

P22CH11

Reg. No:



SRINIVASAN COLLEGE OF ARTS AND SCIENCE

(Affiliated to Bharathidasan University, Trichy)

(Recognized by UGC, Section 2(f) & 12 (b) of the UGC Act 1956)

PERAMBALUR - 621 212



M. Sc. DEGREE EXAMINATION, NOVEMBER 2022

MODEL EXAMINATION

INORGANIC CHEMISTRY - I

TIME: 03:00 Hrs

Maximum marks: 75

Class: I M.Sc., CHEMISTRY

DATE:

SECTION - A

(i) Answer **ALL** the questions (10 × 1 = 10)

1. What is the general form of boranes
a) $BxHy$ b) $BxH3x$ c) $BxH3-x$
2. In the coordination compounds ____ is written in the ()
a) Metal b) Cations c) Ligand
3. John Teller distortions observed mostly in ____ complexes
a) Tetragonal b) Octahedral c) hexagonal
4. The displacement of an anionic ligand by water, is called ____
a) acid hydrolysis b) base hydrolysis c) anation reaction
5. Reinecke's salt chemical actinometer used to determine the
a) Chemical flux b) Photon flux c) electron flux
6. Borazines are used in the ____.
7. Coordination compound is represent as ____.
8. CFSE is explains the value of ____.
9. Trans effect is mostly notable in ____ complexes.
10. Adamson's rules explains about the ____.

(ii) Answer **ALL** the questions (5 × 2 = 10)

11. Brief-out various boranes.
12. Define le chatelier law
13. What is meant by CFT?

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14. Explain Jahn-Teller distortion.
15. What is meant by acid hydrolysis?

SECTION B – ($5 \times 5 = 25$)

Answer **ALL** the questions

16. (a) Differentiate boranes and silanes. [OR]
(b) Factors affecting reaction rates.
17. (a) The formation constant for $[\text{Ag}(\text{NH}_3)]^+$ and $[\text{Ag}(\text{NH}_3)_2]^+$ are 2.1×10^3 and 8.2×10^3 , write the equations for the stepwise formation constant of $[\text{Ag}(\text{NH}_3)]^+$ and $[\text{Ag}(\text{NH}_3)_2]^+$, and find the overall formation constant of $[\text{Ag}(\text{NH}_3)_2]^+$. [OR]
(b) Explain formation constant and its overall stability constant with example
18. (a) Discuss Trans effect. [OR]
(b) Explain hydrolysis reaction in coordination complexes.
19. (a) Explain isomerization and Racemization reactions of complexes. [OR]
(b) Explain ligand displacement reaction in octahedral and square planar complexes
20. (a) Explain the mechanism of CTTM. [OR]
(b) Explain emission and redox properties.

SECTION C – ($3 \times 10 = 30$)

Answer any **THREE** questions

21. Explain chemistry of Boranes and classify various Boranes.
22. Find out the equilibrium concentrations of each species in 0.2M/Litre iodic acid (HIO_3 , $K_f = 0.17$)
23. Explain labile and inert complex
24. Explain the inter-conversion of stereo-isomers.
25. Discuss Photochemistry of Ruthenium and polypyridine complexes.
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