

## CC 7, CHEMISTRY HONS.

1. Answer all the questions

[1×8=8]

- i. What is Eutectic point.
- ii. Define the term degrees of freedom.
- iii. What is phase.
- iv. Give an example of non-ideal solution.
- v. Define minimum boiling azeotrope.
- vi. For zero order reaction what will be the concentration on rate of the reaction.
- vii. What is frequency factor.
- viii. What will be the effect of catalyst on reaction rate.

2. Answer any **Eight** the questions

[1.5×8=12]

- i. Define the term congruent melting point.
- ii. What is triple point.
- iii. What is the form of Gibbs phase rule for a two component system.
- iv. Define critical solution temperature.
- v. Give an example of maximum boiling azeotrope.
- vi. State Nernst distribution law.
- vii. What is the unit of rate constant for a 3<sup>rd</sup> order reaction.
- viii. Give an example of zero order reaction.
- ix. Plot  $\log [A]$  vs time for a first order reaction.
- x. What is meant by absorption isobar.

3. Answer any **Eight** the questions

[2×8=16]

- i. Why physical adsorption is multilayer whereas chemisorption is unimolecular.
- ii. Why activated charcoal is better adsorbent than ordinary charcoal.
- iii. What is heterogenous catalysis. Give an example of it.
- iv. Explain the role of promoters in catalysis.
- v. Explain Freundlich isotherm.

vi. For a reaction  $3A \longrightarrow \text{Products}$ , it is found that the rate of reaction doubles when molar concentration is increased four times. Calculate the order of reaction.

vii. A first order reaction is 50% completed in 20 minutes at  $27^\circ\text{C}$  and in 5 minutes at  $47^\circ\text{C}$ , calculate the energy of activation.

viii. What is reversible reaction. Give an example.

ix. Write down the factors affecting the rate of the reaction.

x. Order and molecularity of a reaction are not identical. Justify.

4. Answer any **Four** questions

[4×6=24]

I. Explain in brief about the phase diagram of Sulphur with the required phase diagram.

ii. Plot and discuss the phase diagram of Pb-Ag system. What is desilverisation of lead.

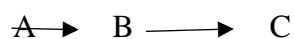
iii. Discuss in brief about water-chloroform-acetic acid system with a neat phase diagram.

iv. Write short notes on following

(a) Phenol-water binary system

(b) Water- trimethylamine system.

v. Derive rate law for a consecutive reaction given as:



vi. Derive rate of a reaction for an unimolecular reaction.