

Alagappa University, Karaikudi (A state University Accredited with A+ Grade by NAAC (CGPA: 3.64) in

(A state University Accredited with A+ Grade by NAAC (CGPA: 3.64) in the third cycle & Graded as Category – I University by MHRD – UGC:

QS India Rank -20, QS BRICS Rank-104)

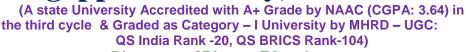
Directorate of Distance Education

Karaikudi – 630 003, Tamil Nadu I Year II semester M.Sc. Chemistry

1 Year II semester M.Sc. Chemistry 34421 Inorganic Chemistry –II Assignment Question

- 1. Define geometrical isomerism in square planar and octahedral planar with the help of examples.
- 2. State and explain the Jahn-Teller theorem. What are its consequences?
- 3. List out the assumptions of the crystal field theory. Mention its merits and limitations.
- 4. Discuss the MOT for the Oh complexes with π bonding ligands.
- 5. Explain the various types of magnetism giving examples.
- 6. Explain spin cross over phenomena
- 7. Discuss briefly the spallation and fragmentation nuclear reactions.
- 8. What are nuclear models? Discuss briefly the liquid drop and shell models.
- 9. Discuss the basic principle of atom bomb and hydrogen bomb.
- 10. Give working principle about Charged particle accelerators, Cyclotron and synchrotron
- 11. Discuss the principle and applications of neutron activation and isotopic dilution analysis.
- 12. Discuss position of lanthanides in the periodic table
- 13. Explain Lanthanides and Actinides contraction and Causes of Lanthanides contraction.
- 14. Discuss detail about spectral and magnetic properties of lanthanides

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I Year II semester M.Sc. Chemistry

34422 Organic Chemistry –II Assignment Question



- 1. Explain Norrish type I and II Photochemical reaction with two examples.
- 2. Discuss the following reactions with suitable example.
 - (i) Electrocyclic reaction; ii) Diel's Alder reaction; iii) Sigmatropic rearrangement.
- 3. Write note on organic reactions proceeding through nitrene mechanism.
- 4. Explain the effect of electrophile and leaving group in the E1, E2 and E1cB reaction.
- 5. State and illustrate Hofmann and Saytzeff rules and mechanism.
- 6. Compare aldol condensation with cannizzaro reaction.
- 7. Write the mechanisms of distinction of enantiotopic/diastereotopic ligands.
- 8. Discuss detail about Jablonski diagram
- 9. Explain briefly the Barton Wagner-Meerwein and Baeyer-Villiger rearrangements.
- 10. Discuss the mechanism of Wolff-Kishner reduction.
- 11. Cope and Claisen rearrangements with examples
- 12. Discuss the structure of carbine
- 13. Explain fused and bridged bicyclic system with examples
- 14. Distinguse enantiotopic and diastereotopic system using NMR



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I Year II semester M.Sc. Chemistry 34423 Physical Chemistry –II Assignment Question

- 1. Write a note on Flash Photolysis.
- 2. Differentiate fluorescence and phosphorescence
- 3. What are solution and bulk polymerizations? Discuss their techniques briefly.
- 4. Write short notes on (i) bio degradable polymers and (ii) fire retardant polymers.
- 5. Write down the mechanism of free radical, cationic polymerization? Give examples.
- 6. Account the following 1. Stability and properties of colloids. 2. Photovoltaic cell. 3. Artificial photosynthesis
- 7. Differentiate physical and chemical adsorption
- 8. Describe the mechanism of Langmuir- Hinshelwood.
- 9. Write detail about 1. Freundlich, 2. Langmuir, 3. BET isotherms.
- 10. Discuss about Gibbs adsorption isotherm.
- 11. Explain in detail about micelles and detergents.
- 12. Explain details about Dye sensitized solar cell
- 13. Discuss about radiolysis of water
- 14. Write notes on energy transfer mechanism