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C20-C/M–104

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BOARD DIPLOMA EXAMINATION, (C-20)

SEPTEMBER/OCTOBER—2021

DCE - FIRST YEAR EXAMINATION

ENGINEERING CHEMISTRY AND ENVIRONMENTAL STUDIES

Time : 3 hours]

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. What are fundamental particles? Name them.

2. Define solute, solvent and solution.

3. Define Arrhenius acid and base. Give one example for each.

4. What are non-electrolytes? Give examples.

5. Write any three disadvantages of using hard water in industries.

6. Write the names of monomers in polythene and teflon.

7. Write the composition and uses of water gas.

8. Write the composition and applications of vinegar.

9. Define COD and BOD.

10. Define producers and consumers. Give examples.

PART—B

8×5=40

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

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

(3) Answers should be comprehensive and criterion for valuation is the content but not the length of the answer.

11. *(a)* State and explain Aufbau's principle and Hund's rule.

OR

(b) Define ionic bond. Explain the formation of NaCl.

12. *(a)* Define normality. If 98 grams of H_2SO_4 is present in 5 litres of solution. Find the normality of solution.

OR

(b) Explain Lewis acid-base theory.

13. *(a)* Define alloy. Write the composition and uses of *(i)* German silver and *(ii)* Nichrome.

OR

(b) Define galvanic cell. Explain its structure and working.

14. *(a)* Define rusting of iron. Explain the mechanism of rusting of iron.

OR

(b) Explain permutit process of removal of hardness of water.

15. *(a)* Define elastomer. Write preparation and uses of Buna-S.

OR

(b) Explain *(i)* greenhouse effect and *(ii)* acid rain.

PART—C

10×1=10

Instruction : (1) Answer the following question that carries **ten** marks.

16. Explain addition polymerisation and condensation polymerisation. Explain with one example each.

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