

19. Explain the function of copper-zinc superoxide dismutase. (15)

20. Discuss the following

(a) Hydrogenation of olefin

(b) Wacker process. (8+7)

S.No. 7401

PN 15 CH 2

(For candidates admitted from 2015–2016 onwards)

M.Sc. DEGREE EXAMINATION, NOVEMBER 2023.

Chemistry

INORGANIC CHEMISTRY

Time : Three hours

Maximum : 100 marks

SECTION A — (10 × 2 = 20)

Answer ALL questions

1. What is CFSE? Calculate CFSE value for d^2 ion.
2. Give the limitations of VBT.
3. Write a short note on trans effect.
4. Write Adamson's rule.
5. Write down the functions of Ca^{2+} ion in biological systems.
6. Write a short note on nucleation.
7. Write down the functions of hemoglobin.

8. Write any two varieties of super oxide dismutase.
9. What are the effects of mercury toxicity?
10. What is meant by oxidative addition reaction?

SECTION B — ($5 \times 7 = 35$)

Answer ALL questions, Choosing either (a) or (b)

11. (a) State and explain stepwise and overall formation constant. (7)

Or

- (b) Explain Nephelauxetic effect. (7)

12. (a) Discuss ligand displacement reaction in octahedral complexes. (7)

Or

- (b) What is metal carbonyls? Explain photo chemistry of metal carbonyls. (7)

13. (a) What are the role of Inorganic elements in biological system? (7)

Or

- (b) Explain oxidation of water to O_2 using manganese catalyst. (7)

14. (a) Explain the chemistry of Rubredoxin and Ferridoxin. (7)

Or

- (b) Write short notes on cytochrome C Oxidase. (7)

15. (a) Discuss the role of platinum complexes in cancer therapy. (7)

Or

- (b) Explain polymerization of olefin using organometallic compounds. (7)

SECTION C — ($3 \times 15 = 45$)

Answer any THREE questions

16. Explain the splitting of d-orbitals under various geometries, according to crystal field theory. (15)
17. Explain the following
 - (a) Acid hydrolysis reaction in six coordinate complexes.
 - (b) Base hydrolysis reaction in six coordinate complexes. (7+8)
18. Briefly summarize the PS-I and PS-II systems involved in photosynthesis. (15)