

6037
BOARD DIPLOMA EXAMINATION
JUNE - 2019
DIPLOMA IN ELECTRICAL AND ELECTRONICS ENGINEERING
ENGINEERING CHEMISTRY & ENVIRONMENTAL STUDIES
FIRST YEAR EXAMINATION

Time: 3 Hours

Total Marks: 80

PART - A **(3m x 10 = 30m)**

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. Calculate the number of protons and electrons in the following species:
 i) Na^+ ion ii) Cl^- ion iii) O^{2-} ion
2. State and explain Hund's Rule with an example
3. Define equivalent weight of a Base . calculate the equivalent weight of following:
 (1) $\text{Ca}(\text{OH})_2$ (2) NaOH
4. The Hydrogen Ion concentration of juice is $1.0 \times 10^{-2}\text{M}$. What is the p^{H} .of juice ? State the given juice solution is Acidic (or) Basic
5. Define the following terms
 (1) Chemical Equivalent (E)
 (2) Electro Chemical Equivalent (e)
 (3) Faraday (F)
6. State the applications of Reverse osmosis
7. Define the term Elastomer. Give examples.
8. Classify the fuels based on their occurrence with examples
- * 9. What are Producers, Consumers and Decomposers?
10. What is Acid rain ? Give its effects.

PART - B **(10m x 5 = 50m)**

Note 1: Answer any five questions and each 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) What are the Quantum numbers? Explain their significance 7M
 (b) Write the n , l , values for 2s, 3p and 4d orbitals 3M
- 12A. Define Molarity. Calculate the Molarity of a solution containing 5.3gms of Na_2CO_3 in 250ml volumetric flask 5M

- B. Explain Lewis theory of Acids and Bases 5M
13. (a) Distinguish the characteristics of Metals & Non-Metals. 6M
(b) Explain the purification of metal by electrolytic refining 4M
14. (a) Explain construction and working of a galvanic cell 5M
(b) Write any five differences between Electrolytic cell and Galvanic cell 5M
15. a) What are the factors which influence rate of corrosion 5M
b) Explain mechanism of rusting of iron 5M
16. a) state essential qualities of drinking water 4M
b) Explain the softening of hard water by ion exchange process 6M
17. (a) Write the preparation and uses of Buna-S and Neo prene rubber. 5M
(b) Write any five differences between Thermo plastics and Thermosetting plastics. 5M
18. (a) Define water pollution. State the causes of water pollution. 4M
(b) What are renewable and non renewable energy sources? Give examples. 6M

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