



C16-EE/CHPP-104

6037

BOARD DIPLOMA EXAMINATION, (C-16)

MARCH/APRIL—2018

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. Write the differences between orbit and orbital.
 2. Calculate the oxidation state of (i) Cr in $K_2Cr_2O_7$ and (ii) S in H_2SO_4 .
 3. Define (a) solution, (b) mole and (c) molarity.
 4. Calculate the pH of 0.01 N H_2SO_4 solution.
 5. Write the differences between metallic conductors and electrolytic conductors.
 6. Define reverse osmosis. Mention its applications.

- * 7. (a) Define polymerization.
(b) Write the structure of natural rubber.
8. Mention the composition and uses of (a) water gas and (b) natural gas.
9. Write a short note on acid rain.
10. Define (a) receptor, (b) sink and (c) pollutant.

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 limitations of Bohr's theory. 3
(b) Explain the formation of ionic bond in NaCl. 5
(c) Define covalent bond. Give two examples. 2
12. (a) (i) Define molarity and (ii) Calculate the molarity of 10.6 gm of Na_2CO_3 present in 2 lt of solution. 5
(b) Explain the concept of Lewis acid and bases with examples. 5
13. (a) Explain the following terms : 6
(i) Metallurgy
(ii) Gangue
(iii) Flux
(b) Give the composition and two uses of (i) brass and (ii) German silver. 4
- * 14. (a) Write the differences between galvanic cell and electrolytic cell. 5
(b) Explain electrolysis of fused NaCl with a diagram and relevant chemical equations. 5

- * 15. (a) Explain sacrificial anode method of prevention of corrosion. 5
(b) Explain the mechanism of rusting of iron with chemical equations. 5
16. (a) State the disadvantages of using hard water in industries. 5
(b) Describe ion-exchange process of softening of hard water. 5
17. (a) Distinguish between thermoplastics and thermo-setting plastics. 5
(b) Write the characteristics of vulcanized rubber. 5
18. (a) Explain any five causes of air pollution. 5
(b) Explain the effects of water pollution on living and non-living things. 5

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