

Janki Devi Bajaj Government Girls College, Kota

MSc- I (Semester)

Monthly Test

Paper - 1

Inorganic Chemistry

Max Marks : 15

Very short answer type Questions (1 Mark each)

- Q.1 Define Walsh diagram
- Q.2 what do you mean by Hybridization
- Q.3 What is MOT
- Q.4 What is the limitation of CFT
- Q.5 What is the bent rule

Short answer type Questions (2.5 marks Each)

- Q.6 Explain VSEPR theory with example
- Q.7 Write the short note on $d\pi$ - $p\pi$ bonds

Long answer type Questions (5 Marks Each)

- Q.8 Explain the MOT for octahedral complexes

or

Write the shorts note on Bent rule.

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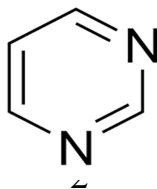
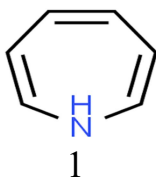
Paper - 2

Organic Chemistry

Max Marks : 15

Very Short Questions (1 Marks each)

1. Which is aromatic/anti aromatic compound among the following.



2. What are annulenes.
3. Define Conjugation.
4. Give example of catenanes.
5. Define Huckel's rule.

Short Answer Questions (2.5 Marks Each)

6. Write short note on aromaticity in benzenoid and non benzenoid compounds.
7. Explain conjugation and cross conjugation.

Long Answer Questions (5 Marks Each)

8. Explain bonding in fullerenes with example ?

Or

Explain inclusion compounds with example.

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Paper - 3

Physical Chemistry

Max Marks : 15

Very Short Questions (1 Mark Each)

1. Write schrodinger equation.
2. What is Eigen Value.
3. Explain different types of operators.
4. Write huckel's theory.
5. What is ordinary angular momentum.

Short Questions (1.5 Marks each)

6. Explain the postulates of quantum mechanics.
7. Derive schrodinger equation for Helium ion.

Long Questions (2 Marks Each)

8. What is perturbation theory Explain in detail.

Or

Write a short Note on extended Huckel's theory.

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**MSc- I (Sem.)
Monthly Test
Biology for Chemists
Paper - 4**

Max Marks : 15

Very Short Questions

1. Write the monomer of Cellulose.
2. Write the name of purine bases present in nucleic acid.
3. Define the transcription of DNA.
4. Write the name of any pentose sugar.
5. Write the name of any two storage polysaccharide.

Short Questions (1.5 Marks each)

6. Draw the double helix structure of DNA.
7. Draw the structure of C-2 and C-4 epimers of Glucose.

Long Questions (2 Marks Each)

8. Write the biological function and structure of mucopolysaccharide.

Or

Explain the chemical and enzymatic hydrolysis of nucleic acids.

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Mathematics for Chemists

Paper - 4

Max Marks : 15

Very Short Questions (1 Marks each)

1. Define Eigenvector.
2. What is the difference between order and degree of a differential equation?
3. What do you mean by reliability?
4. What is dispersion?
5. What is estimation?

Short Answer Questions (2.5 Marks Each)

6. Determine the variables by matrix method –
 $x-y+z=3$
 $y-z=2$
 $2x+y-3z=3$
7. Find the solution of given differential equation
 $y''+y' = \sin 2x$

Long Answer Questions (5 Marks Each)

8. Solve the following assignment problem.

	J1	J2	J3	J4
I	5	4	1	6
II	8	2	1	8
III	1	5	9	3
IV	5	4	6	5

Or

Assuming normality and known variance σ^2 test the hypothesis $\mu=16$ against the alternative $\mu=57$ using a sample size 20 with mean $\bar{X}=58.05$ and level of significance 5%.