Register Number ……

B.E. DEGREE EXAMINATIONS: APRIL / MAY 2010

Second Semester

CIVIL ENGINEERING

U07CY202: Chemistry II

Time: Three hours **Maximum Marks: 100**

Answer ALL the Questions:-

PART A (10 x 1 = 10 Marks)

1. The functionality of a monomer hexamethylenediamine is

(A) 1 (B) 2 (C) 3 (D) 4

2. Thermocole is nothing but

(A) Molten polyethylene (B) Molten polyurethane

(C) Poly propylene (D) Bakelite

3. Rust has chemical composition of

(A) $Fe_2O_3,3H_2O$ (B) Fe_2O_3 (C) FeO_3,H_2O (D) Fe_3O_3

4. What is the main constituent of white paint?

(A) Chromium oxide (B) Lithophone (C) Russian blue (D) Lamp black

5. The chemical composition of gypsum is

(A) $MgSO_4,2H_2O$ (B) $CaSO_4,2H_2O$ (C) $CaSO_4$, H_2O (D) $MgSO_4,H_2O$

6. Alumina is

(A) Acid refractory (B) Basic refractory

(C) Neutral refractory (D) Strong basic refractory

7. M M C is

(A) Metal Metal Composite (B) Metal Magnesium Composite

(C) Metal Matrix Composite (D) Metal Magnet Composite

8. 'Bottom up' approach is

(A) Nanomaterial construction technique (B) Destruction method

(C) Testing method (D) Identification technique

9. Boiler corrosion is due to

(A) Dissolved oxygen (B) Undissolved oxygen

(C) Undissolved carbon dioxide (D) Oxygen

10. Bleaching powder contains about

(A) 90% of chlorine (B) 60% of chlorine (C) 30% of chlorine (D) 1% of chlorine

PART B (10 x 2 = 20 Marks)

11. What is Zeigler-Natta polymerization?
12. How TEFLON can be prepared?
13. What is the role of drying agent in a paint?
14. What is stress corrosion?
15. Define refractory.
16. What is water proof cement?
17. What are the types of composites?
18. Define nanotechnology.
19. What is Colloidal conditioning?
20. What is break-point chlorination?

PART C (5 x 14 = 70 Marks)

21. (a) (i) Distinguish between addition and condensation polymerization with a example. (7)

(ii) What are the monomers used in the preparation of PMMA and PVC? Write its preparation and uses. (7)

(OR)

(b) (i) Elucidate the mechanism of addition polymerization involving free radical polymerization. (7)

(ii) What is vulcanization? Explain the process of vulcanization of rubber with example. (7)

22. (a) (i) List any four differences between the dry and wet corrosion. (7)

(ii) Write note on temperature indicating and water repellant paints with example. (7)

(OR)

(b) (i) What is differential aeration corrosion? Explain with diagram and reactions. (7)

(ii) What are the constituents of paints? Explain any four with examples. (7)

23. (a) (i) What is concrete? Write note on weathering of cement and concrete. (7)

(ii) Describe the manufacture of lime with diagram. (7)

(OR)

(b) (i) Describe the various steps involved in manufacturing of refractory bricks. (7)

(ii) Write preparation and uses of silica bricks and carborundum. (7)

24. (a) (i) Explain ceramic matrix composites by taking one example and application. (7)

(ii) Explain the characteristics of composites. (7)

(OR)

(b) (i) With neat diagram explain the preparation of nanomaterials by laser vaporization method. (7)

(ii) What is SEM? Explain with principle and block diagram. (7)

25. (a) (i) Explain with diagram the demineralization of hard water by ion exchange method? (7)

(ii) What are the problems caused due to hard water in industries? Explain any two. (7)

(OR)

(b) (i) With neat diagram describe reverse osmosis method of desalination of sea water. (7)

(ii) How the domestic drinking water is treated? Explain briefly all the stages with flow diagram. (7)

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