



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.

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7. (a) Define <sup>\*</sup> 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  $\text{Na}_2\text{CO}_3$  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 <sup>\*</sup>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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