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**Question Paper Code : 80310**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 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. Mention any two requirements of boiler feed water.
2. What is calgon conditioning of water?
3. What is electroless plating?
4. With suitable example, explain the concept of galvanic corrosion.
5. Point out the advantages of wind energy.
6. What is the significance of breeder reactor?
7. Why is gypsum added to cement?
8. Classify refractories. Give one example each.
9. Define cetane number.
10. What is bio-diesel? Mention its advantages.

PART B — (5 × 16 = 80 marks)

11. (a) (i) Explain the Zeolite softening process of water. (8)  
(ii) Describe the reverse osmosis method for the desalination of brackish water. (8)

Or

- (b) (i) Explain the demineralization of water by ion exchange process. (8)  
(ii) Discuss the causes, problems and prevention of caustic embrittlement. (8)
12. (a) (i) Explain the principle and mechanism of chemical corrosion. (8)  
(ii) Describe the sacrificial anode and impressed current cathode method of corrosion control. (8)

Or

- (b) (i) What is paint? Explain its constituents and functions. (8)  
(ii) Give a detailed account on copper electroplating. (8)
13. (a) (i) Describe the components of a light water nuclear reactor with a suitable diagram. (8)  
(ii) Explain the construction and working of Hydrogen-Oxygen fuel cell. (8)

Or

- (b) (i) Write a note on solar energy. (8)  
(ii) With the help of required cell reactions, describe the construction and working of nickel-cadmium batteries. (8)
14. (a) (i) What are refractories? Explain any three of their important properties. (8)  
(ii) What is glass? Discuss the manufacture of glass. (8)

Or

- (b) (i) Describe the manufacture of cement by wet process. (8)  
(ii) What are abrasives? How are they classified? Give any two examples for each category with their properties and uses. (8)

15. (a) (i) How will you carry out flue gas analysis by Orsat method? Explain. (8)

(ii) Write short notes on the following :

(1) Ignition temperature

(2) Explosive range (8)

Or

(b) (i) What is producer gas? Discuss the manufacture of producer gas. (8)

(ii) What is carbonization? Describe the Otto-Hoffman's process for preparing metallurgical coke. (8)