Kandi Raj College
B.Sc. 3rd Semester Hons. Internal Assessment Examination
Subject: Physical Chemistry [CHEMHT-CC-05]

F.M. 10

Answer any five

2 x 5=10

1. Photoelectric work function and ionization potential of a metal are not the same – Comment.
2. How viscosity of a liquid depends on temperature?
3. Explain the terms: i) linear operator ii) eigen value.
4. 'Transference number of Cl^- ion in aqueous solution of HCl is 0.16 and it is 0.62 in aqueous solution of NaCl' – explain the difference.
5. Under what condition will equilibrium constant of a reaction not change with temperature?
6. Deduce an expression for the variation of the chemical potential of a component i with pressure.
7. Can zero point energy of a particle in a box be zero? Answer with reasons.

Kandi Raj College

Department of Chemistry

Internal Assessment-2022

B.Sc. (Hons) Sem-III

Paper-CHEMHT-6(Inorganic)

1. Answer any five 5x2=10

a) Why $PbCl_2$ is white while PbI_2 is yellow?

b) Solubility of AgX in H_2O decreases from chloride to iodide-Explain?

c) Compare the hydrogenation energy of K^+ and F^-.

d) Determine the CN and geometry of SrF_2, given r_{Sr}^{2+} is 113pm and r_{F}^{-} is 135pm.

e) What will be the product is formed when $SbCl_3$ and $BiCl_3$ are hydrolysis in aqueous solution?

f) The two free radicals $CF_3^{\cdot}$ and $CH_3^{\cdot}$ one is pyramidal and other is planar-Explain.

g) Draw the structure and state of hybridization of NO_2.

h) Write the MO energy level electronic configuration of B_2 and calculate its magnetic moment.

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DEPARTMENT OF CHEMISTRY

3RD SEMESTER HONORS INTERNAL EXAMINATION

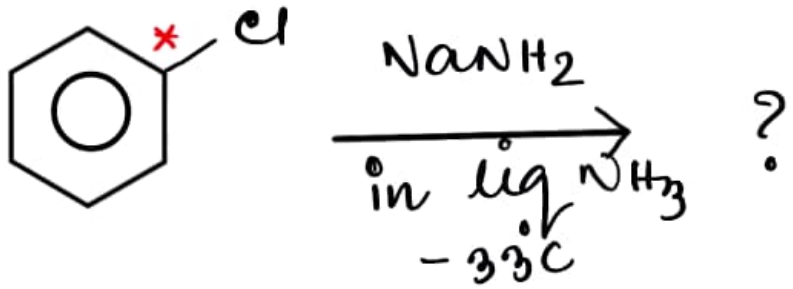
PAPER- CHEMHT-7

FULL MARKS- 10 TIME-

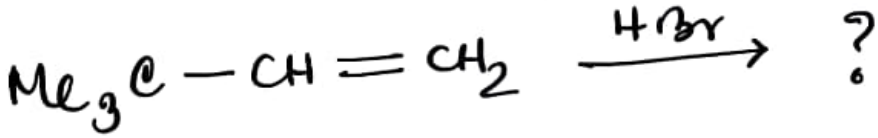
Answer following questions:

1. Predict the product(s) of following reactions and suggest suitable mechanism (any two): 2×2 =4

a.



b.



c.

2. Answer any three of the following questions: 3×2=6

a. Addition of bromine to ethylene is faster than acetylene in carbon tetrachloride - explain.

b. What is microscopic reversibability? Explain with an example.

c. Sodium phenoxide gives ortho salicylic acid in Kolbe Schmidt reaction but not potassium phenoxide - explain.

d. Suggest suitable pathway for following conversation:

i) cis-2- butene to trans-2-butene ii) CH_3CHO to CH_3CDO

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Internal Assessment-2022

B.Sc. (Hons) Sem-III

Paper-CHEMHS-1B (Basic Analytical Chemistry)

2. Answer any five 5x2=10

i) What do you mean by BOD?

j) Give example of two coloring agents for coloration of food?

k) Give two major reasons for water contamination?

l) What is R_f factor in Thin Layer chromatography?

m) Draw the structure of EBT and write its full name?

n) Why P^H is maintained 10 during the complexometric titration with EDTA?

o) Why adulteration is occurred in food?

p) Write the composition of Talcum powder.

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DEPARTMENT OF CHEMISTRY

3RD SEMESTER HONORS GENERAL INTERNAL EXAMINATION

PAPER- CHEMHGE-1

FULL MARKS- 10 TIME-

1. যে কোনো 5টি প্রশ্নের উত্তর দাও — $2 \times 5 = 10$.

a. Cu 3 $Fe^{3\oplus}$ -র- ইলেকট্রনীয় বিন্যাস লেখ। 1

b. ক্লোরিন ও ফ্লুরিনের i. electronegativity 3
ii. electron affinity তুলনা করো। 2

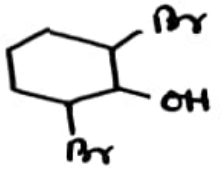
c. কোন কার্বোক্যাটায়নটি অধিক স্থায়ী — ও কেন — $\overset{\oplus}{C}H_2CH_3$ নাকি $\overset{\oplus}{C}H(CH_3)_2$

d. নিম্নোক্ত অম্ল/ক্ষারক গুলিকে ইলেকট্রোফাইল ও নিউক্লিওফাইল হিসাবে শ্রেণীবিভাগ করো — NH_3, $CH_3^{\oplus}$, $OH^{\ominus}$, Br_2.

e. HSAB তত্ত্বের- ভিত্তিতে অম্লকে চিহ্নিত করো — Hg^{2+} নাকি HgI_2

f chiral carbon (অসমমিত কার্বন) যুক্তগুলি চিহ্নিত করো —

i.



ii.