

(b) Write short note on magnetic resonance imaging.

6

9. (a) Discuss the principle working & application of flame photometry. 8

(b) Write short note on nuclear magnetic resonance. 7

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(4)

Roll No. ....

**3006**

**B. Tech. 2nd Semester (Common for All Branches) Examination – July, 2021**

**CHEMISTRY-I**

Paper : BSC-CH-101-G

Time : Three Hours ]

[ Maximum Marks : 75

*Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.*

**Note :** Question No. 1 is **compulsory**. Students have to attempt **five** questions in total selecting **one** question from each unit.

1. Write short notes on the following : 2.5 × 6 = 15

- (a) What do you mean by alternate axis of symmetry ?
- (b) Discuss absorption spectroscopy in brief.
- (c) Define Electron gain enthalpy energy.
- (d) Discuss Anti-Markovnikov's Rule.

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- (e) Define pilling Bedworth rule.
- (f) What are ion exchange resins?

**UNIT - I**

- 2. (a) Discuss the crystal field theory in detail. Explain the energy level diagram for transition metal ion. 10
- (b) Discuss Pi-molecular orbital diagram of butadiene. 5
- 3. (a) The increasing order of reactivity among group 1 elements is  $Li < Na < K < Rb < Cs$  whereas that among group 17 elements is  $F > Cl > Br > I$ . Explain. 4
- (b) Discuss the band structure of solid and role of doping on band structure. 8
- (c) What is Ionization energy? How it varies along the period and group explain? 3

**UNIT - II**

- 4. (a) Write the differences between E1 and E2 with suitable example. 4
- (b) Discuss the synthesis of Aspirin in details. 6

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- (c) Write the conformation of ethane molecules with suitable energy level diagram. 5

5. Write short note on :  $5 \times 3 = 15$

- (a) Electrophilic aromatic substitution
- (b) Structural Isomer
- (c) Isomerism transition metal compounds

**UNIT - III**

- 6. (a) Describe the Zeolite process for water softening of hard water. Discuss their advantage and disadvantages. 10
- (b) Discuss the function of Lime & soda in lime soda process for water softening. 5
- 7. (a) What is differential aereation corrosion? Discuss with suitable example. 6
- (b) Discuss the various methods for prevention of corrosion in detail. 9

**UNIT - IV**

- 8. (a) Describe the Principle and application of UV Spectroscopy. 9

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