

OR

- 6 a. Explain the preparation of solar grade silicon by union-carbide process. (06 Marks)
 b. What are pv-cells? Illustrate the construction and working of a typical pv-cell. (07 Marks)
 c. What is knocking? Explain the mechanisms of knocking. Mention its ill effects. (07 Marks)

Module-4

- 7 a. Outline the softening of water by ion-exchange method. (06 Marks)
 b. What are the sources, effects and control of lead pollution? (07 Marks)
 c. Define COD. In a COD test, 30.6 cm³ and 15.5 cm³ of 0.05N FAS solution are required for blank and sample titration respectively. The volume of the test sample used was 25 cm³. Solve the COD of the water sample solution. (07 Marks)

OR

- 8 a. What is Desalination? Describe the process of reverse osmosis of water. (06 Marks)
 b. What is boiler corrosion? Explain the boiler corrosion with CO₂, O₂ and MgCl₂. (07 Marks)
 c. Define COD. Illustrate the determination of COD of waste water sample. (07 Marks)

Module-5

- 9 a. Describe the synthesis of nano-material by sol-gel technique. (06 Marks)
 b. Discuss the theory and instrumentation of conductometry. (07 Marks)
 c. Outline the theory, instrumentation and applications of colorimetry. (07 Marks)

OR

- 10 a. Explain size dependent properties of nano material:
 i) Surface area
 ii) Electrical
 iii) Optical properties (06 Marks)
 b. Write a note on fullerenes. Mention its properties and applications. (07 Marks)
 c. What are nanomaterials? Explain the synthesis of nanomaterial by chemical vapour deposition method. (07 Marks)
