Question Paper Code: 51006

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

First Semester

Civil Engineering

15UCY106 - CHEMISTRY FOR CIVIL ENGINEERING

(Regulation 2015)

Duration: 1.15 hrs   Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. In PCl_5 molecules, the central 'P' atom involves   CO1- R

   (a) sp^2 hybridization   (b) sp hybridization

   (c) sp^3 hybridization   (c) sp^3 hybridization

2. Electronic configuration of oxygen atom is   CO1- R

   (a) $1s^2 2s^2 2P^2$ (b) $1s^2 2s^2 P^5$ (c) $1s^2 2s^2 2P^6$ (d) $1s^2 2s^2 2P^4$

3. Under phosphate conditioning, which phosphate is used for too acidic nature   CO2- R
   of water

   (a) Na_3PO_4 (b) $NaHPO_3$ (c) NaH_2PO_4 (d) Na_2HPO_4

4. What is the unit for hardness?   CO2- R

   (a) ppm   (b) ppt   (c) nm   (d) Kg

5. Process in which substance gains electrons is called   CO3- R

   (a) oxidation   (b) Hydrogenation

   (c) Sublimation   (d) Reduction

6. Which of the following factors does not influence throwing power   CO3- R
   of electroplating bath

   (a) Current density   (b) Conductance of solution

   (c) Complexing agent   (d) Competing electrode reaction

7. White alkali" soil are   CO4- R

    (a) Saline soil   (b) acid soil

    (c) Sodic soil   (d) Saline sodic soil

8. For soils at the optimum pH, the most common ion on the exchange sites   CO4- R
    would be _____.

    (a) Aluminium   (b) Hydrogen   (c) Calcium   (d) Potassium

9. Function of gypsum is to   CO5- R

    (a) Start the setting of cement   (b) Stop the hydration of cement

    (c) Retard the easily initial setting of cement   (d) None of the above

10 Pug mill is used for   CO5- R

    (a) Preparation of clay   (b) Moulding of clay

    (c) Drying of bricks   (d) Burning of bricks

<div align="center">PART – B (3 x 8= 24 Marks)</div>

<div align="center">**(Answer any three of the following questions)**</div>

11.   Molecular orbitals are formed by the linear combination of   CO1-U   (8)
      atomic orbitals (LCAO). Give the salient features of molecular
      orbital theory.

12.   How Permenant and Temperory hardness in a sample of water   CO2 -U   ((8))
      can be calculated   by EDTA method.

13   Derive Nernst equation for electrode potential   CO3- U   (8)

14.   Define adsorption isotherm. Explain the various types of   CO4-U   (8)
      adsorption isotherms briefly with the help of graph.

15.   Explain the following terms in relation to refractories: CO5- U   (8)
               (i) Dimensional stability
               (ii) Porosity
               (iii) Thermal spalling
               (iv) Refractorines under load

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