

Reg. No. :

--	--	--	--	--	--	--	--	--	--

Question Paper Code: 51005

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

First Semester

Computer Science and Engineering

15UCY105 - APPLIED CHEMISTRY

(Common to EEE, ECE, EIE ,IT and Biomedical Engineering)

(Regulation 2015)

Duration: One hour

Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. Arrange the covalent bond configurations sp^3-sp^3 , sp^2-sp^2 and $sp-sp$ in increasing order of strength. CO1- R
(a) $sp^3-sp^3 < sp-sp < sp^2-sp^2$ (b) $sp^2-sp^2 < sp^3-sp^3 < sp-sp$
(c) $sp^3-sp^3 < sp^2-sp^2 < sp-sp$ (d) $sp-sp < sp^2-sp^2 < sp^3-sp^3$
2. The bond order in oxygen is _____. CO1- R
(a) 1 (b) 2 (c) 3 (d) 4
3. Dry corrosion is a process of contact of two metals CO2- R
(a) Indirectly (b) Directly (c) Oppositely (d) Reversibly
4. Using the data given below find out the strongest reducing agent. CO2- R
 $E^\circ Cr_2O_7^{2-}/Cr^{3+} = 1.33V$, $E^\circ Cr^{3+}/Cr = - 0.74V$, $E^\circ Cl_2/Cl^- = 1.36V$, $E^\circ MnO_4^-/Mn^{2+} = 1.51V$.
(a) Cl^- (b) Cr (c) Cr^{3+} (d) Mn^{2+}
5. Primary batteries are examples of _____. CO3- R
(a) Reversible cells (b) Fuel cells (c) Sensors (d) Irreversible cells
6. In ion – selective electrodes the change in p^H is sensed by CO3- R
(a) pellet electrode (b) reference electrode
(c) glass membrane (d) glass electrode

7. What is the range of visible region? CO4- R
 (a) 200-400 nm (b) 400-1000 nm (c) 400-850 nm (d) 400-750 nm
8. Which of the following transitions is the highest energy transition? CO4- R
 (a) n to σ^* (b) n to π^* (c) σ to σ^* (d) π to π^*
9. The number of bonding sites in a monomer is referred to as its CO5- R
 (a) functionality (b) tacticity (c) Co-polymers (d) degree of polymerisation
10. The fibre which is made from acrylonitrile as monomer CO5- R
 (a) Rayon (b) Acrylic fibre (c) Nylon (d) PVC

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. What do you mean by hybridization? Explain with diagram the formation of Oxygen (O_2) and Hydrogen (H_2) using molecular orbital theory. CO1- U (8)
12. Describe in detail the measurement of single electrode potential by Poggendorf's method. CO2- U (8)
13. Explain H_2 - O_2 fuel cell. Give its merits and demerits CO3- U (8)
14. Summarize the working principles of thermo gravimetric analysis CO4- U (8)
15. Discuss the methods available in chemical and electrochemical doping of conducting polymer in detail CO5- U (8)