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**Question Paper Code : 97220**

B.E./B.Tech. DEGREE EXAMINATION, DECEMBER 2015/JANUARY 2016.

Second Semester

Civil Engineering

CY 6251 — ENGINEERING CHEMISTRY — II

(Common to all Branches except Marine Engineering)

(Regulation 2013)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What is foaming?
2. Bring out the differences between scale and sludge.
3. Write the principle involved in electroless plating. Give an example.
4. Illustrate the use of electrochemical series giving an example.
5. Write the chemical reaction involved during discharging of lead storage battery.
6. Mention the constituents and their functions of paints.
7. Define refractoriness and RUL.
8. Name any two types of glass and their properties.
9. Why is net calorific value less than gross calorific value? When are they equal?
10. Differentiate coal and coke.

PART B — (5 × 16 = 80 marks)

11. (a) (i) What is internal treatment? Explain its types with examples. (8)  
(ii) Explain the mechanism and working of demineralization process. (8)
- Or
- (b) (i) What is reverse osmosis? Explain the process and its application. (8)  
(ii) What are the requirements of boiler feed water? (8)
12. (a) (i) Explain the mechanism of electrochemical corrosion. (8)  
(ii) Explain the sacrificial anodic protection method of controlling corrosion. (8)
- Or
- (b) (i) Derive the Nernst equation explain its use. (8)  
(ii) Write a note on electrode potential, its origin, measurement and uses. (8)
13. (a) Explain the following: (16)  
(i) Nuclear fission and fusion  
(ii) Classification of nuclear reactor.
- Or
- (b) Discuss the following: (16)  
(i) Wind energy and its harvest  
(ii) Hydrogen oxygen fuel cell.
14. (a) (i) Explain the setting and hardening of cement. (8)  
(ii) What are abrasives? How are they classified? (8)
- Or
- (b) (i) Explain the manufacture of Portland cement. (8)  
(ii) Explain the important properties of refractories. (8)
15. (a) (i) Differentiate proximate and ultimate analysis of coal. (8)  
(ii) How does reforming of petrol increase the octane number? (8)
- Or
- (b) (i) Explain a method for the analysis of flue gas. (8)  
(ii) Write about the production and applications of water gas. (8)