

B.Sc. Semester - 1 (CBCS) Examination
Oct/Nov-2024 (As Per Syllabus Year June-2018)
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) Write a note on quantum numbers.
- Que.1(B) Answer any two questions out of three. (10)
(1) What is diagonal relationship? Explain diagonal relationship of boron with silicon.
(2) Explain sp^3 hybridisation with example.
(3) Give the difference between valence bond theory(VBT) and molecular orbital theory(MOT).
- Que.2(A) Answer the following question. (04)
(1) Write a short note on hyperconjugation.
- Que.2(B) Answer any two questions out of three. (10)
(1) Explain in detail basicity of amines.
(2) Give the difference between SN^1 and SN^2 reaction mechanism.
(3) Explain SN^2 reaction mechanism in detail with suitable examples.
- Que.3(A) Answer the following question. (04)
(1) Define the terms physical adsorption and chemical adsorption with examples.
- Que.3(B) Answer any two questions out of three. (10)
(1) Explain enzyme catalysis in detail.
(2) Derive the equation of rate constant for first order reaction.
(3) Derive Langmuir equation for adsorption.
- Que.4(A) Answer the following question. (04)
(1) Explain geometrical isomerism with suitable examples.
- Que.4(B) Answer any two questions out of three. (10)
(1) Discuss $E1$ and $E2$ reaction mechanisms.
(2) Discuss energy level diagram of O_2 molecule using molecular orbital theory.
(3) Explain factors affecting adsorption.
- Que.5(A) Answer the following question. (04)
(1) Explain collision theory of reaction rate.
- Que.5(B) Answer any two questions out of three. (10)
(1) Discuss diagonal relationship of Li with Mg.
(2) Describe the methods used for the determination of order of reaction.
(3) Explain inductive effect in detail.
