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

Question Paper Code: 50006

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2017

First Semester

Civil Engineering

15UCY106 - CHEMISTRY FOR CIVIL ENGINEERING

(Regulation 2015)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions

PART A - (10 x 1 = 10 Marks)

1. Bond created by overlapping of one modified orbit on another orbit is known as

   (a) Sigma bond (σ-bond) (b) Pi bond (π-bond)
   (c) Covalent bond (d) Dative bond

2. Number of bonding pairs of electrons in water H_2O is

   (a) 1 (b) 2 (c) 3 (d) 4

3. Hardness of water does not

   (a) have any bad effect in boiler
   (b) make cooking of foods difficult
   (c) make it unfit for drinking
   (d) cause difficulty in the washing of cloths with soaps

4. Calgon is used for removal of

   (a) sodium carbonate (b) permanent hardness of water
   (c) potassium carbonate (d) sodium bicarbonate

5. Process in which substance gains electrons is called

   (a) oxidation (b) Hydrogenation
   (c) Sublimation (d) Reduction

6. Conditions for good electroplating are

(a) high current density (b) low temperature
(c) high concentration of metal in electrolyte (d) all the above

7. "White alkali" soil are

(a) Saline soil (b) acid soil
(c) Sodic soil (d) Saline sodic soil

8. The graph between the amounts of adsorbate (x) adsorbed on the surface of adsorbent (m) and pressure at constant temperature is called as

(a) adsorption oxidation (b) adsorption isochore
(c) adsorption isobar (d) adsorption isotherm

9. The most commonly used retarder in cement is

(a) Gypsum (b) Calcium chloride
(c) Calcium carbonate (d) None of these

10. Pug mill is used for

(a) Preparation of clay (b) Moulding of clay
(c) Drying of bricks (d) Burning of bricks

PART - B (5 x 2 = 10 Marks)

11. Among KCl and NaCl, which is more stable? Give reason.

12. What is meant by hardness in water? How is it expressed?

13. Give any two differences between dry corrosion and wet corrosion.

14. Define redox potential.

15. Write a brief note on white portland cement.

PART - C (5 x 16 = 80 Marks)

16. (a) Molecular orbitals are formed by the linear combination of atomic orbitals (LCAO). Give the salient features of molecular orbital theory. (16)

Or

(b) Discuss the various types of hybridization with suitable examples. (16)

17. (a) Discuss the estimation of hardness using EDTA method. (16)

Or

(b) What is boiler feed water? Explain the scale and sludge formation in boiler. (16)

18. (a) Explain the mechanism of wet corrosion with suitable example. (16)

Or

(b) Discuss in detail the constituents and their functions of paint. (16)

19. (a) Briefly describe about the Redox properties of soil. (16)

Or

(b) Discuss the Surface properties of Inorganic Soil Materials. (16)

20. (a) What are refractories? How are they classified? Explain any four important refractories. (16)

Or

(b) Discuss in detail the manufacture and uses of alumina, magnesite and zirconia bricks. (16)