Reg. No. : | | | | | | | | | | | | |

Question Paper Code : 85021

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2025.

First Semester

Civil Engineering

CY25C01 — APPLIED CHEMISTRY – I

(Common to : All branches)

(Regulations 2025)

Time : Three hours | Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Define TDS in water quality assessment.
2. Why hardness is important parameter in industry?
3. What is a Zero dimension nanomaterial? Quote an example.
4. How does nanomaterial differ from bulk material?
5. Differentiate Oxidation and reduction with suitable example.
6. Define electrode potential.
7. Why steel corrodes when connected to the copper pipe?
8. Differentiate between dry and wet corrosion.
9. Differentiate conventional battery and contemporary battery.
10. List the key components in a battery.

PART B — (5 × 16 = 80 marks)

11. (a) A small town receives water from a nearby lake. Recent complaints from residents on water supply include bad taste, odor and color. Identify any four major quality issues present in the water sample. If not treated what kind of health problems may arise? Suggest a solution to overcome this issue.

Or

(b) Explain the various stages of municipal water treatment with a neat diagram.

12. (a) Discuss any three size-dependent properties of nanomaterial. Give its significance.

Or

(b) With a neat diagram explain the sol-gel process and laser ablation for the synthesis of nanomaterial.

13. (a) Explain the factors affecting electrical conductivity.

Or

(b) Discuss the following

(i) Difference between Galvanic and electrolytic cell.

(ii) EMF of a cell

(iii) Significance of salt bridge

(iv) Redox reaction with an example.

14. (a) Discuss the various factors that influence the corrosion.

Or

(b) Discuss the various coating materials and explain how coating prevents corrosion.

15. (a) Explain the charging and discharging mechanism of a Li-ion battery with a neat diagram.

Or

(b) Provide a detail overview of Battery pack, Battery materials, Performance parameters, Testing and safety aspects of Batteries.