

3004
BOARD DIPLOMA EXAMINATION, (C-09)
MARCH/APRIL - 2019
DIPLOMA IN AUTOMOBILE ENGINEERING
ENGINEERING CHEMISTRY & ENVIRONMENTAL STUDIES (COMMON)
FIRST YEAR EXAMINATION

Time: 3 Hours

Total Marks: 80

PART - A (10 x 3 = 30 Marks)

Note 1: Answer all questions and each question carries 3 marks

2: Answers should be brief and straight to the point and shall not exceed 5 simple sentences

1. Write a short note on metallic bond.
2. Define reduction. Give an example.
3. Define unsaturated, saturated and super saturated solutions.
4. Define ionic product of water. Mention the units of ionic product of water.
5. Define i) Galvanic cell, ii) Standard electrode potential.
6. Distinguish between temporary hardness and permanent hardness of water.
7. Write a brief note on extraction of Rubber from natural source.
8. Give the composition and two uses of (i) Water gas (ii) Producer gas.
9. State the types of energy sources available with examples.
10. Write a brief note on Ozone layer depletion.

PART - B (5 x 10 = 50 Marks)

Note 1: Answer any five questions and each question carries 10 marks

2: The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer

11. a) State the postulates of Bohr's atomic theory. 6 marks
b) Define orbital. Draw the shapes of s and p-orbitals. 4 marks
12. a) Define the terms (i) mineral (ii) Ore (iii) Gangue (iv) Flux (v) Slag. 5 marks
* b) Explain electrolytic refining of a metal. 5 marks
13. a) State and explain Faraday's laws of electrolysis. 6 marks
b) A current of 0.5 amperes is sent through a solution of CuSO_4 for 20 minutes using platinum electrodes. Calculate the weight of copper deposited (Atomic weight of Copper=63.5). 4 marks
14. a) What is Rust? Explain the mechanism of rusting of Iron with chemical equations. 6 marks
b) Explain the different types of protective coatings used in prevention of corrosion. 4 marks
15. a) Explain the municipal method of treatment of water for drinking purpose with a neat diagram 7 marks
b) What is reverse Osmosis? Mention two advantages. 3 marks
16. a) Define and explain addition polymerisation and condensation polymerisation with one example each. 6 marks
b) Write any four advantages of plastics over traditional materials. 4 marks

17. a) Define air pollution. 2 marks
b) Explain any four causes of air pollution. 4 marks
c) Classify the air pollutants based on their origin. Give examples. 4 marks
- 18A. Define Normality. Calculate the Normality of 100ml solution containing 3.65gm of HCl (GMW = 36.5). 5 marks
- B. a) Define conjugate acid-base pair. Give an example. 3 marks
b) Mention two limitations of Bronsted-Lowry acid-base theory. 2 marks

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