

# **Janki Devi Bajaj Government Girls College, Kota**

**MSc- III (Semester)**

**Monthly Test**

**Paper - 1**

**Chromatography**

**Max Marks : 15**

---

## **Very Short Questions (1 Mark Each)**

1. What do you understand by Rf value ?
2. How many types of chromatography are there.
3. Define mobile phase.
4. What instrumentation is used in SFC.
5. Which stationary phase used in column chromatography.

## **Short Answer Questions (2.5 Marks Each)**

6. Explain factors influencing paper chromatography
7. How TLC is advantageous over paper chromatography.

## **Long Answer Questions (5 Marks Each)**

8. Explain principle and instrumentation of SFC.

Or

Applications of paper chromatography and measurement of Rf values.

# Janki Devi Bajaj Government Girls College, Kota

Msc Sem. III Chemistry

Monthly Test

Spectroscopy

Paper – 2

Max Marks : 15

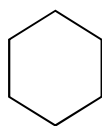
## Very short questions (1 Mark Each)

1. What is fermi resonance ?
2. What is anharmonicity ?
3. Write the range of electromagnetic radiation for UV spectroscopy.
4. Write the name of one compound used as NMR shift reagent.
5. Write an example of solvent used in  $^1\text{H-NMR}$ .

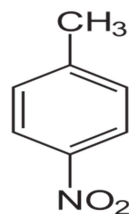
## Short Answer questions (2.5 Marks Each)

6. Write the number of signals in  $^1\text{H-NMR}$  spectra of following compounds.

A)



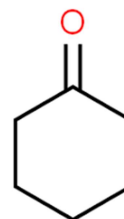
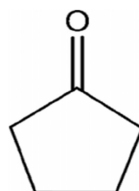
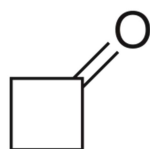
B)



7. Why TMS is used as reference in  $^1\text{H-NMR}$ .

## Long Answer questions (5 Marks)

8. Predict & explain the frequency shift of carbonyl in following cycloketones.



OR

Explain the modes of vibrations.

# Janki Devi Bajaj Government Girls College, Kota

MSc- III (Semester)

Monthly Test

Paper - 3

Organic Synthesis

Max Marks : 15

---

## Very Short Questions (1 Mark Each)

1. What is Synthone ?
2. Define the terms.
  - (a) Disconnection.
  - (b) Synthetic equivalent (reagent).
3. Functional group interconversion.
4. Retrosynthetic Analysis.

## Short Answer Questions (2.5 Marks Each)

5. Discuss one group C-X disconnection with example.
6. Give brief account of use of acetylenes in organic synthesis.

## Long Answer Questions (5 Marks Each)

7. What is regioselectivity ? Discuss regio selective alkylation of ketones.  
Or  
Discuss amine synthesis applying the disconnection approach.

# Janki Devi Bajaj Government Girls College, Kota

MSc- III (Semester)

Monthly Test

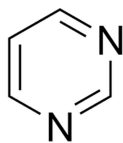
Paper - 4

Heterocyclic Chemistry

Max Marks : 15

## Very Short Questions (1 Mark Each)

1. Define bond strain in non aromatic heterocycle.
2. Give one example of fused heterocycle compound.
3. What do you understand by bridged heterocycle compound.
4. Give one example of spiro heterocycle compound.
5. Give nomenclature of



## Short Answer Questions (2.5 Marks Each)

6. Explain Tautomerism in aromatic heterocycles.
7. Explain confirmation of flexible heterocycles.

## Long Answer Questions (5 Marks Each)

8. Explain criteria of aromaticity on the basis of electronic and magnetic criteria.

Or

Explain stereo electronic effects in saturated six membered heterocycles.