SUCCESS PATH EXAMINATION COUNCIL

Kenya Certificate of Basic Education (KCBE)

ST1004 CHEMISTRY (Theory)

GRADE 10 MID-TERM 1 ASSESSMENT, 2026

Time: 1 hour

Learner's Name		**Assessment Number**	
School Name		**School Code**	
Learners Signature		**Date**	

Instructions to candidates

(a) Write your name and assessment number in the spaces above.
(b) Write the name and the code of your school in the spaces above.
(c) Sign and write the date of the assessment in the spaces provided above.
(d) Answer all the questions in the spaces provided in the question paper.
(e) Non-programmable silent electronic calculators and KNEC mathematics tables may be used, except where stated otherwise.
(f) All working must be clearly shown where necessary.
(g) This paper consists of 5 printed pages.
(h) Candidates should check the question paper to ascertain that all pages are printed as indicated and that no questions are missing.
(i) Candidates should answer the questions in English.

FOR EXAMINER'S USE ONLY

Question	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**Total**
Maximum Score	**3**	**3**	**3**	**3**	**3**	**3**	**3**	**5**	**5**	**6**	**3**	**3**	**3**	**4**	**50**
Learners Score															

Level	**Level**	**% Range**	**Points**	**Learner's**
Exceeding (EE)	**EE1**	**90 - 100**	**8**	
	EE2	**75 - 89**	**7**	
Meeting (ME)	**ME1**	**58 - 74**	**6**	
	ME2	**41 - 57**	**5**	
Approaching (AE)	**AE1**	**31 - 40**	**4**	
	AE2	**21 - 30**	**3**	
Below (BE)	**BE1**	**11 - 20**	**2**	
	BE2	**1 - 10**	**1**	

1. (a) Define chemistry as a field of science. (1 mark)

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(b) Distinguish between observations and experimentation. (2 marks)

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2. (a) Name the branch of Chemistry that serves as a bridge between Biology and chemistry. (1 mark)

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(b) Name **two** other branches of chemistry a part from the one named in (a) above. (2 marks)

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3. State **three** ways chemistry has helped to improve standards of living in the agricultural sector. (3 marks)

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4. Identify **three** career opportunities linked to the study of chemistry. (3 marks)

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5. (a) Define a drug. (1 mark)

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(b) Distinguish between a prescription and dosage. (2 marks)

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6. A patient's prescription reads, ***Antibiotics tablets 2 X 3*** for 5 days.

   (a) What does the ***2*** represent? (1 mark)

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   (b) What does the ***3*** represent? (1 mark)

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   (c) After how many hours should the patient take the next dose? (1 mark)

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7. (a) Name the sub-atomic particle found in the nucleus that has a positive charge. (1 mark)

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   (b) Name the sub-atomic particle with no charge. (1 mark)

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   (c) Where are electrons allocated in an atom? (1 mark)

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8. (a)Define atomic Number. (1 mark)

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   (b) An element is represent as $^{40.1}_{a}\boldsymbol{Y}$. It has 20.1 number of neutron.

   (i) Determine the value of ***a***. (1 mark)

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   (ii) Write an electronic configuration the element using ***S*** and ***P*** notations. (1 mark)

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   (iii) Draw the atomic structure of the element Y. (2 marks)

9. (a) What are isotopes? (1 mark)

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(b) Name **one** element that exhibits isotopy. (1 mark)

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(c) An element X has two naturally occurring isotopes $^{22}_{10}X$ with percentage abundance of 26.5% and $^{20}_{10}X$ having the rest percentage abundance. Calculate the relative atomic mass of element X. (3 marks)

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10. An element has the configuration $\boldsymbol{1s^2 2s^2 2p^5}$.

(a) Which group and period of the periodic table is the element located? (2 marks)

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(b) Give the name of the chemical family to which this element belongs. (1 mark)

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(c) Draw and fill in the orbital diagram using the spines ↑ or ↓ of this element. (3 marks)

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11. (a) Name the group that contains elements with a full outermost energy level. (1 mark)

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(b) Identify the element in ***period 3***, ***group IV*** of the periodic table. (1 mark)

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(c) Write the electronic configuration of the element name in (b) above, using s and p notation. (1 mark)

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12. (a) How many electrons can a single ***p***-orbital holds? (1 mark)

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(b) What is the maximum number of electrons that can occupy the ***2p*** sub-shell? (1 mark)

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(c) Explain why elements in ***group VIII*** are called noble gases. (1 mark)

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13. (a) Write the electron configuration of nitrogen using ***s*** and ***p*** notation. (2 marks)

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(b) Identify the sub-shell being filled in the second energy level of nitrogen. (1 mark)

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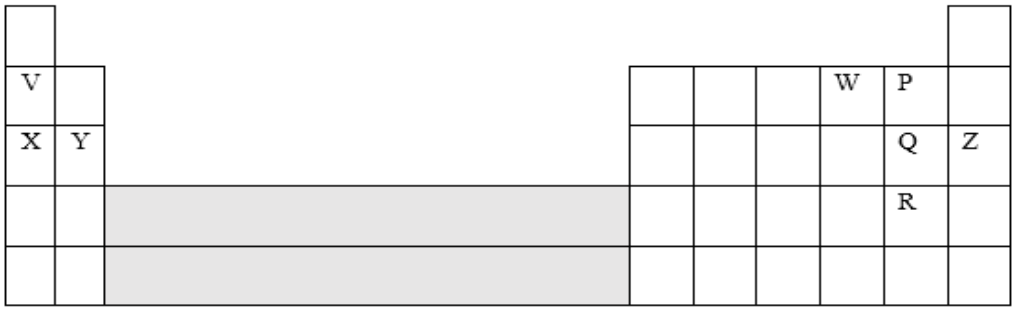
14. The grid below represents part of the periodic table. Study it and answer the questions that follow. (The letters are not the actual symbols of the elements)



(a) Name the chemical family to which element **Y** belongs. (1 mark)

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(b) What is the name given to the elements found in the shaded region? (1 mark)

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(c) Element ***A*** has an electronic configuration $1s^2 2s^2 2p^6 3s^2 3p^3$, indicate its position in the periodic table above. (1 mark)

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Write the actual symbol of element Y. (1 mark)

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