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**Question Paper Code : 71272**

B.E./B.Tech. DEGREE EXAMINATIONS, NOVEMBER/DECEMBER 2021.

Second Semester

Civil Engineering

CY 6251 — ENGINEERING CHEMISTRY — II

(Common to all branches)

(Regulations 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Why is water softened before using in boiler?
2. What is meant by caustic embitterment? How it is prevented?
3. What is an electrochemical series ?
4. What are the essential ingredients of paints ?
5. Write all the nuclear fission reactions of  ${}_{92}\text{U}^{236}$ .
6. Write how wind energy is generated.
7. What is the abrasive used in rock drilling bit?
8. What is the purpose of annealing glass?
9. Write the composition of CNG.
10. Define calorific value of fuel.

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) Derive Nernst equation for electrode potential. Mention its applications. (8)  
(ii) Describe the sacrificial anode and impressed current methods for corrosion control. (8)

Or

- (b) (i) What is electroless plating? Write short note on electroless nickel plating. (8)  
(ii) What are the factors influencing chemical and electrochemical corrosion? (8)
13. (a) (i) Demonstrate the construction working and application of lithium sulphur battery. (8)  
(ii) Write a detailed note on breeder reactor. (8)

Or

- (b) (i) Interpret the Working Principle of alkaline battery with a neat diagram. (8)  
(ii) Explain the method of conversion of nuclear energy to energy in a nuclear reactor. (8)
14. (a) (i) What is refractory? Describe any four important characteristics. (8)  
(ii) How are abrasives classified? Describe any two abrasives of each type. (8)

Or

- (b) (i) Explain the setting and hardening of portland cement with chemical reactions involved in it. (8)  
(ii) Classify the various types of glass and explain any two in detail. (8)

15. (a) Explain the Orsat's apparatus method used for flue gas analysis. (16)

Or

(b) (i) What is LPG? State its composition and applications (6)

(ii) Describe the proximate analysis of coal (10)

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