

B.Sc. Semester - 1 (CBCS) Examination
Jan/Feb.-2022 (NEW COURSE)
CHEMISTRY(CORE)

Time: 1:30 Hours**Marks: 42****Instructions:**

1. Figures to the right indicate marks.
 2. There are five questions in the question paper.
 3. Answer any three of the following questions.
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Q.1(A) Answer the following question. (04)

1. Explain metallic character and polarizing power of **P** block elements.

Q.1(B) Answer any two questions out of three. (10)

1. What is the diagonal relationship? Explain diagonal relationship of boron with silicon.
2. Give the difference between bonding and antibonding molecular orbital.
3. Explain sp^3 hybridization with example.

Q.2(A) Answer the following question. (04)

1. What is hyperconjugation? Explain with suitable example.

Q.2(B) Answer any two questions out of three. (10)

1. Discuss mesomeric effect in detail with suitable example.
2. Give state and rule of saytzeff & Hofmann elimination reaction with suitable example
3. Compare kinetics, mechanism, molecularity, factor affect on it and stereochemistry of SN^1 & SN^2 reaction.

Q.3(A) Answer the following question. (04)

1. State difference between molecularity and Order of reaction.

Q.3(B) Answer any two questions out of three. (10)

1. Derive equation of rate constant for first order reaction.
2. State characteristic of second order reaction.
3. Explain the important characteristic of enzyme catalysed reactions

Q.4(A) Answer the following question. (04)

1. Discuss acidity of monocarboxylic acid using inductive effect.

Q.4(B) Answer any two questions out of three. (10)

1. Define: Quantum numbers? Explain the all four quantum numbers.
2. Define inductive effect and discuss in detail with example of alkyl halide
3. Explain activated complex theory of reaction rate.

Q.5(A) Answer the following question. (04)

1. Differentiate chemical adsorption and physical adsorption.

Q.5(B) Answer any two questions out of three. (10)

1. Draw MOT diagram of O_2 molecule and calculate it's bond order, bond length, HOMO & LUMO orbitals and Magnetic property.
2. Discuss E_1 Vs E_2 reaction.
3. Derive Langmuir equation.
