining that the world and all that is in was created by a special supreme being. **(1mk)**

**2.** Name the group of old stone age man, who is associated with oldwan tools**.** **(1mk)**

**3.** Name **two** ancient writing in Mesopotamia and Egypt. **(2mks)**

**4.** Give **two** forms of traditional currency used in Africa. **(2mks)**

**5.** Give **two** forms of water transport used during ancient times. **(2mks)**

**6.** State **two** uses of horn blowing in traditional African societies. **(2mks)**

**7.** State **two** reasons why African slaves were preferred during the Trans- Atlantic slave trade. **(2mk)**

**8.** Identify **two** chartered companies used to administer East Africa during the process of colonization. **(2mks)**

**9.** State **two** factors that facilitated scientific revolution in Europe from 14$^{th}$ century. **(2mks)**

**10.** Identify two tourist attraction sites in the ancient Kilwa **(2mks)**

**11.** Give one way in which the Berlin conference solved the dispute among the European powers in Congo **(1mk)**

**12.** Name the charted company that administered Zimbabwe during the process of colonization **(1mk)**

**13.** Name the person who introduced the policy of association in central Africa **(1mk)**

**14.** State one challenge faced by South African nationalists **(1mk)**

**15.** State one event that led to the end of World War 1 **(1mk)**

**16.** Name one financial institution established by the African union **(1mk)**

**17.** State one condition that a country should fulfil in order to become a member of the Non-Aligned Movement **(1mk)**

## SECTION B (45 MARKS)

*Answer **any three** questions from this section in the answer booklet provided.*

**18.a.** Identify three types of trade. **(3 Mks)**

**b.** Describe the organization of the Trans Sahara trade **(12 Mks)**

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**19.a.** Give three ways through which trade contributed to the rise of the Asante kingdom in the 18th century **(3 Mks)**

**b.** Describe the social organization of the Asante **(12 Mks)**

**20.a.** Identify five causes of food shortage in third world countries. **(5 Mks)**

**b. Explain** the factors that led to Agrarian revolution in the USA. **(10Mks)**

**21.a. State** three characteristics of industrial revolution in Europe. **(3 Mks)**

**b. Explain six** factors hindering industrialization in third world countries**.** **(12Mks)**

## SECTION C (30 MARKS)

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

**22.** a. Enumerate the terms of the Lochner - Lewanika treaty of 1890 **(3 Mks)**

b. Explain the results of Lewanika's collaboration with the British. **(12Mks)**

**23.** a. State three characteristics of indirect rule **(3 Mks)**

b. Discuss six reasons why indirect rule failed in Southern Nigeria **(12Mks)**

**24.** a. What were the factors for the growth of nationalism in Ghana? **(5 Mks)**

b. Explain the role of Kwame Nkrumah in the struggle of Ghana's independence in 1957. **(10 Mks)**

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

312/1 Geography Paper 1

**Time: 2¾ Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

## *Kenya Certificate of Secondary Education*

**INSTRUCTIONS TO CANDIDATES**

**(a)** *Write your Name and Index Number in the spaces provided above,*

**(b)** *This paper consists of two Sections; A and B.*

**(c)** *Answer aU the questions in Section A.*

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

**FOR EXAMINER'S USE ONLY**

| Section | Question | Maximum score | Candidate's score |
|---|---|---|---|
| A | 1-5 | 25 | |
| B | 6 | 25 | |
| | | 25 | |
| | | 25 | |
| TOTAL SCORE | | | |

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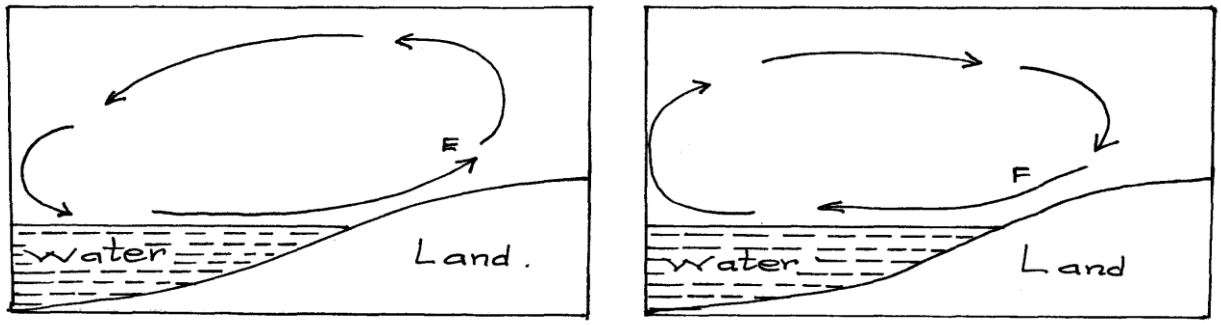
## SECTION A

*Answer All Questions In This Section*

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

b) What is the relationship between Geography and Biology **(2mks)**

**2.** a) Use the diagram below to answer the following questions




i) Name the air currents marked E. **(1mk)**

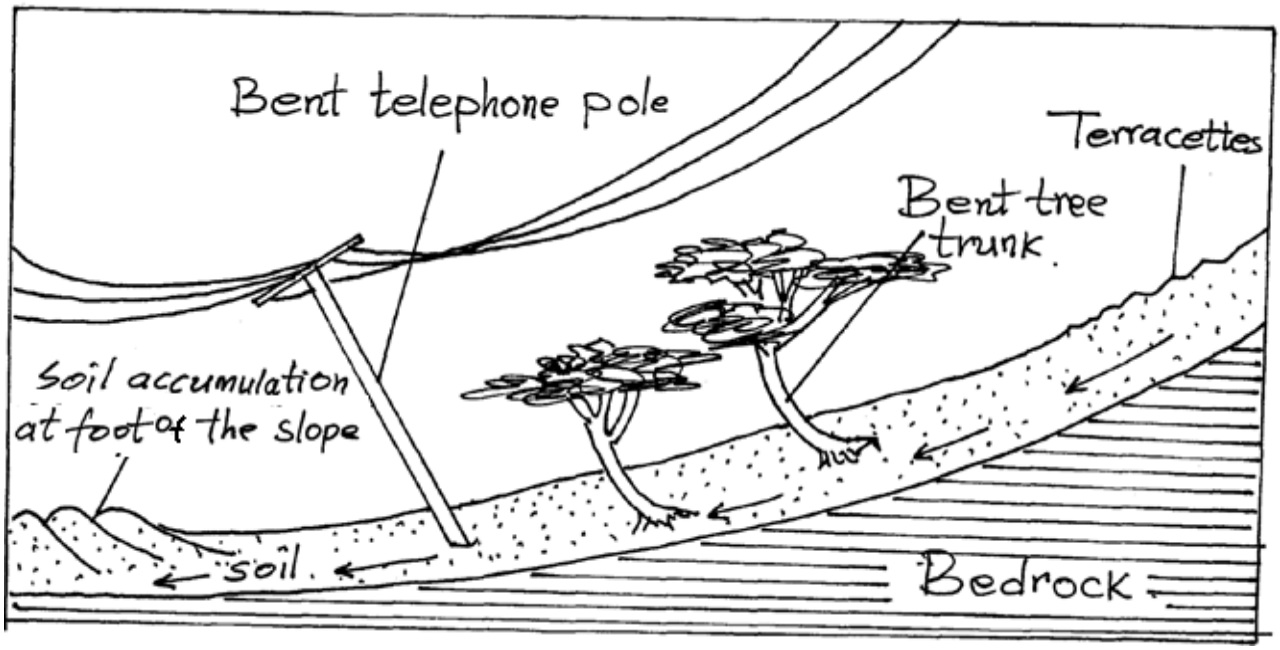
ii) Why does the air current marked F flow at night. **(3mks)**

b) Give reason why air cools as it rises. **(2mks)**

**3.** (a)Define folding. **(2mks)**

b) List four types of folds. **(4mks)**

**4.** The diagram below illustrates a mass wasting process. Use it to answer question (a) and (b)




a.) Identify the process. **(1mk)**

b.) Explain how the process occurs . **(3mks)**

**5.** a.) What is a river profile? **(2mks)**

b.) Name the three stages of a river profile. **(3mks)**

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## SECTION B

*Answer question 6 and any other two questions from this section.*

**6.** You are provided with a map of **KISUMU EAST, EAST AFRICA 1:50,000 (KENYA)** sheet 116/2.Use it to answer the following questions.

a (i) convert the scale of this map into a statement scale **(2 marks)**

(ii) Identify **three** physical features found at grid square **9995** in the area covered by the Map. **(2marks)**

(iii) Give the bearing of the **air photo principal point** at grid square 9584 from the south western corner of the area covered by the map. **(2marks)**

(iv) Give the magnetic variation of the area covered by the map **(2 marks)**

(b) **Citing evidence** from the map, give **five** social services offered in Kisumu town **(5 marks)**

(c) Describe the **relief** of the area covered by the map **(5marks)**

d (i) On the graph paper provided, use a vertical scale of **1cm represent 50 metres** to draw a cross section from point **950950** to point **020950** in the area covered by the map **(4marks)**

(ii) On it mark and label

-Dry weather road **(1mark)**

-Power transmission line **(1mark)**

-Motorable track **(1mark)**

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

(ii) Name **four** types of faults **(4mks)**

b) With the aid of well-labelled diagrams, describe how a Rift Valley is formed by Tensional force **(8mks)**

**c)** Apart from the Rift Valley, name other **three** relief features that may form as a result of faulting. (**3mks)**

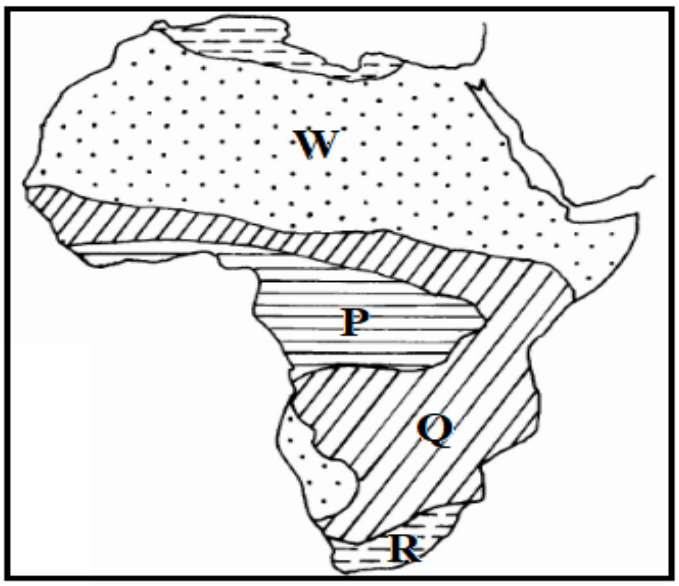
d) Explain **four** ways in which features resulting from faulting are Economic significance. **(8mks)**

**8.** (a) Differentiate between weather and climate. **(2mks)**

(b) Explain **two** ways in which human activities influence rainfall of a given place**.** **(4mks)**

**(c)** The map below shows some climatic regions of the world. Use it to answer the questions that follow.

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(i) Name the climatic types marked **P**, **Q** and **R**. **(3mks)**

(ii) Describe the characteristics of the climatic type labeled **W**. **(5mks)**

(d) (i) Name **three** greenhouse gases likely to be found in the atmosphere. **(3mks)**

(ii) Give **three** ways of combating global warming. **(3mks)**

(e) Members of your class plan to conduct a field study on weather in a local weather station

(i) State **three** factors they may identify for the citing of the weather station. **(3mks)**

(ii) State **two** advantages of studying weather through a field study. **(2mks)**

**9. (a)** (i) Define the term hydrological cycle. **(2mks)**

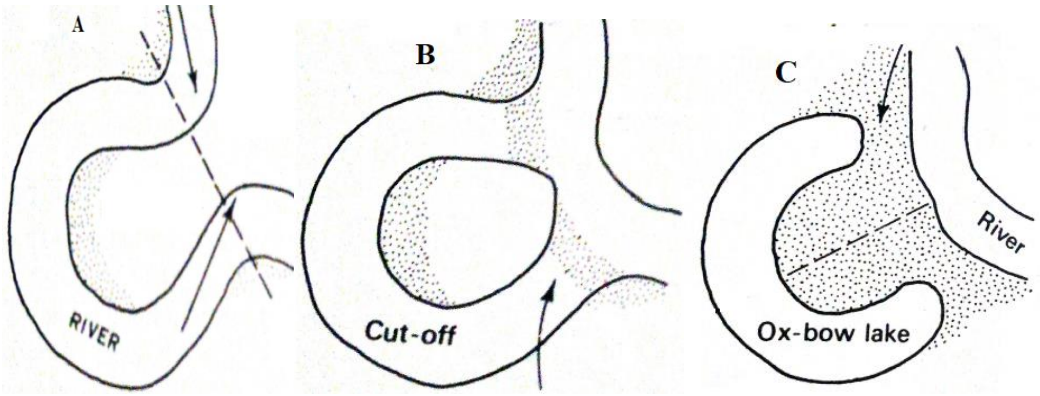
(ii) Explain the following processes of the hydrological cycle;

- Evaporation **(2mks)**
- Surface run off **(2mks)**

(b) Citing an example in each case, name **three** sources of rivers in Kenya. **(3mks)**

(c) State four factors that influence river erosion. **(4mks)**

(d) The diagrams below show formation of a feature of river deposition. Use them to answer the questions that follow.




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**(i)** Describe the processes in the diagrams labeled:

- **A** **(1mk)**
- **B** **(2mks)**
- **C** **(2mks)**

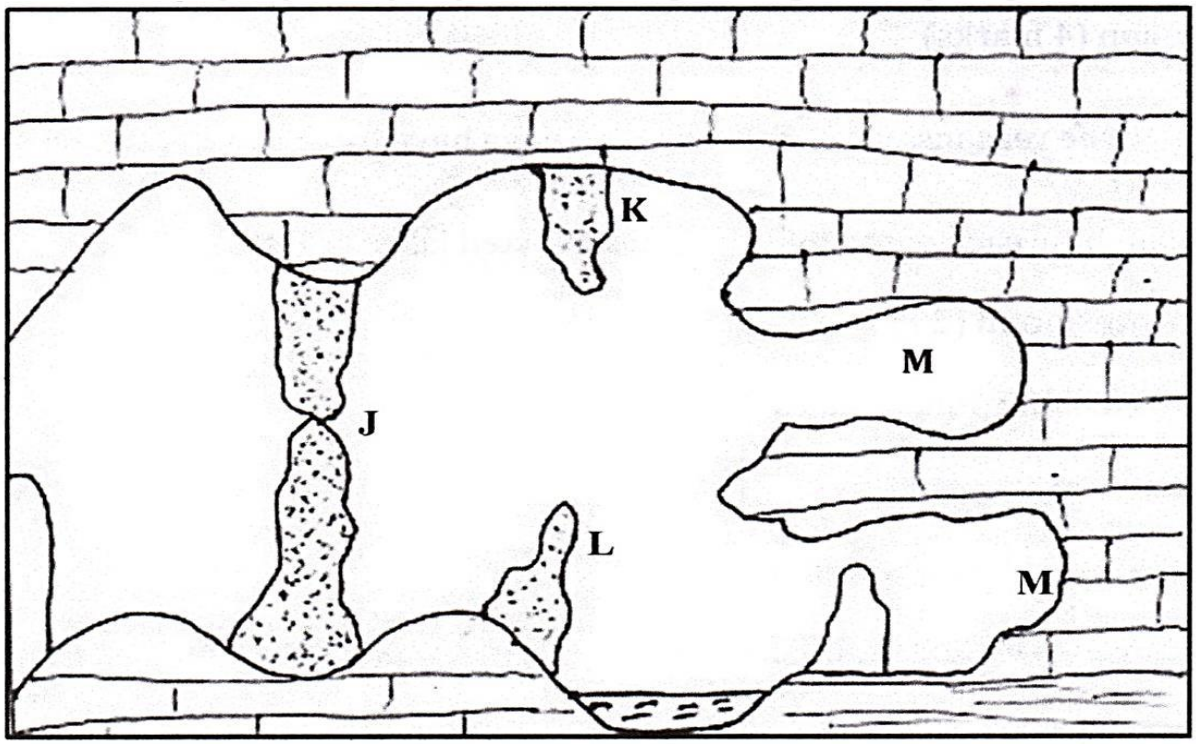
(ii) Name **two** examples of ox-bow lakes in Kenya. **(2mks)**

(e) Members of your class plan to conduct a field study on the lower course of River Nzoia.

