223

II

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**

Note : Read the following instructions carefully :

(i) Answer **all** the 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 **two** or **three** sentences. 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 **75** words.

(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 **300** words.

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

SECTION – A

10 × 2 = 20

Note : Answer **all** the questions.

1. Define Antibiotics. Give an example.

2. What is PHBV ? How is it useful to man ?

3. Calculate the 'pH' of 0.005M $Ba(OH)_2$ in aq. solution.

4. How is paracetamol prepared ? Give its equation.

5. What is chloropicrin ? How is it formed from chloroform ? Give its equation.

6. Define 'Order' and 'Molecularity' of a reaction.

7. How many moles of $AgCl$ are produced on addition of $AgNO_3$ solution to 1M $CoCl_3$ $5NH_3$ solution ?

8. What is 'nitrolim' ? How is it formed ?

9. Write the formula of 'super phosphate of lime' ? Mention any one of its uses.

10. 'A' reacts with metallic sodium to give product 'B'. Ethyl chloride reacts with 'B' to give diethyl ether and sodium chloride. What are 'A' and 'B' ?

SECTION – B

6 × 4 = 24

Note : Answer any **six** questions.

11. Write short notes on :
    (a) Schottky defect
    (b) Frenkel defect

12. What is catalysis ? How is catalysis classified ? Give an example for each.

13. Define mole fraction. A solution contains 90 gms of H_2O, 6.4 gms of methanol and 18.4 gms of glycerol. What is the mole fraction of glycerol (M.W of H_2O = 18 ; M.W of methanol = 32 ; M.W of glycerol = 92) ?

14. State Faraday's second law of electrolysis. What is the ratio of weight of 'Ag' and 'Al' deposited at the respective cathodes, when the current is passed for the same period through aqueous $AgNO_3$ and $Al_2(SO_4)_3$ solutions [At. Wt of Ag =108; At. Wt of Al =27] ?

15. Give the sources and deficiency diseases of vitamins.
    (i) A (ii) C
    (iii) D (iv) E

16. Write short notes on each of the following :
    (a) Calcination
    (b) Roasting

17. Explain the terms with examples.

(a) Heat of Combustion

(b) Heat of Neutralization

18. Define 'EAN'. Calculate the EAN of the following central metal ions in their respective complexes :

(i) $[Cu(NH_3)_4](OH)_2$

(ii) $[Co(H_2O)_6](NO_3)_3$

(iii) $K_4[Fe(CN)_6]$

SECTION – C

2 × 8 = 16

Note : Answer any **two** questions.

19. (a) How is bleaching powder prepared industrially ?

(b) Give the reactions of Ozone with the following and give equations :

(i) PbS

(ii) H_2O_2

(iii) Moist KI

(iv) SO_2

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

$$2\,SO_{2(g)} + O_{2(g)} \rightleftharpoons 2\,SO_{3(g)} \quad \Delta H = -189\ kJ$$

21. How Nitro Benzene is prepared ? How does it reduce in presence of the following ? Give equations.

(a) $Zn + HCl$

(b) $Zn + KOH$

(c) $Zn + NH_4Cl$

(d) $LiAlH_4$