7030

C20-EC-CHPC–104

7030

BOARD DIPLOMA EXAMINATION, (C-20)

SEPTEMBER/OCTOBER—2021

DECE - 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. Define orbital. Draw the shapes of *S*, *P* orbital.

2. Define solute, solvent and solution.

3. Write Arrhenius theory acid and base with example.

4. Define conductor, semiconductor and insulator. Give an example of each.

5. What are the salts responsible for temporary and permanent hardness?

6. Define polymerization reaction. Give two examples.

7. Define the fuel. Write the characteristics of good fuel.

8. Mention the basic chemical composition and application of vinegar.

9. Define pollution, dissolved oxygen and sink.

10. What are primary and secondary pollutants? 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)* Explain Bohr's atomic theory. Give its merits and demerits.

OR

(b) Define ionic bond. Explain Nacl, MgO as examples.

12. *(a)* Define molarity. Calculate the molarity of a solution prepared by dissolving 10 grams of NaOH in 500 ml of solution.

OR

(b) Write about Bronsted-Lowery acid-base theory.

13. *(a)* Define the following terms with examples :

(i) Mineral, *(ii)* Ore, *(iii)* Gangue, *(iv)* Flux, *(v)* Slag

OR

(b) What are metallic conductors? Distinguish between metallic and electrolytic conductors with diagram.

14. *(a)* Write about electrochemical series. Write the factors that influence the corrosion.

OR

(b) Explain zeolite process of softening of hard water with a neat diagram.

15. *(a)* Define plastic. Write the preparation and uses of PVC and nylon (6,6).

OR

(b) Explain renewable and non-renewable sources of energy with examples.

PART—C

10×1=10

Instructions : (1) Answer the following question.

(2) It carries **ten** marks.

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

16. Write structural formula of isoprene, natural rubber and vulcanized rubber. Write the characteristics of vulcanized rubber.

★★★