B.Sc. DEGREE (C.B.C.S.S.) EXAMINATION, MARCH/APRIL 2012

Sixth Semester

Core Course – APPLIED INORGANIC CHEMISTRY

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

Time : Three Hours　　　　　　　　　　　　　　　Maximum Weight : 25

Section A

Answer all questions.

A bunch of four questions carries a weight of 1.

I. Choose the correct answer :

1. Hydrometallurgy is used for the extraction of :

    (a) Au.　　　　　　　　　(b) Zn.

    (c) Al.　　　　　　　　　(d) Ti.

2. In Carbon dating :

    (a) C^{14} is analysed.　　　　　(b) C^{12} is analysed.

    (c) O^{15} is analysed.　　　　　(d) O^{18} is analysed.

3. Zeolites are :

    (a) Hydrated Calcium Silicate.　　(b) Hydrated Alumino Silicate.

    (c) Hydrated Lead Silicate.　　　(d) Hydrated Iron Silicate.

4. Oil of Vitriol is :

    (a) H_2SO_4.　　　　　　　(b) $H_2S_2O_7$.

    (c) H_2SO_3.　　　　　　　(d) None of the above.

II. 5. Nuclear fusion reaction is in :

    (a) Nuclear reactor.　　　　　(b) Atom bomb.

    (c) Stellar energy.　　　　　(d) Breeder reactor.

6. Main composition of ordinary glass is :

    (a) Oxides of Sodium, Calcium and Silica.

    (b) Carbonates of Sodium, Calcium and Silica.

    (c) Oxides of Sodium, Iron and Calcium.

    (d) Oxides of Aluminium, Calcium and Sodium.

7. Precipitation of a compound occurs :

    (a) When Ionic product exceeds solubility product.

    (b) Solubility product exceeds Ionic product.

    (c) When solubility product equal to Ionic product.

    (d) No connection between them.

8. Graphite is used for :

    (a) Cutting Glasses.

    (b) Lubricating agent.

    (c) For making precious stones.

    (d) None of the above.

III. Fill in the blanks :

9. Spot test for magnesium ion is _____.

10. _____ used for absorbing neutrons in nuclear reactor.

11. Ore of Uranium is _____.

12. Structure of $XeOF_4$ is _____.

IV. 13. One application of HPLC is _____.

14 One cation exchange Resin is _____.

15. Electropositive Iodine is present in the compound _____.

16. One profic non-aqueous solvent is _____.

$(4 \times 1 = 4)$

Section B

Answer any five questions.

Each question carries a weight of 1.

17. Indicate the classification of Phosphorous polymers.

18. How is Chalcogenic glasses prepared?

19. Define R_f value? What is its significance?

20. How is Diborane prepared?

21. What are Silicones? Give one method for its preparation.

22. What is rock dating? How is it done?

23. Phosphate ion should be eliminated in cation analysis? If not what happens? Explain giving proper explanation.

24. What is Ellingham Diagram?

$(5 \times 1 = 5)$

Section C

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

25. What is zone refining? Explain citing one example.

26. What do you mean by activation analysis? Explain.

27. What are silicates? Discuss briefly on different types of silicates.

28. Discuss briefly on any three methods used for the synthesis of Nano materials.

29. Discuss the principles and applications of Differential Thermal Analysis.

30. What are the advantageous of liquid HF as solvent? Explain giving proper equations.

$(4 \times 2 = 8)$

Section D

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

31. Discuss briefly on Gas chromatography principle, experimental techniques and applications in short.

32. Write shortly on :

    (a) Structure of oxyacids of chlorine.

    (b) Structure of Fluorides of Xenon.

33. (a) Discuss briefly on extractive metallurgy of Titanium.

    (b) What are Interhalogen compounds? Explain giving proper examples.

$(2 \times 4 = 8)$