PART - A

Answer any ALL questions. Each question carries 2 marks.

1. What are copolymers? Write one example.

2. Write the structure of Buna-S.

3. Distinguish between BOD and COD.

4. Mention the various types of hardness.

5. Explain alternative refrigerants.

6. Write Nernst equation for Daniel cell.

7. Explain Laser ablation technique to prepare nano-materials.

8. What are refractories?

9. Distinguish between LCV and HCV.

10. What is galvanising? (10 x 2 = 20 Marks)
PART– B

Answer any **ONE** full questions from each module. Each question carries **20** marks.

11. (a) Explain the preparation, properties and uses of bakelite, and urea formaldehyde resins.  
    (b) Describe the mechanism of interaction and applications of IR spectroscopy.  
    
    Or

12. (a) Explain differential thermal analysis.  
    (b) Explain Chemical shift.  

13. (a) Explain electrochemical corrosion.  
    (b) Explain cathodic protection.  
    
    Or

14. (a) Explain calomel electrode and glass electrode.  
    (b) Write a note on Lithium ion cell.  

15. (a) Explain  
    (i) photo chemical smog  
    (ii) green house effect.  
    (b) Explain solid waste disposal methods.  
    
    Or

16. (a) Describe ion-exchange method for water-softening.  
    (b) Explain reverse osmosis and ozone depletion.
17. (a) Explain proximate analysis. 

(b) Write a note on
   (i) bio-gas
   (ii) Natural gas
   (iii) bio-diesel. 

Or

18. (a) Distinguish between cetane number and octane number. 

(b) Explain the properties of refractories. 

(4 x 20 = 80 Marks)