(i) Give **two** equipment they are likely to carry for the study. **(2mks)**

(ii) State **three** characteristics of the river they are likely to observe during the study **(3mks)**

**10.** The diagram below represents underground features in a limestone area. Use it to answer question.




(a) (i) Name the features marked **K,L and M.** **(3mks)**

(ii) Describe how the feature marked J is formed. **(6mks)**

(b) (i) What is a water table **(2mks)**

(ii) Explain **three** conditions necessary for the development of karst scenery. **(6mks)**

(c) You are supposed to carry a field study of an area eroded by water.

i Give **three** ways you would prepare before conducting the field study. **(3mks)**

ii Name **two** erosional features you are likely to identify during the field stud **(2mks)**

iii State **three** significance of the resultant features in limestone areas. **(3mks)**

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

312/2 Geography Paper 2

**Time: 2¾ Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

## *Kenya Certificate of Secondary Education*

**Instructions to candidates**

**(a)** *Write your Name and Index Number in the spaces provided above,*

**(b)** *This paper consists of two Sections; A and B.*

**(c)** *Answer aU the questions in Section A.*

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

**FOR EXAMINER'S USE ONLY**

| Section | Question | Maximum score | Candidate's score |
|---|---|---|---|
| A | 1-5 | 25 | |
| B | 6 | 25 | |
| | | 25 | |
| | | 25 | |
| TOTAL SCORE | | | |

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## SECTION A: 25 MARKS

*Answer **ALL** questions in this section*

**1.** (a) (i) Define Geography. **(2 mark)**

(ii) Name **two** branches of Geography **(2 marks)**

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

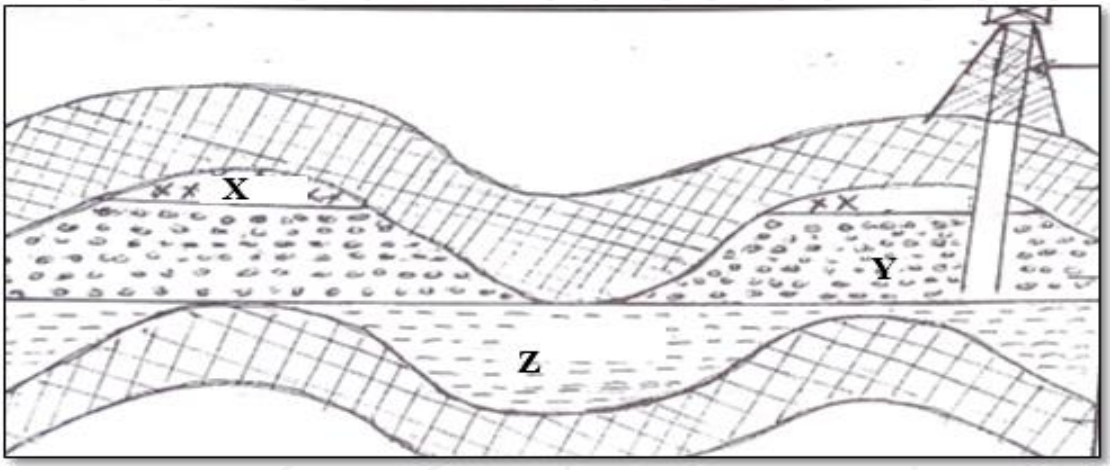
**2.** (a) Name **two** breeds of dairy cattle reared in Kenya. **(2 marks)**

(b) State **two** factors which favour dairy farming in Denmark. **(2 marks)**

**3.** (a) Give **two** types of ground photographs. (**2 marks)**

(b) State **two** limitations of using photographs. **(2marks)**

**4.** The diagram below shows the occurrence of petroleum on the earth crust. Use it to answer questions (a)and (b)




**(a)** Name the substance in the areas labeled**X**, **Y** and **Z.** **(3marks)**

(b) Give **two** by products obtained when crude oil is refined. **(2marks)**

**5.** (a) State **two** factors that influence the distribution forests in Kenya. **(2marks)**

(b) State **three** effects of deforestation to the environment. **(3marks)**

## SECTION B

***Answer question six (6) and any other two Questions from this section.***

**6.** The table below shows three main crops produced in Kenya in the years 2008-2010 (Amounts in metric tonnes). Use it to answer questions below.

| Crop | 2008 | 2009 | 2010 |
|---|---|---|---|
| Maize | 200,000 | 380,000 | 400,000 |
| Wheat | 100,000 | 130,000 | 150,000 |
| Tea | 250,000 | 300,000 | 350,000 |

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**(a)(i)** Using a scale of 1cm represent 50,000 metric tonnes, draw a comparative bar graph to represent the data above. **(8 marks)**

(ii). State **two** advantages of using comparative bar graph. **(2 marks)**

**(b) i).** Name **two** counties in Kenya where wheat is grown in large scale. **(2 marks)**

ii). State **three** conditions that favour wheat farming in Kenya. **(3 marks)**

**(c).** State **four** benefits of wheat growing in Kenya. **(4 marks)**

**(d).** Explain **three** factors that make Canada produce more wheat than Kenya. **(6 marks)**

**7.** (a) (i)Define the term mining? **(2 marks)**

(ii)Give four methods of underground mining. **(4 marks)**

(b) Explain how the following factors influence mining:

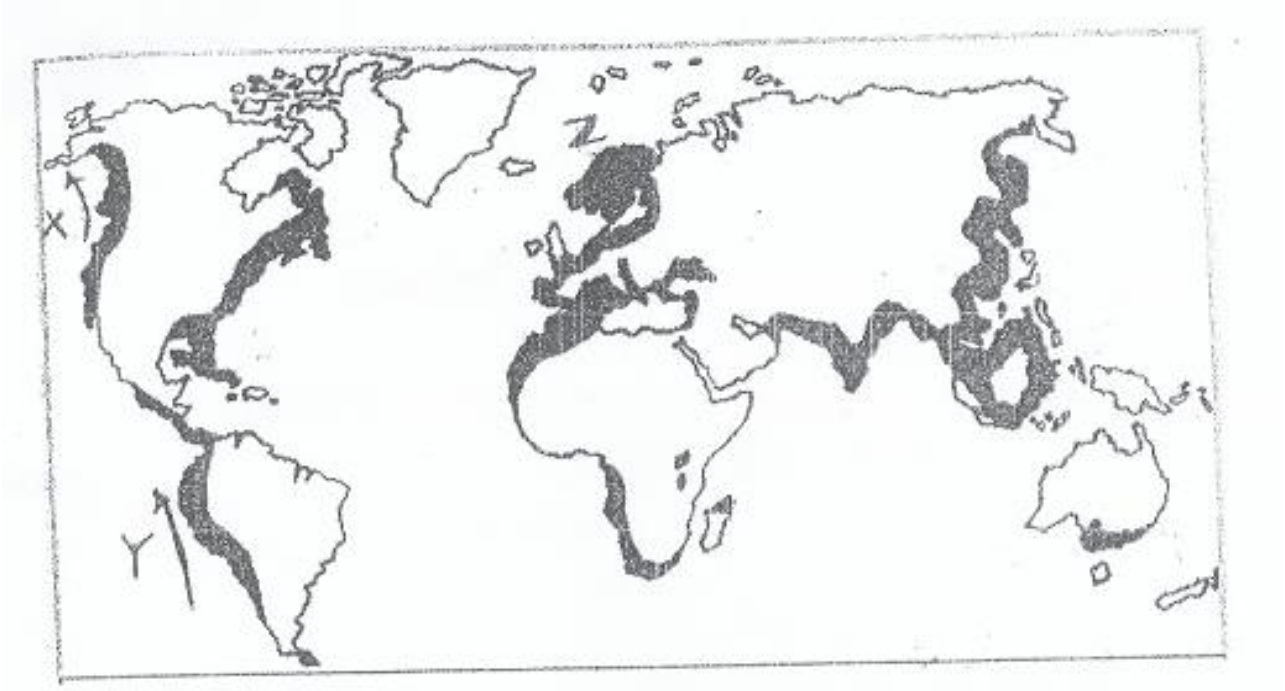
(i) Level of technology **(4 marks)**

(ii) Quality of the ore **(2 marks)**

(c) Explain **four**benefits of trona mining at Lake Magadi to Kenya. **(8 marks)**

(d) State **five**negative effects of mining on the environment. **(5 marks)**

**8.** Use the world map below to answer question (a).




**(a) (i).** Name the ocean currents marked x and Y. **(2 marks)**

(ii). Name the fishing ground marked Z. **(1 mark)**

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(b).Explain **three** physical factors that favour fishing in the fishing ground marked Z.**(6 mks)**

(c) (i). What is fish farming? **(2 marks)**

(ii). Name **two** fish species reared in fish farms in Kenya. **(2 marks)**

(iii). Explain **four** problems which are experienced by fish farmers in Kenya. **(8 marks)**

(d). Give **four** uses of fish. **(4 marks)**

**9.** a) State the difference between forest and forestry. **(2marks)**

b) Explain **four** measures that the Government of Kenya is taking to conserve forest in the country. **(8marks)**

**c)** i) List any **three** examples of softwood tree species found in Canada. **(3marks)**

ii)State and explain any **three f**actors that have favoured forestry in Canada. **(6marks)**

d)You intend to carry out a field study on forestry within your local environment.

i)State **three** objectives you would formulate for the study. **(3marks)**

ii)Give **three** reasons why it is important to have a working schedule. **(3marks)**

**10.** a)i). Differentiate between Land Reclamation and Land Rehabilitation. **(2marks)**

ii). Give <u>three</u> methods used in reclaiming land in Kenya. **(3marks)**

**b** i). State <u>three</u> benefits of reclaiming Yala swamp. **(3marks)**

ii). State <u>four</u> physical conditions that favour the establishment of Perkerra Irrigation Scheme., **(4marks)**

**c.** Explain <u>three</u> problems faced by rice farmers in Mwea Irrigation Scheme. **(6marks)**

**d.** i). What is a polder? **(lmark)**

ii). Outline the stages involved in reclaiming land from the sea in the Netherlands. **(6marks)**

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

101/1 English Paper 1

*(Functional Skills)*

**Time: 2 Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

## *Kenya Certificate of Secondary Education*

**INSTRUCTIONS TO CANDIDATES**

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

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

***c)*** *Answer* ***all*** *the questions in this paper*

***d)*** *All your answers must be written in the spaces provided in the question paper*

**FOR EXAMINER'S USE ONLY**

| Question | Maximum Score | Candidate's Score |
|---|---|---|
| | 20 | |
| | 10 | |
| | 30 | |
| **Total Score** | **60** | |

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## 1. FUNCTIONAL WRITING (20 MARKS)

You are the captain of your school. You have noticed that students are coming to school in clothing that is not part of the school uniform. You need to inform them to desist from that behavior. Write an **internal memo** reminding them of the prescribed uniform and the consequences of wearing illegal clothing in the school.

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## 2. CLOZE TEST (10 MARKS)

*Fill in each blank space in the following passage with the most appropriate word.*

In (**1**)…….to pass examinations well, one needs to (**2**)……...a good foundation from the beginning. Revising (**3**)……. for the examinations requires you to actually study and (**4**)……your facts rather than memorizing them. (**5**)……of the main problems that (**6**)……..…..students face is anxiety. A little bit of anxiety before examinations is okay but too much (**7**)……detrimental. Excess anxiety may come from (**8**)……understanding the crucial points in a topic before moving (**9**)…… to the next. When students simply gloss (**10**)……facts, they fail to understand them and therefore they get mixed up or confused before examinations.

## 3. ORAL SKILLS (30 MARKS)

**a) Read the poem below and answer the questions that follow.**

When to the sessions of sweet silent thought
I summon up remembrance of things past,
I sigh the lack of many a thing I sought
And with the old woes new wail my dear time's waste
Then can I drown an eye, unused to flow,
For previous friends hid in death's dateless night,
And weep a fresh love's long since cancelled woe,
And moan the expense of many a vanished sight.
Then can I grieve at grievances foregone,
And heavily from woe to woe tell o'er.
The sad account of foregone-bemoaned moan,
Which I now pay as if not paid before .
But if the while I think of thee, dear friend,
All losses are restored and sorrows end.

*William Shakespeare*

### QUESTIONS

**(i)** Describe the rhyme scheme of the poem above (**2 marks)**

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**(ii)** Identify the most dominant sound devices in the poem (**2 marks)**

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**b)** Read the oral literature item below and answer the questions that follow.

***Slipperiness knows no king.***

**(i)** Identify an element of musicality contained in the proverb above **(2 marks)**

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**(ii)** Identify two occasions in which the above proverb can be used **(4marks)**

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**c)** Identify the odd one out in each of the following sets by underlining according to the pronunciation of bold part of the words. **(4 marks)**

**(i)** Enou**gh** sta**ff** dou**gh** gra**ph**

**(ii)** Depo**sit** rappo**rt** repo**rt** debu**t**ant

**(iii)** **H**our **h**onour **h**eir **h**eifer

**(iv)** Pri**s**on rea**s**on per**s**on sea**s**on

**d)** For each of the following words, provide a word pronounced the same. **(3 marks)**

**(i)** What ……..

**(ii)** Quire …….

**(iii)** Come …….

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**e)** You are having a group discussion with your colleagues on the set text **"A Silent Song's and Other Stories."** One of your group mates is **contributing to the discussion** but you are eager to chip in with something. State any three cues that would tell you that it is your turn to make a contribution. **(3 marks)**

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**f) Explain** how you would greet a friend you meet on the road while **taking a walk (3 marks)**

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**g) Read the following dialogue between Portia and the Principal then answer the questions that follow.**

**Principal:** Welcome Portia, please have a seat.
**Portia:** (After sitting down) Sir, why did you call me?
**Principal:** I would like us to have a little chat about.....
**Portia**: I have not done anything wrong; you can even ask Jedidiah, the class prefect I waswith her the whole day yesterday.
**Principal:** Actually, the reason I called you is because...
**Portia:** Speak louder. I can't hear you.
**Principal** : (In a louder voice). The reason why I sent for you is because I have just received news from...
**Portia**: (Shouting). Jacky! I knew that fool could not be trusted with a secret. Okay, it's true that Elijah and I sneaked out of school yesterday but we were hungry, really hungry. All we did was buy a loaf of bread and then came back to school.
**Principal**: Portia, I wish you could listen to me. The reason why I called you here is because I have received news that you have won an award in the creative writing contest that you entered last year. I have a cheque here for you. However, you have raised a matter that I would love to attend to without further delay. Please go and call Elijah. By the time you get back I will have decided on the best punishment for you two.

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## QUESTIONS

**(i)** How does the principal establish rapport with the student? **(2 marks)**

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**(ii)** Prove that Portia is a poor listener. **(2 marks)**

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**(iii)** What evidence is there in the dialogue to suggest that Portia demonstrates lack of etiquette in her speech? **(3marks)**

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

101/2 English Paper 2

*(Comprehension, Literary appreciation and Grammar)*

**Time: 2½ Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

## *Kenya Certificate of Secondary Education*

**INSTRUCTIONS TO CANDIDATES**

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

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

**c)** *Answer **all** the questions in this paper.*

**d)** *All your answers **must** be written in the **spaces provided** in the question paper.*

**FOR EXAMINER'S USE ONLY**

| QUESTION | MAX SCORE | SCORE |
|---|---|---|
| 1 | 20 | |
| 2 | 25 | |
| 3 | 20 | |
| 4 | 15 | |
| TOTAL SCORE | 80 | |

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

Africa is undoubtedly a very enduring race and has the capacity to utilize the available natural resources for the betterment of life. The biggest challenge, however, is to identify ways and means of creating an environment that is likely to encourage development in Africa. Perhaps the greatest strategy would be to develop political structures and government institutions that have the capacity to formulate and implement 'genuine poverty alleviation strategies'. Administrative arrangements that no longer serve our needs should be overhauled or discarded altogether. Government should foster exploitation and management of natural resources by providing an enabling environment. Having stable government may not be effective if we don't fight corruption. We should ensure that leaders and government agents become answerable to the tax payer. The public should be educated on the ills of corruption. Those who have stolen public funds must be made to return them and face the full force of the law. Again, people known to have **stashed** money in foreign banks should be forced to repatriate that money so as to improve cash flow in our economies.

