



C09-CHOT-104/C09-M-104

3042

BOARD DIPLOMA EXAMINATION, (C-09)

OCT/NOV—2013

DME—FIRST YEAR EXAMINATION

ENGINEERING CHEMISTRY AND
ENVIRONMENTAL STUDIES

Time : 3 hours]

[Total Marks : 80

PART—A

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 oxidation. Give an example.

2. Write any three properties of ionic compounds.

3. Define equivalent weight of salt. Calculate the equivalent weight of Na_2CO_3 .

4. What are the imitations of Arrhenius acid-base theory?

5. Write any three differences between electrolytic cell and galvanic cell.

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6. Distinguish between temporary hardness and permanent hardness of water.
7. Define the term 'plastic'. Write any four characteristics of plastics.
8. Define primary and secondary fuels giving one example each.
9. Write a brief note on greenhouse effect.
10. Classify the air pollutants based on their origin. Give examples.

PART—B

- 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. What are quantum numbers? Explain the significance of various quantum numbers. 10
12. (a) State any five differences between metals and nonmetals. 5
(b) Define the following terms : 5
 - (i) Mineral
 - (ii) Ore
 - (iii) Gangue
 - (iv) Flux
 - (v) Slag

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- 13.** (a) State Faraday's laws of electrolysis and explain them. 6
(b) A current of 0.5 ampere is sent through a solution of CuSO_4 for 20 minutes using platinum electrodes. Calculate the weight of copper deposited. [Atomic weight of copper = 63.5] 4
- 14.** (a) Write a brief note on electrochemical theory of corrosion. 3
(b) Explain sacrificial anode method and impressed voltage method of prevention of corrosion. 7
- 15.** (a) Explain permutit process of softening hard water. 7
(b) Write briefly about osmosis and reverse osmosis. 3
- 16.** (a) What is vulcanization of rubber? Explain giving chemical equations. 5
(b) Write any five characteristics of vulcanized rubber. 5
- 17.** (a) Explain any four causes of water pollution. 4
(b) Explain the effects of water pollution. 6
- 18.** (a) (i) What are saturated, unsaturated and supersaturated solutions? 3
(ii) Define mole. 2
(b) Define the following : 5
(i) Ionic product of water
(ii) pH
(iii) Buffer solution

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