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SUMMATIVE ASSESSMENT – TERM II, 2026–27

CHEMISTRY (English Medium)

SET 2

Standard: IX **Time: 1½ Hours**

Total Score: 40

Instructions

- The first 15 minutes is cool-off time. Use it to read the questions and plan your answers.
- This question paper has 18 questions in Sections A, B, C and D.
- Questions 6, 8, 14, 17 and 18 have a choice. Answer only one of the options.
- Answer according to the score and time.

Section A

Answer all questions from 1 to 4. Each carries 1 score. **(4 × 1 = 4)**

1. What type of bond is present between the two atoms in a nitrogen molecule? (1)

a) Single covalent bond b) Double covalent bond

c) Triple covalent bond d) Ionic bond

2. **Statement:** Iron objects rust faster in humid air. (1)

Reason: Rusting is an oxidation reaction that needs both oxygen and moisture.

a) Both are true, and the reason explains the statement.

b) Both are true, but the reason does not explain the statement.

c) The statement is true, but the reason is false.

d) The statement is false, but the reason is true.

3. Read the statements. (1)

i. Oxidation is the gain of electrons.

ii. A reducing agent itself gets oxidised.

iii. In $H_2 + Cl_2 \rightarrow 2HCl$, hydrogen is oxidised.

iv. The oxidation number of oxygen in O_2 is −2.

a) i and ii are correct b) ii and iii are correct

c) iii and iv are correct d) i and iv are correct

4. Match the mixtures with their type. (1)

A	**B**
(i) Milk	(x) True solution
(ii) Sugar solution	(y) Suspension
(iii) Chalk powder in water	(z) Colloid

a) i – z, ii – x, iii – y b) i – x, ii – y, iii – z

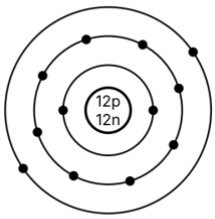
c) i – y, ii – z, iii – x d) i – z, ii – y, iii – x

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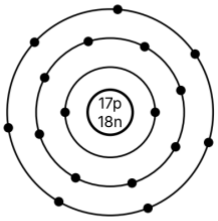
Section B

Answer questions 5 to 11. Questions 6 and 8 have a choice. Each carries 2 scores. (7 × 2 = 14)

5. The Bohr models of magnesium and chlorine atoms are given.



Magnesium



Chlorine

a) How many electrons does a magnesium atom lose, and a chlorine atom gain, to attain a stable configuration? (1)

b) Write the chemical formula of magnesium chloride. (1)

6 A. The electronegativity of oxygen is 3.44 and that of hydrogen is 2.20.

a) Is the O–H bond polar or non-polar? Why? (1)

b) Which atom gets a partial negative charge? (1)

OR

6 B. Write two differences between ionic compounds and covalent compounds. (2)

7. Find the oxidation number of the underlined element.

a) $H\underline{N}O_3$ (1)

b) $K\underline{Mn}O_4$ (1)

8 A. $CuO + H_2 \rightarrow Cu + H_2O$

a) Name the oxidising agent. (1)

b) Which substance is oxidised? (1)

OR

8 B. A zinc rod is dipped in blue copper sulphate solution.

a) Write the reduction half reaction. (1)

b) What happens to the blue colour of the solution? Why? (1)

9. Small pieces of wood catch fire more easily than a big log of wood.

a) Which factor affecting the rate of reaction is shown here? (1)

b) Explain how it increases the rate. (1)

10. How many grams of salt and water are needed to prepare 250 g of a 4% (by mass) salt solution? (2)

11. The atomic number of an element is 20.

a) Write its electronic configuration. (1)

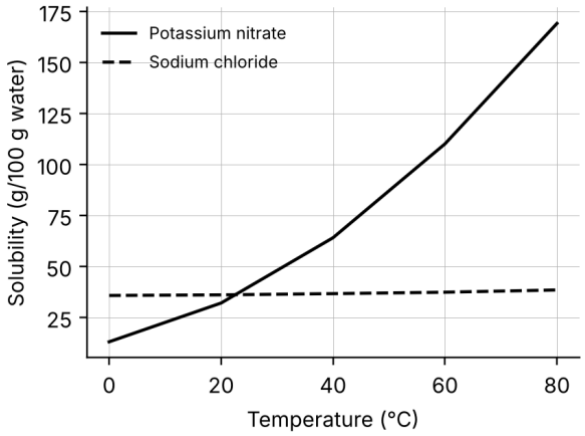
b) Find its group and period. (1)

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Section C

Answer questions 12 to 17. Questions 14 and 17 have a choice. Each carries 3 scores. (6 × 3 = 18)

12. The solubility curves of potassium nitrate and sodium chloride are given.



a) The solubility of which substance changes more with temperature? (1)

b) What is the solubility of potassium nitrate at 60 °C? (1)

c) Sodium chloride is not usually crystallised by cooling its hot saturated solution. Why? (1)

13. Zinc granules are added separately to dilute hydrochloric acid and to concentrated hydrochloric acid.

a) In which case is the reaction faster? (1)

b) Explain the reason. (1)

c) Name the gas formed. (1)

14 A. $2Al + Fe_2O_3 \rightarrow Al_2O_3 + 2Fe$ (thermite reaction)

a) What is the oxidation number of aluminium in Al_2O_3? (1)

b) Name the reducing agent. (1)

c) Write one use of this reaction. (1)

OR

14 B. $Mg + Cl_2 \rightarrow MgCl_2$

a) Write the oxidation half reaction. (1)

b) Write the reduction half reaction. (1)

c) Why is this called a redox reaction? (1)

15. Ammonia is manufactured by the Haber process: $N_2 + 3H_2 \rightleftharpoons 2NH_3$

a) Name the catalyst used. (1)

b) What is the role of the catalyst? (1)

c) Enzymes are called biological catalysts. Give one example. (1)

16. Carbon dioxide is a covalent compound. (Atomic numbers: C = 6, O = 8)

a) Draw the electron dot diagram of CO_2. (1)

b) How many double bonds are there in a CO_2 molecule? (1)

c) How many lone pairs of electrons are present on each oxygen atom? (1)

17 A. Answer the following.

a) 100 mL of vinegar contains 5 mL of acetic acid. Find the volume percentage. (1)

b) 1 000 000 g of water contains 0.5 g of chlorine. Express the concentration in ppm. (1)

c) What is meant by a dilute solution? (1)

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OR

17 B. Saturated and unsaturated solutions.

a) What is a saturated solution? (1)

b) Suggest two ways of converting an unsaturated solution of copper sulphate into a saturated one. (2)

Section D

Answer question 18 (A or B). It carries 4 scores. **(1 × 4 = 4)**

18 A. The atomic numbers of two elements are: A = 19, B = 8 (not real symbols).

a) Write their electronic configurations. (1)

b) How many electrons are lost by A and gained by B to form a stable compound? (1)

c) Write the chemical formula of the compound. (1)

d) What type of bond is present in it? (1)

OR

18 B. Equal masses of marble chips were added to hydrochloric acid of two different concentrations. The time taken to collect 50 mL of carbon dioxide was noted.

Concentration of acid	**1 M**	**2 M**
Time taken (s)	60	30

a) In which case is the reaction faster? (1)

b) What is the relation between concentration and rate of reaction? (1)

c) Explain the reason on the basis of collisions. (1)

d) Write the balanced chemical equation of the reaction. (1)

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