



C14-A-104/C14-AA-104/C14-BM-104/
C14-CHST-104/C14-AEI-104/C14-MET-104/
C14-MNG-104/C14-IT-104/C14-TT-**104**

4004

**BOARD DIPLOMA EXAMINATION, (C-14)
MARCH/APRIL—2017
FIRST YEAR (COMMON) 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 valency. What is the valency of Mg in MgO?
2. Define orbital. Draw the shapes of *d* orbitals.
3. Define equivalent weight of an acid. What is the equivalent weight of sulphuric acid?
4. What is conjugate acid-base pair? Give an example.
5. Define electrochemical equivalent and chemical equivalent.
6. Mention any three disadvantages of hard water.

- * 7. Write any three differences between thermoplastics and thermosetting plastics.
8. Define fuel. Write any four characteristics of a good fuel.
9. Write a short note on ozone layer depletion.
10. Define the following terms :
- (a) Receptor
- (b) Particulate
- (c) BOD

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) Briefly explain quantum numbers. 8
- (b) Give the four quantum numbers for the electron of hydrogen atom. 2
12. (a) Define molarity. Calculate the weight of sodium carbonate present in 500 ml of 0.1 M sodium carbonate solution. 5
- (b) Explain the concept of Lewis acids and bases. 5
13. (a) Describe froth flotation process. 5
- (b) Mention any five characteristics of metals. 5
- * 14. (a) Explain the construction and functioning of galvanic cell. 6
- (b) What is electrochemical series? Write its significance. 4
15. (a) Explain the formation of composition cell and stress cell in corrosion. 6
- (b) Explain the mechanism of rusting of iron. 4

- * 16. (a) Define soft water and hard water. 2
(b) Describe the method of municipal treatment of water and draw the neat diagram. 8
17. (a) Write a method of preparation for each of the following : 6
(i) Polythene
(ii) PVC
(iii) Polystyrene
(b) What is vulcanization of rubber? Explain with chemical equation. 4
18. (a) Define air pollution. Explain any four causes of air pollution. 6
(b) State the types of energy resources available. Give one example of each. 4

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