



C09-CHPP-104/C09-EE-104

3036

BOARD DIPLOMA EXAMINATION, (C-09)

OCT/NOV—2014

DEEE—FIRST YEAR 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. State and explain Pauli's exclusion principle.

2. Define the terms 'valency' and 'oxidation number'. What is the oxidation number of Mn in  $MnO_2$ ?

3. Define the terms 'mole', 'molarity' and 'normality'. Give the mathematical formulae of them.

4. What is pH? Calculate the pH of 0.02 M HCl solution.

5. When same quantity of current is passed through the solution of NaCl and  $MgCl_2$ , 4.6 grams of Na is deposited from NaCl. What is the weight of Mg deposited?

[Atomic weight of Na = 23 and atomic weight of Mg = 24]

- \* 6. State the disadvantages of hard water in industries.
7. Explain the extraction of rubber from natural source.
8. What are the primary and secondary fuels? Give examples.
9. Mention the causes of air pollution.
10. Define the terms (a) receptor, (b) pollutant and (c) COD.

**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) Define ionic bond. Explain the formation of ionic bond with example of NaCl. 5  
 (b) Explain principal quantum number and azimuthal quantum number. 5
12. (a) Explain saturated, unsaturated and supersaturated solutions with examples. 5  
 (b) Describe Brønsted-Lowry acid-base theory. What are its limitations? 5
13. (a) Write the compositions and uses of (i) German silver, (ii) Brass and (iii) Nichrome. 6  
 (b) Define roasting, calcination and smelting. Give examples. 4
14. (a) Define corrosion. What are the factors influencing the rate of corrosion? 6  
 (b) What is rust? Explain the mechanism of rusting. 4

- \* 15. (a) What is polymerization? Explain the different types of polymerization with examples. 6  
(b) What is vulcanization of rubber? Give any four characteristics of vulcanized rubber. 4
16. (a) What are the essential characteristics of drinking water? 4  
(b) Explain the municipal treatment of water for drinking purpose. 6
17. (a) Write a short note on EMF. 5  
(b) What is electrochemical series? Explain its significance. 5
18. (a) Explain the controlling methods of water pollution. 5  
(b) What is biodiversity? List out the various threats to biodiversity. 5

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