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

# Question Paper Code : 13005

## B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

### Second Semester

### Civil Engineering

### CY 201 — ENGINEERING CHEMISTRY – II

### (Common to all Branches)

### (Regulation 2007)

Time : Three hours Maximum : 100 marks

**Answer ALL questions.**

**PART A — (10 × 2 = 20 marks)**

1. What is prime requisite of a material to be used as refractory?

2. Name any four natural abrasives.

3. A steel screw in a brass marine hard ware corrodes. Give reason.

4. Give the functions of pigments in paints.

5. Write the monomer of nylon-66.

6. What is meant by functionality of a monomer?

7. What is meant by knocking?

8. Why is coke preferred to coal in metallurgical processes?

9. What is meant by the term Eutectic?

10. Name any four solid lubricants.

**PART B — (5 × 16 = 80 marks)**

11. (a) (i) Describe the process of setting and hardening of cement concrete, giving the reactions involved in such processes. (8)

(ii) Distinguish between concrete and RCC, including their uses. (8)

**Or**

(b) (i) Write short note on natural and synthetic adhesives. (8)

(ii) Discuss the various physical and chemical factors influencing the adhesive action. (8)

12. (a) (i) What is a varnish paint? What are the constituents of varnishes? Discuss their function. (8)

(ii) Write a brief account of the characteristics and applications of special paints. (8)

Or

(b) (i) Explain any four factors influencing the nature of electro deposit. (8)

(ii) What is sacrificial anode? How does it protect a submerged pipe line? Explain. (8)

13. (a) (i) List the differences between addition and condensation polymerization with suitable examples. (8)

(ii) Describe with a neat sketch, the process of compression mounding. (8)

Or

(b) (i) What is an epoxy group? Give the preparation and uses of any one common epoxy resins. (8)

(ii) Write the points of difference for thermo plastics and thermo setting plastics. Give examples. (8)

14. (a) (i) How is coke obtained by otto-Hoffmonn's method? (8)

(ii) Describe the manufacture of producer gas. Mention its composition and uses. (8)

Or

(b) (i) Distinguish between proximate and ultimate analysis of coal. (8)

(ii) How petrol is synthesized by Fischer - Tropsch method? (8)

15. (a) (i) Write a short note on synthetic lubricants. Give examples. (8)

(ii) Discuss any four properties of lubricating oil and indicate the significance of these properties. (8)

Or

(b) (i) Draw and explain the phase diagram of lead-silver system. (8)

(ii) Identify the number of phases, components and degree of freedom in the following systems.

(1) $CuSO_4 . 5\ H_2O \Leftrightarrow CuSO_4.3H_2O + 2H_2O$

(2) $Fe + H_2O \Leftrightarrow FeO + H_2$.