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

Question Paper Code:91006

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

First Semester

Civil Engineering

19UCY106 - CHEMISTRY FOR CIVIL ENGINEERING

(Regulation 2019)

Duration: One hour Maximum: 30 Marks

PART A - (6 x 1 = 6 Marks)

(Answer any six of the following questions)

1. Temporary hardness of water is caused by the presence of CO1- R

   (a) Chlorides of calcium and magnesium (b) Sulfates of calcium and magnesium

   (d) Bicarbonates of calcium and magnesium (c) Carbonates of sodium and potassium

2. Zeolite softening process removes CO1- R

   (a) only temporary hardness of water

   (b) only permanent hardness of water

   (c) both temporary and permanent hardness of water

   (d) the dissolved gases in permanent hard water

3. Permanent hardness of water may be softened by passing it through CO1- R

   (a) Sodium silicate (b) Sodium bicarbonate

   (c) Sodium hexametaphosphate (d) Sodium phosphate

4. Which type of chemical reaction is observed at cathode, in electrochemical corrosion? CO3- U

   (a) Reduction reaction (b) Oxidation reaction

   (c) Pericyclic reaction (d) None of the above

5. Which of the following is an example of corrosion? CO3- U

(a) Rusting of iron (b) Tarnishing of silver

(c)Liquefaction of ammonia (d) Rusting of iron and tarnishing of silver

6. Select the incorrect statement from the following option CO3 Ann

(a) Replacement of corroded equipment is time-consuming

(b) Corrosion increases the electrical conductivity of metals

(c) Corrosion causes contamination of product

(d) Corrosion causes leakage of toxic liquid or gases

7. What is the unit of absorbance which can be derived from Beer Lambert's law CO2- R

(a) L mol^{-1} cm^{-1} (b) L gm^{-1} cm^{-1} (c) cm (d) No unit

8. Which of the following wavelength ranges is associated with UV spectroscopy? CO2- R

(a) 0.8 - 500µm (b) 400 - 100nm (c) 380 - 750nm (d) 0.01 - 10nm

9. What is the average particle size of cement? CO4- R

(a) 15 microns (b) 45 microns (c) 75 microns (d) 100 microns

10. Firing temperature of magnesite bricks is about _____ °C. CO4- R

(a) 800-1000 (b) 1000-1200 (c) 1600-1800 (d) 2400-2600

PART – B (3 x 8= 24 Marks)

(Answer any three of the following questions)

11. Describe the internal conditioning of water. Explain the different types with the reaction involved in it. CO1- U (8)

12. What are ion exchange resins? Discuss their applications in water-softening. How spent resins are regenerated? CO1- U (8)

13. What are paints? Explain its constituents with its functions. CO2- U (8)

14. Explain the principle and working of UV-Visible spectroscopy and discuss any four applications. CO3- U (8)

15.	Explain the process involved in the manufacturing of magnesite and zirconia brick	CO4- U	(8)