



C14-M/CHOT/RAC-104

4052

BOARD DIPLOMA EXAMINATION, (C-14)

OCT/NOV—2016

DME—FIRST YEAR 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 and mass number. Find the number of neutrons in ${}_{12}\text{Mg}^{24}$.
2. Define oxidation and reduction. Give examples.
3. What are the saturated, unsaturated and super saturated solution?
4. Define pH. Calculate the pH of 0.005 M H_2SO_4 .
5. Write any three differences between electrolytic cell and galvanic cell.
6. Define temporary and permanent hardness of water.
7. Write any three advantages of plastics over traditional materials.
8. Define the terms producers and consumers with suitable examples.
9. State the composition and uses of natural gas.
10. Write a short note on acid rains.

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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 the criterion for valuation is the content but not the length of the answer.

- 11.** (a) Draw the shapes of *p*-orbitals. 3
(b) What are quantum numbers? Explain the significance of each quantum number. 7
- 12.** (a) Define normality. Calculate the weight of Na_2CO_3 present in 250 ml of 0.5 *N* solution. (Mol wt of Na_2CO_3 = 106) 5
(b) Describe Bronsted-Lowry theory of acids and bases with suitable examples. 5
- 13.** (a) Explain the terms roasting and calcination with suitable examples. 6
(b) Give the composition and uses of brass and german silver. 4
- 14.** (a) State and explain Faraday's laws of electrolysis. 6
(b) Describe the electrolysis of fused NaCl. 4
- 15.** (a) Define corrosion. State the factors which influence the rate of corrosion. 6
(b) Explain the cathodic protection by sacrificial anode method. 4
- 16.** (a) Distinguish between thermoplastics and thermosetting plastics. 5
(b) What is vulcanization? Explain with chemical equations. 5
- 17.** (a) Explain the permutit process of softening of hard water. 7
(b) What is reverse osmosis? Write any two advantages of reverse osmosis. 3
- 18.** (a) Define water pollution. Explain the effects of water pollution on living things. 6
(b) Write a note on ozone layer depletion. 4
