

B.Tech I Year I Semester (R15) Supplementary Examinations November/December 2019

**BASIC CHEMISTRY**

(Food Technology)

Time: 3 hours

Max. Marks: 70

**PART – A**

(Compulsory Question)

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1 Answer the following: (10 X 02 = 20 Marks)

- What is meant by entropy?
- What is meant by redox reaction?
- What is meant by order of reaction?
- What does valency bond theory explain?
- What are the important components in terms of instrumentation of Microwave spectroscopy?
- What is meant by IR spectroscopy? Give its important applications.
- What is meant by polymerization?
- What is meant by Friedel Craft Alkylation?
- Define the degree of freedom.
- What are important properties of colloids?

**PART – B**

(Answer all five units, 5 X 10 = 50 Marks)

**UNIT – I**

- What do you understand by thermodynamic system and surroundings?
  - Describe the important applications of emf measurements.

**OR**

- Give an account of electrochemical series and its applications.
  - Explain about electrochemical cells.

**UNIT – II**

- What do you understand by the term rate-determining step of a complex reaction? What is steady-state hypothesis?
  - What are bonding and antibonding molecular orbitals?

**OR**

- Write short notes on parallel reactions?
  - Draw molecular orbital diagram for NO molecule.

**UNIT – III**

- Which selection rule is used in Infrared spectroscopy? Explain about finger print region.
  - Explain why  $[\text{Ni}(\text{CO})_4]$  is tetrahedral,  $[\text{Ni}(\text{H}_2\text{O})_6]^{2+}$  is square planar and  $[\text{Ni}(\text{NH}_3)_6]^{2+}$  is octahedral using valence bond theory.

**OR**

- Briefly explain the Beer-Lambert's law and give its applications.
  - Brief account on Haemoglobin with respect to metal ion.

**UNIT – IV**

- Write short notes on Perkin's reaction.
  - Illustrate the details of Papaverine.

**OR**

- Write short notes on Toxol.
  - What are Biomolecules? Explain aminoacids.

**UNIT – V**

- State and Explain the phase rule.
  - Explain basic principle of TLC and what are its usefulness?

**OR**

- Draw and explain the phase diagram of water system, i.e. one-component system.
  - What are different separation techniques? Explain crystallization.

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