Apart from this, Africa must find a way of solving their internal conflicts without involving the international community. After all, we are all brothers with a common cause. The need to unite and exist as unitary state should be stressed as this overrides clan and tribal rights or sentiments that fuel animosity. The African union should be strengthened to enable it to arbitrate intra and inter-state disputes. The resulting peace will provide a suitable environment for economic growth and set us on the road to recovery and prosperity. Another solution would be to develop rural-based economies, since the bulk of our population live in the rural areas. Industries that process farm produce and those that manufacture farm inputs, machinery and implements should be located in the rural areas. Similarly, mining concerns should establish processing plants near the mines. Such industries will naturally recruit manpower from the locality and consequently, reduce the incidence of rural-urban migration. Setting up industries in the rural areas will necessitate development of infrastructures which will open up rural areas for business. This will further encourage expansion and increase food production to counter perennial food shortage in Africa. For instance, development of dairy and beef processing industry in the rural areas will encourage sustainable livestock keeping and probably bring to an end loss of cattle to drought. A rural based economy will basically raise the income of the rural people and bridge the **disparity** between the rich and the poor.

We should also introduce appropriate technology in exploitation of natural resources and in wealth creation. Since imported technologies are expensive to maintain, Africa should tap local expertise to develop technologies appropriate to our needs. Home grown technology should enable us alleviate Africa's food security by utilizing river and lake water for irrigation and by harnessing wind and solar energy.

Lastly, our economic units such as ECOWAS, SADC, and EAC should be transformed into common markets by removing unnecessary tariffs on goods at various entry points so as to realize

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the benefits of a common market. The people of Africa should continually seek a better life. We have the resources; we have the manpower, and the capacity to make things move.

## QUESTIONS

**a)** What should African countries do to fight corruption based on the information contained in the passage? **(2 marks)**

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**b)** Explain how Africans can open up rural areas. **(2 marks)**

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**c)** What do you understand by the term 'genuine poverty alleviation strategies'? **(2 marks)**

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**d)** How can we reduce the incidence of rural – urban migration? **(2 marks)**

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**e)** Why is appropriate technology useful**?** **(1 mark)**

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**f)** In not more than **fifty** words, write a summary on the various ways of fostering development in African countries**.** **(5 marks)**

**Rough copy**

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**Fair copy**

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**g)** What is the tone of the last paragraph of this passage concerning the future of Africa?(**3 marks)**

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**h)** The public should be educated on the ills of corruption. (Add a question tag**)** **(1 mark)**

……

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**i)** Explain the meaning of the following words as used in the passage**.** **(2 marks)**

i) Stashed**……**

ii) Disparity**…….**

***1. <u>Read The Extract Below And Answer The Questions That Follow</u>***

"That's a bad idea, Mr Longway. I'm a Gambian, Sir."

"All right, so you are a Gambian. Well, I am a South African. Now how has that helpedadvance world peace?"

"Sir, are you really a South African?""Yes, I am."

"This is the Gambia, Sir. Since the article you dropped looks valuable, you might never see itagain, Sir. As a Gambian, I ought to know. Still, if you insist, I'll give it to the woman at the front desk."

"No, no, no. I've changed my mind. I'm coming down for it right away."

"That's a good idea, Mr Longway. You'll find me standing near the phone booths. 11m wearing white shoes and a red dress with white polka dots. You will not miss me, Sir. But ifyou do, I won't."

"I'll be there in five minutes." He was there in three.

She spotted him first. "Sir, it's me you are looking for," she said. Mr Longway, I am Fiona McKenzie, the stranger who phoned you."

"Are you? You see, the picture I had formed Of you in my mind was not black at all. Wait.That did not come out right, did it? I meant on the phone you sounded Scottish, white anyway. Goodness, what am I saying? Forget it. I am Tad. Tad Longway."

"I'm pleased to meet you, Sir. I am Fiona. Fiona McKenzie "She handed him something." That's the article I was telling you about, Sir. "It was a key card to her office at the VOA. He looked at it. Then he gave it back to her. "Not mine," he said. "The tag says VOA, and Ihave no ties with the VOA."

"Then I interrupted your shower for nothing. Yet I can swear I saw you drop this very keycard, Mr Longway."

"Now, now, Ms McKenzie. Don't go burn yourself at the stake just for this, okay? In fact, since you've gone to all this trouble for my sake, why don't you let me buy you a drink? It'stime for my evening Martini anyway. So what's your poison?"

She consulted her watch then shook her head. "It's late," she said. "Late? That must be a newdrink."

"All right, Mr Longway. Maybe a Coke, but I must be off soon."

## <u>QUESTIONS</u>

**a)** Place the excerpt in its immediate context. **(5 marks)**

**……**

**……**

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**b)** "That's a bad idea, Mr. Longway. "What was Fiona referring to as a bad idea**?** **(2 marks)**

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**c)** Identify and illustrate three styles used in this excerpt**.** **(6 marks)**

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**d)** Explain one instance of irony in this excerpt. **(2 marks)**

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**e)** Using information from elsewhere in the text, explain why Ms. Mckenzie soundedScottish**.**

**(2 marks)**

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**f)** How has Ms. Mckenzie been brought out in this excerpt? **(4 mark)**

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**g)** Join the following sentences into one. (begin: After**...).** **(1 mark)**

He looked at it. Then he gave it back to her.

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**h)** Who is Mr. Longway and why was Fiona so interested in meeting him? **(3 marks)**

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## 1. ORAL LITERATURE (20MKS)

*Read the narrative below and then answer the questions that follow*

For very many years, there was no rain. All the land became dry, and trees withered and died. Both domestic and wild animals died due to lack of water and grass to eat. Hyena had gone for many days without food. He was hungry and weak. One morning, he rose early to look for food. He scavenged through the entire forest and the sun moved towards the hills in the West, and it dawned on Hyena that it would soon be nightfall. That night, Hyena could not sleep a wink. His stomach rumbled throughout the night. He fell into a light troubled sleep after midnight, but this was not sufficient.

He woke up at dawn and began to scavenge for food once again. He walked slowly and circumspectly, lest he missed a carcass in the woods. Feeling helpless, he walked slowly and circumspectly, lest he missed a carcass in the woods. Feeling helpless, he walked to the great valley overlooking a bushy hill where he glanced up and saw the sun which was then above his

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head. Walking on through the bush, he came upon a huge tree with spreading branches. Under the tree lay a dead elephant which must have died of hunger.

Hyena could not believe his eyes. He opened and closed them, to make sure that what he saw was true. "It is Elephant! He's dead!" he said. He was so pleased with himself that he gave a faint excited scream. He leapt and made to jump over the mammoth carcass of the Elephant. Poor Hyena fell on the Elephant's stomach and nearly broke his back. He rolled to the other side of the carcass and lay there. Finally, he managed to get up, and ate ravenously.

He ate quickly because he feared other Hyenas would come to share the carcass with him.He did not want to share his good fortune. He ate and ate for nearly two hours without even pausing to look up to see if anyone might be coming.

He stopped and looked up to see the sun. It was moving across the sky and making for the West. He walked farther away from his great feed and jumped up onto low hanging branch to see how much he had eaten. He made a quick jump to the ground again, and went back to the carcass to resume his feed. He ate and ate until he disappeared into the Elephant's stomach through the channel he had cut. He walked a little away from the Elephant, looking for a branch. He found one, rushed and made a high jump towards the branch. This time he jumped carefully but still missed narrowly, hurting himself. He went back and continued with his feed, this time slowly and forcing himself, but being fully satisfied, he could not eat anymore.

He looked for yet another branch with which to satisfy himself that he was fully fed. He walked backwards, stomach protruding outwards from both sides. He sped painfully for the final jump, with much difficulty. He gathered momentum, and threw his trunk up determinedly with all his might. Whilst flying through mid-air heard a deafening explosion."Gugugukuruuuuuuit!"Hecried out, saying, "God, come to my rescue." He somersaulted in the air and dropped down dead with all intestines jutting out.

## QUESTIONS

**a.** Why would this story be called a fable? **(2mks)**

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**b.** Identify and illustrate two traits of Hyena in this narrative. **(4mks)**

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**c.** State one economic activity practiced by the community from which this narrative is taken.

**(2mks)**

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……

**d.** Identify and illustrate any three features of oral narratives used. **(6mks)**

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……

**e.** What moral lesson do you learn from this narrative? **(2mks)**

……

……

……

**f.** "He stopped and looked up to see the sun" (**Rewrite as a question beginning' Did ...) (1mk)**

……

**g.** Explain the meaning of the following expressions as used in the oral narrative: **(3mks)**

**a.** Scavenge

……

……

**b.** Not sleep a wink

……

……

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**c.** Ravenously

……

……

**4. GRAMMAR.** **(15marks)**

**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…)**

……

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

……

……

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

……

……

**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.

**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)

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(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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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

101/3 English Paper 3

***(Imaginative Composition and Essays based on Set Texts)***

**Time: 2½ Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education*

**INSTRUCTIONS TO CANDIDATES**

***a)*** *Answer three questions only*

***b)*** *Question one and two are compulsory*

***c)*** *In question three choose 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 essays must not exceed 450 words*

**FOR EXAMINERS USE ONLY**

| QUESTION | MAXIMUM SCORE | CANDIDATES SCORE |
|---|---|---|
| 1. | 20 | |
| 2. | 20 | |
| 3. | 20 | |

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*Answer three questions only*

**1. CREATIVE COMPOSITION (COMPULSORY)**

***Either***

**a)**Write a composition beginning with the following: It all started as a rumour but no one in the family took it seriously until **…**

**or**

**b)** Argue out the belief that "If devolution has to succeed the youth have to be empowered fully."'.

**(20 marks)**

**2. THE COMPULSORY SET TEXT: The Doll's House**

Other people's wrong choices can adversely affect our lives. Justify this statement using Blossoms of the Savannah by Henry Ole Kulet. **(20 marks)**

**3. THE OPTIONAL SET TEXTS.**

**Either**

**a) The short story: A silent Song and Other Stories** **(20 marks)**

Lack of courtesy between the police and civilians leads to lethal conflicts. Justify the validity of this statement using illustrations from Meja Mwangi's incident in the park.

**or**

**(b) The novel: An Artist of the Floating World.**

Yearning for reputation and social status can lead someone down to a path of fear and obsession. Making reference to Ono in the Novel 'An Artist of the Floating World', discuss the validity of this statement. **(20 marks)**

**or**

**(c) The play: inheritance by David Mulwa.** **(20 marks)**

Misuse of power is a common phenomenon in most African countries. Basing your arguments on *Inheritance by David Mulwa* write an essay tosupport this statement

**THIS IS THE LAST PAGE PRINTED**

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

102/1 Kiswahili Paper 1

**INSHA**

**Time: 1¾ Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education*

**MAAGIZO**

**a)** *Andika jina lako na nambari ya usajili kwenye nafasi ulizoachiwa hapo juu.*

**b)** *Tia sahihi yako kisha uandike tarehe ya mtihani katika nafasi ulizoachiwa hapo juu.*

**c)** *Andika insha **mbili**. Insha ya kwanza ni ya **lazima.***

**d)** *Kisha chagua insha nyingine moja kati ya hizo tatu zilizobakia.*

**e)** *Kila insha isipungue maneno **400**.*

**f)** *Kila insha ina alama **20.***

**KWA MATUMIZI YA MTAHINI PEKEE**

| SWALI | UPEO | ALAMA |
|---|---|---|
| 1. | 20 | |
| 2. | 20 | |
| 3. | 20 | |
| 4. | 20 | |
| JUMLA | 40 | |

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## MASWALI

**1.** Suala la Afya ya akili ni suala nyeti na telezi na ambalo halijapewa umakini ufaao na wanajamii kutokana na unyanyapaa unaohusishwa nalo. Ukiwa Mhariri Mkuu wa Gazeti la Mzalendo, andika tahariri kuangazia vyanzo vya changamoto hii na kupendekeza suluhu mwafaka.

**2.** "Vijana ndio nguzo kuu katika kuimarisha mshikamano wa kitaifa". Thibitisha.

**3.** Tunga kisa kitakachodhihirisha matumizi ya methali ifuatayo:
*Jifya moja haliinjiki chungu*

**4.** Tunga kisa kitakachokamilika kwa maneno yafuatayo:
*Kweli nimetambua kuwa, familia ni nguzo muhimu katika ujenzi wa jamii*.

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

102/2 Kiswahili Paper 2

**LUGHA**

**Time: 2½ Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education*

**MAAGIZO**

*a) Andika jina lako na nambari yako katika nafasi ulizoachiwa katika kijitabu hiki cha maswali.*

*b) Jibu maswali yote.*

*c) Majibu yote yaandikwe katika nafasi ulizoachiwa katika kijitabu cha maswali.*

*d) Majibu yote lazima yaandikwe kwa lugha ya Kiswahili.*

**KWA MATUMIZI YA MTIHANI PEKEE**

| SWALI | UPEO | ALAMA |
|---|---|---|
| 1. UFAHAMU | 15 | |
| 2. UFUPISHO | 15 | |
| 3. SARUFI | 40 | |
| 4. ISIMU JAMII | 10 | |
| **JUMLA** | **80** | |

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**1: UFAHAMU: (Alama 15)**

*Soma kifungu kifuatacho kisha ujibu maswali.*

"Asante baba, asante mama," akasema Bahati jioni moja baada ya chajio, "Sijui ilitokeaje kukawa na watu wanaothamini binadamu wenye mahitaji maalumu katika jamii hii. Sitawauliza mlichofanya kunikinga na hukumu ya ukoo ya kuniangamiza; hayo mtakuja kunihadithia siku moja. Ila nataka mjue kwamba kuishi na ulemavu wa aina yoyote ile kuna dhiki kuu. Niliyokabiliana nayo baada ya uamuzi wenu wa kunipeleka shuleni hayawezi kutoshea hata chapisho la kurasa elfu.Si kudhihakiwa na miale ya jua; ngozi yangu inashindwa kuuhimili ukali wake, si kutengwa na marika, si kulazimika kusoma hati za kawaida hadi pale serikali ilipoanzisha sera ya kuhakikisha kwamba matini zote za kiusomi zimeandikwa pia kwa hati ambazo zinaweza kusomwa na wenye changamoto kama yangu, si kubaguliwa kazini...."Bahati alitua, akawatazama wazazi wake kama anayetaka kuona taathira ya maneno yake kisha akaendalea.

"Msinione kama aliyekosa hisani, ila' nataka niwaambie kwamba hata uamuzi wenu wa kunitafutia mlinzi kuandamana nami hadi shuleni ulinitia kwenye ngome zaidi.Nilijihisi kama niliyedhulumiwa zaidi katika kule kulindwa! Najua mlikuwa mnachelea kwamba ningekuwa windo rahisi kwa walanguzi wa binadamu ambao wanaamini kwamba viungo vyetu sisi ni dawa ya kutibia ndwele mbalimbali.Hata hivyo, katika kipindi chote hicho nilitamani kwamba mngenifunza mbinu za kujilinda mimi binafsi. Amini usiamini hata nilitamani kwamba ningetekwa nyara, nijadiliane na watesi wangu kuliko kupokwa nafasi ya kubuni mikakati ya kujihakikishia usalama".

"Mwanangu Bahati," alisema mume wangu, "binadamu hawi jagina kwa kuzifuata tamaduni za jamii yake bila kuzichunguza. :haidhuru kwamba ilichukua muda kuyangamua haya'. La muhimu ni kwamba umeweza kuishi kama ndugu zako".

