

I B.Tech Question Bank

Subject : Applied Chemistry

Branch Semester : CSE I/I I

UNIT-1

1. Explain the mechanism of (a) Free radical polymerisation 4M
(b) Ionic Polymerisation 3M
(c) Compounding of plastics? 3M
2. (a) Write the (a) Suspension and Emulsion polymerisation? 4M (b) stereo specific polymers? 4M
3. Write the (a) Preparation and properties of Bakelite and BUNA-S 6M
(b) Vulcanisation 4M
4. (a) Write the differences between thermo plastics and thermosetting plastics. 4M (b) Explain the fabrication methods of Plastics? 6M
5. Explain the (a) Biodegradable polymers? 5M
(b) Fibre Reinforced plastics? 5M

UNIT - II

1. (a) Define the Calorific Value, LCV and HCV of a fuel? 4M
(b) Describe how the Calorific value of a solid fuel is determined using a bomb calorimeter? 6M
2. Explain the (a) Proximate analysis of coal? 5M
(b) Ultimate analysis of coal? 5M
3. (a) Write a note on (a) Octane Number and Cetane Number? 5M
(b) Catalytic Cracking methods. 6M
4. Define the (a) Petrol Knocking and Diesel Knocking? 4M (b) Refining of petroleum. 6M
5. (a) Write a brief note on RDX and TNT? 4M
(b) Explain the Natural gas, LPG and CNG? 6M

UNIT- III

1. Explain the (a) Standard hydrogen electrode and Calomel electrode. 7M
(b) Electrochemical series? 3M
2. Define the (a) Single electrode potential and give its significance? 3M
(b) Lithium cells? 7M
3. (a) Explain the galvanic cell? 5M
(b) Define corrosion? Write the factors effecting the corrosion? 5M
4. Discuss the mechanism of corrosion? 10M
5. Explain the (a) Cathodic protection? 6M

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UNIT-IV

1. Explain the (a) BET and TEM for the preparation of Nano materials? 6M
(b) Types of Liquid Crystals 4M
2. Write a detailed account on the (a) Types of superconductors.6M
(b) R₄M₄ principles in green chemistry?4M
3. Write a detailed account on the (a)Preparations, and properties of carbon nano tubes.6M
(b)Preparations of Fullerene 4M
4. (a)What is the green Chemistry? Write the principles of green chemistry?6M
(b) Write any two methods of synthesis of compounds by using green chemistry? 4M
5. Write the (a) Sol-gel method for the preparation of Nano materials? 5M
(b) Engineering application of superconductors? 4M

UNIT-V

1. Write a note on (a) p-n Junction diode (6M)
(b) Structure of NaCl and CsCl (4M)
2. Explain (a) Controlled valency semiconductors.5M
(b) Spinels and Inverse spinels. 5M
2. Write the (a) four types of crystalline solids.5M
(b) Simple Cubic, BCC, FCC packing of metals?.5M
3. Explain (a) What are the magnetic materials? 6M
(b) Zone refining 4M
4. (a) Discuss about the (a) Hall Effect and its applications? 6M
(b) Characteristics of insulators? 4M

UNIT-VI

1. Discuss about (a) Photovoltaic cells. 7M
(b) Fuel cell and example 3M
2. Discuss briefly about the (a) Methanol-Oxygen fuel cell
5M
(b) Geothermal energy? 5M
3. Write about (a) the types of cycles in OTEC plant? 7M
(b) Biomass. 3M
4. Explain the (a) Tidal and Wave power 5 M
(b) Biodiesel? 5M
5. Write a brief note (a) Hydro power? 5M
(b) Hydrogen-Oxygen fuel cell 5M