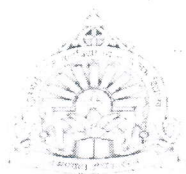
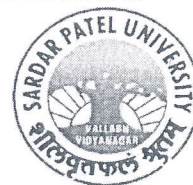


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V.P. & R.P.T.P. SCIENCE COLLEGE
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Affiliated to Sardar Patel University
VALLABH VIDYANAGAR-388120



Bachelor of Science (Semester 1I) External Examination - 2025

US02MACHE01 : GENERAL CHEMISTRY-II

Date: 08-04-2025, (TUESDAY)

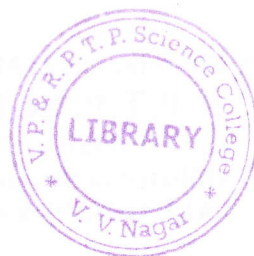
Time: 02:00 PM to 04:30 PM

Total marks : 50

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

- Q-1 Write the most appropriate answer from the following multiple-choice questions. [10]**
- (1) Which type of bond is present in the organic compound?
(A) Covalent (B) Ionic
(C) Co-ordinate (D) None
 - (2) The rate of S_N2 reaction is depends up on the concentration of _____.
(A) Substrate (B) Nucleophile
(C) Both A and B (D) None of the above
 - (3) How many step involve in S_N2 reaction?
(A) Zero (B) One
(C) Two (D) Three
 - (4) Which molecule do not follow octate rule?
(A) Cl_2 (B) BF_3
(C) HF (D) NH_3
 - (5) Which repulsion between electron pair is strongest one?
(A) lone pair-bond pair (B) lone pair-lone pair
(C) bond pair-bond pair (D) lone pair and an atom
 - (6) PCl_5 has _____ geometry.
(A) trigonal bipyramide (B) octahedral
(C) square planar (D) planar triangular
 - (7) According to werner's theory a metal has _____ types of valences.
(A) one (B) two
(C) three (D) four
 - (8) 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
 - (9) Which of the following may be in fraction?
(A) order of reaction (B) molecularity
(C) Both (D) None of the above
 - (10) Which information is obtained on the basis of chemical kinetics?
(A) No reaction will be take place (B) Rate of reaction
(C) Concentration of reactant (D) Concentration of product





Q-2 Explain SN^1 reaction in detail. [10]

OR

Q-2 Explain SN^2 reaction in detail. [10]

Q-3 Describe the LCAO method to obtain wave function of molecular orbital. Also describe MO diagram of N_2 . [10]

OR

Q-3 Explain : Octet rule in detail with suitable examples which obey this rule and also not obey this rule. [10]

Q-4 What is chelation ? Give the classification and uses of chelates. Why $[\text{Cu}(\text{en})_2]^{+2}$ is more stable than $\text{Cu}(\text{NH}_3)^{+2}$. [10]

OR

Q-4 Explain nitration and sulphonation of benzene in detail. [10]

Q-5 What is an integrated rate law? Derive integrated rate for second order reaction. [10]

OR

Q-5 Discuss the collision theory of a gaseous reaction. [10]