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

Question Paper Code: 11004

B.E. / B.Tech. DEGREE EXAMINATION, NOV 2016

First Semester

Civil Engineering

O1UCY104 - ENGINEERING CHEMISTRY

(Common Mechanical Engineering)

(Regulation 2013)

Duration: Three hours Maximum: 100 Marks

Answer ALL Questions.

PART A - (10 x 2 = 20 Marks)

1. What is meant by functionality of a monomer?
2. What is meant by vulcanization of rubber?
3. What is meant by refractoriness under load?
4. What are nano materials?
5. State Pilling Bed Worth rule.
6. What is electro less plating?
7. Define desorption.
8. Give an example of auto catalysis reaction.
9. State Beer-Lamberts law.
10. What are the types of electronic transitions?

PART - B (5 x 16 = 80 Marks)

11. (a) (i) Distinguish addition and condensation polymerization reaction. Give atleast two examples for each type. (8)

(ii) What are composites? Mention the various types of composites. Detail the advantages of composite materials. (8)

Or

(b) (i) Write the mechanism of free radical addition polymerisation. (8)

(ii) Give a brief account of vulcanization of rubber. (8)

12. (a) (i) Discuss briefly on any four important properties of refractory materials. (8)

(ii) Describe the manufacture of Portland cement by wet process. (8)

Or

(b) (i) Discuss briefly about lubrication with detailed mechanism. (8)

(ii) Write briefly on carbon nano tubes and its applications. (8)

13. (a) (i) What is meant by electrochemical corrosion? Describe the mechanism of electrochemical corrosion. (8)

(ii) Mention the constituents of paints. Give their functions. (8)

Or

(b) (i) Describe the working of cathodic protection by impressed emf method and sacrificial anode method. (8)

(ii) Explain the electro deposition method of metal coating with specific reference to Au coating. (8)

14. (a) (i) Write the applications of activated carbon in pollution abatement. (8)

(ii) What are adsorption isotherms? Explain various types of adsorption isotherms. Discuss the various applications of adsorption in various fields. (8)

Or

(b) (i) Describe any three methods of removal of heavy metals from effluents. (8)

(ii) Discuss briefly on catalysis. (8)

15. (a) (i) With a block diagram, explain the working of atomic absorption spectroscopy. (8)

(ii) What is XRD? Explain its principle and important applications. (8)

Or

(b) (i) State the principle of flame photometry? How do you estimate sodium using flame photometry? (8)

(ii) Explain the various components and working of UV spectrophotometer. (8)

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