6019

BOARD DIPLOMA EXAMINATION
MARCH/APRIL - 2019
DIPLOMA IN CIVL 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 the following terms
   (1) Solution (2)Solvent (3)Solute
4. State any three limitations of Arrhenius theory of acids and bases
5. Write the significances of Electrochemical series
6. Write any three dis-advantages of using hard water in Industries
7. Write a short note on elastomer
8. Classify the fuels based on their physical state with examples
9. What is Renewable energy sources? Give examples.
10. Suggest any three methods to control water pollution

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) Write the main postulates of Bohr's atomic theory **6M**
    (b) State any four limitations of Bohr's atomic theory **4M**
12. (a) Define molarity. Calculate the weight of Na_2Co_3 is required to prepare 0.1M Na_2Co_3 in 250 ml solution.
    (b) Define pH. Calculate the pH of following:
    (i) 0.01 M HCl solution (ii) 10^{-3} M NaOH solution.

13. (a)Define following terms:
(1) Mineral (2) Ore (3) Gangue (4) Flux (5) Slag (6) Alloy. **6M**
(b) Write the uses and composition of German silver & Nichrome **4M**

14. (a)Define and explain Faraday's laws of electrolysis **6M**
(b) 5 amperes of electricity is passed through NaCl for 10 minutes. Find the weight of Sodium deposited on cathode? (Atomic Weight of Na =23) **4M**

15. a) Define Corrosion, Explain composition cell **4M**
b) Explain mechanism of rusting of iron **6M**

16. a) Explain the softening of hard water by ion–exchange process. **6M**
b) Write any four essential qualities of drinking water. **4M**

17. a) Write differences between addition polymerisation and condensation polymerisation **4M**
b) Write any six characteristics of plastics **6M**

18. a) Explain the controlling methods of air pollution **6M**
b) What are the causes for deforestation **4M**

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