



C09-A-104/C09-AA-104/C09-AEI-104/C09-BM-104/
C09-C-104/C09-CM-104/C09-CHPP-104/C09-CHPC-104/
C09-CHOT-104/C09-CHST-104/C09-EC-104/C09-EE-104/
C09-IT-104/C09-M-104/C09-MET-104/C09-MNG-104/

FW-104/PKG-104/C09-PET-104/C09-TT-
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3004

BOARD DIPLOMA EXAMINATION, (C-09)

APRIL/MAY—2015

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. What are the differences between orbit and orbital?
2. State any three properties of ionic compounds.
3. Define (a) solute, (b) solvent and (c) solution.
4. Find the pH of 0.001 M HCl solution.
5. What is electrochemical series? Give any two points of its significance.

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6. Define soft water and hard water.
7. Write any six characteristics of plastics.
8. Define fuel. State any four characteristics of a good fuel.
9. What are primary pollutants and secondary pollutants? Give examples.
10. Write a short note on ozone depletion.

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 the postulates of Bohr's atomic theory? 7
 (b) Write the electron configurations of (i) oxygen, (ii) aluminium and (iii) copper. 3
12. (a) What is normality? 9.8 grams of sulphuric acid is dissolved in 2 litre of water. Calculate the normality of this solution. 5
 (b) Explain Lewis theory of acids and bases with examples. 5
13. (a) Describe the electrolytic refining of metals. 6
 (b) What are alloys? State the composition and uses of brass and nichrome. 4
14. (a) The SRP of Zn and Cu electrodes are -0.76 V and $+0.34$ V respectively. Calculate the EMF of the cell constructed from these electrodes. 3
 (b) Explain the construction and functioning of galvanic cell. 7

15. What is corrosion? Explain the different types of galvanic cells formed during the corrosion with an example of each. 10
16. (a) Describe the Permutit process for the softening of hard water. 6
(b) What is reverse osmosis? State three advantages of it. 4
17. (a) What are the differences between thermoplastics and thermosetting plastics? 5
(b) What is vulcanization? Explain with chemical equations. 5
18. (a) What is air pollution? Explain any three causes of air pollution. 7
(b) What are producers, consumers and decomposers? Give examples. 3
