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Question Paper Code : 57267

B.E./B. Tech. DEGREE EXAMINATION, MAY/JUNE 2016

Second Semester

Civil Engineering

CY 6251 – ENGINEERING CHEMISTRY – II

(Common to all Branches except Marine Engineering)

(Regulations 2013)

Time : Three Hours

Maximum : 100 Marks

Answer ALL questions.

PART – A (10 × 2 = 20 Marks)

1. List out the requirements of boiler feed water.
2. Why Calgon conditioning is better than phosphate conditioning ?
3. What is an electrochemical series ?
4. What are the essential ingredients of paints ?
5. What are batteries ?
6. Differentiate between nuclear fission and nuclear fusion.
7. Define abrasives.
8. What are refractories ?
9. What is meant by calorific value of a fuel ?
10. Give the composition of producer gas.

PART – B (5 × 16 = 80 Marks)

11. (a) (i) With neat diagram, explain the Zeolite process for water treatment. (8)
- (ii) Describe the demineralization process of water softening and write down the reaction involved in it. (8)

OR

- (b) (i) Explain with neat diagram, the desalination of brackish water of reverse osmosis method. (8)
- (ii) Describe the carbonate and phosphate conditioning of water to overcome the boiler feed problems. (8)

12. (a) (i) Explain how corrosion is controlled by sacrificial anode. (8)
- (ii) Derive Nernst equation and write its applications. (8)

OR

- (b) (i) Discuss the importance of design and material selection in controlling corrosion. (8)
- (ii) Write a note on
- Galvanic corrosion
 - Differential aerated corrosion (8)

13. (a) (i) Describe the construction of lead-acid battery with reaction occurring during discharging. (8)
- (ii) What is a breeder reactor? Describe with a neat diagram the conversion of U-235 into Pu-239. (8)

OR

- (b) (i) With a neat diagram, explain the working principle of H_2-O_2 fuel cell with cell reaction. (8)
- (ii) Explain how electric power is generated by using wind energy. (8)
14. (a) (i) Explain the terms "Dimensional stability" and "Thermal spalling". (8)
- (ii) Describe the manufacturing process of borosilicate glass. (8)

OR

- (b) (i) Describe with a neat diagram how Portland cement is manufactured by a wet process. (8)
- (ii) Write down the properties and uses of
- Waterproof cement
 - White cement
- (8)
15. (a) (i) What is meant by Proximate analysis? (8)
- (ii) Describe with neat diagram how flue gas is analyzed by Orsat method. (8)

OR

- (b) (i) With neat diagram, explain the manufacturing of metallurgical coke by Otto-Hoffman method. (8)
- (ii) Discuss the production and applications of water gas. (8)