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C20-EC-CHPC–**104**

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BOARD DIPLOMA EXAMINATION, (C-20)

MAY—2023

DECE - 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. Write the electronic configurations of *(a)* carbon, *(b)* sodium and *(c)* chromium.

2. Define solute, solvent and solution.

3. State any three applications of buffer solutions.

4. Distinguish between metallic conduction and electrolytic conduction.

5. What are the names of salt causing hardness of water?

6. Write the method of preparation of PVC. Give its uses.

7. Classify the fuels based on occurrence. Give examples.

* **8.** What is vinegar? Write its composition and applications.

9. Define *(i)* BOD, *(ii)* COD and *(iii)* DO.
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10. What are renewable energy sources? Give examples.

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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 the postulates of Bohr's atomic theory. Write its any three limitations.

(OR)

(b) Write any four differences between the properties of Ionic compounds and covalent compounds.

12. *(a)* Define molarity. Calculate the molarity when 5.3 grams of Na_2CO_3 is dissolved in 250 ml solution.

(OR)

(b) Explain Lewis theory of acids and bases. Give examples. Mention the limitations of the theory.

13. *(a)* Explain froth flotation process for the concentration of ore.

(OR)

(b) Define galvanic cell. Explain the construction and working of galvanic cell with an example.

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

(OR)

(b) Explain the softening of hard water by permutit process with equations and sketch.

* **15.** *(a)* Distinguish between thermoplastics and thermosetting plastics.

(OR)

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(b) Define air pollution. Explain any three causes of air pollution.

*   **PART—C**   10×1=10

Instructions :   (1) Answer the following question.

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

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

16. State and explain Faraday's laws of electrolysis. Calculate the weight of silver deposited when 10 amperes of current is passed through $AgNO_3$ solution for 30 minutes. (Atomic weight of Ag = 108)

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