



**C16-A-AA-AEI-BM-C-CHPC-CHPP-CHOT-CHST-CM-EC-
EE-IT-M-MET-MNG-PET-RAC-TT-104**

6004

**BOARD DIPLOMA EXAMINATION, (C-16)
MARCH/APRIL—2025**

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. Define atomic number. Calculate the number of protons and electrons in Cl^{-1} ion.
2. What is covalent bond? Explain the formation of H_2 molecule by Lewis dot method.
3. Define the terms solution, solute and solvent.
4. State any three applications of Buffer solution.
5. Distinguish between metallic conduction and electrolytic conduction.
6. Define soft water and hard water.
7. How PVC is prepared? Give its uses.
8. What are primary and secondary fuels? Give examples.
9. Define receptor and sink. Give examples.
10. What is acid rain? Give its effects.

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PART—B

- Instructions :** (1) Answer *any five* questions. 10×5=50
(2) Each question carries **ten** marks.
(3) Answers should be comprehensive and the criteria for valuation is the content but not the length of the answer.

- 11.** (a) What are four quantum numbers? Explain their significance. 6
(b) Distinguish between the properties of ionic compounds and covalent compounds. 4
- 12.** (a) Explain Bronsted-Lowry theory of acids and bases with suitable examples. 5
(b) Define molarity. Calculate the molarity when 10.6 gms of Na_2CO_3 is dissolved in 500 ml solution. (GMW of Na_2CO_3 = 106 gms) 5
- 13.** (a) List out any five characteristics of metals and non-metals. 5
(b) Explain the concentration of sulphide ore by froth flotation process. 5
- 14.** (a) Define Faraday's First and Second laws. 6
(b) Calculate the weight of silver deposited by passing 100 amperes of current is passed through AgNO_3 solution in 20 minutes. (Gram atomic weight of Ag = 108) 4
- 15.** (a) Explain composition cell and stress cell. 5
(b) Define rusting of iron. Give its mechanism with equations. 5
- 16.** (a) Explain the softening of hard water by ion-exchange process. 6
(b) State any four disadvantages of using hard water. 4
- 17.** (a) Define condensation polymerisation. Explain with a suitable example. 6
(b) Write any four differences between thermoplastics and thermosetting plastics. 4
- 18.** (a) Define water pollution. Explain the causes of water pollution. 6
(b) State the renewable and non-renewable energy sources with suitable examples. 4