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B.E. / B.Tech. (Full Time) DEGREE END SEMESTER EXAMINATIONS, APRIL / MAY 2011.

CIVIL ENGINEERING BRANCH

SECOND SEMESTER

**CY 9161- CHEMISTRY FOR CIVIL ENGINEERS**

(Common to Civil, Geoinformatics and Agriculture & Irrigation Engineering)

(REGULATIONS -2008)

Time: 3 Hr

Maximum Marks: 100

Instructions: 1.....

2.....

Answer ALL Questions.

**Part- A (10 x 2 = 20 marks)**

1. What are the requisites of drinking water?
2. Explain: Phosphate conditioning.
3. Name the monomers used in making TEFLON and PMMA.
4. What is meant by coordination polymerization?
5. Write in brief about fire retardant paint.
6. Define Pilling –Bedworth rule.
7. Brief about high alumina cement.
8. What are the constituents of composites?
9. Name any two adhesive used for bonding wooden surfaces, plywoods, laminates etc?
10. Write in brief about phenol formaldehyde resin adhesive.

**Part - B (5 x 16 = 80 marks)**

11. (i) What are the physical factors influencing the adhesive action of an adhesive. (8)
- (ii) What are adhesives? How is adhesive strength developed by loss of solvent (8)
12. a) (i) Describe the external treatment of water by ion-exchange methods. How the exhausted resins are regenerated? (8)
- (ii) What are the problems of using hard water in boilers. Explain (8)

(or)

- b) (i). What is desalination? Discuss the reverse osmosis method of desalination (8)  
(ii) Explain the various steps for the purification of water for municipal supply? (8)

13. a) (i) What are the differences between thermoplastic and thermosetting resins with two examples? (8)  
(ii) Give preparation, properties and uses of Bakelite and polyamides (8)

(or)

- b) (i) What are the disadvantages of natural rubber? Explain the process of vulcanization of rubber. (8)  
(ii) Give Preparation, properties and uses of epoxy resins and polystyrene? (8)

14. a) (i) What are paints? What are the constituents of paint? Mention their functions with example. (8)  
(ii) Write in detail about differential aeration corrosion and stress corrosion (8)

(or)

- b) (i) What is cathodic protection? Discuss with example how steel is protected from corrosion cathodically. (8)  
(ii) Explain the mechanism of dry corrosion. Explain the role of oxide film in dry corrosion. (8)

15. a) (i) Explain the setting and hardening of cement with chemical reactions involved. (8)  
(ii) What are ceramic matrix composites? Give its properties and uses. (8)

(or)

- b) (i) What are metal matrix composites? Give its properties and uses. (8)  
(ii) What are refractories? How they are classified? What are the important properties of refractories? (8)

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