



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—2016
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. State the charge and mass of fundamental particles.
2. Define 'oxidation number'. What is the oxidation number of P in H_3PO_4 ?
3. Define the terms 'solution', 'solute' and 'solvent'.
4. What is the pH of 0.02 M H_2SO_4 solution?
5. Define (a) electrode potential and (b) EMF.
6. State any three disadvantages of using hard water in industries.

- * 7. Define (a) plastic and (b) elastomer. Give examples.
8. Write the composition and uses of (a) water gas and (b) producer gas.
9. Define primary and secondary pollutants. Give examples.
10. Define (a) producers and (b) consumers with examples.

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) Write any five differences between orbit and orbital. 5
 (b) Define ionic bond. Explain the formation of ionic bond in MgO. 5
12. (a) Explain the Lewis theory of acids and bases. 5
 (b) Define 'buffer solution'. State three applications of buffer solutions. 5
13. (a) Define the following terms : 4
 (i) Flux
 (ii) Gangue
 (iii) Ore
 (iv) Slag
- (b) List any six characteristics of metals. 6
- * 14. (a) Write the differences between metallic and electrolytic conduction. 4
 (b) State the first law of Faraday. A current of 0.5 ampere is passed through CuSO_4 solution for 45 minutes. Calculate the weight of copper deposited. (Atomic weight of copper 63.5) 6

- * 15. (a) Describe the impressed voltage method. 5
(b) Explain five factors which influence the rate of corrosion. 5
16. (a) Mention any five essential qualities of drinking water. 5
(b) Define 'reverse osmosis'. List any three advantages of reverse osmosis. 5
17. (a) Mention the advantages of plastics over traditional materials. 5
(b) Write the differences between thermoplastics and thermosetting plastics. 5
18. (a) Define the following with examples : 4
(i) Nonrenewable energy sources
(ii) Renewable energy sources
(b) Define 'biodiversity'. Briefly discuss any four threats to biodiversity.
