

Section-B

Short Answer

Note: Answer any SIX of the following questions.

- Q.2 Define the following with examples:
(i) Empirical formula (ii) Polymorphism
- Q.3 At 20°C, 480 cm³ of a gas is kept in a vessel at a pressure of 2.5 atm. What will be the volume of gas, if the pressure is changed to 900 torr?
- Q.4 Differentiate between Sigma and Pi Bond.
- Q.5 Describe Postulates of Bohr's theory.
- Q.6 Define with examples:
(a) Exothermic reaction (b) Endothermic reaction
- Q.7 What is hybridization? Explain sp³ hybridization.
- Q.8 Define the following terms:
(i) Rate of reaction (ii) Velocity of reaction
- Q.9 Write a note on any one of the following:
(i) Rate of reaction (ii) Velocity pressure
- Q.10 Differentiate between oxidation and reduction reactions.

Section-C

(Descriptive Answer)

Note: Answer any TWO of the following questions.

- Q.11 State Le Chatelier's principle, Describe the effect of increase in concentration, pressure and temperature on the following reaction.
$$\text{N}_{2(g)} + 3\text{H}_{2(g)} \rightleftharpoons 2\text{NH}_{3(g)} \quad H = \text{Negative}$$
- Q.12 Define oxidation number, Balance the following redox equations by Ion-electron method.
(i) $\text{Fe}^{2+} + \text{Cr}_2\text{O}_7^{2-} + \text{H}^+ \rightarrow \text{Fe}^{3+} + \text{Cr}^{3+} + \text{H}_2\text{O}$
(ii) $\text{Cr}(\text{OH})_3 + \text{H}_2\text{O}_2 \rightarrow \text{CrO}_4^{2-} + \text{H}_2\text{O}$ (Basic)
- Q.13 (a) Define following terms:
(i) Radioactivity (ii) Molecular formula
- Q.14 Ethylene Glycol Contains Carbon, hydrogen and Oxygen. Its molecular mass is 62 a.m.u. Combustion of 6.38 mg of ethylene Glycol gives 9.06 mg of CO₂ and 5.58 mg of H₂O. Find its Empirical formula and molecular formula.