



A Charutar Vidya Mandal's Institution
V.P. & R.P.T.P. SCIENCE COLLEGE
 (AUTONOMOUS) (Grant-in-Aid)
 Affiliated to Sardar Patel University
 VALLABH VIDYANAGAR-388120



Bachelor of Science (Semester II) Internal Examination - 2025
US02MACHE01 : GENERAL CHEMISTRY-II

Date: 04/03/2025 TUESDAY

Time: 12:45 PM TO 02:15 PM

Total marks :30

Note: Figures to the right indicate marks of the question.

Q-1 Write the most appropriate answer from the following multiple-choice questions. [06]

- 1 The atom or group of atom have tendency to donate electron pair is called _____.
 (a) electrophile (b) nucleophile
 (c) benzonium ion (d) None of the above
- 2 Which intermediate involve during S_N1 reaction mechanism?
 (a) Free radical (b) Carbocation
 (c) Carbanion (d) pentavalent transition state
- 3 The structure of I_3^- is _____.
 (a) square planar (b) linear
 (c) tetrahedral (d) octahedral
- 4 A complex having a ring structure formed between a polydentate ligand and metal ion is referred to as a _____.
 (a) Monodentate ligand (b) polydentate ligand
 (c) chelate (d) None of the above
- 5 The element of zero group have been called _____.
 (a) alkali metals (b) transition metals
 (c) inert gases (d) rare gases
- 6 What is minimum amount of kinetic energy required for molecule to give product ?
 (a) Concentration of product (b) Concentration of reactant
 (c) factors affecting the reaction (d) rate of reaction

Q-2 Explain S_N1 reaction in detail. [06]

OR

Q-2 Explain S_N2 reaction in detail. [06]

Q-3 Explain : Octet rule in detail with suitable examples which obey this rule and also not obey this rule. [06]

OR

Q-3 Describe the LCAO method to obtain wave function of molecular orbital. Also describe MO diagram of N_2 . [06]

Q-4 Explain nitration and sulphonation in detail. [06]

OR

Q-4 What is chelation ? Give the classification and uses of chelates. [06]

Q-5 What is an integrated rate law? Derive integrated rate for second order reaction. [06]

OR

Q-5 The time for 50% completion of a certain second order reaction is 50 minutes. Initial concentration is 0.08M. Calculate the rate constant of the reaction. How much time will it take to consume 75% reactant? [06]

