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**C16-A/AA/BM/CHST/AEI/
MET/MNG/TT/IT-104**

6004

BOARD DIPLOMA EXAMINATION, (C-16)
OCTOBER—2020
FIRST YEAR (COMMON) EXAMINATION

**ENGINEERING CHEMISTRY AND ENVIRONMENTAL
STUDIES**

Time : 3 hours]

[*Total Marks : 80*

PART—A

$3 \times 10 = 30$

- 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. Explain the Pauli's principle with an example.
3. Define the following terms :
 - (a) Solution
 - (b) Solute
 - (c) Solvent
4. Define pH and calculate pH value of 0.01 M HCl solution.
5. Define electrochemical equivalent and chemical equivalent.
6. Write the names of salts responsible for hardness of water.

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7. What are the disadvantages of plastics?
8. Write the composition and uses of water gas.
9. Define the following terms :
 - (a) Pollutant
 - (b) Contaminant
 - (c) Particulates
10. Write any three effects of acid rain.

PART—B

$10 \times 5 = 50$

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

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

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

11. (a) Explain the quantum numbers. 6
(b) Write the properties of covalent compounds. 4
12. (a) Define Molarity. Calculate the molarity of a solution containing 10 grams of NaOH in 500 ml solution. 5
(b) Explain the Arrhenius theory of acids and bases with suitable examples. 5
13. (a) Write any seven differences between metals and non-metals. 7
(b) Write the composition and uses of the brass alloy. 3
14. (a) Define and explain Faraday's laws of electrolysis. 7
(b) Calculate the electrochemical equivalent of silver if a current of 1.5 ampere is passed through a voltameter for 35 minutes and deposited 3.528 grams. 3

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- 15.** (a) Write a short note on sacrificial anode method. 5
(b) Explain the mechanism in rusting of Iron. 5
- 16.** (a) Explain the softening of hard water by ion exchange process. 6
(b) Define reverse osmosis. Give any three advantages. 4
- 17.** (a) Write the differences between thermoplastics and thermosetting plastics. 5
(b) Explain the preparation of Buna-S rubber and write any two uses. 5
- 18.** (a) Define air pollution and explain any four causes for air pollution. 6
(b) Explain any four controlling methods of water pollution. 4

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