

Khatra Adibasi Mahavidyalaya
B. Sc. Hons. Examination 2020, Semester- VI
Internal Assessment
Subject- Chemistry, Paper Code- T13 (Inorganic Chemistry)

F.M. – 10

Time – 30min

- 1. Answer any three of the following:** **3 × 2 = 6**
- a. What do you mean by essential trace elements?
 - b. Adducing proper reason compare the magnitude of trans effect of the following:
Cl⁻, Br⁻, NH₃, H₂O.
 - c. Draw the structure of Zeise's salt. What is the coordination number of Pt in Zeise's salt?
 - d. Cite an example of Platinum containing drug. Draw structure.
- 2. Answer any one of the following:** **1 × 4 = 4**
- a. Dimeric manganese carbonyl is susceptible to nucleophilic attack. – Explain.
 - b. Draw the mechanism of alkene hydrogenation by Wilkinson's catalyst.
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Internal Assessment.

Subject - Chemistry, Paper Code - T14 (Physical Chemistry)

Time - 30 min

F.M - 10

Answer any three of the following :- $2 \times 3 = 6$

- 1) a) Write down the primary conditions for a molecule to exhibit rotational & Infrared Spectroscopy.
- b) Sketch the IR active & IR inactive modes of vibration of CO_2 molecule.
- c) The rotational spectrum of H^1Cl^{35} shows the separation frequency lines is 20.3 cm^{-1} . Calculate the bond length of the molecule.
- d) Calculate the reduced mass of $\text{I}^{127}\text{Cl}^{35}$. The bond length of the molecule is 2.32 \AA . Calculate the moment of inertia.

2. Answer any one of the following : $1 \times 4 = 4$

- a) Sketch the normal modes of vibration of water. Mention which is/are symmetrical and antisymmetrical vibrations?
- b) A light of wavelength having an intensity I_0 fall on a solution of concentration C and path length l . Write an expression for the intensity of light absorbed (I_a). Under what condition, will I_a be proportional to C .

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Internal Assessment

Subject- Chemistry, Paper Code- DSE T3 (Analytical Methods in Chemistry)

F.M. – 10

Time – 30min

1. Answer *all five* of the following:

5 × 2 = 10

- a. Define accuracy and precision.
 - b. Name three types of systematic error.
 - c. Find out which one of 1.01gm and 1.010gm is more accurate?
 - d. What is Beer Lambert law in spectroscopy? Give mathematical equation.
 - e. What is selection rule in UV spectroscopy?
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Internal Assessment

Subject - Chemistry, Paper Code - DSE4 (Polymer Chemistry)

Time - 30 min

F.M-10

1. Answer Any two of the following:-

5 × 2 = 10

a) i) Show that $\bar{M}_w \geq \bar{M}_n$.

ii) Define Condensation polymerisation. why it is called Step growth polymerisation. (2+3)

b) i) Define the weight average and number average molecular weights \bar{M}_w & \bar{M}_n of a polydisperse solution.
ii) when do the number and mass average molecular weight equal? (4+1)

c) Show that number average molecular weight is obtained from osmometric studies of a polymer solution. (5)