Nilimtazama mume wangu kwa macho yaliyokuwa yamepofushwa na dimbwi la machozi. Moyo uliituma akili yangu kurudi nyuma kule -e-e-e- kwenye miereka ya baada ya kuzaliwa kwa Bahati. Asubuhi hiyo ya kipupwe nilishika ujia ulioelekea kwenye msitu uliokuwa karibu na boma la Mzee Kedi, baba mkwe wangu; mgongoni nimeifungia mbeleko ambayo ilikisitiri kitoto changu. Nilitazama nyuma, nikaiona nyumba ambayo mimi na mume wangu tulikuwa tumechanga bia kuijenga.

"Haya yote nayaacha," nilijiambia, "nayaacha na mengine mengi. Nawaacha mabinti wangu wawili, namwacha mume wangu, naiacha kazi yangu, nayaacha maisha yangu wala sijuti kwa kuyaacha haya yote. Sina cha kujutia kwani imebidi kuondoka. Jamii yangu imenitema; mimi na mwanangu.Haina nafasi ya mwanangu, kwa hivyo nami nimeamua kwamba haina nafasi yangu kwa vile imesema huu ni mzigo wangu. Ikiwa ukoo umeamua kuwa hatima ya mwanangu huyu ni kuwa kitoweo cha fisi, basi na tuwe sote karamu ya fisi" nilitamatisha kauli yangu kisha nikayarudisha nyuma tena mawazo yangu.

Nilikumbuka sauti ya muuguzi hospitalini siku ambayo nilijikopoa, "Pongezi Tamasha, Mungu amekutunukia kipusa". Nilikifunua kitoto changu kilichokuwa kimefunikwa gubigubi, nikakitazama viguu, vikono, uso...kisha, 'Mungu wangu!' ikanitoka. "Dadangu, unastahili

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kumshukuru Mungu," akasema muuguzi, "wapo wanawake, mimi mwenyewe nikiwemo, ambao hawajawahi kuambulia ujauzito, sikwambii hata kupoteza mimba.Huyu wako ni kiumbe kamili, kasoro yake i kwenye ngozi tu, na hii ni hali ambayo unaweza kukabiliana nayo. Hapa unionapo nimelazimika kumpa mume wangu talaka, mwenyewe alienda kortini akaiomba. Anadai kwamba hatusikilizani. Ila najua kiini cha haya yote ni kutoshika kizazi".

Nilimtazama huyo muuguzi kana kwamba hajasema lolote. Nilimwona kama anayeuona mzigo wangu kuwa kanda la usufi. Huenda huyu muuguzi hakujua kwamba katika jamii yangu watoto wa aina hii ni kama pacha, huaminiwa kuwa nuksi kwa ukoo mzima, kwa hivyo hutupwa. Muuguzi huyu hakujua pia kwamba tayari nilikuwa na watoto wawili wa kike na huo tayari ulikuwa mzigo mkubwa kwangu kwani ilibidi kumhakikishia mavyaa kila mara kwamba hawa pia walikuwa watoto.

Moyo ulinipa kukumbuka jitimai iliyojiandika usoni mwa mume wangu asubuhi hiyo alipokuja hospitalini. Alikitazama kitoto chetu kana kwamba anaona mzuka. Alinyamaza kwa muda, akashusha pumzi, kisha akanishika kwenye bega na kuondoka kwenye wodi. Machozi yalivunja kingo zake huko yanakohifadhiwa, nikalia kama mfiwa, Mume wangu alirudi tena baada ya siku mbili; anakuja kunipeleka nyumbani.

"Mke wangu, naomba msamaha kwa kutokuja kuwatazama kwa siku mbili. Ilibidi nishauriane na ukoo kuhusu tanzia hii. Inavyoonekana ni kwamba msimamo wa baba na wazee wengine ni ule ule. Wanasema ukoo wa Baulanga haujawahi kupata mtoto wa aina hii, kwamba kumhifadhi mwana huyu kutakuwa kuupaka masizi ukoo. Wahenga hawatakubali tendo hili. Sijui nitakutetea vipi.Nimo kwenye njia panda," mume wangu alikamilisha uzungumzi wake na kuelekea kwenye afisi ya mhasibu kukamilisha viviga vya kutuondoa hospitalini.

"Huna haja ya kuniitetea. Sijafanya kosa lolote. Nililofanya ni kujaliwa kiumbe ambaye anaonekana kuwa punguani kwa misingi ya jamii yako. Nitakilinda kitoto hiki hata kifoni," nilimwambia mume wangu mawazoni.

## MASWALI

**(a)** "Kufanikiwa kwa watu wenye mahitaji maalumu kunategemea jamii." Thibitisha kwa kutoa hoja sita kutoka aya tatu za kwanza. **(alama 6)**

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**(b)** Kwa kurejelea aya ya nne hadi ya saba, onyesha jinsi unyanyasaji wa kijinsia unavyoendelezwa katika jamii hii. **(alama 3)**

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**(c)** "Msimulizi anahimiza. uwajibikaji." Thibitisha kwa kutoa hoja nne kutoka aya tatu za ' mwisho. **(alama 4)**

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**(d) (i)** Andika kisawe cha, 'hisani' kwa mujibu wa taarifa. **(alama 1)**

……

**(ii)** Eleza maana ya, 'kuupaka masizi' kulingana na taarifa. **(alama 1)**

……

……

**2 UFUPISHO (Alama 15)**

*Soma kifungu kifuatacho kisha ujibu maswali.*

Wakenya walipoipata katiba mpya waliidhinisha mfumo wa ugatuzi. Katika mfumo huu, mamlaka ya serikali kuu katika uongozi, usimamizi na utumiaji wa rasilimali za nchi hupunguzwa. Kiasi Fulani cha mamlaka hutwaliwa na maeneo ya ugatuzi. Suala hili halikuzingatiwa katika katiba ya awali ambapo mamlaka yote yalikuwa mikononi mwa serikali kuu. Kutokana na upana na wingi wa maeneo, iliiwia vigumu serikali kuu kuhakikisha kwamba kulikuwa na usawa wa kimaendeleo katika sehemu nchini.

Kwa mujibu wa katiba mpya, serikali kuu haina budi kuyasaidia maeneo yote ya ugatuzi ili yaweze kujinyanyua kiuchumi na kuboresha hali za maisha za wakazi wake. Vilevile ni jukumu la kila eneo la ugatuzi kuweka mikakati madhubuti ili kuchunguza na kubainisha rasirimali zote katika maeneo husika. Hili litasaidia kufumba rasilimali ambazo zinaweza kuchangia katika ustawishaji wa maeneo haya. Maeneo haya pia yanatakiwa kutafuta mbinu zitakazofanikisha uzalishaji na

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utumiaji wa rasilimali hizi kwa njia endelevu. Mojawapo ya mbinu hizi ni uongezaji thamani katika rasilimali yoyote inayozalisha kwenye eneo mahususi.

Maeneo mengi ya ugatuzi nchini humu yanategemea kilimo cha ufugaji kama mhimili wa uchumi. Licha ya kuwa nguzo, kilimo hiki hakijawahi kupigiwa darubini vizuri kwa lengo la kukiimarisha ili kiwanufaishe wenyeji kikamilifu. Aghalabu wafugaji wengi huandama mbinu za jadi za ufugaji ambazo haziwahakikishii ongezeko la mapato.Isitoshe, wafugaji hawa wanakabiliwa na tatizo katika soko la mifugo ambapo wengi hupunjwa na matapeli. Pamoja na haya, baadhi ya wakazi huuza mifugo nje ya nchi wakiwa wazimawazima bila kuwazia matokeo ya kitendo hiki. Si ajabu kuwaona ng'ombe, ngamia, mbuzi na kondoo wakipakiwa kwenye malori na kusafirishwa nje ya nchi. Ukweli ni kwamba jambo hili ni hatari sana, si kwa uchumi wa maeneo husika tu, bali pia kwa Kenya kwa jumla. Hii ni kwa kuwa walionunua mifugo wazimawazima wanaweza kuhiari kutowachinja na badala yake kuwatumia kama mbegu kwani baada ya muda huenda wanaonunua mifugo wakijitosheleza na kukosa kununua mifugo wengine. Hali ikiwa hivyo, maeneo yaliyotegemea soko hili huenda yakalipoteza taratibu, na bila shaka kupoteza natija inayotokana na soko lenyewe.

Ili kudhibitisha hali hii, itakuwa bora ikiwa viwanda vya kuchinjia mifugo na kupakia nyama vitajengwa katika maeneo haya ya ugatuzi. Hili litawawezesha wakazi kuuza nyama badala ya kuuza mifugo wazimawazima. Fauka ya hayo maeneo haya yatajikinga dhidi ya kupoteza bidhaa zinazotokana na mifugo. Hizi ni kama vile ngozi, kwato na pembe ambazo bila shaka zina natija kuu. Ngozi kwa mfano, ni bidhaa muhimu sana katikasekta ya utengenezaji wa mavazi na mifuko. Viwanda vinavyotumia ngozi kama malighafi vikijengwa katika maeneo haya, wakazi wake watanufaika si haba. Madhalani, viwanda vya kutengenezea viatu, mishipi, mifuko na nguo vikianzishwa,wawekezaji watalazimika kuanzisha viwanda vingine tegemezi. Kathalika, ni dhahiri kwamba bidhaa zinazotokana na ngozi huhitaji kutiwa nakshi. Kuanzishwa kwa viwanda hivi basi kutazua haja ya kuanzishwa kwa viwanda vingine vya kutengeneza rangi, pamoja na maduka ya kuuza bidhaa zenyewe. Isitoshe, gundi ya kugandisha bidhaa hizi itahitajika, hivyo kusababisha haja ya kuanzishwa kwa kiwanda cha gundi. Matokeo ya shughuli hizi zote ni kuzalishwa kwa nafasi anuwaiza kazi kwa wakazi. Hili litakuwa na matokeo zaidi chanya, hususan kwa vijana. Badala ya kushiriki ulevi na burudani zinazowahatarisha, wataweza kujitafutia riziki katika viwanda hivi.

Juu ya hayo, mfumo wa ugatuzi utayaweza maeneo husika kuongeza thamani, utoaji wa huduma za kijamii na kuitawala kulingana na mahitaji ya maeneo haya. Ni muhimu hata hivyo kuzingatia kwamba kila eneo la ugatuzi lina upekee wake, navyo vipaumbele hutofautianakulingana na maeneo. Kuna yale ambayo yatasisitiza usalama, mengine ujezi na uimirishaji wa miundomusingi kama vile barabara, vituo vya afya na hata taasisi za elimu. La muhimu ni wakazi wa maeneo husika kubainisha ni lipi litatekelezwa kwanza.

Kinga na kinga ndipo moto uwakapo. Kufanikiwa kwa mfumo wa ugatuzi kutategemea juhudi za kila mkazi wa eneo husika. Ni muhimu kila mkazi kujiona kuwa mmiliki wa eneo zima la ugatuzi na kuwajibika katika kuliendeleza kwa hali na mali.uwajibikaji huu unajumuisha uteuzi wa viongozi wenye muono mzuri na ambao utawawezesha kuyafikia malengo yao ya kimaendeleo.

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Hakika, mustakabali na uwepo wa eneo la ugatuzi utakuwa zao la maamuzi ya wanaeneo. Vilevile ufanisi wa maeneo ya ugatuzi utakuwa msingi wa ufanisi wa taifa kwa jumla.

**a)** Fupisha ujumbe wa aya tatu za mwanzo kwa maneno 85-90 (alama 8, 1 mtiririko)

**Matayarisho:**

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**Nakala safi:**

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**b)** Kwa kutumia maneno 75-80, bainisha masuala ambayo mwandishi anaibua katika aya tatu za mwisho. (alama7, 1 mtiririko)

**Matayarisho:**

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**Nakala safi:**

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## 3. MATUMIZI YA LUGHA (Alama 40)

**(a)** Andika neno lenye sauti zifuatazo: **(alama 1)**

Kipasuo hafifu cha midomo, irabu ya mbele wastani, kikwamizo sighuna cha ufizi, irabu ya kati chini. _____

**(b)** Tunga sentensi moja moja yenye aina zifuatazo za vishazi**:** **(alama 2)**

(i) Cha nia

_____

_____

(ii) Kitegemezi cha wakati

_____

_____

(c) Andika maana ya maneno yaliyopigiwa mstari**.** **(alama 2)**

Wali<u>sita</u> kufanya kazi hiyo baada ya saa <u>sita</u> usiku.

……

……

……

**(d)** Tia shadda: **(alama 2)**

i. pekee

ii. alinyongwa

**(e)**Huku ukitoa mfano, onyesha miundo mitatu ya maneno katika ngeli ya U-I **(alama 3)**

……

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**f)** Tunga sentensi yenye vijisehemu vifuatavyo vya sarufi**:** **(alama 2)**

Kiambishi kiwakilishi cha kiima

Kiambishi kiwakilishi cha wakati

Yambwa

Mzizi - dhiki

Kauli ya kutendesha

Kiishio

_____

**(g)** Tumia neno dhahiri kama: (alama 3)

i. Kitenzi_____

ii. Kivumishi_____

iii. Kielezi_____

**(h)** Huku ukitoa mifano, eleza miundo mitatu ya silabi za Kiswahili. **(alama 3)**

_____

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_____

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_____

_____

_____

**(i)** Tofautisha mzizi na shina kwa mifano**.** **(alama 2)**

_____

_____

_____

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**(j)** Nyambua ziba katika kauli ya kutenduka kisha utungie sentensi. **(alama 2)**

_____

_____

_____

**(k)** Bainisha hali zinazorejelewa katika sentensi hizi**.** **(alama 3)**

(i) Mwangeka hufika kituoni mapema._____

(ii) Mgonjwa angetibiwa angepona._____

(ii) Umekuwa nanasi, kutagia mibani? _____

**(l)** Andika katika udogo wingi**.** **(alama 2)**

Ugwe ulipitishwa juu ya ukuta uliomea uyoga na kufungiwa kwenye makuti.

_____

_____

**(m)** Onyesha kiarifu katika sentensi hii. **(alama 1)**

Kilimia kimechomoka angani.

_____

**(n).** Changanua kwa kielelezo cha mstari**.** **(alama 3)**

Ndege aliruka angani ghafla.

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**(o)** Ainisha Virai vinne katika sentensi ifuatayo**.** **(alama 2)**

Kicha cha funguo kilikuwa kimepotea jana nikicheza kandanda.

i_____

ii_____

iii_____

iv_____

**(p)** Tunga sentensi kuonyesha matumizi mawili ya nukta mkato**.** **(alama 2)**

_____

_____

_____

_____

**(q)** Andika methali yenye maana sawa na jivu usilolilala usilipigie Jibwa**.** **(alama 1)**

_____

_____

**(r)** Andika upya sentensi ifuatayo ukianza kwa shamirisho kitondo. **(alama 2)**

Kaizari amewakatia ng'ombe majani kwa muundu.

_____

_____

**(s)** Damka ni kwa rauka, wakati ni kwa_____oa ni kwa taliki uza ni kwa_____

**4. (ISIMUJAMII)** **(alama 10)**

**a)** Katika jamii huwa wakati mwingine kuna matumizi ya lugha isiyo ya kistaarabu. Taja mifano mitano ya lugha sampuli hiyo **(alama 5)**

**……**

**……**

**……**

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**b)** Taja mambo matano yanayoathiri jinsi tunavyoweza kutumia lugha katika jamii. **(alama 5)**

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

102/3 Kiswahili Paper 3

**Time: 2½ Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education*

**MAAGIZO KWA WATAHINIWA**

***a)*** *Andika jina lako, shule, nambari ya mtihani kisha utie sahihi katika nafasi ulizoachiwa hapo juu*

***b)*** *Jibu maswali manne pekee*

***c)*** *Swali la kwanza ni la lazima*

***d)*** *Maswali hayo mengine matatu yachaguliwe kutoka sehemu nne zilizobaki yaani Riwaya, Tamthilia, Hadithi fupi na Ushairi*

***e)*** *Usijibu maswali mawili kutoka sehemu moja.*

**KWA MATUMIZI YA MTAHINI PEKEE**

| SWALI | UPEO | ALAMA |
|---|---|---|
| 1. | 20 | |
| | 20 | |
| | 20 | |
| | 20 | |
| | JUMLA | |

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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

### *Nguu za Jadi-Clara Momanyi*

### *Jibu swali la 2 au 3*

**2.** Fafanua nafasi ya mhusika Sihaba katika kujenga maudhui riwayani. **(aL20)**

**3.** *"Nawe ulimkataa na kuolewa na mtu aliyemfahamu na kumdharau sana"*

**a.** Weka dondoo hili katika muktadha wake. **(aL4)**

**b.** Tambua sifa za msemewa wa maneno haya kwa kurejelea dondoo hili **(aL4)**

**c.** Kwa kurejelea riwaya nzima, jadili jinsi msemewa amepigana kuikomboa jamiiyake **(aL12)**

## 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)**

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**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
Kulalamikia kutumikishwa kama mayaya
Kulalamikia kudhalilishwa kiunyama
Kulalamikia kutolindwa na sheria

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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. **(ala 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?

