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C16–C/CM–104

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BOARD DIPLOMA EXAMINATION, (C–16)

SEPTEMBER/OCTOBER - 2020

DCE—FIRST YEAR EXAMINATION

ENGINEERING CHEMISTRY AND
ENVIRONMENTAL STUDIES (104)

Time : 3 hours] [*Total Marks* : 80

PART—A 3×10=30

Instructions : (1) Answer **all** questions.

(2) Each question carries **three** marks.

1. Write any three differences between orbit and orbital.

2. Define atomic number and mass number. Give one example for each.

3. Define the terms solution, solute and solvent.

4. Define conjugate acid-base pair. Explain with one example.

5. Write any three differences between metallic conduction and electrolytic conduction.

6. Write three essential qualities for drinking water.

7. Define addition polymerization. Give two examples.

8. Write the composition of producer gas, water gas and biogas.

9. Define COD and BOD.

10. Define producers and consumers. Give one example for each.

PART—B

10×5=50

Instructions : (1) Answer *any* **five** questions.

(2) Each question carries **ten** marks.

11. *(a)* State five postulates of Bohr's atomic theory. 5

(b) Write any five differences between ionic compounds and covalent compounds. 5

12. *(a)* Define molarity. Calculate the weight of Na_2CO_3 present in 500 ml of 0·1 *M* solution of Na_2CO_3. (GMW of Na_2CO_3 106) 5

(b) Define Arrhenius theory of acids and bases, and give three limitations. 5

13. *(a)* Write any six differences between metals and non-metals. 6

(b) Explain electrolytic refining of metal. 4

14. *(a)* Explain Faraday's laws of electrolysis. 5

(b) Write any five differences between electrolytic cell and galvanic cell. 5

15. *(a)* Describe the formation of composition cell, concentration cell and stress cell. 6

(b) Explain the impressed voltage method to control corrosion. 4

16. *(a)* Explain ion exchange method to soften hard water. 6

(b) Define reverse osmosis. Give any four applications. 4

17. *(a)* Write the preparation and uses of the following with chemical equations : 6

(i) Bakelite

(ii) Buna-S-rubber

(b) Write any four properties of plastics. 4

18. *(a)* Explain any three methods of control of air pollution. 6

(b) Write a short note on ozone layer depletion. 4

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