

Roll No.

**Department of Applied Sciences & Humanities**  
**Faculty of Engineering & Technology**  
**B. Tech. Semester-I**  
**End Semester Examination 2023-24**  
**Paper Code: ASB-102**

**Maximum Marks: 45**

**Duration: 3 Hours**

**Instruction to the candidates**

- Write your Roll No. on the top immediately on receipt of the question paper.
- Avoid circumlocution

**Note:** Attempt any two parts of each question. All questions carry equal marks

Q. No.	Questions	Marks	CO
1. (a)	What is critical micelle concentration? Discuss the factors which affect critical micelle concentration.	4.5	CO-1
(b)	What are crystal defects? How crystal defects changes the conductivity and density of the crystals.	4.5	CO-1
(c)	Define atomic packing factor. How would you calculate it for simple cubic and body centered unit cells?	4.5	CO-1
2. (a)	Define principle of adsorption chromatography. Discuss its various types and application.	4.5	CO-2
(b)	Explain instrumentation and applications of UV-Vis spectroscopy.	4.5	CO-2
(c)	What is atomic absorption spectroscopy used to determine? Explain instrumentation and applications of atomic absorption spectroscopy.	4.5	CO-2
3. (a)	What are complexometric titrations? Discuss the complexometric titrations used for water analysis.	4.5	CO-3
(b)	What is phase rule? Draw phase diagram of water system and discuss it in detail.	4.5	CO-3
(c)	What are precipitation reactions? Discuss favourable conditions for precipitations.	4.5	CO-3
4. (a)	Discuss principle of galvanic cells with special reference to Daniel's cell.	4.5	CO-4
(b)	What are electrode potential and standard electrode potentials? Explain E.M.F. series.	4.5	CO-4



(c)	What is cell constant? Discuss its measurement.	4.5	CO-4
5. (a)	Discuss synthesis, properties and uses of <u>any two</u> the following polymers: (i) Nylon, (ii) Teflon, (iii) Polyester	4.5	CO-5
(b)	Define thermoplastics and thermosets. Explain the two with examples.	4.5	CO-5
(c)	What are conducting polymers? Discuss applications of conducting polymers by citing suitable examples.	4.5	CO-5