

Reg. No. :

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Question Paper Code : 97053

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2014.

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 meant by priming and forming?
2. Distinguish between internal and external conditioning of water.
3. What do you mean by galvanic corrosion?
4. What is an electrochemical series?
5. Differentiate between nuclear fission and nuclear fusion.
6. What are batteries?
7. What are abrasives? How are they classified?
8. What is glass? List out any two uses of glass?
9. Define octane number.
10. Write down the composition of producer gas.

PART B — (5 × 16 = 80 marks)

11. (a) (i) What are the factors which causes boiler corrosion? How can it be minimized? (8)
- (ii) With necessary diagram, describe the reverse osmosis method for the desalination of brackish water. (8)

Or

- (b) (i) Write a brief note on the following :
- (1) Caustic embrittlement
 - (2) Calgon conditioning. (8)
- (ii) Describe the principle and procedure involved in the zeolite process for water treatment. (8)
12. (a) (i) Derive Nernst equation. (8)
- (ii) What is meant by electro less plating? With a neat sketch explain the electro less plating of nickel. (8)

Or

- (b) (i) Name the chief constituents of paints and explain their functions. (8)
- (ii) Explain the sacrificial anode and impressed current cathodic techniques for the prevention of corrosion. (8)
13. (a) (i) Write informative note on breeder reactor. (8)
- (ii) Describe the construction of lead-acid battery with the reaction occurring during discharge. (8)

Or

- (b) (i) Describe the principle behind the functioning of solar cells. (8)
- (ii) Describe the construction and working of hydrogen-oxygen fuel cell. (8)
14. (a) (i) Explain the following :
- (1) Refractoriness
 - (2) Thermal spalling
 - (3) R U L test. (3 + 3 + 2)
- (ii) Write down the properties and uses of the following :
- (1) Water proof cement
 - (2) White cement. (8)

Or

- (b) (i) Discuss the manufacturing process of Portland cement. (8)
- (ii) Write the properties and uses of alumina and magnesite bricks. (8)

15. (a) (i) With a neat diagram discuss the production of water gas. (8)
(ii) Write a note on :
(1) Power alcohol
(2) Bio-diesel. (8)

Or

- (b) (i) Describe the Otto Hoffman's process for preparing coal. (8)
(ii) Describe the determination of flue gas analysis and discuss its significance. (8)
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