



[108/A-22]

Eng

**SARDAR PATEL UNIVERSITY**B.SC. V<sup>TH</sup> SEMESTER EXAMINATION 2021

SUBJECT CODE : USO5CCHE21

SUBJECT : ORGANIC CHEMISTRY

Date : 23/11/2021

Day : Tuesday

Time : 03:00 PM to 05:00 PM

Total MARKS : 70

**Q.1 Choose the correct option for the following :**

[10]

- Quinoline heating with  $\text{NaNH}_2$  to give.....
  - 2-Aminoquinoline
  - 3-Aminoquinoline
  - 4-Aminoquinoline
  - 8-Aminoquinoline
- .....is not aromatic heterocyclic compound.
  - Thiophene
  - Pyrrole
  - Pyrrolidine
  - Pyridine
- Which five membered heterocyclic compound having sulphur atom as a hetero atom ?
  - Furan
  - Thiophene
  - Pyrrole
  - Pyridine
- $\alpha$  - haloketone is converted into ester by the action of .....
  - $\text{NaNH}_2$
  - $\text{NaOH}$
  - $\text{NaNO}_2$
  - $\text{NaOR}$
- $$\begin{array}{c} \text{R}-\text{C}-\text{OH} \\ || \\ \text{O} \end{array} \xrightarrow[\text{(ii) } \text{HN}_3]{\text{(i) } \text{H}_2\text{SO}_4} \text{ ? } + \text{CO}_2$$
  - $$\begin{array}{c} \text{R}-\text{C}-\text{NHR} \\ || \\ \text{O} \end{array}$$
  - $$\begin{array}{c} \text{H}-\text{C}-\text{NHR} \\ || \\ \text{O} \end{array}$$
  - $\text{R}-\text{C}=\text{N}$
  - $\text{R}-\text{NH}_2$
- Birch reduction of dimethylacetylene produce .....
  - 1-butene
  - 2-butene
  - Trans - 2 - butene
  - Cis - 2- butene
- Which of the following is the example of isolated diene ?
  - 1, 5 - hexadiene
  - 2, 4 - hexadiene
  - 1, 2 - propadiene
  - 1, 3 - pentadiene
- ..... is a thermosetting polymer.
  - Polystyrene
  - Bakelite
  - Silicone
  - Rubber
- ..... is used as an insect repellent.
  - Nerol
  - Citral
  - Camphor
  - $\alpha$  - Pinene
- Thymol undergo hydrogenation in presence of Ni produce .....
  - Camphor
  - p - Cymene
  - Cadalene
  - Menthol

**Q.2 State whether the following statements are True or False :**

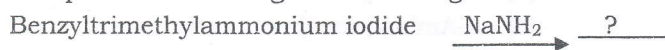
[08]

- Pyridine is a stronger base than pyrrole.
- Heating of n-butane with sulphur at  $560^\circ\text{C}$  gives furan.
- The general formula of peracetic acid is  $\text{CH}_3\text{CO}_2\text{H}$ .
- Perkin condensation reaction is used to prepare  $\alpha, \beta$  - unsaturated acid.
- Glass is an organic polymer.
- Adipic acid and Hexa methylene diamine used as a monomer in Neoprene polymer.
- Ten double bonds are available in  $\beta$ -carotene.
- Tertiary - OH group is present in  $\alpha$  - terpineol.

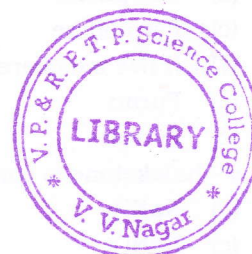
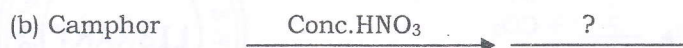
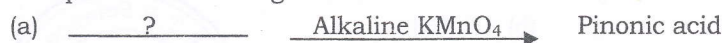
**Q.3 Answer the following (ANY TEN) :**

[20]

1. Write the synthesis of furan from pentosan.
2. Write a short - note : Chichibabin reaction.
3. Explain. Electrophilic substitution reaction in furan occurs at carbon atom but not at hetero atom.
4. Explain : Birch reduction of benzoic acid gives 1, 4 - Dihydrobenzoic acid.
5. Explain : p - Nitrobenzaldehyde do not undergo self condensation under benzoin condition.
6. Complete the following reaction and give the name of reaction.



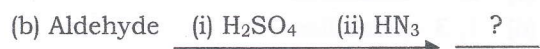
7. Explain the term "hyperconjugation" in alkene.
8. Write the chemical structure of monomer and polymer of Bakelite.
9. Define the term : (a) Allene (b) Co-polymer.
10. Give the importance of Tilden's reagent in terpenoid chemistry.
11. Write the synthesis of Terebic acid from Ethylacetoacetate.
12. Complete the following reaction :



**Q.4 Answer the following (ANY FOUR) :**

[32]

1. (a) Write Knorr synthesis of 3 - carboxy - 2, 4, 5 - trimethyl pyrrole.  
(b) Write Skraup synthesis of Quinoline.
2. Explain : Nucleophilic substitution reaction in pyridine occurs at position - 2 and - 4, but not at position - 3.
3. What is Wittig reaction ? Discuss your answer with suitable example and mechanism. Also give the preparation method of Wittig reagent.
4. Complete the following reaction and suggest appropriate mechanism involved in it.



5. Explain : Radical anion polymerization and Cationic polymerization.
6. Discuss the addition of HCl to 2, 4 - hexadiene and also write the synthesis of Dacron by using step reaction polymerization.
7. Discuss the Wallach oxidation of  $\alpha$  - terpineol and also write the synthesis of  $\alpha$  - terpineol from p - toluic acid.
8. Write the synthesis for the following :  
(a) Camphoronic acid from acetoacetic ester.  
(b) Citral from acetone and acetylene.

— X —