



C16-EE-104/C16-CHPP-104

6037

BOARD DIPLOMA EXAMINATION, (C-16)

OCT/NOV—2014

DEEE—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. Draw the shapes of *s*, *p* and *d* orbitals.

2. Define Hund's rule. Give an example.

3. Define saturated solution and supersaturated solution.

4. Define pH. Calculate the pH of 0.05M H<sub>2</sub>SO<sub>4</sub>.

5. State the Faraday's laws of electrolysis.

6. What are the salts which cause temporary hardness and permanent hardness?

7. Write the preparation and uses of neoprene rubber.

- \* 8. Define fuel. What is the composition of (a) producer gas and (b) water gas?
9. Define the terms (a) TLV and (b) DO.
10. What are the causes of deforestation?

**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) What are quantum numbers? Explain (i) principal quantum number and (b) magnetic quantum number. 5
- (b) Define covalent bond. Write the characteristics of covalent compounds. 5
12. (a) Define equivalent weight of acid and base. Calculate the equivalent weight of (i)  $H_2SO_4$  and (ii)  $Ca(OH)_2$ . 5
- (i) What is conjugate acid-base pair? Explain with an example. 2
- (ii) Define buffer solution. How many types of them? Give examples for each. 3
13. (a) Give the compositions and uses of the following : 6
- (i) Brass
- (ii) German silver
- (iii) Nichrome
- (b) Describe froth flotation process. 4
14. (a) Define galvanic cell. Explain the construction of galvanic cell with an example. 6
- (b) Define electrochemical series. Write its significances. 4

- \* 15. (a) Define corrosion. What are the factors that influence the rate of corrosion? 6
- (b) Define and explain the stress cell with examples. 4
16. (a) What are the disadvantages of using hardwater in industries? 4
- (b) Explain zeolite method for the removal of hardness. 6
17. Write the preparation methods and uses of the following : 10
- (a) PVC
- (b) Teflon
- (c) Urea-formaldehyde resin
- (d) Polythene
- (e) Polystyrene
18. (a) Define biodiversity. What are the threats to biodiversity? 5
- (b) What are the causes of water pollution? 5

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