

B.Sc. Semester - 3 (CBCS) Examination
Oct/Nov - 2024 [As Per Syllabus Year June-2019]
Chemistry-C301(Core)

Time: 2:30 Hours**Marks: 70****Instructions:**

1. All questions are compulsory.
2. Figures to the right indicate marks.

Que.1(A) Give the atomic number, symbol and name of lanthanide elements. (04)

Que.1(B) Answer the following (Any Two) (10)

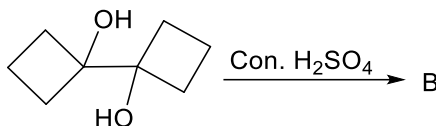
- (1) Describe the Postulates of wave mechanics.
- (2) Explain with examples Eigen function and Eigen value.
- (3) Derive the coefficient of Wave function of SP^3 hybridization

Que.2(A) Answer the following: (04)

- (1) Give the Synthesis of (A) Iodobenzene from Aniline
(B) Toluene from iodobenzene.

Que.2(B) Answer the following (Any Two) (10)

- (1) Discuss relative reactivity of alkyl halides Vs allyl halides, aryl halides.
- (2) Which taste used to distinguish 1° 2° and 3° amine? Discuss in detail with example.
- (3) complete the following reaction with proper mechanism



Que.3(A) Explain Henry's Law with its limitations (04)

Que.3(B) Answer the following (Any Two) (10)

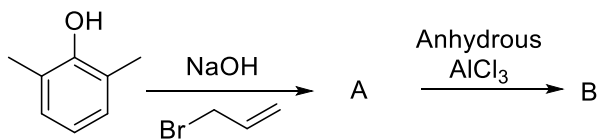
- (1) A solution of methanol and ethanol has total vapor pressures of 350 torr at 50°C . The Vapor pressure of pure methanol & ethanol are 413.5 and 221.6 torr respectively. Determine composition of liquid phase.
- (2) Explain phase diagram of Eutectics system (Ag-Pb System)
- (3) Describe any three application of Nernst distribution law

Que.4(A) Write the conversation (A) Thiophenol from aniline (04)

(B) Sulphanilic acid form aniline

Que.4(B) Answer the following (Any Two) (10)

- (1) Explain: factors affecting on acidity of phenol.
- (2) Complete the following reactions with mechanism.



- (3) Discuss Lanthanide contractures in details.

Que.5(A) What is Azeotrope? Discuss the type of azeotropes. (04)

Que.5(B) Answer the following (Any Two)

(10)

- (1) Write a short note on ion-exchange method and solvent extraction method for isolation of lanthanide elements.
- (2) Explain derivation of Raoult's Law.
- (3)

