

B.Sc. Semester - 1 (CBCS) Examination
Oct/Nov-2025 (New Course)
CHEMISTRY(CORE)

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

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

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- Que.1(A) Answer the following question. (04)
1) What is electron affinity? Discuss factors affecting it.
- Que.1(B) Answer any two questions out of three. (10)
1) What is the diagonal relationship? Explain diagonal relationship between beryllium and aluminium.
2) Give the difference between VBT and MOT.
3) What is hybridization? Write various types of hybridization giving bond angle and shape of hybrid orbitals with suitable example.
- Que.2(A) Answer the following question. (04)
1) Write short note on inductive effect.
- Que.2(B) Answer any two questions out of three. (10)
1) Define: Configuration, conformation, Homomers, enantiomers, diastereomers, chirality.
2) Give state and rule of saytzeff & Hofmann elimination reaction with suitable example
3) Explain S_N^1 reaction mechanism giving suitable example.
- Que.3(A) Answer the following question. (04)
1) Derive equation of rate constant for second order reaction when concentration is same.
- Que.3(B) Answer any two questions out of three. (10)
1) Explain molecularity and order of the reaction.
2) State characteristic of second order reaction.
3) Explain homogeneous and heterogeneous catalysis.
- Que.4(A) Answer the following question. (04)
1) Give reaction with mechanism to explain Markovnikov and anti Markovnikov rule.
- Que.4(B) Answer any two questions out of three. (10)
1) Define: Quantum numbers? Explain the all four quantum numbers.
2) Compare E_1 Vs E_2 reaction mechanism in detail.
3) Discuss collision theory for reaction rate with limitations.
- Que.5(A) Answer the following question. (04)
1) Discuss difference between chemical adsorption and physical adsorption.
- Que.5(B) Answer any two questions out of three. (10)
1) Draw MOT diagram of N_2 molecule. Show HOMO & LUMO orbitals and calculate its bond order and Magnetic property.
2) Name and write types of organic reaction with an example for each.
3) Derive Langmuir equation.
