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Question Paper Code : 92290

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2019.

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. Write the chemical reaction that takes place in a galvanic cell.
4. What is chemical corrosion?
5. What are the limitations of H₂ - O₂ fuel cell?
6. Write a nuclear fission reaction.
7. How are abrasives classified?
8. What is white cement?
9. Why is net calorific value less than gross calorific value? When are they equal?
10. What is CNG? Give its composition.

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 terms, cell potential and single electrode potential and describe the method of determination of electrode potential. (4 + 4)
(ii) Discuss the importance of design and material selection in controlling corrosion. (8)
- Or
- (b) (i) What is electrochemical series? Write any two of its practical applications. (2 + 6)
(ii) What is electroless plating? Explain the plating of Nickel by this process. (2 + 6)
13. (a) (i) Write notes on lithium battery. (8)
(ii) With a neat sketch explain the functioning of Hydrogen-oxygen fuel cell. (8)
- Or
- (b) (i) Explain with a neat diagram the parts and functions of a nuclear reactor. (8)
(ii) Explain the construction and working of Ni-Cd battery. (8)
14. (a) (i) What are the important properties of refractories? (10)
(ii) Write about the preparation of alumina and magnesite bricks. (6)
- Or
- (b) (i) Describe about the hardening and setting of cement. (10)
(ii) How is glass manufactured? (6)
15. (a) (i) How will you carry out flue gas analysis by Orsat method? Explain. (8)
(ii) Describe the Otto Hoffman process for the manufacture of metallurgical coke. (8)
- Or
- (b) Write short notes on the following :
(i) Compressed natural gas (6)
(ii) Power alcohol. (10)