

C14-A-104/C14-AA-104/C14-AEI-104/C14-BM-104/C14-C-104/  
\* C14-CHOT-104/C14-CHPC-104/C14-CHPP-104/C14-CHST-104/  
C14-CM-104/C14-EC-104/C14-EE-104/C14-IT-104/C14-M-104/  
C14-MET-104/C14-MNG-104/C14-PET-104/C14-RAC-104/C14-TT- **104**

**4004**

**BOARD DIPLOMA EXAMINATION, (C-14)**  
**MARCH /APRIL-2019**  
**FIRST YEAR (COMMON) EXAMINATION**  
**ENGINEERING CHEMISTRY & ENVIRONMENTAL STUDIES**

Time: 3Hours

Max.Marks: 80

- Instructions:** 1) Answer all questions and each question carries 3 marks.  
2) Answers should be brief and straight to the point and shall not exceed five simple sentences.

**PART-A**

**10x3=30M**

- 1) Write the differences between orbit and orbital?
- 2) Define oxidation number? Calculate the oxidation state of Mn in  $\text{KMnO}_4$ ?
- 3) Define saturated, unsaturated, super saturated solutions?
- 4) Calculate the  $\text{P}^{\text{H}}$  of 0.001M NaOH?
- 5) Write the differences between electrolytic and metallic conduction?
- 6) What is meant by hardness of water and what salts are responsible for permanent and temporary hardness of water?
- 7) What are the advantages of plastics over traditional materials?
- 8) What are the characteristics of good fuels ?
- 9) Define the following terms:  
a) BOD      b) Ecosystem      c) Pollutant
- 10) What is Biodiversity? Write different levels of it?

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## PART-B

5x10=50M

- Instructions:** 1) Answer any five questions  
2) Each question carries 10 marks.  
3) The answers should be comprehensive and the criteria for valuation is the content but not the length of the answer.

- 11) a) Write the important postulates of Bohr's theory? 5M  
b) Define ionic bond? Explain the formation of NaCl. 5M
- 12) a) Define Normality and calculate the normality of KOH solution containing 11.2g of KOH in 1 litre. 5M  
b) Explain the concept of Lewis Acid Base theory with examples 5M
- 13) a) Explain the following terms:  
(i) Mineral (ii) Gangue (iii) Flux (iv) slag (v) Ore 5M  
b) Describe electrolytic refining of metals with an example. 5M
- 14) a) Explain Faraday's laws of electrolysis. 6M  
b) The standard reduction potential of Mg and Cd electrodes is -2.37V and -0.40 respectively. Calculate the emf of the cell,  $Mg / Mg^{+2} // Cd^{+2} / Cd$ . 4M
- 15) a) Define corrosion? Write the mechanism of rusting of iron? 5M  
b) Describe impressed voltage method of prevention of corrosion 5M
- 16) a) Explain permutit method of softening of hardwater? 6M  
b) State any 4 disadvantages of hard water using in industries? 4M
- 17) a) What are the differences between thermoplastics and thermosetting plastics? 5M  
b) State the characteristic properties of plastics 5M
- 18) a) Write a note on Green house effect? 4M  
b) Write the controlling methods of air pollution? 6M

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