SECOND TERM EVALUATION 2024-25

CHEMISTRY
Standard: IX
Time: 1 ½ Hour
Total Score: 40

Instructions:

1. **The first 15 minutes are for reading the questions carefully.**
2. **Write answers according to the given instructions.**
3. **Ensure answers reflect the allocated marks and time.**

Section A: Answer any 4 questions. (4 × 1 = 4 Marks)

Each question carries 1 mark.

1. Define redox reactions with an example.
2. Write the formula for the rate of a chemical reaction.
3. Identify the oxidizing and reducing agents in the reaction:
   $2Mg+O_2 \rightarrow 2MgO$
4. Name the scientist who proposed the law of conservation of mass.
5. From the given elements *F,Cl,Br,I* identify the element with the highest electronegativity.

Section B: Answer any 4 questions. (4 × 2 = 8 Marks)

Each question carries 2 marks.

6. Differentiate between endothermic and exothermic reactions with examples.
7. Draw the structure of a molecule of water showing polar covalent bonds.
8. Explain the term "activation energy" with a diagram.
9. State the effect of temperature on the rate of a chemical reaction and justify.
10. Balance the following chemical equation:
    $KClO_3 \rightarrow KCl+O_2$

Section C: Answer any 4 questions. (4 × 3 = 12 Marks)

Each question carries 3 marks.

11. A reaction has the following steps:
    - Formation of an intermediate compound.
    - Release of a product after the intermediate decomposes.
      Explain this reaction mechanism with an example.

12. Illustrate how to calculate the oxidation number of sulfur in H_2SO_4
13. What are catalysts? Explain their role with examples.
14. Compare homogeneous and heterogeneous catalysts with examples.
15. Write three differences between oxidation and reduction.

Section D: Answer any 4 questions. (4 × 4 = 16 Marks)

Each question carries 4 marks.

16. A reaction has the rate equation $Rate=k[A]^2[B]$
    - Determine the order of the reaction.
    - If [A]=1M,[B]=2M,k=0.5, calculate the rate of the reaction.
17. Discuss the factors affecting the rate of chemical reactions.
18. Explain the role of Antoine Lavoisier in formulating the law of conservation of mass.
19. Describe the concept of redox reactions in terms of electron transfer, using $Fe+CuSO_4 \rightarrow FeSO_4+Cu$
20. Construct and explain the energy profile diagram for an exothermic reaction.