

First Mid Term Examination 2015-16

B.Tech First Year – Ist Sem.

Subject – Engineering Chemistry
Time – 90 Mins.

Paper Code –AHC 1001
Max. Marks - 20

SECTION-A

Note: Attempt All questions

(1X05 = 05 Marks)

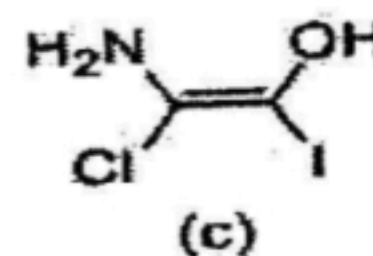
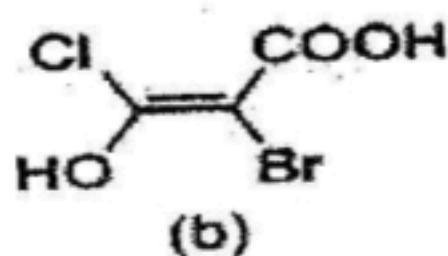
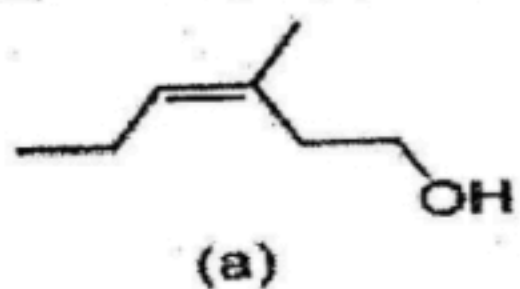
- Q.1 What is the unit of rate constant of First order and second order reactions?
Q.2 Arrange O₂, H₂ and He₂ in order of their increasing bond order.
Q.3 Explain why H₂S is a gas while H₂O is liquid?
Q.4 Write stability order of aliphatic carbocations.
Q.5 Write any two applications of semiconductors.

SECTION-B

Note: Attempt Any Three questions

(2X03 = 06 Marks)

- Q.1 Assign (E)- or (Z)- configuration to any of the following two compounds:-



- Q.2 What do you mean by Smart Material? Give any two examples of Smart Material.
Q.3 What is hydrogen bond? Explain intermolecular hydrogen bond with suitable examples.
Q.4 If in a first order reaction time taken for the completion of 30 % of the reaction is 15 min. Calculate the time for change of 75 % of the reaction.

SECTION-C

Note: Attempt Any Three questions

(3X03 = 09 Marks)

- Q.1 Derive second order rate equation when concentration of both the reactants is same and also show that time taken for half change of this reaction is inversely proportional to the initial concentration of the reactant.
Q.2 What are conformers? Explain conformation in n- butane with suitable diagrams. Discuss their stability with the help of energy diagram.
Q.3 With the help of Molecular Orbital Theory, draw the M.O. diagrams of NO & O₂ and also calculate their bond order.
Q.4 What is metallic bond? Explain band theory (M.O. Theory) of metallic bond.