E 7485 (Pages : 3) Reg. No.....

Name.....

B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, MARCH 2014

Sixth Semester

Core Course—APPLIED INORGANIC CHEMISTRY

(Common for B.Sc. Chemistry Model I, Model II, B.Sc. Petrochemicals and B.Sc. Chemistry—Environment and Water Management)

Time : Three Hours Maximum Weight : 25

Part A

Answer **all** *questions.*

A bunch of **four** *questions carries a weight of* 1.

I. 1. K_{SP} is known as the :

(a) Ionic product. (b) Solubility product.

(c) Common ion effect. (d) Ionic product of water.

2. Mond's process is employed for the purification of :

(a) Ni. (b) Ti.

(c) Al. (d) Zn.

3. Radioactive ^{131}I is used to diagnose :

(a) Cancer. (b) Thyroid disorder.

(c) Blood circulation. (d) Corneal cancer.

4. Main composition of ordinary glass is :

(a) Oxides of Na, Ca and Si. (b) Carbonates of Na, Ca and Si.

(c) Oxides of Na, Iron and Ca. (d) Oxides of Al, Ca and Na.

II. 5. Quantum wires can be prepared from :

(a) Fullerenes. (b) CNT_S.

(c) Carbon rods. (d) None of these.

6. Zeolites are :

(a) Hydrated calcium silicate. (b) Hydrated Aluminium Silicate.

(c) Hydrated head silicate. (d) Hydrated Iron Silicate.

7. One of the following is an example for amphiprotic solvents :

(a) Methyl alcohol. (b) H_2SO_4.

(c) NH_3. (d) Pyridine.

8. Colemanite is used for the preparation of :

(a) Nitrides. (b) Sulphides.

(c) Sulphuric acid. (d) Boric acid.

III. Fill in the blanks :

9. Retention factor R_f = ————.

10. ———— is an example for cation exchange Resins.

11. XeF_2 has ———— geometry.

12. The strongest oxy-acid of chloride is ————.

IV. 13. The basic principle of zone refining is ————.

14. The use of polysiloxane is for ————.

15. Graphite is used as ————.

16. ———— is an example for ultramarine.

(4 × 1 = 4)

Part B

Answer any **five** *questions.*
Each question carries a weight of 1.

17. Give spot test for magnesium.

18. What is Roasting ?

19. What is carbon dating ? How is it done ?

20. What is meant by Glass transition Temperature ?

21. What are Nano materials ?

22. Write two applications of borides.

23. Write the autoionisation of liquid HF.

24. How is per sulphuric acid prepared ?

(5 × 1 = 5)

Part C

Answer any **four** *questions.*
Each question carries a weight of 2.

25. Discuss the principle and applications of DTA.
26. Explain the structure of B_4H_{10}.
27. Explain Zone refining.
28. Give the preparation and properties of any one phosphorus based polymer.
29. Explain the properties of carbon mono fluoride.
30. Why is it necessary to add NH_4Cl prior to adding NH_4OH for precipitating III group cation as their hydroxides in qualitative analysis ? Explain.

(4 × 2 = 8)

Part D

Answer any **two** *questions.*
Each question carries a weight of 4.

31. Discuss briefly paper chromatographic, principle, technique and applications.
32. (a) Discuss briefly on extractive metallurgy of U.
    (b) What are silicones ? Explain preparation and properties.
33. Write shortly on :
    (a) Structure of oxy-fluoride of Xenon.
    (b) Structure of oxy-acids of chlorine.

(2 × 4 = 8)