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C20-CH –303

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BOARD DIPLOMA EXAMINATION, (C-20)

OCTOBER/NOVEMBER—2023

DCHE – THIRD SEMESTER EXAMINATION

ORGANIC AND PHYSICAL CHEMISTRY

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. What is geometrical isomerism? Give one example.

2. What is Bayer's test?

3. Define addition polymerization. Give one example.

4. State and explain Huckel rule.

5. Define electrochemical equivalent and chemical equivalent. What is the relation between them?

6. What are electrolytes and non-electrolytes? Give examples.

7. Define chemical equilibrium. Chemical equilibrium is dynamic in nature why?

8. What are reversible and irreversible reactions? Give an example for each.

9. Define the term internal energy. Give its mathematical formula.

10. What is heat of formation? Give one example.

PART—B

8×5=40

Instructions : (1) Answer *any* **five** 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)* What is hybridization. Explain sp^3 hybridization with an example.

(OR)

(b) Write any 2 methods of preparation and 2 chemical properties of ethane.

12. *(a)* Explain the action of C_2H_2Cl with *(i)* alc. KOH, *(ii)* aq. KOH, *(iii)* KCN and *(iv)* AgCN

(OR)

(b) Explain the following :

(i) Ester hydrolysis

(ii) Williamson's synthesis

13. *(a)* Write any four chemical properties of benzene.

(OR)

(b) Explain the reduction of nitrobenzene in acid, alkaline and neutral media.

14. *(a)* State and explain Faraday's first law. A current of 0·5 ampere passes through an aqueous solution of $AgNO_3$ for 120 minutes. What is the weight of Ag deposited on the cathode? (At. Wt. of Ag = 108)

(OR)

(b) Explain the postulates Arrhenius theory of ionization.

15. *(a)* State and explain Le Chatelier principle with an example.

(OR)

(b) Explain the effect of concentration, temperature and pressure on chemical equilibrium.

PART—C

10×1=10

Instructions : (1) Answer the following question.

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

(3) Answers should be brief and straight to the point and shall not exceed five simple sentences.

16. What is the action of CH_3CHO on *(i)* CH_3MgI and *(ii)* NH_2-NH_2.

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