

Time : Three hours

Maximum :

(No additional sheet will be supplied)

SECTION A — (5 × 4 = 20 marks)

Answer any FIVE questions.

1. Explain the structure of borazine.
2. Write a note on silicones and their uses.
3. Describe the structure of phosphonitrilic chloride ($P_3N_3Cl_6$)
4. Classify oxides with suitable examples.
5. Write a short note on interhalogen compounds.
6. Discuss the colour and magnetic properties of d-block elements.
7. What is lanthanide contraction?
8. Compare lanthanides and actinides briefly.
9. Explain froth flotation process.
10. What is corrosion? Mention any two methods of prevention.

SECTION B — (5 × 10 = 50 marks)

Answer ALL questions.

11. (a) Explain the preparation and structure of diborane.
(b) Write a note on borazine and $(BN)_x$.

Or

12. Describe the preparation, classification and uses of silicones.
13. (a) Explain the structures and classify oxoacids of sulphur.
(b) Explain the structures of oxides of sulphur.

Or

14. Describe preparation and structures of pseudohalogens.

15. Define the following terms.
- (a) Electronic Configuration,
 - (b) Variable Valency,
 - (c) Colour,
 - (d) Magnetic Properties,
 - (e) Catalytic Properties.

Or

16. Discuss the stability of various oxidation states of 3d-series elements.
17. (a) Explain electronic configuration and oxidation states of lanthanides.
(b) Discuss the consequences of lanthanide contraction.

Or

18. Explain electronic configuration and oxidation states of actinides and compare with lanthanides.
19. (a) Explain concentration of ores by leaching.
(b) Describe calcination and roasting.

Or

20. (a) Explain electrolytic refining.
(b) Discuss corrosion and its prevention.