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I

Total No. of Questions – 21
Total No. of Printed Pages - 3

Regd. No.

Part – III
CHEMISTRY, Paper – II
(English Version)

Time : 3 Hours] **[Max. Marks : 60**

Notes : Read the following instructions carefully.

(i) Answer **all** questions of Section – A. Answer any **six** questions of Section – B and any **two** questions of Section – C.

(ii) In Section – A, questions from Sr. Nos. **1** to **10** are of Very Short Answer Type. Each question carries **two** marks. Every answer may be limited to **5** lines. Answer all these questions at one place in the same order.

(iii) In Section – B, questions from Sr. Nos. **11** to **18** are of Short Answer Type. Each question carries **four** marks. Every answer may be limited to **10** lines.

(iv) In Section – C, questions from Sr. Nos. **19** to **21** are of Long Answer Type. Each question carries **eight** marks. Every answer may be limited to **40** lines.

(v) Draw labelled diagrams, wherever necessary for questions in Section – B and C.

SECTION – A

Note : Anwer **all** questions. **10 × 2 = 20**

1. Define order of reaction.
2. Give the composition of Brass.
3. What is the pH of a solution, containing 0.63 gm of HNO_3 in 100 ml of solution ?
4. What is PHBV ? How is it useful to man ?

5. Give the deficiency diseases caused by A , D, E, K Vitamins.

6. Give two biological functions of lipids.

7. What are antibiotics ? Give two examples.

8. What are Food preservatives ? Give example.

9. What is Williamson's Synthesis ? Give equation.

10. Write Hell Volhard Zelinsky (HVZ) reaction with equation.

SECTION – B

Note : Answer any **six** questions. **6 × 4 = 24**

11. Define Molality. How many grams of Na_2CO_3 should be dissolved in 250 grams of water to prepare 0.1 m solution ?

12. What is Doping ? What are n – type and p – type semiconductors ?

13. Give Nernst equation.

    Calculate the electrode potential of the following single electrode.

    $Cu^{++}_{(aq)}$ (C = 0.01M) / Cu ; (E^o = + 0.337V)

14. What is emulsion ? How are emulsions classified ? Give examples.

15. State Hess's law of constant heat summation and explain it with an example.

16. Write short notes on the following :

    (a) Roasting

    (b) Calcination

17. Write balanced equations for the formation of NCl_3 and PCl_3. Give equations for hydrolysis reactions of NCl_3 and PCl_3.

18. Draw Werner's structures of the following :

    (a) $CoCl_3 . 6NH_3$

    (b) $CoCl_3 . 5NH_3$

    (c) $CoCl_3 . 4NH_3$

    (d) $CoCl_3 . 3NH_3$

SECTION – C

Note : Answer any **two** questions. **2 × 8 = 16**

19. State Le Chatelier's principle and apply it to the following equilibrium.

$$2SO_{2(g)} + O_{2(g)} \rightleftharpoons 2SO_{3(g)} \; ; \Delta H = -189 \text{ k.J}$$

20. (a) Explain the industrial method of preparation of bleaching powder with a neat diagram.

(b) Give the reactions of ozone with the following and give equations.

(i) PbS

(ii) $SnCl_2$ / HCl

(iii) Moist KI

(iv) BaO_2

21. (a) Explain the preparation of ethyl alcohol from Molasses.

(b) How does ethyl alcohol react with the following ? Write equations.

(i) Metallic Na

(ii) CH_3COOH

(iii) CH_3MgI

(iv) Conc. H_2SO_4 at 170°C