



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-5) Internal Examination Sept.- 2025

US05MAICH01 – ADVANCE ORGANIC CHEMISTRY

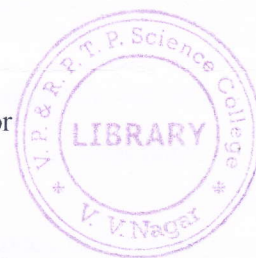
Date: 22-09-2025, Monday

Time: 10:45 AM to 12:15 PM

Total marks: 30

Q-1 Write the answer of following multiple-choice questions. (All are compulsory) [6]

- Which condition is required for Pinacol–Pinacolone rearrangement?
(a) Basic medium (c) Oxidizing agent
(b) Acidic medium (d) Reducing agent
- What is the role of NaBH_4 in organic reactions?
(a) Oxidizing agent (c) Catalyst
(b) Reducing agent (d) Acid-base indicator
- Which of the following is a polynuclear aromatic hydrocarbon?
(a) Benzene (c) Cyclohexane
(b) Toluene (d) Naphthalene
- Sulphonation of naphthalene at low temperature gives mainly:
(a) 1-naphthalene sulfonic acid (c) 3-naphthalene sulfonic acid
(b) 2-naphthalene sulfonic acid (d) 5-naphthalene sulfonic acid
- UV-Vis spectroscopy is primarily used to study which type of transitions?
(a) Vibrational transitions (c) Electronic transitions
(b) Rotational transitions (d) Nuclear transitions
- How many ^1H NMR signals does $\text{CH}_3\text{CH}_2\text{Cl}$ show?
(a) 1 (c) 3
(b) 2 (d) 5



Q-2 Explain 'Baeyer-Villiger oxidation reaction'. [6]

OR

Q-2 Write a note on 'Pinacol-Pinacolone rearrangement'. [6]

Q-3 Discuss a preparations and applications of 'Aluminium isopropoxide'. [6]

OR

Q-3 Write a preparation and applications of 'N-Bromosuccinimide (NBS)'. [6]

Q-4 Write a note on electrophilic aromatic substitution reactions in naphthalene. [6]

OR

Q-4 Discuss the structure of Anthracene. [6]

Q-5 Write a note on principle and instrumentation of IR spectroscopy. [6]

OR

Q-5 Write a note on main parts of NMR spectrometer. [6]

No of printed pages: 01

Supervisor sign

Seat No.:



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B.Sc. Industrial Chemistry (Semester - 5) Quiz September- 2025
US05MAICH01 – ADVANCE ORGANIC CHEMISTRY

Date: 22-09-2025, Monday

Time: Maximum 20 minutes

Total marks :15

Q-1 Fill in the blanks with the appropriate answer given in the bracket. [08 Marks]

1. The primary product of the pinacol-pinacolone rearrangement is
(A Ketone/ An Aldehyde)
2. Baeyer-Villiger oxidation converts a ketone into (an acid / an ester)
3. N-Bromosuccinimide is commonly used for selective reactions.
(Bromination / Reduction)
4. is commonly used for the reduction of aldehydes and ketones to alcohols.
(CrO₃ / LiAlH₄)
5. The simplest polynuclear aromatic hydrocarbon is
(Naphthalene/Anthracene)
6. In Friedel-Crafts acylation of naphthalene, the acyl group enters at
(1-position/ 3-position)
7. functional groups show a sharp absorption near 1700 cm⁻¹
in IR spectroscopy. (Carbonyl [C=O] / Amine [-NH₂])
8. ¹H NMR spectrum for pure ethanol (CH₃CH₂OH) shows signals. (three/two)

Q-2 State whether the following statement is true or false. [07 Marks]
(Write your answer in the box) True/False

1. The reaction converting oximes into amides under acidic conditions is called Beckmann rearrangement. []
2. The Hunsdiecker reaction is used for the preparation of alkyl halides. []
3. The reduction of benzaldehyde to benzyl alcohol can be achieved by KMnO₄. []
4. 3-nitronaphthalene is the major product when naphthalene undergoes nitration. []
5. Halogenation of naphthalene primarily yields the α-halonaphthalene. []
6. UV-Visible spectroscopy is mainly used to study nuclear spin transitions. []
7. The reference compound commonly used in ¹H NMR to calibrate chemical shifts is Tetramethylsilane (TMS). []
