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Total No. of Questions: 18

B.Tech. (CSE/ECE/CIVIL) (Sem.-2) CHEMISTRY/ENGINEERING CHEMISTRY

Subject Code: CH-101 M.Code: 54003

Time: 3 Hrs. Max. Marks: 60

INSTRUCTIONS TO CANDIDATES:

- 1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
- 2. SECTION B & C. have FOUR questions each.
- 3. Attempt any FIVE questions from SECTION B & C carrying EIGHT marks each.
- 4. Select atleast TWO questions from SECTION B & C.

SECTION-A

Write short notes on:

- 1) What does Chemical oxygen demand measures?
- 2) What are the characteristics of a good adsorbent in chromatographic technique?
- 3) What are buffer solutions?
- 4) What is Caustic Embrittlement?
- 5) Explain the principle of NMR spectroscopy
- 6) Define quantum efficiency.
- 7) Define phase rule and reduced phase rule.
- 8) What is overvoltage?
- 9) Why is oxygen unsuitable as a carrier gas for GLC?
- 10) Why is chlorine added to water?

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SECTION-B

11) (a) What is water softening and what are the different methods of water softening? (3) (b) Why does tap water often smells like Chlorine? (3) (c) What affects water hardness? (2) 12) (a) Why does impure metal corrodes faster than pure metal? (2) (b) Iron corrodes faster than aluminium, even though iron is placed below aluminium in electrochemical series. Why? (2) 13) (a) What is chromatography are the advantages of chromatography over other techniques? (3) (b) What are the main differences between High Pressure Liquid Chromatography and Gas Chromatography? (3) (c) What type of solvents are generally employed for chromatography? (2) 14) (a) What is the function of salt bridge in electrochemical cell? (2) (b) Write a short note on reversible and irreversible cell (3) (c) Calculate the potential of the following electrochemical cell at 25°C: (3) $Cu~(s) \parallel Cu^{2^{+}}~(aq)~(0.50M) \parallel H^{+}(0.01) | H_{2}(0.95~atm);~Pt$

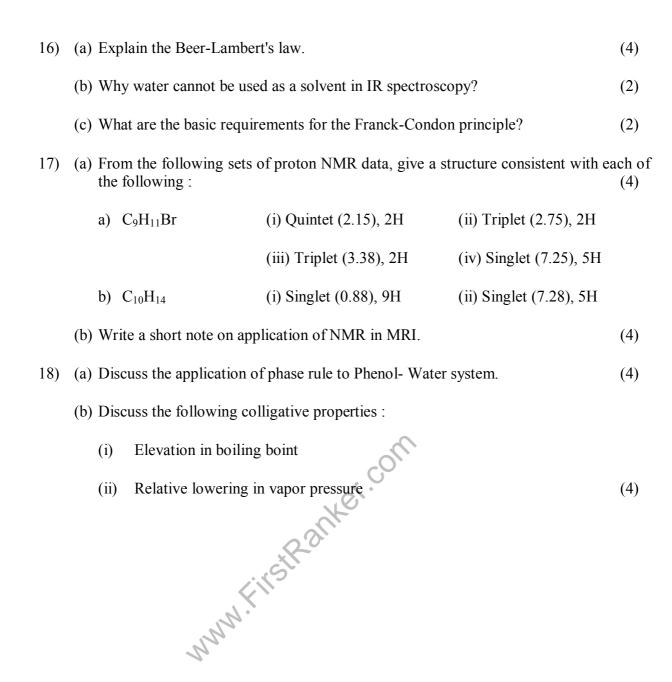
SECTION-C

- 15) (a) What is photochemical reaction and where does it occur? (3)
 - (b) A solution containing bromine and cinnamic acid dissolved in CCl₄ was irradiated with light of wavelength 4358Å for 20 min. The intensity of light was 20,000 erg s⁻¹ and the solution absorbs only 90% of the light passing through it. If the amount of bromine consumed in this interval is 6.36×10^{-3} mol. What is the quantum yield? (5)

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NOTE: Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.

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