**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?

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**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 SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

451/1 Computer Studies (Theory) Paper 1

**Time: 2½ Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education*

**INSTRUCTION TO CANDIDATES**

- *Write your name and index number in the spaces provided above*
- *This paper consists of **Two** sections **A** and **B***
- *Answer **ALL** questions in section **A***
- *Answer question16 and any other **THREE** questions from section **B***
- *All answers should be written in the spaces provided on the question paper*

**FOR EXAMINER'S USE ONLY**

| SECTION | QUSTIONS | 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 from this section*

**1.** State three reasons why it is difficult to control, detect and prevent computer crimes **(3marks)**

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**2.** Mr. Kala wants to buy a printer to use in his automobile workshop for printing sales orders in duplicates. He has approached you for advice. What printer should he buy? **(1 Mark)**

Give a reason for your answer**.** **(1mark)**

……

**3.** Last year 2020 when corona virus was declared a pandemic internationally most companies allowed employees to telework or work at home and communicate with the office using the Internet.List the hardware, software and services required to access and use the Internet.**(3 Mks**

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**4.** Using a well-labelled diagram, describe the fetch and execute cycle. **(3 Marks)**

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**5.** Ventilation is an important practice in the computer lab because it enhances proper circulation of air. Outline **three** ways in which air is regulated in the computer room.

**(3 marks )**

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**6.** Differentiate between COM ports and LPT ports. **(2 marks )**

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**7.** State any two advantages of the artificial intelligence. **(2 Marks)**

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**8.** (a) The word COM appears several times in an essay. Jane would like to change the word to COMPUTER. Advise her on how she can accomplish this task using a word processor. **(2 Mks)**

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**9.** Anita was working on her computer studies project. She was worried of the media to use for storing her data. She settled on a media that used serial file organization. How are files organized on a storage medium using this method? **(1 mark)**

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**(b)** List two advantages offered by this type of file organization. **(2marks)**

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**10.** (a) Rose wants to send an email to Jack. Explain two items that must be present for the mail to be sent. **(2 Marks)**

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**(b) (i)** Define the term network protocol **(1 Mark)**

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……

**(ii)** Name any **two** examples of network protocols **(1 Mark)**

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**11.** (a) What is the importance of layering in DTP? **(1 Mark)**

……

……

**(b)** Distinguish between column guides and margin guides as used in DTP. **(2 Marks)**

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**12.** Study the work sheet below and answer the questions that follow:

| | A | B | C | D | E | F |
|---|---|---|---|---|---|---|
| 1 | | | | | | |
| 2 | **ISABOKE MIXED HIGH SCHOOL** | | | | | |
| **3** | **ADM. NO** | **NAME** | **MATHS** | **ENGLISH** | **AVERAGE** | **RANK** |
| 4 | 1001 | Akinyi | 78 | 85 | | |
| 5 | 1002 | Kamau | 89 | 77 | | |
| 6 | 1003 | Leila | 45 | 46 | | |
| 7 | 1004 | Taita | 67 | 69 | | |
| 8 | 1005 | Mosomtany | 98 | 67 | | |
| | | | | | | |
| 9 | **Highest Score** | | | | | |
| 10 | **Lowest Score** | | | | | |
| 11 | **Average Score** | | | | | |

**(a)** Write a formula that would be entered in cell E4 to compute the average score for Akinyi.

**(1 Mark)**

**(b)** Write down a formula that used to return the rank of Leila based on average score.**(1 Mark)**

**(c)** Write down a formula that would return the number of students whose score in English is below 70. **(1 Mark)**

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**13.** The manager of a company wants to improve the security of the computer network. She has decided to use authentication techniques so that employees can identify themselves to the system. Name **two** authentication techniques and describe how each technique would help keep the data more secure. **(3 Marks)**

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**14.** Mary who works as a systems analyst for JeroKin investments has produced documentation for a newly developed system. State three reasons why both user and technical documentation are needed. **(3 Marks)**

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**15.** Environmentalists plan to test a fast flowing river for pollution. State two advantages of using a computer to do this rather than doing it manually. **(2 Marks)**

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## SECTION B (60 MKS)

***Answer question 16 (Compulsory)and any other THREE questions from this Section.***

**16.**To maintain a strategic fit Safaricom is introducing a tariff called the mega tariff that will lower costs to Safricom to Safaricom calls and calls to other networks. Calls to Safaricom networks will be charged according to the time of the day as listed below:

-Between 8am to 12 noon – 6 Ksh

-Between 12 noon to 2pm-0.8 Kshs

-Between 6 to 1 am -4Kshs

-between 1 am t 8am- 1Kshs

Internal calls to other networks are charged at a fixed rate of 7 Kshs between 8am to 8pm and to while international calls are charged at a rate of 25 Kshs between 8am to 8pm and Kshs 35 for the rest of the day. All calls are charged per minute usage.

Mr. Wasswa Bbaale a business man who makes both internal and internal calls would like to make maximum use of this of this tariff.

**a)** Write a pseudo code that would show him know the charges of calls with an appropriate label when he the inputs type of call and the time where appropriate. Use a 24 hour clock. **(8mks)**

**b)** Design a flowchart for the pseudo code in 16(a) above **(7mks)**

**17. a)** Explain how an operating system controls I/O devices. **(2marks)**

**b)** Maintaining security is one of the functions the operating system. Explain how the operating system maintains security **(2marks)**

**c)** Distinguish between Indexed sequential and direct file organizations **(2marks)**

**d) i)**Using appropriate examples, differentiate between distributed and centralized processing modes **(3marks)**

**ii)** State one advantage and one disadvantage of distributed processing modes in 17(d) (i) **(2mks)**

**e) i)**With reference to an operating system, differentiate between formatting and partitioning. **(2marks)**

**ii)**List any **TWO** types of user interface. **(2mark)**

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**18.a)**Using eight bits and twos complement, subtract $78_{10}$ from $17_{10}$. Give your answer in decimal notation **(3marks)**

b) Convert $11011011111.1111_2$ to:

**i)** Octal **(2marks)**

**ii)** Hexadecimal **(2marks)**

**iii)** Decimal **(2marks)**

**c)** State any **Two** methods used to gain illegal access to a computer system **(2marks)**

**d) i)**Distinguish between peer-to-peer and client –server LANs**.** **(2marks)**

**ii)** Atieno was very happy when she bought a Safaricom 2G modem for she was able to easily connect her computer to the Internet. After six months she noticed it was taking her too long to connect to the Internet. State two possible causes of the problem. **(2marks)**

**19.a)i)** Explain any **two** causes of system change. **(2marks)**

**ii)**Explain any **THREE** causes of system maintenance. **(2marks)**

**b) i)** Use of questionnaire is one of the most popular fact finding method. State any **TWO** advantages and **TWO** disadvantages of using this method to gather data. **(2marks)**

**ii)** Explain the importance of requirement specification phase of Systems **development.(2marks)**

c) Explain **TWO** reasons why a new system is tested before implementation. **(2marks)**

**d)i)**State two duties performed by a system administrator. **(1mark)**

**ii) The** principal of a school is attempting to convince his staff to us CAL and CAI software. State one benefit and one limitation of using such software. **(2marks)**

**e)** State one advantage and one disadvantage of using expert systems in medicine **(2marks)**

**20.a)**Explain three types of communication links that may be used to get an Internet connection **(3marks)**

b) Differentiate between the Internet and World Wide Web. **(2marks)**

ii) Technology has been blamed for polluting the environment.
Explain how computer technology has contributed to this. **(2marks)**

**c)** A Company that makes and sells vehicles receives orders from various clients. The company wants to enter their orders into a database. Study the table structure below and answer the questions that follow.

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| **Field Name** | **Data Type** | **Field Size** |
|---|---|---|
| Order Number | Number | Long Intenger |
| Order Date | Date/Time | |
| Supply Date | Date/Time | |
| Product code | Tex | 5 |
| Customer ID | Number | Long Integer |
| Delivery address | Text | 30 |
| Product Type | Tex | 15 |
| Product Name | Tex | 10 |
| Quantity Ordered | Number | Long integer |
| Product Prize | Number | Long Integer |

**i)** Split the above structure into **THREE** tables and for each table identify an appropriate primary key. **(5marks)**

**ii**) Design well labeled tables structures and identify foreign keys **(3marks**

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

451/2 Computer Studies (Practical) Paper 2

**Time: 2½ Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**INSTRUCTIONS TO CANDIDATES**

1. *Write your name and index number at the top right hand corner of each print out.*
2. *Write your name and index number on the Compact Disk.*
3. *Write the name and the version of the software used for each question attempted in the answer sheet.*
4. *Answer **ALL** the questions.*
5. *All questions carry equal marks.*
6. *Passwords **should NOT be used** while saving in the Compact Disk.*
7. *All answers **MUST BE** saved in your CD.*
8. *Make a print out of the answers on the answer sheets provided.*
9. *Arrange your printouts and tie/staple them together and use the best fit i.e. landscape or portrait for your printouts.*

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**1.** Xyz hospital intends to use a database to manage doctors and patients' records.

a) Open a database program and create a database named XYZ hospital. **(1mk)**

b) (i) Create three tables named **tbldoctor**, **tblpatient** and **tblailment** in the database file created in (a) using the following details. **(8mks)**

**tbldoctor**

| **Field Name** | **Data Type and Field properties** |
|---|---|
| Doctor_ID | Text |
| First Name | Text(size=10) |
| Last Name | Text (size=10) |
| Specialization | Text(size=20) |

**tblpatient**

| **Field Name** | **Data Type and Field properties** |
|---|---|
| S_No | Autonumber |
| Patient_No | Text |
| Patient Name | Text |
| County | Text |
| Age | Number |
| Gender | Yes/No (yes for Female) |
| S_No | Autonumber |

**tblailment**

| **Field Name** | **Data Type and Field properties** |
|---|---|
| Doctors_ID | Text |
| Patient_NO | Text |
| Ailment | Text |
| Date of Visit | Date & time |
| Charges | Currency |

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ii) Set primary key(s) and create relationships between the tables **(5mks)**

**(iii)** Enforce referential integrity between the tables **(3mks)**

**(iv)** Create three input screens with navigation buttons for each table, give your forms appropriate titles **(6mks)**

**v)** Enter the following data into their respective table in the database **(10mks)**

**Tbldoctor**

| Doctor_ID | First Name | Last Name | Specialization |
|---|---|---|---|
| D_001 | Jim | Green | Nephrologist |
| D_002 | Lucy | King | Pulmonologist |
| D_003 | Bob | Smith | Dermatologist |
| D_004 | Alexia | King | Endocrinologist |
| D_005 | Nelly | Walk | Neurologist |
| D_006 | Freda | Ford | Pulmonologist |

**Tblpatient**

| Patient_No | Patient Name | County | Age | Gender |
|---|---|---|---|---|
| P_101 | Abigael Marie | Nairobi | 41 | F |
| P_102 | Alexa Kate | Nakuru | 32 | M |
| P_103 | Alexander William | Kericho | 33 | M |
| P_104 | Brianna Lynn | Kericho | 40 | M |
| P_105 | Aiden Lake | Kajiado | 24 | F |
| P_106 | Anelia Faith | Bungoma | 20 | F |
| P_107 | Alexis Jade | Busia | 39 | M |
| P_108 | Benjan Clay | Nairobi | 30 | M |

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tblailment

| S_NO | Doctors_ID | Patient_N | Ailment | Date of visit | Charges |
|---|---|---|---|---|---|
| 1 | D_006 | P_101 | Cold &flu | 12/7/2019 | 2,000 |
| 2 | D_005 | P_102 | Conjuctivi | 14/8/2019 | 15,000 |
| 3 | D_006 | P_103 | Headaches | 15/8/2019 | 18,000 |
| 4 | D_004 | P_104 | Stomach aches | 19/9/2019 | 5,000 |
| 5 | D_004 | P_101 | Diabetes | 20/9/2019 | 20,000 |
| 6 | D_003 | P_105 | Cancer | 28/10/2019 | 85,000 |
| 7 | D_003 | P_106 | Asthma | 2/10/2019 | 13,000 |
| 8 | D_002 | P_107 | Arthritis | 3/11/2019 | 14,000 |
| 9 | D_001 | P_108 | Tuberculos | 4/11/2019 | 10,000 |
| 10 | D_005 | P_102 | Cancer | 4/11/2019 | 80,000 |

**vi)** Create a query to display the fields;

**a)** Patient_ID, Patient Name, Doctor_ID for all patients treated by D_006. Save query as **D_006patients.** **(2mks)**

**b)** Patient_No, Ailment, Date of Visit and the actual charges if 5% discount was offered to patients. Save query as **patientpayments**. **(3mks)**

**c)** Doctor_ID, First name, Last Name and specialization; combine First name and Last name, Save query as **DoctorName.** **(3mks)**

**d)** Doctor_ID, First name, Last Name and specialization; Sort specialization field in descending order, Save query as **Sort.** **(2mks)**

**vii)** Create a macro for **D_006patients** query, save query as **D_006patients macro** **(2mks)**

ix) Create a report to display S-NO , Doctors_ID, Patients_No, Ailment and charges.

The report should display sutotals for each patients charges and the grandtotal, save the report as grand total **(5mks)**

**viii)** Print grandtotal report **(1mk)**

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**2.** (a) Using a Word Processing package, type the congratulatory note below as it appears and save it as CONGRATURATIONS. **(15mks)**



**MAGS Software Co. Ltd**

**P.O. Box 5678**

**Kericho 5/9/2021**



**MAGS**

**<<First Name>><<Last Name>>**

**<<Address>>**

**<<County>>**

Dear**<<First Name>>**

**RE: CONGRATULATIONS**

Due to your hard work and selfless commitment, you shown this year, the company wishes to congratulate you for emerging the best in our internal interview that you applied for. Your new position will be **<<Position>>** and your new salary scale will be**<<Amount>>.**

**Yours faithfully,**

**Gregory Bruce PERSONNEL**

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**(b)** Create a data source with the following details and use it with the letter you have just typed to generate personal letters. Save the file as **personnel**.

