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6004**C16-COMMON-104****BOARD DIPLOMA EXAMINATION, (C-16)****OCTOBER/NOVEMBER—2023****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. What are the fundamental particles of an atom? Write their relative charges and masses.
2. Define coordination number. Mention the structure of unit cell of NaCl.
3. Define Mole. Calculate the number of moles in 250 gms of CaCO_3 .
4. State any three limitations of Arrhenius theory of Acids and Bases.
- * 5. Distinguish between metallic conduction and electrolytic conduction.
6. What is reverse osmosis? Give examples.
7. Write the method of preparation of polythene. State its uses.
8. Classify the fuels based on physical state. Give examples.
9. Define Dissolved Oxygen and BOD.
10. What are producers and consumers? Give examples.

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PART—B

10×5=50

Instructions : (1) Answer *any five* questions.

(2) Each question carries **ten** marks.

(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

- 11.** (a) What are quantum numbers? Explain their significance. 6
(b) List out any four characteristic properties of covalent compounds. 4
- 12.** (a) Define Molarity. Calculate the molarity of solution containing 4.9 grams of H₂SO₄ dissolved in 250 ml solution. 5
(b) Explain Lewis theory of Acids and Bases with suitable examples. 5
- 13.** (a) Define and explain the following reactions : 2×3=6
(i) Roasting
(ii) Calcinations
(b) Explain the purification of metal by electrolytic refining. 4
- 14.** (a) State and explain Faraday's laws of electrolysis I and II. 6
(b) A current of 0.965 amp os passed through a solution of AgNO₃ for 10 minutes. Calculate the weight of silver deposited on the cathode. (Atomic weight of Ag=108) 4
- 15.** (a) What is Rusting of Iron? Explain its mechanism with equations. 6
(b) Explain the sacrificial anode method in the protection of iron. 4
- 16.** (a) Explain the softening of hard water by permutit process. 6
(b) State any four essential qualities of drinking water. 4
- 17.** (a) Define and explain addition and condensation polymerisations with suitable examples. 2×3=6
(b) Distinguish between Thermoplastics and Thermosetting plastics. 4
- 18.** (a) What are renewable and non-renewable energy sources. Give examples. 6
(b) Write any four causes for Deforestation. 4

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