



C16-A/AA/BM/CHST/AEI/MET/

MNG/TT/IT—104

**6004**

**BOARD DIPLOMA EXAMINATION, (C-16)**

**OCT/NOV—2018**

**FIRST YEAR (COMMON) 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 mass of electron, proton and neutron in kgs.
2. Write any three differences between valency and oxidation number.
3. Define equivalent weight. Calculate equivalent weight of HCl and  $\text{NO}_2\text{CO}_3$ .
4. Define ionic product of water. Write its value and units at 25 °C.
5. Define conductor and insulator. Give examples for each one.
6. Define temporary and permanent hardness of water.
7. Write any three disadvantages of using plastics.
8. Classify the fuels on the basis of their occurrence. Give examples for each type.
9. Define sink and receptor.
10. Write any three methods to control air pollution.

**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) Explain Aufbau principle and Hund's rule. 5  
(b) Define ionic bond. Explain formation of ionic bond in NaCl. 5
- 12.** (a) Classify the solutions based on physical state of solute and solvent. 3  
(b) Explain Bronsted-Lowry theory of acids and bases. 7
- 13.** (a) Define the following terms : 4  
(i) Ore (ii) Gangue (iii) Flux (iv) Slag  
(b) Explain electrolytic refining of metals. 6
- 14.** (a) Write any four differences between galvanic cell and electrolytic cell. 4  
(b) State and explain Faraday's laws of electrolysis. 6
- 15.** (a) Explain electrochemical theory of corrosion as composition cell and stress cell. 4  
(b) Explain prevention of corrosion by impressed voltage method. 6
- 16.** (a) Explain permutit process for softening of hard water. 6  
(b) Write the important disadvantages of using hard water in industries. 4
- 17.** (a) Write the preparation and uses of (i) polythene, (ii) PVC, and (iii) polystyrene. 6  
(b) Write the preparation and uses of Buna-S and Neoprene rubbers. 4
- 18.** (a) Explain greenhouse effect. 4  
(b) Explain the effects of water pollution on living things. 6

\*\*\*