Save it as Details. (15mks)

| | | |
|---|---|---|
| George Kinoti | Wilberforce Kenya | Henry Odongo |
| P. O. BOX 5678 | P. O. BOX 5678 | P. O. BOX 5678 |
| Kericho | Kisumu | Kilgoris |
| Software Developer | ICT Officer | Database Admin |
| Ksh.125000 | Ksh.125000 | Ksh.125000 |
| Grace Akinyi | Beth Mugo | SharonWangoi |
| P.O. BOX 5678 | P. O. BOX 5678 | P. O. BOX 5678 |
| Nakuru | Migori | Nandi-Hills |
| System Admin | Secretary | Accountant |
| Ksh.120000 | Shs.30000 | Shs.45000 |

**(c)** Insert data fields in main document and generate the letters for the employees**. (10mks)**

**(d)** Generate individualized envelops for each employee **(8mks)**

**(e)** Print the first two letters. **(2mks)**

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# KCSE SMARTGRADE PREDICTION

# (KCSE 2024 SERIES)

441/1 Home Science (Theory) Paper 1

**Time: 2½ Hours**

---

**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

## INSTRUCTIONS TO CANDIDATES

***(i)*** *Write your name and index number in the spaces above.*

***(ii)*** *This paper consists of three sections **A**, **B** and **C**.*

***(iii)*** *Answer all the questions in section **A**, Question 24 **(Compulsory)** in section **B** and any two questions from section **C**.*

***(iv)*** *Answers to **ALL** questions must be written in this booklet.*

## FOR EXAMINER'S USE ONLY

| Section | Question | Maximum Score | Student's Score |
|---|---|---|---|
| A | 1- 20 | 40 | |
| B | 21 | 20 | |
| C | | 20 | |
| | | 20 | |
| TOTAL SCORE | | 100 | |

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## **SECTION A:** (40 MARKS)

**1.** State **two** signs of vitamin A deficiency. **(1mark)**

……

……

……

**2.** List **four** accessories used in home decoration. **(2marks)**

……

……

……

……

**3.** Mention **two** reasons why a classroom should be well ventilated. **(2marks)**

……

……

……

**4.** Outline **three** dangers of weaning a baby late. **(3marks)**

……

……

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……

**5.** Name **two** metals used in making saucepans. **(1mark)**

……

……

**6.** Mention **two** points on the care of a baby with diarrhoea. **(2marks)**

……

……

……

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**7.** Suggest **two** factors that determine the choice of an opening. **(2marks)**

……

……

**8.** Mention **three** danger signs that should be reported to a doctor when taking care of the sick at home. **(3marks)**

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……

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……

**9.** State the reason for sprinkling water on an earthen floor before sweeping. **(1mark)**

……

……

**10.** Suggest **three** reasons for laundering clothes. **(3marks)**

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……

……

……

**11.** Give **two** meanings of basting in Home Science. **(2marks)**

……

……

……

**12.** Highlight **three** points to look out for when buying carrots. **(3marks)**

……

……

……

……

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**13.** Identify **four** labour saving equipment that may be found in a modern kitchen.**(2marks)**

……

……

……

……

**14.** Mention **three** problems that consumers face when shopping. **(3marks)**

……

……

……

**15.** Suggest **four** possible danger areas in the home where a child can drown at home.**(2mrks)**

……

……

……

……

**16.** Give **two** ways of disinfecting hospital linen. **(1mark)**

……

……

**17.** Highlight **four** signs of dehydration in a baby. **(2marks)**

……

……

……

……

**18.** Give **two** qualities of a good fabric for beginners in sewing. **(2marks)**

……

……

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**19.** Suggest **four** ways of finishing the neckline of a little girl's dress. **(2marks)**

……

……

……

……

……

**20.** Mention **two** items in a First Aid kit that could be used to manage a cut. **(1mark)**

……

……

……

**SECTION B:** (20 marks)

**COMPULSORY**

*Answer question 21 in the spaces provided after the question*

**21.** You are going out on a youth camp over the holiday.

**a)** Outline the procedure you will follow when cleaning the coloured canvas bag that you will use to pack your clothes. **(7marks)**

**b)** Describe how you will clean the hand mirror you will pack to use at the camp. **(6marks)**

**c)** Outline how you will clean the muddy plastic sandals you will use at the camp. **(7marks)**

**SECTION C:** (40 marks)

*Answer any **two** questions from this section in the spaces provided at the end of this section.*

**22.**

**a)** Outline **five** advantages of food preservation. **(5marks)**

**b)** Explain **five** advantages of using a shopping list. **(5marks)**

**c)** Highlight **four** dangers of washing clothes without sorting them. **(4marks)**

**d)** Discuss **three** points to observe when planning meals for an elderly person. **(6marks)**

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**23.**

**a)** Draw and name **six** possible care label symbols that may be found on a loose coloured cotton shirt. **(6marks)**

**b)** Outline **five** reasons why consumers need to be informed. **(5marks)**

**c)** Suggest **four** possible hindrances to breastfeeding. **(4marks)**

**d)** Mention **five** reasons why play is important in the life of a three year old child. **(5marks)**

**24.**

**a)** Suggest **five** ways of ensuring safe outcomes in pregnancy. **(5marks)**

**b)** Highlight **four** qualities of a good laundry brush. **(4marks)**

**c)** Discuss **three** considerations to bear in mind when painting a bedroom. **(6marks)**

**d)** Mention **five** dangers posed by piles of uncollected garbage. **(5marks)**

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

441/2 Home Science (Practical) Paper 2

**Time: 2½ Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**INSTRUCTIONS TO CANDIDATES**

1. *The paper consists 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.*

**GIRL'S SKIRT**

A pattern of a girl's skirt is provided. You are advised to study the sketches, instructions and layout carefully before you begin the test.

**MATERIALS PROVIDED**

**1.** Pattern pieces

A. Skirt back

B. Yoke (front)

C. Lower skirt (front)

D. Front waistband

E. Back waistband

F. Frill

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**2.** Plain lightweight cotton fabric 56cm long and 90cm wide.

**3.** Sewing thread to match the fabric.

**4.** One large envelope.

## THE TEST

Using the materials provided, cut out and make the LEFT HALF of the SKIRT to show the following processes:

**(a)** Cutting out. (**18marks)**

**(b)** Making the dart at the back skirt. (**6 ½ marks)**

**(c)** Joining of the yoke front to the lower skirt front using an overlaid seam. Do not trim. Neaten half the seam using loop stitches. **(12marks)**

**(d)** Attaching of the frill to the lower skirt front using a plain seam. Leave the gathering stitches and do not trim the seam allowance. (**11marks)**

**e)** Making of the skirt side seam from the yoke to the hemline using an open seam. **(7marks)**

**f)** Attaching of the front and back waistbands and holding them in place using tacking stitches. **[20marks)**

**g)** Making of the worked buttonhole. **(9marks)**

**h) OMIT**

The management of the skirt hem.

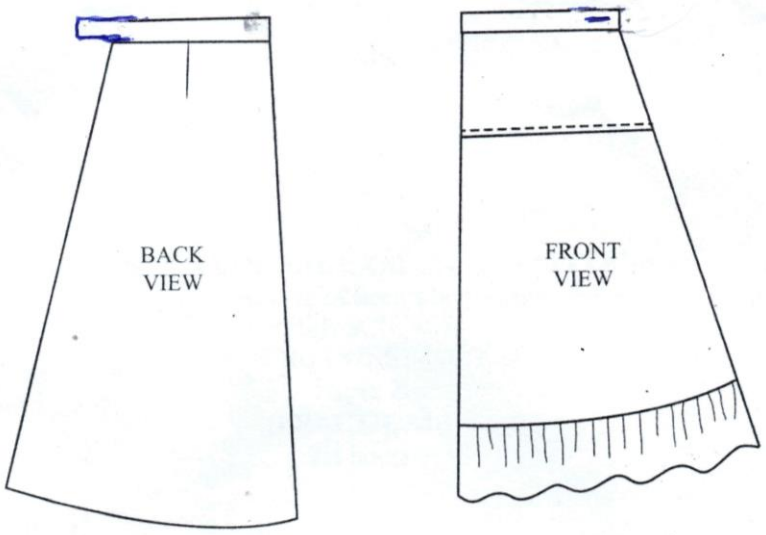
**(i)** Overall presentation**.** **(6½marks)**

At the end of the examination, firmly sew onto your work, on a single fabric, a label bearing your name and admission number. Remove the needle, pins and loose threads from your work. Fold your work neatly and place it in the envelope provided.

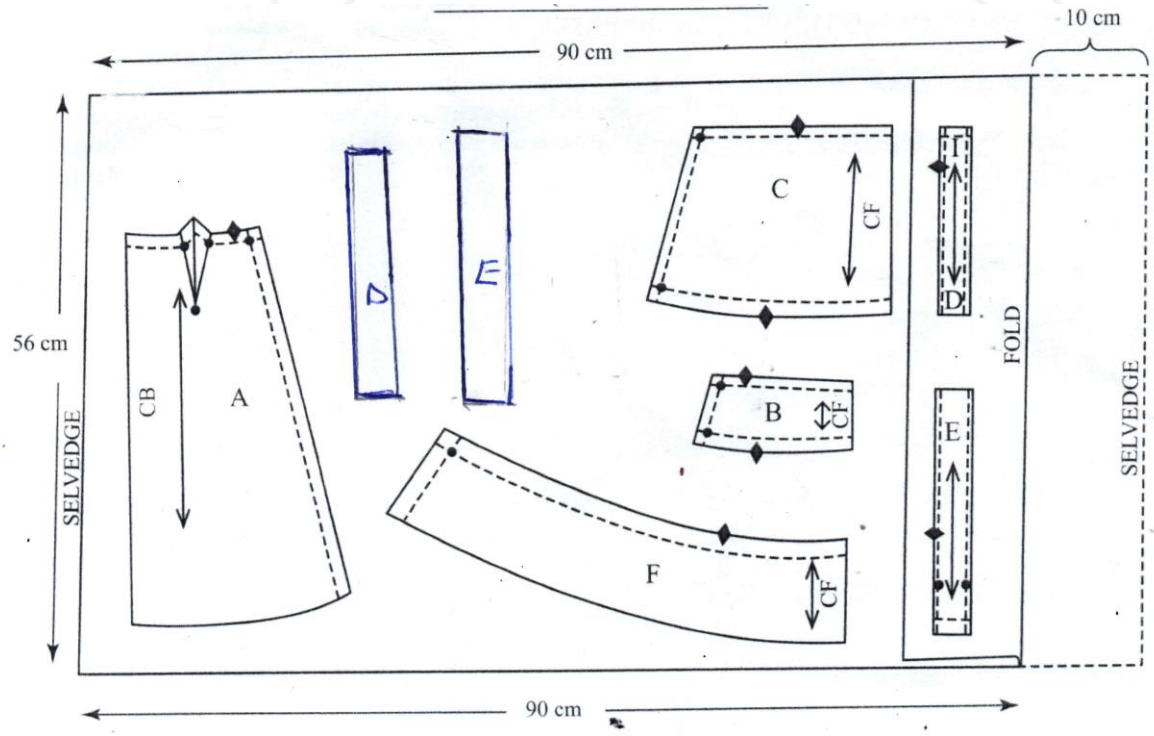
**Do not put scraps of fabric in the envelope. Do not seal the envelope**.

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**SKIRT VIEWS**




LAYOUT (not drawn to scale)




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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

441/3 Home Science (Practical) Paper 3

**Time: 1¾ Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

**PLANNING; 30 MINUTES**

**PRACTICAL TEST SESSION; 1 ¼ HOURS**

**INSTRUCTION TO CANDIDATES**

1. *Read the test carefully*
2. *Write your name and admission number on every sheet of paper used*
3. *Textbooks and recipes may be used during the planning session as reference materials*
4. *You will be expected to keep to your order of work during the practical session*
5. *You are allowed to take away ONLY your reference materials at the end of the planning session*
6. *You are not allowed to bring additional noted to the practical session.*

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**THE TEST**

You are going out camping and need to pack some food for lunch. Using all the ingredients listed below; prepare, cook and pack a suitable meal for you and your friend. In addition prepare and pack a suitable refreshing drink.

**INGREDIENTS**

Irish potatoes/wheat flour

Liver/chicken

Sugar

Oil/Cooking fat

Carrots

Capsicum

Salt

Lemon

Onion

Cucumber/cabbage

Fruit in season

**PLANNING SESSION- 30 MINUTES**

Use separate sheets of paper for each tasks 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 foodstuff, materials and equipment you will require.

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

121/1 Mathematics Paper 1

**Time: 2½ Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

***(a)*** *Write your name, admission number and class 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 any* ***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 II (50MKS)

**1.** Simplify without using a calculator. **(4mks)**

$$\frac{2\frac{2}{5} \div 3.3 - 1.75}{2\frac{3}{4} - 7\frac{5}{9} \div \sqrt{5\frac{1}{16}}}$$

**2.** Prime numbers in between 41 and 55 were cubed and summed up. The result was multiplied by 29. Write the total value of the second digit. **(3mks)**

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**3.** The table below shows the currency exchange rate table used by the bank of Baroda in Nairobi.

| | Selling (Ksh) | Buying (Ksh) |
|---|---|---|
| 10 US dollars ($) | 869.80 | 867.00 |
| 200 South African Rand Rn) | 5590 | 5440 |

Peterson arrived in Kenya with $ 75340. He exchanged all the dollars into Kenya shillings at a commission of 2%. While in Kenya he used Ksh 2,570,000 on charity and Ksh 1,750,000 on food and accommodation. At the end of his tour, he decided to exchange all the remaining Kenya shillings into South African Rands at a commission of 5%.

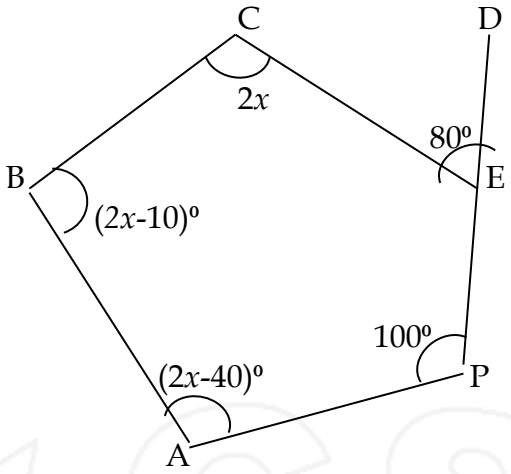
Calculate to the nearest Rand, how many Rands he received from the bank. **(4mks)**

**4.** Kimani set out on a journey at 9.49a.m from Zimmaman to Ruiru town cycling at a speed of 30km/h. He cycled for a distance of 60km and then took a rest of 1.25 hours. He then walked the remaining distance at an average speed of 15km/h. If the distance between Zimmaman and Ruiru town was 75km, at what time did he arrive? (Write your answer in 24 hour clock)

**(3mks)**

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**5.** Find the value of ∟ABC **(3mks)**




**6.** Use the reciprocal tables and square root tables to evaluate. (**3mks)**

$$\frac{-20.15}{(\overline{0.007429})^{\frac{1}{2}}}$$

**7.** A map is drawn to a scale of 1:200,000. Find the area of a village whose shape is a rectangle measuring 2cm by 3.2cm on the map in $km^2$. **(2mks)**

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**8.** Use matrix method to solve the pair of simultaneous equations. **(3mks)**

$2x - 3y + 17 = 0$

$6y + 5x + 4 = 2$

**9.** 100 pupils running 20km a day for 30 days survive on 12 dozens of milk. How many days will 200 pupils covering 5km a day survive on 3 grosses of milk? **(2mks)**

**10.** Simplify without using a calculator. **(3mks)**

$\frac{8^{2/3} \times 625^{3/2}}{4^{5/2} \times 25^{3/2}}$

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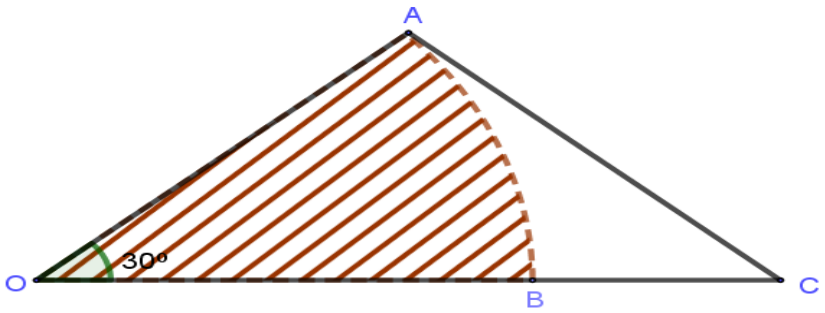
**11.** Given that $\tan\theta = \frac{4}{3}$, solve for $(\cos\theta \sin\theta)$ without using a calculator or mathematical tables.

