C14 -A/AA/CH/
CHST/AEI/FW/MET/
MNG/IT/TT/PKG/C/
EC/EE/M/CM-**104**

4004

BOARD DIPLOMA EXAMINATION, (C-14)
OCTOBER/NOVEMBER-2018
DAE-FIRST YEAR EXAMINATION

ENGINEERING CHEMISTRY AND ENVIRONMENTAL STUDIES

Time : 3 Hours] [Total Marks: 80

PART-A

4X10=40

Instructions : 1. Answer **All** questions.
2. Each question carries FOUR marks
3. Answer should be brief and straight to the point

1. (a) Define orbital.
   (b) Draw the shape of "s" & "p" orbitals.
2. (a) Define oxidation and reduction.
   (b) Find the O.N. of "N" in HNO_3 and NH_3.
3. (a) Define the terms (i) Solvent (ii) Solute.
   (b) Find the weight of Na_2CO_3 present in 100ml of 0.02 N solutions? (Equivalent weight of Na_2CO_3 is 53)
4. (a) Define Arrhenius acid and base with one example.
   (b) Write any two applications of buffer solution.
5. (a) Define electrolysis.
   (b) State any two differences between electrolytic cell and galvanic cell.
6. (a) Define soft water and hard water.
   (b) State any two disadvantages of using hard water.
7. (a) Write any two advantages of plastic over traditional materials.
   (b) Write any two differenced between thermoplastics and thermosetting plastics.
8. (a) State any two characteristics of good fuel.
   (b) Give the composition and uses of Water gas.

9. (a) Define pollutant and contaminant.

   (b) What are primary pollutants?

10. (a) Define producers and consumers.

    (b) Define biodiversity.

PART-B

10X4=40

Instructions : 1. Answer any **four** questions. Each question carries **ten** marks.

2. Answer should be comprehensive and the criterion for valuation is the content but not the length of the answer

11. (a) State the postulates of Bohr's atomic theory. Write any two of its limitations.

    (b) State and explain Hund's rule.

12. (a) Define Molarity? Find the weight of H_2SO_4 required to prepare 500ml of 0.02 m solution. (Molecular weight of H_2SO_4 is 98)

    (b) Explain Lewis theory of acids and bases.

13. (a) Define and explain (i) Calcination (ii) Roasting.

    (b) Write any four differences between metals and non-metals.

14. (a) State and explain Faraday's laws of electrolysis.

    (b) Calculate the current strength in amperes required to deposit 3.175 g of 'Cu' in 965 seconds. (At. Wt. of Cu = 63.5 and valency = 2).

15. (a) Define corrosion? Write the factors that influence the rate of corrosion?

    (b) Explain briefly stress cell and concentration cell.

16. (a) What are the essential qualities of drinking water?

    (b) Explain softening of hard water by ion-exchange method.

17. (a) What is vulcanization of rubber? Mention any three characteristics of vulcanised rubber.

    (b)Give the preparation and uses of (i) Polythene (ii) PVC.

18. (a) Explain controlling methods water pollution.

    (b) Write a note on Greenhouse effect.

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