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Question Paper Code : 27181

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2015.

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 disadvantages of formation of deposits in steam boilers.
2. What is caustic embrittlement?
3. Write the chemical reaction that takes place in a galvanic cell.
4. What is chemical corrosion?
5. Write all the nuclear fission reactions of ${}_{92}\text{U}^{236}$.
6. Write how wind energy is generated.
7. How are abrasives classified?
8. What is white cement?
9. What is calorific value of coal?
10. What is producer gas and water gas?

PART B — (5 × 16 = 80 marks)

11. (a) (i) What are the requirements of boiler feed water? (6)
(ii) Draw a suitable diagram and describe the ion exchange process for the softening of hard water. (10)

Or

- (b) (i) Write a brief note on priming and foaming. (8)
(ii) How can the boiler feed water be purified by calgon and phosphate conditioning? (8)
12. (a) (i) What is electrode potential? Discuss the cause of electrode potential. (8)
(ii) Derive the Nernst equation for single electrode potential. (8)

Or

- (b) (i) Write in detail about the constituents of paint. (10)
(ii) Discuss in detail about the electroplating of copper. (6)
13. (a) (i) Describe the nuclear fusion reaction. (8)
(ii) Describe the functioning of a light water nuclear reactor using a suitable diagram. (8)

Or

- (b) (i) Write in detail about lead acid battery. (8)
(ii) How is solid state lithium battery constructed? Describe its functioning. (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) What is the importance of proximate analysis? (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)