

Shivaji University, Kolhapur
Question Bank For Mar 2022 (Summer) Examination

Subject Code : 71817

Subject Name : B. Tech. CBCS Part 1 Semester 1 – Engineering Chemistry

Unit-1 Water

- Q1. Explain ion exchange process for the treatment of hard water.
- Q2. Explain reverse osmosis technique for the treatment of hard water.
- Q3. Discuss the causes and disadvantages of scale and sludge formation.
- Q4. Write a note on Alkalinity of water.
- Q5. Write a note on Dissolve oxygen of water.
- Q6. Write a note on Chloride content of water.
- Q7. Write a note on impurities present in natural water.
- Q8. Define hardness of water. Explain the temporary and permanent hardness.
- Q9. Write note on sludge and scale formation in boiler.
- Q10. Numerical problem on Hardness of water.

Unit 2 - Instrumental Methods of Chemical Analysis

- Q1. What are the advantages and disadvantages of instrumental methods of analysis?
- Q2. State Beers Lamberts Law and derive expression for it.
- Q3. Give schematic representation of a single beam spectrophotometer. How will you determine the concentration of unknown solution?
- Q4 .Explain construction and working of GLC With neat labeled diagram
- Q5. Write applications of GLC

Unit 3 - Advanced Materials

- Q1. Give preparation, properties and application of Bakelite plastic.
- Q2. Give preparation, properties and application of Urea formaldehyde plastic.
- Q3. Give preparation, properties and application of Epoxy resin.
- Q4. Distinguish between Thermosoftening and Thermosetting plastic.
- Q5. Give composition, properties and applications of FRP.
- Q6. Give composition, properties and applications of GRP.
- Q7. What is composite material? Explain the characteristics of composite materials.
- Q8. Explain addition polymerization reaction with suitable example.
- Q9. Explain condensation polymerization reaction with suitable example.
- Q10. Write applications of conducting polymer.
- Q11. Write a note on biodegradable plastic.

Unit 4 - Fuels

- Q.1. Discuss the characteristics of a good fuel.
- Q 2. Compare solid fuels with liquid fuels.
- Q 3. Compare liquid fuels with gaseous fuels.
- Q 4. Compare solid fuels with gaseous fuels.
- Q 5. Explain the terms – Calorific value, Higher calorific value & Lower calorific value.
- Q 6. With a neat labeled diagram, give construction and working of Bomb calorimeter.
- Q 7. With a neat labeled diagram, give construction and working of Boy's calorimeter.
- Q 8. Numerical problem on Bomb calorimeter.
- Q 9. Numerical problem on Boy's calorimeter.

Unit 5 – Corrosion

- Q 1. Define corrosion. Explain oxidation corrosion with example.
- Q 2. Define electrochemical corrosion. Explain hydrogen evolution mechanism with example.
- Q 3. Define electrochemical corrosion. Explain oxygen absorption mechanism with example.
- Q 4. Discuss the factors influencing the rate of corrosion.
- Q 5. Write a note on Cathodic protection.
- Q 6. What is hot dipping process? Write a note on galvanization.
- Q 7. What is hot dipping process? Write a note on tinning.
- Q 8. Write a note on electroplating.
- Q 9. Discuss the protection of metal from corrosion by proper design and material selection.

Unit 6 – Metallic Materials and Green Chemistry

- Q 1. Define an alloy. Discuss the purposes of making alloys.
- Q 2. Give composition, properties and applications of plain carbon steels.
- Q 3. Give composition, properties and applications of Brasses.
- Q 4 Write a note on Duralumin.
- Q 5. Give composition, properties and applications of Alnico and Nichrome.
- Q 6. What is Green Chemistry? Discuss twelve principles of Green Chemistry.