**(2mks)**

**12.** Vector $\breve{a}$ passes through the points $(6,8)$ and $(2,4)$.Vector $\breve{b}$ passes through $(x,-2)$ and $(-5,0)$. If $\breve{a}$ is parallel to $\breve{b}$, determine the value of $x$. **(3mks)**

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**13.** In the figure below AB is an arc of a circle centre **O .G**iven that $\angle AOC = 30^0$, $OA = OB = 8cm$ and$BC = 5cm$. Calculate the area of the unshaded region to 2 *decimal places* ( $use\ \pi = 3.142$) **(3mks)**



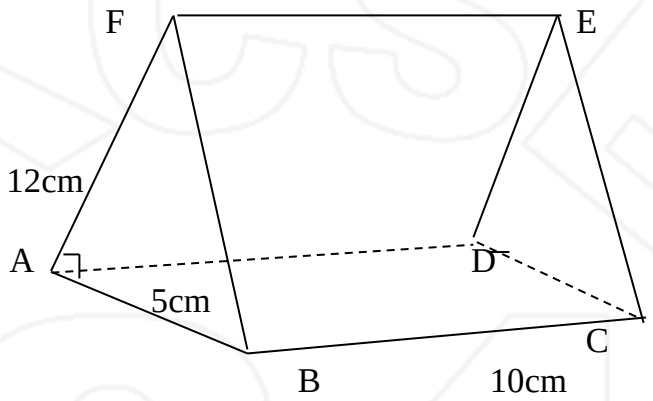

**14.** Use logarithm table to evaluate **(4mks)**

$$\sqrt[3]{\frac{(36.15)^2 \times 0.02573}{1.938}}$$

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**15.** The perimeter of a rectangle is 36cm. If the length of the rectangle is twice its width , find the length of the **rectangle** **(3mks)**

**16.** (a) Sketch the net of the sketch given below. **(3mks)**




**(b)** Find its surface area from the net. **(2mks)**

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## SECTION II (50MKS)

**17.** (a) The line $L_1$ whose equation is $2x + 1\frac{1}{2}y = 8$ is perpendicular to another line $L_2$ passing through the point (-2, 3.5). Find the equation of line $L_2$. **(4mks)**

**(b)** Line $L_2$ is parallel to another line $L_3$, which passes through the point (-4, -5). Find the equation of $L_3$. Write your answer in the form of $ax+by = c$. **(2mks)**

**(c)** The line $L_3$ intersects another line $L_4$ whose equation is $2x+5y+33=0$. Find the co-ordinates of the point of intersection. **(4mks)**

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**18.** A, B and C contributed Ksh 2,451,300 such that A:B = 2 ⅔:5 ¾ and B:C = 3 ¼ :5 1/9. They decided to buy a matatu with all the money. Each month the matatu delivered a profit of Ksh 90,000. The matatu was operated for one full year. The matatu driver was being paid Ksh 27,000 a month. At the end of the year, they decided that the net profit would be shared in the ration of their contributions.

**(a)** Determine the ratio A:B:C **(3mks)**

**(b)** Determine the net profit realized after one year. **(2mks)**

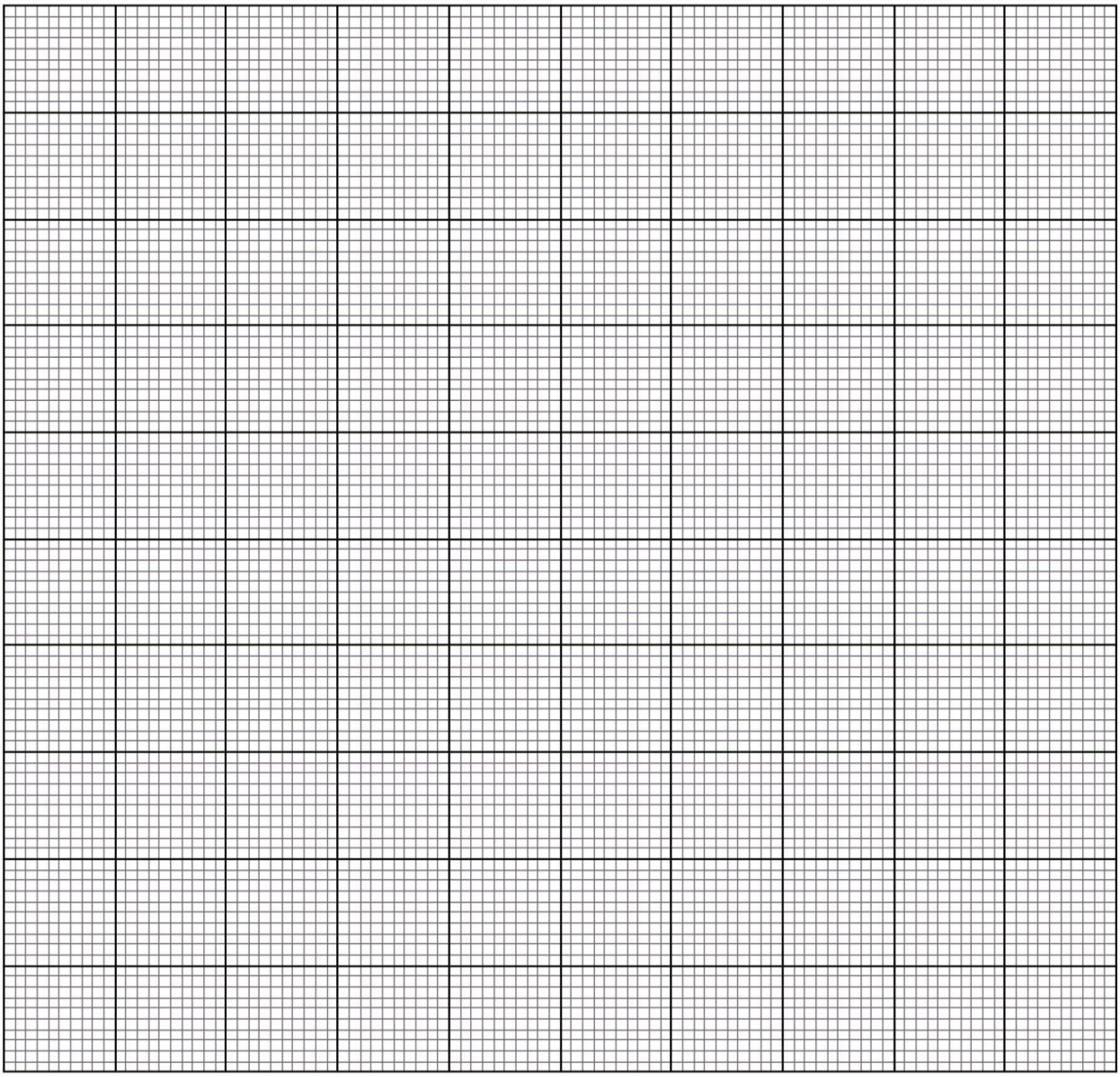
**(c)** Partner A decided to buy dairy cows with his share at the rate of Ksh 60,000 per cow. How many cows did he buy? **(2mks)**

(d) In the second year, the partners decided to breakup. They decided to sell the car after it had depreciated by 20% and they divided the money in the ratio of contribution. If the profit was divided equally, how much did C receive? **(3mks)**

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**19.** A triangle has vertices $A(1,2), B(7,2)$ and $C(5,4)$.

**(a)** Draw triangle ABC on a cartesian plane**.** **(1mk)**



**(b)** Draw triangle $A'B'C'$ the image of ABC under a rotation 90° clockwise about the origin. **(2mks)**

**(c)** Draw $\Delta A''B''C''$ the image of ABC under a reflection in the line $y - x = 0$. State the coordinates of $\Delta A''B''C''$. **(3mks)**

$(d)$ $\Delta A'''B'''C'''$ is the image of $\Delta A''B''C''$ under reflection in the line $y = 0$. Draw $\Delta A'''B'''C'''$ and state its coordinates. **(4mks)**

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**20.** Mr Kamau a salesman is paid a commission of 6% on goods sold worth over Sh. 600,000. In addition he is paid a monthly salary of Sh.35,000

i. Calculate his total earnings in a month when his total sales was Shs.750,000.

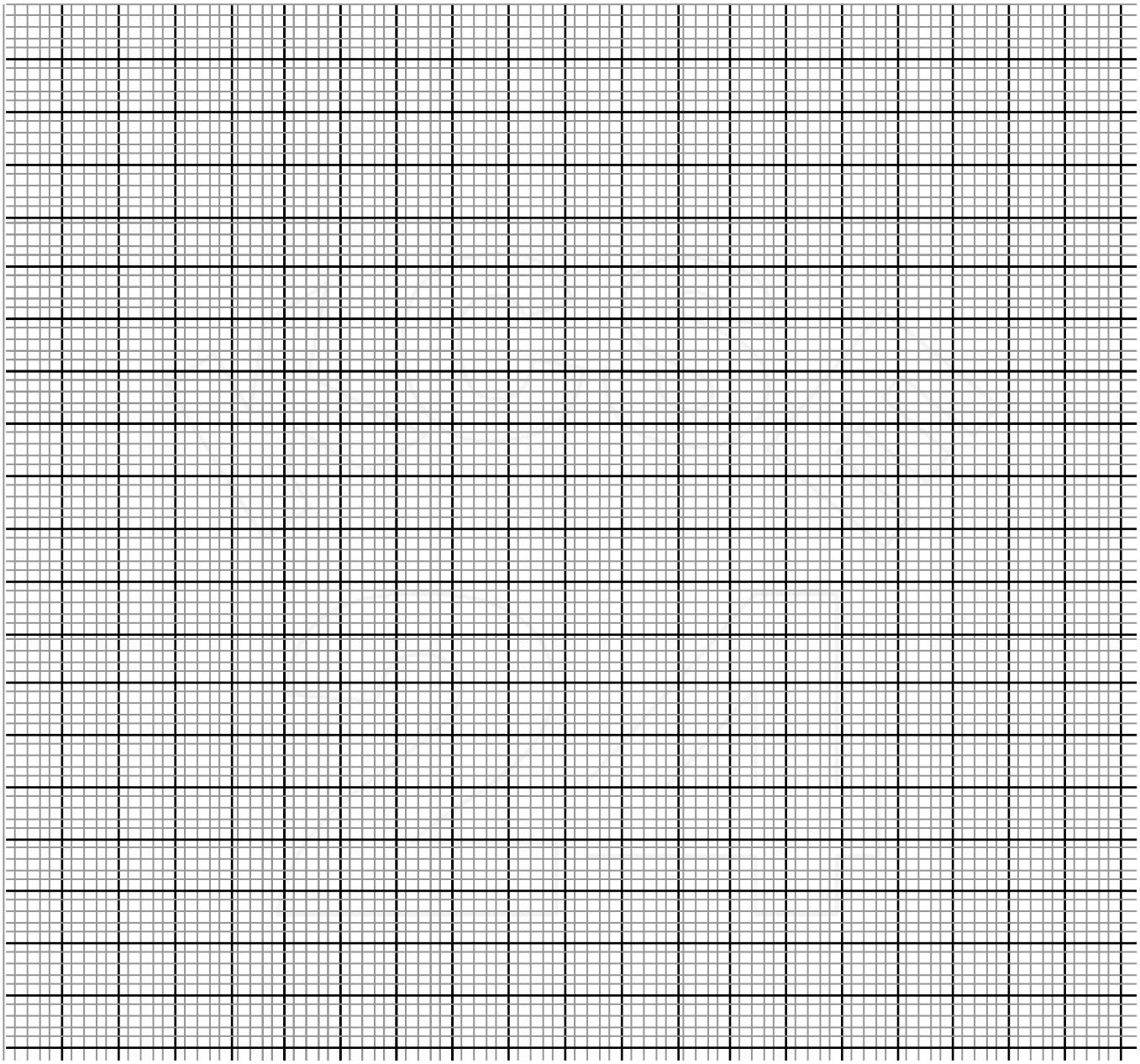
**(3mks)**

**ii)** In the following month the rate of commission was changed to $x\%$ **but** his monthly salary remained the same. If Mr. Kamau received a total monthly earning of k.sh 100,000 for selling goods worth the same amount. Find the value of $x$ **(3mks)**

**iii)** A trader made a loss of 30 % by selling an electric kettle at Sh.700. Calculate the percentage profit he would have made if he had sold it at Sh. 1150 **(4mks)**

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**21.** On the grid provided, by shading the unwanted region, determine and label the region R that satisfies the three following inequalities $y \leq \frac{2}{3}x + 4, 4y > -3x - 24$ and $y + 6 \geq 3x$ on the graph below. **(10mks)**



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**22.** The distance between towns A and B is 360km. A minibus left town A at 8.15 a.m. and traveled towards town B at an average speed of 90km/hr. A matatu left town B two and a third hours later on the same day and travelled towards A at average speed of 110km/hr.

(i) At what time did the two vehicles meet? **(4mks)**

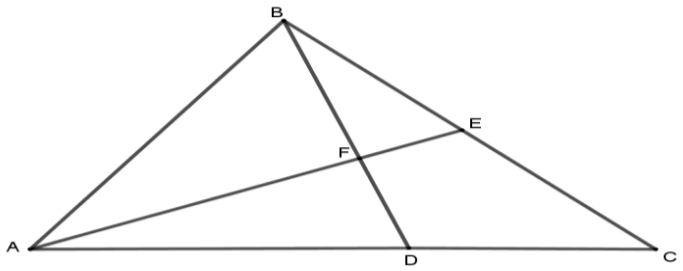
**(ii)** How far from A did the two vehicles meet? **(2mks)**

**(iii)** A motorist started from his home at 10.30 a.m. on the same day as the matatu and travelled at an average speed of 100km/h. He arrived at B at the same time as the minibus.

Calculate the distance from A to his house. **(4mks)**

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**23.** In the figure below E is the midpoint of BC. $AD: DC = 3: 2$ and F is the meeting point of BD and AE. $AC = \check{c}$ and $AB = \check{b}$




**a)** Express the following vectors in terms of **b** and **c**

**i.** $\overrightarrow{BD}$ **(1mk)**

**ii.** $\overrightarrow{AE}$ **(2mks)**

**b)** If $\overrightarrow{BF} = t\overrightarrow{BD}$ and $\overrightarrow{AF} = n\overrightarrow{AE}$, Express AF in two different ways hence find the value of t and n **(5mks)**

**c)** State the ratio in which F divides

i. BD **(1mk)**

ii. AE **(1mk)**

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**24.** (a) Solve the **equation** **(4mks)**

$$\frac{x+3}{24} = \frac{1}{x-2}$$

(b) The length of a floor of a rectangular hall is 9m more than its width. If the area of the floor is $136\,m^2$,

**i.** Calculate the perimeter of the floor **(3mks)**

**ii.** A rectangular carpet is placed on the hall leaving an area of $64\,m^2$. If the length of the carpet is twice its width, determine the width of the carpet. **(3mks)**

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# KCSE SMARTGRADE PREDICTION

## (KCSE 2024 SERIES)

121/2 Mathematics Paper 2

**Time: 2½ Hours**

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**NAME**……

**SCHOOL**…… **SIGN**……

**INDEX NO**…… **ADM NO**……

*Kenya Certificate of Secondary Education.*

***(a)*** *Write your name, admission number and class 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 any* ***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 |
|---|---|---|---|---|---|---|---|---|
| | | | | | | | | |

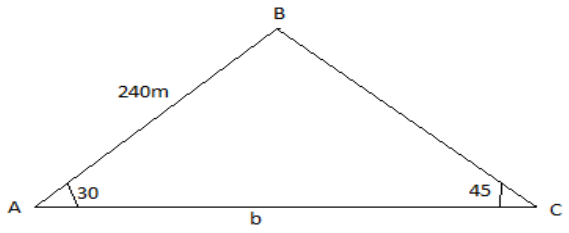
**Grand Total**

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**1.** Make L the subject given that H = $\sqrt{\left(\frac{3d\,(L-d)}{10L}\right)}$ **(3marks)**

**2.** Expand $\left(1+\frac{1}{x}\right)^9$ up to the term $x^3$ hence use your expansion to find the estimate value of $100(1.05)^9$ correct to 4 significant figures. **(4marks)**

**3.** In the figure below it shows a triangle ABC not drawn to scale. Calculate the value of b given that AB =240m $< BAC = 30^0$ *and* $< ACB = 45^0$ **(3marks)**




