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[ETC]

SARDAR PATEL UNIVERSITY
B.Sc.(Fifth Semester Examination)
US05CCHE21 – ORGANIC CHEMISTRY

**Total Marks : 70****Date:- 4th Oct 2025****Time :10:00 to 1:00****Que.1 Choose the correct option for the following:****10**

- 1 Which one of the following is used for the synthesis of isoquinoline derivatives?
 (a) Skraup synthesis (b) Bischler-Napieralski synthesis
 (c) Knorr synthesis (d) Hauben-Hoesch reaction
- 2 Furan can be prepared from using _____.
 (a) Furfural (b) Pentosan (c) Pentose (d) all of these
- 3 Which of the following is not a six member heterocyclic?
 (a) Picoline (b) Piperidine (c) Furan (d) Pyridine
- 4 Which one of the following reaction is used for the synthesis of cinnamic acid?
 (a) Perkin condensation (b) Aldol (c) Reimer- Tiemann (d) Sommelet
- 5 Which Catalyst is used for the conversion of 1, 2-diketones into α -hydroxycarboxylic acid ?
 (a) alcoholic KCN (b) $\text{Ca}(\text{OH})_2$ (c) $\text{Ba}(\text{OH})_2$ (d) NaOH
- 6 By the action of which catalyst α -chloroketone is converted into Acid?
 (a) NaOR (b) NaNH_2 (c) ROR (d) NaOH
- 7 Cross-linked polymers that hardens upon heating is known as
 (a) adhesives (b) thermoplastics (c) thermosetting (d) fibers
- 8 Which of the following stops the polymerization?
 (a) Initiator (b) Monomer (c) Inhibitors (d) Catalyst
- 9 Tertiary. -OH group is present in
 (a) α -terpineol (b) nerol (c) linalool/Citral (d) geraniol
- 10 How many isoprene units are present in Limonene?
 (a) 3 (b) 4 (c) 2 (d) 5

Que.2 Answer the following (ANY TEN)**20**

- 1 Write a short note on Chichibabin reaction.
- 2 Draw the structures of Pyrrole, Furan and Thiophene.
- 3 Define the term "Heterocyclic compound"
- 4 How will you prepare per acid? Give two example of per acid.
- 5 Write process of the preparation for witting reagents.
- 6 Why CN^- is a very specific catalyst for benzoin condensation?
- 7 Differentiate between Addition Polymerization and Condensation Polymerization.
- 8 Explain the term "Allene".
- 9 Write the chemical structure of monomers for SBR and Nylon-6 polymers.
- 10 What are the chemical properties of terpenoids?
- 11 How will you determine the carbonyl group in Citral?
- 12 Define isoprene rule and special isoprene rule.

Q-3 Answer the following:

A Why nucleophilic substitution reaction in pyridine is preferred at the position -2 and 4 but not at position -3.Explain. **5**

B Write: Skraups Synthesis of Isoquinoline. **5**

OR

A Give detail steps of synthesis of 3-acetyl-2, 4, 5 tri methyl Pyrrole by Knorr-Pyrrole synthesis. **5**

- B Why electrophilic substitution reaction in Pyrrole takes place chiefly at the 2nd position and not at 3rd position? 5
- Q.4 Answer the following:**
- (A) Discuss with the mechanism: Benzilic acid rearrangement. 5
- (B) Explain the reaction mechanism of Mannich Reaction. 5
- OR**
- (A) Give Principal of Baeyer-Villiger oxidation reaction and Discuss Crigee-Kasper mechanism of Baeyer-Villiger oxidation reaction 5
- (B) Complete the following reaction and suggest appropriate mechanism for it : 5
- Benzaldehyde + Acetic anhydride $\xrightarrow{\text{NaOAc}}$ -----
- Q.5 Answer the following:**
- A Justify the following with suitable example that conjugated dienes undergo 1, 4-addition preferentially over 1, 2-addition during electrophilic addition reaction 5
- B Discuss copolymers. Also discuss detail classification of polymers. 5
- OR**
- A Explain with example: Free radical polymerization and Anionic polymerization 5
- B Explain polymerization of ethene by Ziegler-Natta catalyst. 5
- Q-6 Answer the following:**
- A Give synthesis of camphor. 5
- B Give synthesis of α -terpeniol from p-Toluic acid. 5
- OR**
- A Prove the presence and position of double bond and -OH group in α -terpeniol 5
- B Write the synthesis of Citral. 5

