



Avinashilingam Institute for Home Science and Higher Education for Women

Deemed to be University Estd. u/s 3 of UGC Act 1956, Category 'A' by MHRD (now MoE)

Re-accredited with 'A++' Grade by NAAC. CGPA 3.65/4, Category I by UGC

Coimbatore - 641 043, Tamil Nadu, India

Continuous Internal Assessment Test I – February 2025

Semester-II

Class : I PG
Branch: Chemistry

Time : 2 hours
Max. Marks: 60

23MCHC08 – Inorganic Chemistry – II

Course Outcomes:

CO1 : Ability to classify molecules into point groups

CO2 : Knowledge of applications of group theory

CO3 : Understanding the chemistry of cage, chain complexes

CO4 : Familiarization of general characteristics of f-block elements and magnetic properties of their complexes

CO5 : Knowledge on nuclear reactions and applications

Part A

6 x 1 = 6

Choose the Correct Answer

- The stability of hydroxide complexes of alkali metal ions are in the order
a. $\text{Li}^+ > \text{Na}^+ > \text{K}^+ > \text{Rb}^+$ b. $\text{Li}^+ < \text{Na}^+ < \text{K}^+ < \text{Rb}^+$
c. $\text{Li}^+ = \text{Na}^+ = \text{K}^+ = \text{Rb}^+$ d. $\text{Li}^+ = \text{Na}^+ > \text{K}^+ > \text{Rb}^+$ CO3 K3
- The reactions in which hydroxo complex is formed by the replacement of ligand by OH^- ion is known as
a. Aquation reaction b. Acid Hydrolysis c. Base hydrolysis d. Displacement reaction CO3 K2
- Which type of radiation is the least penetrating?
a. alpha b. beta c. gamma d. x-ray CO5 K2
- Which one of the following would be most likely to undergo thermonuclear fusion?
a. ^4He b. ^2H c. ^{56}Fe d. ^{141}Ba CO5 K3
- The hydrolysis of $(\text{CH}_3)_2\text{SiCl}_2$ followed by condensation polymerization yields straight chain polymers which are known as
a. Bakelite b. Teflon c. Silicones d. Glyptal CO5 K2
- A device G. M. counter is used for the measurement of which of the following?
a. Speed of air b. Mass number c. Valence d. Radioactivity CO5 K2

Part B

3 x 6 = 18

Answer ALL questions

Each answer should not exceed 400 words or two pages

- a. Discuss about the stability of Chelates of complexes. CO3 K2
(or)
- b. Explain in detail about Electrostatic Polarization Theory of trans effect. CO3 K3

8. a. Discuss the types and structure of chromium CO5 K2
(or)
8. b. Discuss the preparation and structure of hetero poly acids of molybdenum CO5 K2
9. a. Mention the types of nuclear reactions CO5 K2
(or)
9. b. Mention the common radioactive isotopes used in trace technique. CO5 K2

Part C

3 x 12 = 36

Answer ALL questions

Each answer should not exceed 800 words or four pages

10. a. Discuss about stepwise formation constants, Overall formation constants and derive the relationship between them. CO3 K3
(or)
10. b. State and explain the applications of trans effect. CO3 K3
11. a. Explain in detail about the mechanism of S_N1 reactions in Octahedral complexes. CO3 K4
(or)
11. b. Explain briefly about VSEPR theory to predict geometry of molecules. CO1 K3
12. a. Discuss the preparation, structure and applications of Silicones CO5 K2
(or)
12. b. Enumerate the radioisotopes in industry and medicine. CO5 K2

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Staff In-Charge:
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