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Question Paper Code: 11004

B.E. / B.Tech. DEGREE EXAMINATION, MAY 2014.

First Semester

Civil Engineering

01UCY104 - 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. Define composite materials.
3. What is meant by refractoriness under load?
4. Define flash point.
5. State Pilling Bed Worth rule.
6. List out any two important objectives of electro plating.
7. Define desorption.
8. What is meant by catalytic poisoning?
9. State Beer-Lamberts law.
10. Define chromophore.

PART - B (5 x 16 = 80 Marks)

11. (a) (i) Discuss in detail about addition and condensation polymerisation with suitable examples. (8)
- (ii) Write the preparation, properties and applications of polycarbonate and polyurethane. (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) Explain the mechanism of both oxygen absorption and hydrogen evolution of electro chemical corrosion. (8)
- (ii) Enumerate the important factors which influence the rate of corrosion. (8)

Or

- (b) (i) How is corrosion controlled by sacrificial anode and impressed cathodic current methods? (8)
- (ii) Discuss briefly on important constituents and their functions of paint. (8)
14. (a) (i) Derive Langmuir unimolecular adsorption isotherm and discuss the factor on which adsorption depend. (8)
- (ii) Explain briefly on adsorption of granular and powdered activated carbon in pollution abatement. (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) How is nickel estimated by atomic absorption spectroscopy? (8)
(ii) Describe the estimation of sodium by flame photometry. (8)

Or

- (b) (i) Describe the principle and experimental methods of XRD. (8)
(ii) Explain the principle and estimation of iron by UV-visible spectrometry. (8)
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