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

Question Paper Code: 51004

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

First Semester

Mechanical Engineering

15UCY104 - ENGINEERING CHEMISTRY

(Common to Chemical Engineering)

(Regulation 2015)

Duration: One hour Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. Bond order is related to dissociation energy by which of the following? CO1- R

   (a) Directly proportional (b) Inversely proportional

   (c) Constant (d) none of these

2. Linear geometry is seen with which of the following CO1- R

   (a) H_2S (b) H_2O (c) CH_4 (d) C_2H_2

3. Daniel cell is an example of CO2- R

   (a) primary cell (b) secondary cell

   (c) Constant cell (d) fuel cell

4. Which of the following does not promote the differential aeration corrosion? CO2- R

   (a) Accumulation of dirt (b) Partially covering metals

   (c) Wire fence kind of structures (d) Accumulation of oxygen

5. If the cyclic integral of dQ/T is zero then the cycle is CO3- R

   (a) irreversible but not possible (b) irreversible but possible (c) impossible (d) reversible

6. The entropy of an isolated system can never ____ CO3- R

   (a) Increase (b) Decrease (c) Be zero (d) None of the above

7. Water gas is CO4- R

(a) $CO + H_2O$ (b) $CO + H_2$ (c) $CO_2 + N_2$ (d) $CO_2 + N_2O$

8. The raw material used for synthesizing petrol in Fischer-Tropsch process is CO4-R

(a) kerosene (b) Diesel (c) coal (d) LPG

9. Brass alloy containing mainly CO5- R

(a) Cu and Zn (b) Cu and Sn (c) Zn and Pb (d) Cu and Fe

10. Which of the following is an example of ferrous alloy CO5- R

(a) alnico (b) bronze (c) brass (d) billon

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Compare the stability and bond order of CO^+, CO, NO, NO^+, N_2^+ CO1- App (8)

12. What are the factors influencing the rate of corrosion? CO2- U (8)

13. Derive the Gibbs-Helmholtz equation and mention its significance. . CO3- Ana (8)

14. Describe the manufacture of Petrol by Bergius process. CO4- U (8)

15. What are non-ferrous alloys? Explain the compositions, properties and uses of any two alloys in detail. CO5- U (8)