



C16-C/CM-104

6019

BOARD DIPLOMA EXAMINATION, (C-16)  
OCT/NOV—2018  
DCE—FIRST YEAR EXAMINATION

ENGINEERING CHEMISTRY AND ENVIRONMENTAL STUDIES

Time : 3 hours]

[ Total Marks : 80

PART—A

3×10=30

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

1. Define oxidation number. Calculate oxidation number of Mn in  $KMnO_4$ .
2. Define unit cell and co-ordination number.
3. How many grams of  $Na_2CO_3$  present in 5 moles of it.
4. Define buffer solution. Give one example for each type of buffer.
5. Write any three differences between metallic conductors and electrolytic conductors.
6. Define soft water and hard water.
7. Define plastic Give two examples for it.
8. Define fuel. Write composition and uses of coal gas.
9. Define pollutant and contaminant.
10. What is biodiversity. Mention any two threats to it.

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**PART-B**

10×5=50

**Instructions :** (1) Answer *any five* questions.  
(2) Each questions carries **ten** marks.  
(3) Answers should be comprehensive and the criteria for valuation are the content but not the length of the answer.

11. a) Explain four quantum numbers.  
b) State pauli's exclusion principle.
12. a) Define normality . 40gms of sodium hydroxide is present in 100ml of solution. Find the normality (molecular weight of NaOH=40)of the solution.  
b) Explain Lewis acid-base theory.
13. a) Explain forth flotation process for concentration of sulphide ore.  
b) Write any five characteristics of metals.
14. a) Explain Faradays Laws of electrolysis  
b) Define a Galvanic cell. Explain construction and functioning of a Galvanic cell.
15. a) Explain mechanism of rusting of iron.  
b) Explain composition and stress cell with examples.
16. a) Explain the ion-exchange process for softening of hard water.  
b) Write any four essential qualities of drinking water.
17. a) Define and explain Vulcanization process of natural rubber with necessary equations.  
b) Write the differences between addition and condensation polymerization.

18. a) Write the controlling method of water pollution.

b) What are <sup>\*</sup>primary and secondary pollutants? Give examples.

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