

DR. C.V. RAMAN UNIVERSITY

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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

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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: I
SEMESTER-I
COURSE NAME: ANALYTICAL CHEMISTRY-I

Note:-attempt all questions.

1. What is an error? Describe accuracy and precision distribution of random errors.
2. Describe Average derivation and standard derivation.
3. Write general principle and classification of chromatographic methods.
4. Explain Ion exchanges chromatography.
5. What is polarography describe Instrumentation.
6. Describe Ilkovic equation and its verification.
7. What is living effect? Explain
8. Describe co precipitation and post precipitation from homogenous selection.
9. What is CPU? Describe the different devices.
10. Write short notes on:-
 - (a) Software
 - (b) Hardware
 - (c) Microcomputer Inter facing

PROGRAMME NAME: M.Sc. (CHEMISTRY)
YEAR: I
SEMESTER-II
COURSE NAME: ANALYTICAL CHEMISTRY-II

Note:-attempt all questions.

1. Calculate the t_{max} according to the Beer Lambert's law.
2. What is IR spectroscopy? Explain its instrumentation and application.
3. Write short notes on.
 - a. Types of bending in IR spectroscopy
 - b. Application of UV-& Visible spectroscopy.
4. Explain the theory & instrumentation of NMR.
5. Write short notes on
 - a. Spin spin coupling
 - b. Shielding & deshielding effect.
6. Explain the an-isotropic effect of NMR spectroscopy.
7. What is Mc-Lafferty rearrangement?
8. Explain the application of mass spectroscopy.
9. Explain the fragmentation of alcohol and ketenes.
10. Explain the Instrumentation and application of AAS.

PROGRAMME NAME: MSC (CHEMISTRY)
YEAR: I
SEMESTER-II
COURSE NAME: INORGANIC CHEMISTRY - II

Note:-attempt all questions.

- Que.1 Write synthesis properties & structure of boranes.
- Que.2 What are non transition metals? Write general characteristics.
- Que.3 What is Ligand hapticity? Explain.
- Que.4 Write catalysis of organometallic compounds in hydroformylation.
- Que.5 What are lanthanides? Write lanthanide contraction.
- Que.6 Write method of separation of lanthanide.
- Que.7 What are non aqueous solvent? Write classification.
- Que.8 Explain leveling effect.
- Que.9 Explain radioactive decay with example.
- Que.10 Explain Q value and cross section

PROGRAMME NAME: MSC (CHEMISTRY)
YEAR: I
SEMESTER-I
COURSE NAME: INORGANIC CHEMISTRY-I

Note:-attempt all questions.

1. What is black body radiation? Explain.
2. Explain photoelectric effect?
3. Explain Walsh diagram?
4. What is bent rule? Explain?
5. What is transition element? Write general characteristic & properties of transition element.
6. Explain John-Teller effect?
7. Write notes on:-
 - (1) Ferredoxin
 - (2) Iron sulphur protein
 - (3) PS-I, PS-II
8. What is bioinorganic chemistry? Write role of metal ions in biological process.
9. Write symmetry elements & symmetry operation?
10. Definition of group & subgroup? Write point symmetry group.

PROGRAMME NAME: M.Sc. (CHEMISTRY)
YEAR: I
SEMESTER-I
COURSE NAME: ORGANIC CHEMISTRY-I

Note:-attempt all questions.

1. What is carbocations? Write the structure, stability and reactivity of carbocations.
2. What is SN2 reactions and write the mechanism of SN2 reaction?
3. Write the following mechanism and reaction also:-
 - (i) Di-caupling reaction
 - (ii) Vilsmeier reaction
 - (iii) Friedel-Crafts reaction
4. What is hydro generation? Write the of doable and triple bands.
5. Write the mechanism and stereochemical aspects of the addition reaction involving Electrophils and free radicals.
6. What is E₁ and E₂ reaction? Write the mechanism of E₁ and E₂.
7. Describe the pyrolytic elimination reactions.
8. What is symmetry elements? Describe the enantiotropic and distereotropic groups?
9. Describe the cyclohexane derivatives ? And its stability and reactivity.
10. Explain reaction mechanism of Beckman reaction.

PROGRAMME NAME: M.Sc. (CHEMISTRY)

YEAR: I

SEMESTER-II

COURSE NAME: ORGANIC CHEMISTRY-II

Note:- attempt all questions.

1. What do you mean by condensation reaction? Explain
2. Explain the Bayer villiger reaction and give its significance also.
3. Write short notes on Robinson annulations.
4. Differentiate between alkylation and acylation with examples.
5. What are alkylation agents explain with reaction.
6. Give the mechanism of acylation reaction in active methylene compound.
7. What are oxidation methods for the oxidation of alkenes give mechanism & m also.
8. Discuss the different path way for reduction.
9. Differentiate between heterogeneous and homogenous hydrogenation.
10. Write organic synthesis of synthone.

PROGRAMME NAME: M.Sc. (CHEMISTRY)

YEAR: I

SEMESTER-I

COURSE NAME: PHYSICAL CHEMISTRY-I

Note:-attempt all questions.

- 1 Explain the Carnot cycle? Describe the efficiency of heat engine?
- 2 Derivation of Maxwell relation?
- 3 Derive Duhem- Margules equation?
4. What is Ideal solutions and non ideal solution? Different between Ideal and non ideal solution.
5. Explain experimental verification of the distribution law?
6. What is postulates of Kinetic theory of gases? Explain Kinetic theory of viscosity and diffusion.
7. What is polymerization? Explain mechanism of polymerization?
8. Write the method of determining molecular weights of polymerization?
9. Explain partition of iodine between water and carbon tetrachloride.
10. What is phase rule? Write the Association of benzoic acid in Naphthalene.

PROGRAMME NAME: M.Sc. (CHEMISTRY)
YEAR: I
SEMESTER-II
COURSE NAME: PHYSICAL CHEMISTRY-II

Note:-attempt all questions.

- 1 Explain Frank Condon principle.
- 2 Write photo chemistry of environment.
- 3 Write notes on:-
 - (a) Different there of photo chemical recitation.
 - (b) Green home effect.
- 4 Describe various types of electronic transition occurs in photochemistry.
- 5 Explain Jablonski diagram with details.
- 6 Write radioactive and non-radioactive photo-physical pathway of incited molecular system.
- 7 Explain fluorescence delayed fluorescence and phosphorescence
- 8 Write details about fluorescence relation.
- 9 Write notes on Stern -Volmer Equation
- 10 Write Arrhenius theory of electrolytic dissociation and give its importance.