

MAY 2015

P/ID 40122/PCHB

Time : Three hours

Maximum : 100 marks

PART A — (10 × 2 = 20 marks)

Answer ALL questions.

1. What are nido-boranes?
2. How is S_4N_4 prepared?
3. The cis isomers of $[Pt(PEt_3)_2Cl_2]$ has a definite dipole moment whereas the trans isomer does not. Give reason.
4. What is Vaska's compound?
5. Suggest the names of two proteins involved in electron transfer.
6. Write down the expression for diffusion current according to Ilkovic.
7. What is catalytic current?
8. What are masking reagents in complexometric titrations?
9. What is meant by solubility product?
10. What are chemical abstracts?

PART B — (4 × 20 = 80 marks)

Answer ALL questions.

11. (a) (i) What are zeolites? Explain their structure and applications. (5)
- (ii) Give an account of trinculear clusters. (5)
- (iii) Discuss the structure and properties of isopoly anions of molybdenum. (10)

Or

- (b) (i) Discuss the closo, nido and arachno structures of cluster compounds with suitable examples. (8)
- (ii) Explain the structure and properties of heteropoly anions of tungsten. (7)
- (iii) Explain the bonding and structure of polyorgano phosphazenes. (5)
12. (a) (i) Distinguish between overall and stepwise stability constants of metal complexes. Describe two methods to determine the stability constant of metal complexes. (10)
- (ii) Discuss how ORD and CD are helpful in assigning absolute configuration in complexes. (10)

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- (b) (i) Give an account of the geometrical isomerism exhibited by octahedral and square planar complexes. (8)
- (ii) Describe the structure of cyanocobalamine. (6)
- (iii) Discuss the significance of stability constants. (6)
13. (a) (i) What are the advantages of DME? (6)
- (ii) Discuss the current - voltage curves for reversible and irreversible systems. (8)
- (iii) Explain any two applications of cyclic voltametry. (6)

Or

- (b) (i) With a suitable program explain the use of arrays and pointers. (10)
- (ii) Discuss the use of control statements in programs with suitable example. (10)
14. (a) (i) Outline the algorithm for the calculation of pH of buffer. (6)
- (ii) Write briefly on abstracting journals and periodicals. (8)
- (iii) What are search engines? Name any four of them. (6)

Or

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- (b) (i) Outline a program to calculate the lattice energy of sodium chloride. (6)
- (ii) What are the requirements of an ISP? Name any four of them. (8)
- (iii) What do the following mean?
TCP/IP, HTML, ISDN. (6)
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