Reg. No. : | | | | | | | | | | |

Question Paper Code:55903

B.E./B.Tech. DEGREE EXAMINATION, DEC 2020

Fifth Semester

Chemical Engineering

19UCH302- PROCESS CHEMISTRY

(Regulation 2015)

Duration: One hour Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. Which reagent is used in reduction reaction CO1- R

   (a) $NaBH_4$ (b) PCC (c) $K_2Cr_2O_7$ (d) KMnO4

2. Which reagent used in the estimation of phenol? CO5- R

   (a) Sulphur (b) Methyl orange (c) Methyl blue (d) bromine

3. Amino acids produced from CO3- R

   (a) protein (b) fatty acid (c) essential oil (d) alpha ketone

4. Which of the following is the most abundant biomolecule on the earth? CO4- U

   (a) Lipids (b) Proteins (c) Carbohydrates (d) Nucleic acids.

5. Which among the following is the most deactivating meta-directing group in aromatic substitution reaction? CO3- R

   (a) -COOH (b) $-SO_3H$ (c) $-NO_2$ (d) -CN

6. Homologous series of alkanols have a general formula CO2- R

   (a) $C_nH_{2n}O_2$ (b) $C_nH_{2n}O$ (c) $C_nH_{2n+1}O$ (d) $C_nH_{2n+2}O$

7. A colloid is a stable combination of particles of one substance that are dissolved or suspended in a CO3- R

   (a) second substances (b) First subsatance

   (c) Both of a & b (d) None of the above

8. An _____ is a sol with the continuous phase a gas. Fog is an _____ of water droplets. CO4- R

(a) Aerosol (b) Emulsion (c) Agglomerate (d) Electrophoresis

9. In chemical equation H_2 (g) + I_2 (g) ⇌ 2HI (g) the equilibrium constant K_p depends on CO3- U

(a) total pressure (b) catalyst used (c) amount of H_2 and I_2 (d) temperature

10. In a reaction, 2X → Y, the concentration of X decreases from 0.50 M to 0.38 M in 10 min. What is the rate of reaction in Ms^{-1} during this interval? CO3- U

(a) 2×10^{-4} (b) 4×10^{-2} (c) 2×10^{-2} (d) 1×10^{-2}

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Discuss the mechanism of nitration reaction with suitable reagents for aliphatic compounds. CO1- U (8)

12. Discuss the different types of carbohydrates. CO3- U (8)

13. Write in detail about dyes color and constitutions CO1- U (8)

14. Write in detail about CO3- U (8)

(i) ZETA Poetntial

(ii) Steric and electrostatic potentials

15. Write the Concept of activation energy and influence of ionic strength in rates of reactions CO1- U (8)