

Third Year B.Sc., Degree Examination**Directorate of Correspondence Course****Aug / Sept 2011****Chemistry****Paper - III**

Time : 3 hrs

Max. Marks : 75/85

1. This paper consists of **FIVE** sections. Answer all sections.
2. Write equations and neat diagrams wherever necessary.
3. Section - 'E' is compulsory for 85 marks scheme.

SECTION - A*Answer the following questions in a word, a phrase or in a sentence.* 1 x 10 = 10

1. Define the term electroplating.
2. What are refractories?
3. Name the ore of nickel.
4. What are natural abrasives? Give an example.
5. What is standard free energy?
6. Define Carnot's theorem.
7. What are carbohydrates?
8. Define ionic mobility.
9. What is isoprene rule?
10. Write the structure of cis - trans isomer of citral.

SECTION - B*Answer any FIVE of the following:* 5 x 3 = 15

11. How is silver recovered from photographic plate?
12. Explain electroplating of chromium.
13. What are the applications of Gibbs - Helmholtz equation?
14. Explain Weston Cadmium cell.
15. Derive Nerst equation for emf of cell.
16. What is Mutarotation? Explain with the help of an example.
17. Explain epimerization with an example.

Contd....2

SECTION - C**Answer any FIVE of the following:**

5 x 6 = 15

18. a) Explain the extraction of manganese by alumino – thermite process. 4 + 2
 b) How is silicon carbide prepared? 4 + 2
19. a) How is an alloy prepared by powder metallurgy? 3 + 3
 b) Explain precipitation reaction in water and liq. ammonia. 3 + 3
20. Derive an expression for total work done by Carnot's cycle. 06
21. a) What are soaps? How is soap manufactured by hot process? 4 + 2
 b) What are enzymes? Explain enzyme inhibition. 4 + 2
22. a) How is Vitamin – C synthesized from D – glucose. 4 + 2
 b) What is isoprene rule? 4 + 2
23. a) Explain the factors responsible for good electroplating. 4 + 2
 b) What are the advantages of liquid ammonia as solvent? 4 + 2
24. a) Explain the effect of concentration and pH on activity of enzyme. 4 + 2
 b) How is amino acid synthesized by Gabriel – Phthalimide process? 4 + 2

SECTION - D**Answer any TWO of the following:**

2 x 10 = 20

25. a) Discuss the redox reaction in water and liq. NH_3 . 4 + 3 + 3
 b) How is gold purified by quartation process? 4 + 3 + 3
 c) How are refractories classified. 4 + 3 + 3
26. a) Explain the determination of Emf of a cell using potentiometer. 5 + 5
 b) Explain $\text{H}_2 - \text{O}_2$ fuel cell. What are its advantages? 5 + 5
27. a) Describe the conversion of aldohexose into aldopentose. 4 + 4 + 2
 b) What happens when citral is
 (i) Treated with aqueous Na_2CO_3 .
 (ii) Alkaline KMnO_4 and then with chromic acid.
 c) What is meant by denaturation of proteins? 4 + 4 + 2

SECTION - E**Answer any ONE of the following:**

1 x 10 = 10

28. a) Explain the extraction of Uranium from Pitchblende. 5 + 5
 b) Explain Debye – Huckel theory of strong electrolytes. 5 + 5
29. a) What are amino acids? Explain the synthesis of alanine by Strecker method. 5 + 5
 b) Elucidate the structure of Nicotine by its reactions. 5 + 5
