



C14-EE-104/C14-CHPP-104

4043

BOARD DIPLOMA EXAMINATION, (C-14)

OCT/NOV—2016

DEEE—FIRST YEAR EXAMINATION

ENGINEERING CHEMISTRY AND
ENVIRONMENTAL STUDIES

Time: 3 hours]

[Total Marks : 80

PART—A

3×10=30

Instructions : (1) Answer **all** questions.
(2) Each question carries **three** marks.
(3) Answers should be brief and straight to the point and shall not exceed *five* simple sentences.

1. State any three differences between oxidation number and valency.
2. Write the electronic configurations of Cr and Cu.
3. Define equivalent weight of acid. Calculate the equivalent weight of H₂SO₄.
4. What is conjugate acid-base pair? Give an example.
5. What are metallic conductors and electrolytic conductors? Give examples.
6. State any three essential qualities of drinking water.
7. Define elastomer. Give any two examples.
8. What are primary and secondary fuels? Give examples.
9. Define the terms COD and BOD.
10. What is acid rain? Write any two effects of it.

PART—B

10×5=50

- Instructions :** (1) Answer *any five* questions.
(2) Each question carries **ten** marks.
(3) Answers should be comprehensive and the criterion for valuation is the content but not the length of the answer.

- 11.** (a) Write any six postulates of Bohr's atomic theory. 6
(b) What is ionic bond? Explain the formation of ionic bond in sodium chloride. 4
- 12.** (a) Define molarity. Calculate the molarity of a solution containing 5.3 gm of Na_2CO_3 in 500 ml volume. 5
(b) Explain Lewis theory of acids and bases. 5
- 13.** (a) State and explain Faraday's laws of electrolysis. 6
(b) Calculate the weight of a metal deposited by the passage of 20 amperes of current passed for 10 minutes. (The electrochemical equivalent of that metal is 0.00033 gm/coulomb) 4
- 14.** (a) Define the following : 5
(i) Ore, (ii) Gangue, (iii) Alloy, (iv) Flux, (v) Slag
(b) Explain electrolytic refining of metal with an example. 5
- 15.** (a) What is rusting of iron? Explain the mechanism. 5
(b) Explain the cathodic protection by sacrificial anode method. 5
- 16.** (a) Describe ion-exchange process of softening of hard water. 6
(b) Mention any four disadvantages of using hard water in industries. 4
- 17.** (a) Explain any one preparation method and two uses of each of the following : 6
(i) Polythene, (ii) PVC, (iii) Urea formaldehyde
(b) State any four characteristics of vulcanized rubber. 4
- 18.** (a) Write a note on global warming. 4
(b) State and explain any three causes of air pollution. 6