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**4.** Without using a mathematical tables or calculators, simplify $\frac{3}{\sqrt{7}-\sqrt{2}} - \frac{2}{\sqrt{2}+\sqrt{7}}$ **(3marks)**

**5.** Show that $4y^2 + 4x^2 = 12x - 12y + 7$ is the equation of a circle, hence find the co-ordinates of the centre and the radius. **(3marks)**

**6.** The dimensions of a rectangle are given as 4.1cm by 2.8cm. Calculate the relative error in the area. **(3marks)**

**7.** The seventh term of an arithmetic sequence is 17, three times the third term is 3. Calculate the first term and the common difference of the sequence. **(3marks)**

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**8.** At the start of the 1st year, Mr Cheruiyot, deposited Ksh. 180,000 in a bank which gives an interest of 12% p.a, compounded quarterly. Find the interest earn by Mr. Cheruiyot at the start of the 4rd year. **(3marks)**

**9.** A quantity P varies partly as n and partly as the square of n. When P= -3, n= -1 and when P= 18, n=2. Find P when n =1 **(3marks)**

**10.** Find the inverse of $\begin{pmatrix} 5 & -2 \\ 2 & -1 \end{pmatrix}$ hence find the point of intersection of the lines whose equations are

$5x - 2y = 5$ **(4marks)**

$y = 2x - 3$

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**11.** Evaluate the following expression without using mathematical tables or a calculator

$3\log_{10}4 + \log_{10}125 - 3\log_{10}2$. **(3marks)**

**12.** The area of triangle ABC is $7cm^2$. Find the area of the image of ABC, if its transformed using the matrix $\begin{pmatrix} 4 & 5 \\ 1 & 2 \end{pmatrix}$. **(3marks)**

**13.** Given that vectors a =3i-j=2k, b= 4i+2j-k and p= 2a-b.

i) Express p in terms of i, j and k. **(2marks)**

ii) Hence calculate /p/ correct to 3 significant figures. **(1mark)**

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**14.** In what ratio must Murang'a coffee costing sh.25g per 100g be mixed with Kisii coffee costing sh.17.50 per 100g, so that by selling the mixture at sh.25 per 100g, a profit of 25% is made. **(3marks)**

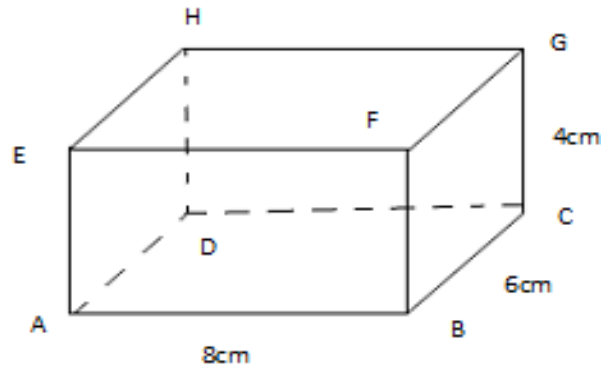
**15.** Calculate the mean absolute deviation in the following 9,2,3,4,5,5,7,8,1. **(3marks)**

**16.** Solve for x in the equation $2 \sin (x-30^0)= -\sqrt{3}$ for the range $0 \leq x \leq 360^0$. **(3marks)**

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## SECTION II (50MKS)

**17.** In the cuboid below, AB = 8cm, BC = 6cm, AE = 4cm




Calculate,

**a)** The length BD **(2marks)**

**b)** The angle which BH makes with the plane ABCD. **(2marks)**

**c)** The angle between EC and the plane ADHE **(2marks)**

**d)** The angle between EA and AG **(2marks)**

**e)** The angle between planes ABCD and EBCH **(2marks)**

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**18.** Use a pair of compass and ruler only in this question

a) Construct a parallelogram ABCD in which AB = 6cm, AD = 4cm and angle BAD = $60^o$

**(3marks)**

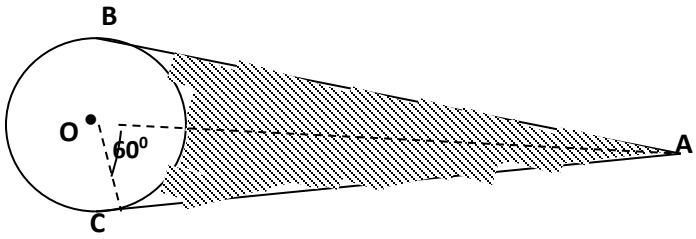
**b)** Measure the length AC **(1mark)**

**c)** Show the locus of point P which moves so that it is equidistant from A and **C** **(3marks)**

**d)** The locus of point Q which moves so that angle BQD = $90^o$ (**3marks)**

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**19.** In the figure below AB and AC are tangents to the circle center O at B and C respectively, the angle AOC = $60^0$, radius of the circle 5cm.




Calculate;

**a)** The length of AC **(2marks)**

**b) The** area of triangle OAC **(2marks)**

**c)** The area of minor sector COD **(2marks)**

**d)** The area of the shaded region **(4marks)**

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**20.** a) Complete the table below for the equation $y= x^3 – 5x^2 + 2x + 7$ in the range $-2 \leq x \leq 5$.

**(2marks)**

| **x** | -2 | -1 | 0 | 1 | 2 | 3 | 4 | 5 |
|---|---|---|---|---|---|---|---|---|
| $\mathbf{x^3}$ | | -1 | | | | | | 125 |
| $\mathbf{-5x^2}$ | | | | | | | | |
| **2x** | | | 0 | | | | | |
| **7** | 7 | 7 | 7 | 7 | 7 | 7 | 7 | 7 |
| **y** | | -1 | | | | -5 | | |

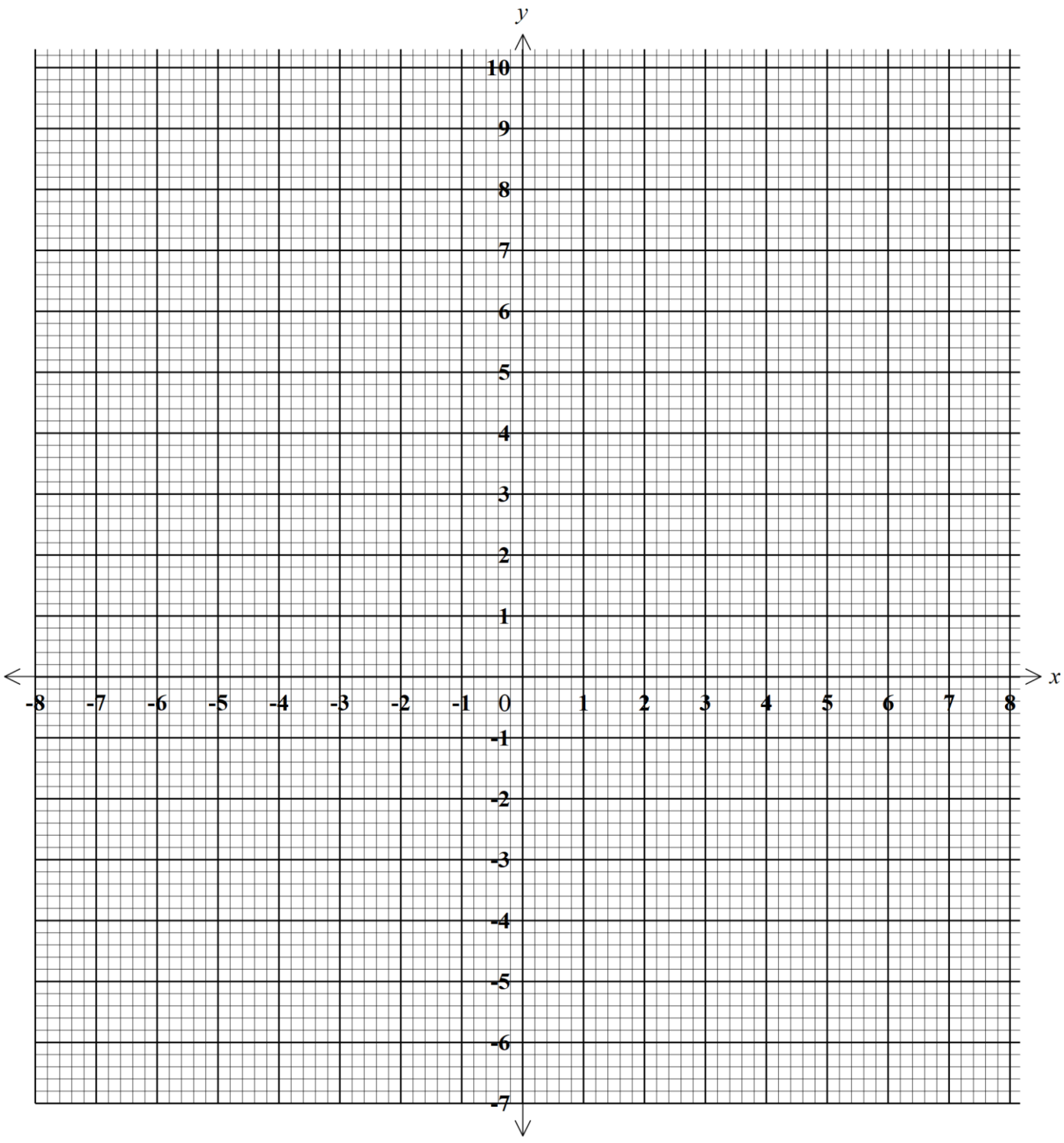
**b)** Draw the graph of $y= x^3-5x^2+2x+7$. **(3marks)**

**c)** Use your graph to solve the equation $x^3-5x^2+2x+7=0$. **(2marks)**

**d)** By drawing a suitable straight line, use your graph to solve the equation $x^3-5x^2+x+4=0$.

**(3marks)**

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**21.** Mungai, Koskei and Kendie are participating in an athletic competition. The probability that Mungai, Koskei and Kendie complete the race in $\frac{3}{5}, \frac{1}{6}$ *and* $\frac{4}{7}$ respectively. Find the probability that in a competition;

**a)** Only one of them completes the race. **(3marks)**

**b)** All the three completes the race. **(1mark)**

**c)** None of them completes the race. **(1mark)**

**d)** Two of them complete the race. **(3marks)**

**e)** At least one completes the race. **(2marks)**

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**22.** A businessman obtained a loan of sh.450,000 from a bank to buy a matatu valued at the same amount. The bank charges interest at 24% per annum compounded quarterly

**a)** Calculate the total amount of money the businessman paid to clear the loan in $1\frac{1}{2}$ years to the nearest shillings **(3marks)**

**b)** The average income realized from the matatu per day was sh.1500. The matatu worked for 3 years at an average of 280 days per year. Calculate the total income from the matatu **(3marks)**

**c)** During the three years the value of the matatu depreciated at the rate of 16% per annum. If the businessman sold the matatu at its new value, calculate the total profit he realized by the end of the 3 years (To the nearest shillings) **(4marks)**

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**23.** A church has a sitting capacity of 468 people with the members sitting in rows which have 3 long benches and 2 short ones. The long bench takes 2 people more than the short bench. Let the number of people sitting on the short bench be $x$.

**a)** Form an expression in $x$ for the number of rows of benches. **(2marks)**

**b)** A new pastor finds this arrangement crowded and decides that by having one more person on each long bench, he can take out some rows and still sit the same number of people. Find an expression in x for the new number of rows of benches. **(2marks)**

**c)** If one row of benches was taken out, find the original number of people per row. **(6marks)**

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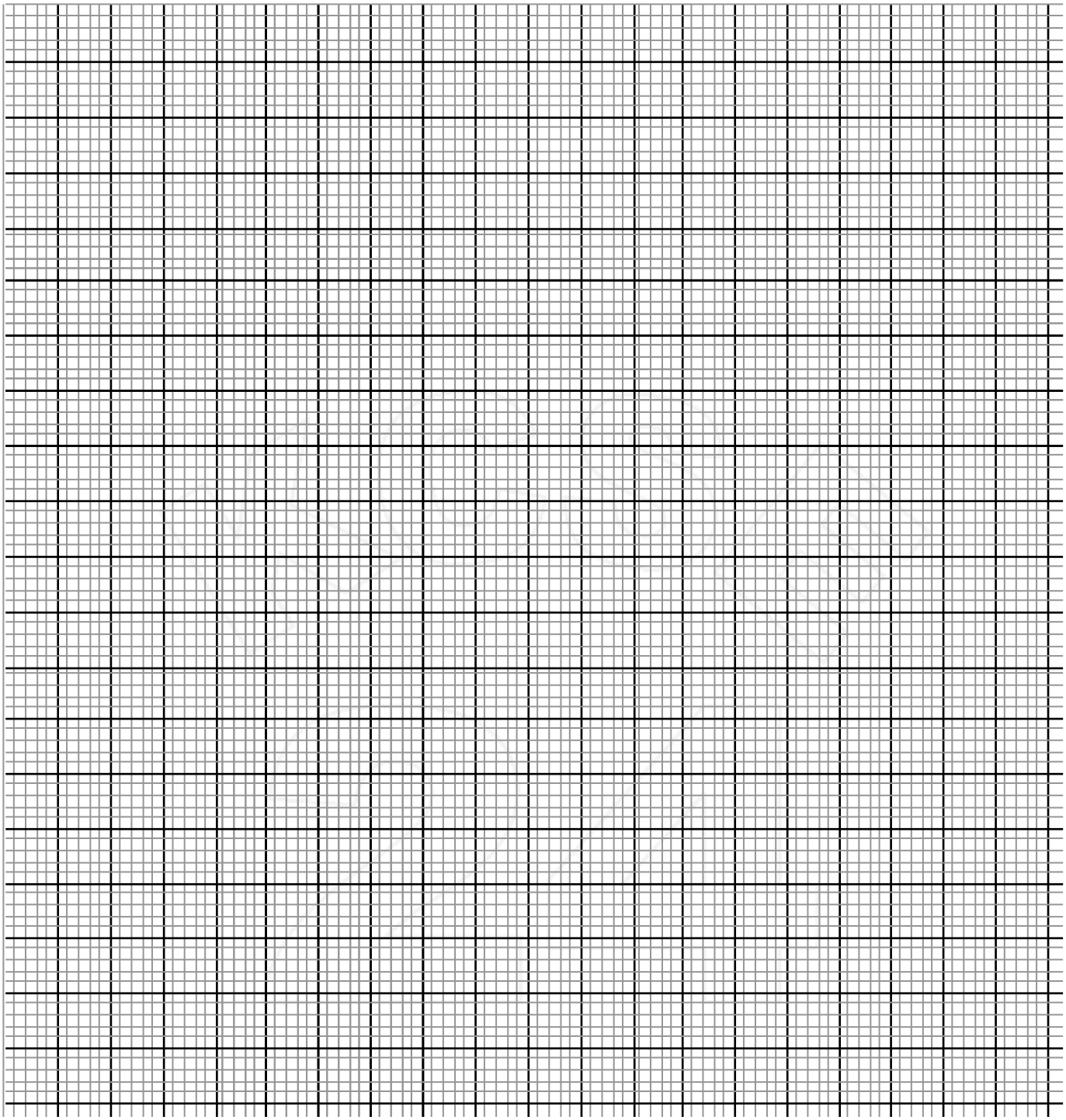
**24.** a) Fill in the table below giving the values correct to 2 decimal places. **(3marks)**

| x | 0 | $30^0$ | $60^0$ | $90^0$ | $120^0$ | $150^0$ | $180^0$ | $210^0$ | $240^0$ | $270^0$ | $300^0$ | $330^0$ | $360^0$ |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Sin 2x | | | | | | | | | | | | | |
| 3cos x-2 | | | | | | | | | | | | | |

**b)** On the grid provided draw the graphs of y=sin2x and y=3cosx – 2 of $0^0 \leq x \leq 360^0$ on the same axis. Use the scale of 1cm to represent $30^0$ on the x axis and 1cm to represent 1 unit on the y axis. **(5marks)**

**c)** Use the graph in (b) above to solve the equation 3 cos x – sin 2x= 2. **(2marks)**

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# THE END

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# REGARDS

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