6030

BOARD DIPLOMA EXAMINATION
MARCH/APRIL - 2019
DECE
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. **What are the fundamental paricles of an atom? Write their charges.**
2. Write electronic configuration of following elements:
   (1)P (2) Na (3) S
3. Define solute, solvent and solution
4. What is p^H? Calculate the p^H of 0.05M NaOH solution
5. Define Electrochemical series ? Write its Significance
6. **Calculate the temporary hardness and permant hardness in 1 litre of sample contains 8.1 mg of $Ca(HCO_3)_2$ and 12mg of $MgSO_4$.**
7. **Write the preparation and uses of Buna–S rubber.**
8. Define fuel. Write any four characteristics of good fuel
9. **What are primary pollutants and secondary pollutants? Give examples.**
10. **Define the following (i) Receptor (ii)COD (iii) BOD**

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) Define Ionic-bond and explain it in the formation of NaCl **6M**
    (b) List out any 4 characteristics of Ionic compounds **4M**

12A. **Define Normality. Calculate the Normality when 9.8 gms of H_2SO_4 is present in 250 ml solution.**

B. Define Buffer solution. Write the applications of Buffer solutions

13. (a) Define and explain the following 6M
    (1) Roasting
    (2) Calcination
    (3) Smelting
    (b) Explain the Froth Flotation Process for the concentration of sulphide ore 4M

14. (a)Define and explain Faraday's laws of electrolysis 6M
    (b) Same quantity of charge is passed through Copper sulphate and Silver Nitrate. Find the weight of Copper deposited on cathode? If Silver deposited is 2.35 g (Atomic Weight of Cu =63, Atomic Weight of Ag =108) 4M

15. a) Explain mechanism of rusting of iron 4M
    b) List out the factors which influence rate of corrosion 6M

16. a) state essential qualities of drinking water 4M
    b) Explain the softening of hard water by ion exchange process 6M

17. a) What is condensation polymerisation? Explain with an examples. 4M
    b) Write any six differences between Thermoplastics and Thermosetting plastics.6M

18. (a) Define Air pollution. State any four causes of Air pollution. 5M
    (b) Write short notes on
    (i) Ozone layer depletion
    (ii) Acid rain

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