

DR. C.V. RAMAN UNIVERSITY

ASSIGNMENT COVER PAGE
Please Fill All Entries Carefully

REGISTRATION NUMBER

रजिस्ट्रेशन नम्बर

STUDENT'S NAME

छात्र का नाम

ADDRESS

पता

COURSE CODE

पाठ्यक्रम कोड

COURSE TITLE

पाठ्यक्रम का नाम

ASSIGNMENT CODE

सत्रीय कार्य कोड

MEDIUM

माध्यम

STUDY CENTRE CODE

स्टडी सेन्टर कोड

SUBMISSION DATE

जमा करने की तारीख

STUDENT'S SIGNATURE

छात्र का हस्ताक्षर

FOR STUDY CENTRE USE ONLY

REGISTRATION NUMBER----- MARKS OBTAINED-----

CENTRE COORDINATOR----- MAXIMUM MARKS-----

DATE----- SEAL & SIGNATURE OF CENTRE -

COORDINATOR NAME AND -----

SIGNATURE OF EVALUATOR

PROGRAMME NAME: M.Sc. (CHEMISTRY)
YEAR: II
SEMESTER: III
COURSE NAME: APPLICATION OF SPECTROSCOPY

1. What is P, Q, R branches ?
2. Explain mutual exclusion principle.
3. An organic compounds having molecular formula $C_8H_{10}O$ exhibited the following 1H NMR data δ 2.5 (3H, s), 3.8 (3H, s), 6.8 (2H, d, J 8Hz) ppm. Write the structure of the compound.
4. Calculate the ESR frequency in a magnetic field of 25000 Gaus ($\beta = 9.27 \times 10^{-24}$ J/T).
5. Write the principle of Mossbauer spectra.
6. Explain rigid rotator model.
7. Write details about vibrational –rotational Raman spectra.
8. Explain Nuclear Overhauser Effect and ^{13}C NMR spectra.
9. Write the theories and application of ESR spectra.
10. Write the theories and instrumentation of NQR spectra.
11. What is Raman Spectroscopy? Write theories and application of Raman spectroscopy
12. What is spin-spin interaction? Write details about different types of coupling and also write factors influencing coupling constant.

PROGRAMME NAME: M.Sc. (CHEMISTRY)
YEAR: II
SEMESTER-III
COURSE NAME: BIO-ORGANIC & BIO-INORGANIC CHEMISTRY

Note:-attempt all questions.

- Que.1 Structure of prokaryotic and eukaryotic cells.
- Que.2 Write notes on ATP- the biological energy currency.
- Que.3 Write chemical and enzymatic hydrolysis of protein to peptide.
- Que.4 Give details about triple helix structure of collagen.
- Que.5 Structure of RNA and DNA.
- Que.6 Write of chemical and enzymatic hydrolysis of uric acids.
- Que.7 What is $\text{Na}^+ - \text{K}^+$ pump.
- Que.8 Write details about Mg -Ca complex with nucleic acid.
- Que.9 Give details about nitrogen in biosphere.
- Que.10 what is nitrogen cycle.

MSC CHEMISTRY
SEMESTER-III
Course: Chemistry of Inorganic material (Elective –I)

Note:-attempt all questions.

Que1. What in detail? Write types of defects.

Que2. Write method of determination of defects.

Que3. (1) Explain following:-

- (a) Ceramic technique of synthesis of inorganic material
- (b) Sol-gel techniques
- (c) Precursor techniques

Que4. What are ionic conductor? Write types of ionic conductor.

Que5. Explain organic semiconductor.

Que6. Write structure and properties of metal and alloys.

Que7. What in magnetization? Write its application.

Que8. What in Nanotechnology? Write its applications.

Que9. Explain following:-

- (a) Nanofoam
- (b) Nanoclusters

Que.10 Write manufacturing techniques of nanomaterial.

MSC CHEMISTRY
SEMESTER-III
Course: Elective-II (Co-ordination Chemistry)

Note:-attempt all questions.

Que.1 Explain following:-

- (a) VBT (valence bond theory)
- (b) (Crystal Field theory)
- (c) (Molecular orbital theory)

Que.2 Write magnetic & spectral properties of transition elements.

Que.3 Write short notes on:-

- (1) Charge transfer spectra
- (2) Electronic spectra

Que.4 Write method of determination of magnetic susceptibility by group and faraday method.

Que.5 Explain in Van-Velck equation.

Que.6 Write a note on para- magnetism.

Que.7 Write a note on Orgel diagram.

Que.8 Write catalysis of organometallic compounds.

Que.9 What are boranes? Write structure of it.

Que.10 Explain metal clusters.

M.Sc. (Chemistry)
Semester-III
Course– Elective-III (Separation Science)

Attempt All Questions

1. What do you mean by the principle of solvent extraction?
2. The application of diketones & thiols
3. Explain correlation between extraction and extraction chromatography
4. Briefly define techniques of extraction chromatography
5. Explain about ion exchange equilibrium
6. Define the screening effect
7. Briefly describe plate theory of Gas Chromatography
8. Write Instrumentation and Application of Gas Chromatography
9. Explain fundamental properties of ion exchanger
10. Explain the distribution of extractable species

M.Sc. (Chemistry)

Semester-IV

Course: Elective-IV (Organo Metallic Chemistry)

Attempt All Questions

1. What is Zeises's salts?
2. Draw the Structure of ferrocene?
3. What is Coupling Reaction?
4. What is formula of Nitrosyl?
5. What is M-M bond?
6. Write formula of metal carbonyl?

Or

Wxplain migratory Insertion Reaction?

7. What is sigma bonded OMC?
8. What is Organometallic Compound Explain the Wilkinson Catalysis?

Or

9. Explain structure bonding and aromatic charactor of ferrocene?

Or

What is Metal Clusters. Explain the properties and classification of Metal cluster's Compound?

10. What is Carbene? Explain schrock and fisher carbine?