

Code: 20BS1102

**I B.Tech - I Semester – Regular / Supplementary
Examinations – APRIL 2022**

**ENGINEERING CHEMISTRY
(Common to EEE, ECE)**

Duration: 3 hours

Max. Marks: 70

Note: 1. This paper contains questions from 5 units of Syllabus. Each unit carries 14 marks and have an internal choice of Questions.
2. All parts of Question must be answered in one place.

UNIT – I

1. a) Classify ion selective electrodes with examples. 4 M
b) Discuss the origin of electrode potential. Derive the Nernst equation for the determination of single electrode potential. 10 M

OR

2. a) Differentiate electrochemical cell and electrolytic cell. 7 M
b) Explain the working principle of calomel electrode with neat diagram. 7 M

UNIT – II

3. a) Explain the working principle of H₂-O₂ fuel cell. 7 M
b) Discuss the construction and working principle of Zinc-air battery. 7 M

OR

4. a) List out the various challenges in battery technology. 7 M
b) Describe the construction and working principle of dry cell. 7 M

UNIT-III

5. a) Describe the various steps involved in chemical vapour deposition. 7 M
- b) List the physical and chemical properties of silicon. 7 M

OR

6. a) Write short notes on manufacturing of photovoltaic cells. 7 M
- b) Explain any five applications of solar cells. 7 M

UNIT – IV

7. a) What is meant by “Metal finishing”? Explain its importance. 7 M
- b) Explain the manufacturing of electrical circuit board. 7 M

OR

8. a) Explain the principle of electroplating of Cr. 7 M
- b) Explain the principle of electro less plating of nickel. 7 M

UNIT – V

9. a) Differentiate thermosetting and thermoplastic polymers. 7 M
- b) What are nanomaterials? How will you prepare nanomaterials by sol-gel method? 7 M

OR

10. a) Explain the preparation, properties and uses of Polystyrene. 7 M
- b) Discuss the applications of SEM and TEM in nanotechnology. 7 M