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6004

**C16- COMMON -104**

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

**DECEMBER—2022**

**FIRST YEAR (COMMON) EXAMINATION**

**ENGINEERING CHEMISTRY AND ENVIRONMENTAL STUDIES**

*Time : 3 hours ]*

*[ Total Marks : 80*

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**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 any three differences between orbit and orbital.
2. Define atomic number and mass number. Give one example for each.
3. Calculate the equivalent weights of (a) HCl, (b) NaOH and (c) Na<sub>2</sub>CO<sub>3</sub>.
- \* 4. Define pH. Calculate the pH of 0·01M HNO<sub>3</sub> solution.
5. Distinguish between metallic conduction and electrolytic conduction.
6. Write any three disadvantages of hard water in industries.
7. Write any three characteristics of plastics.
8. Define primary and secondary fuels. Give one example for each.
9. Define (a) COD, (b) BOD and (c) dissolved oxygen.
10. State any three causes of water pollution.

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## PART—B

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

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|--------------|--|---|
| <b>11.</b>   | (a) State five postulates of Bohr's atomic theory.   | 5 |
|              | (b) Write any five differences between ionic compounds and covalent compounds.   | 5 |
| <b>12.</b>   | (a) Define molarity. Calculate the molarity of solution containing 2 gm of NaOH dissolved in 250 ml of the solution. (GMW of NaOH=40). | 5 |
|              | (b) Explain Bronsted-Lowry theory of acids and bases with examples.  | 5 |
| <b>13.</b>   | (a) Explain Froth flotation process.   | 5 |
|              | (b) Explain the following terms with suitable examples :<br>(i) Roasting              (ii) Calcination                                 | 5 |
| <b>14.</b>   | (a) Explain the construction and working of galvanic cell with neat diagram.   | 5 |
|              | (b) What is electrochemical series? Explain its significance.  | 5 |
| <b>15.</b>   | (a) What is rusting of iron? Explain the rusting of iron with chemical equations.  | 6 |
|              | (b) Explain prevention of corrosion by sacrificial anode method.   | 4 |
| * <b>16.</b> | (a) Describe permuntit process for softening of hard water with neat diagram.  | 5 |
|              | (b) Define reverse osmosis. Give any four applications.  | 5 |
| <b>17.</b>   | (a) Write the preparation and uses of Buna-s and Neoprene rubber.  | 5 |
|              | (b) Write any five differences between thermo plastics and thermo setting plastics.  | 5 |
| <b>18.</b>   | (a) Explain any three methods to control air pollution.  | 6 |
|              | (b) Write a short note on Depletion of Ozone Layer.  | 4 |

