

Vivekanand College, Kolhapur (Empowered Autonomous)

Department of Chemistry

Internal Examination 2023-24

All M.Sc. students are informed that their internal examination for **Sem-II** and **Sem-IV** will take place as per the timetable. Date: 04/04/2024

M.Sc. I Sem II (NEP)

05/04/2024

Sr No	Subject/Paper	Day, Date, and Time	Topics
1	Organic & Inorganic chemistry.	Monday 16/04/2024 12.00-1.00 pm	1. Name Reaction 2. Chemistry of non-transition elements
2	Physical & Analytical Chemistry	Tuesday, 18/04/2024 12.00-1.00 pm	1. Thermodynamics 2. UV and IR spectroscopy
3	Elective: Analytical Chemistry	Monday 19/04/2024 12.00-1.00 pm	1. Advanced Liquid Chromatography. 2. Ion Chromatography.
	Elective: Organic Chemistry	Monday 19/04/2024 12.00-1.00 pm	1. Oxidation up to PCC 2. Reduction Catalyst
	Elective: Inorganic Chemistry	Monday 19/04/2024 12.00-1.00 pm	1. Oxygen Transport and Storage 2. Application of Co-Ordination Compounds

M.Sc. II Sem IV: Organic Chemistry

Sr No	Subject/Paper	Day, Date, and Time	Topics
1	Theoretical Organic Chemistry	Friday 12/04/2024, 12.00-1.00 pm	1 Free radical reaction 2 MOT
2	Stereochemistry	Saturday, 13/04/2024, 12.00-1.00 pm	1 Stereochemistry of Acyclic & Alicyclic Compounds 2 Allenes, Spiranes, and Biphenyls
3	Chemistry of Natural Products	Monday 15/04/2024, 12.00-1.00 pm	1 Vitamins 2 Steroids and Prostaglandins
4	Applied Organic Chemistry	Tuesday 16/04/2024, 12.00 to 1.00 pm	1 Synthesis and Applications of Perfumery 2 Polymer Chemistry

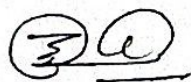
M.Sc. II Sem IV Inorganic Chemistry

Sr No	Subject/Paper	Day, Date, and Time	Topics
1	Instrumental Techniques	Friday 12/04/2024, 12.00-1.00 pm	1 Massabeur Spectroscopy 2 ESR
2	Coordination Chemistry -II	Saturday,13/04/2024, 12.00-1.00 pm	1 Inorganic Reaction Mechanism 2 Reaction Mechanism of Transition Metal Complexes
3	Energy and Environmental Chemistry	Monday 15/04/2024, 12.00-1.00 pm	1 Air Pollution & Control Methods 2 Water Pollution and Monitoring Control Methods
4	Inorganic Nanomaterials	Tuesday 16/04/2024, 12.00 to 1.00 pm	1 Advanced Synthetic Methods of Inorganic Nanomaterials 2 Applications of Nanomaterials

M.Sc. II Sem IV: Analytical Chemistry

Sr No	Subject/Paper	Day, Date, and Time	Topics
1	Modern Separation Method in Analysis	Friday 12/04/2024, 12.00-1.00 pm	1. Advanced Liquid chromatography. 2. Ion chromatography.
2	Organoinustrial Analysis	Saturday,13/04/2024, 12.00-1.00 pm	1. Food Analysis. 2. Analysis of creams and lotions
3	Advanced Methods in Chemical Analysis	Monday 15/04/2024, 12.00-1.00 pm	1. Kinetic Methods of Analysis. 2. X-Ray Spectroscopy.
4	Industrial Analytical Chemistry	Tuesday 16/04/2024, 12.00 to 1.00 pm	1. Spectrochemical methods of Analysis. 2. Analysis of Soil and Fertilizers.

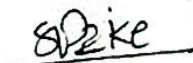
Date: 04/04/2024



CO-Coordinator
M.Sc.(ORGANIC & INORGANIC CHEMISTRY)
VIVEKANAND COLLEGE, KOLHAPUR
(EMPOWERED AUTONOMOUS)



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DEPARTMENT OF CHEMISTRY
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(EMPOWERED AUTONOMOUS)

Vivkanand College, Kolhapur (Autonomous)

Internal Examination 2023-24

M.Sc. II Sem-IV- Inorganic Chemistry

Subject: Instrumental Techniques

Date: 12/04/2024

Time: 12 noon to 1pm

Total Marks: 20

Instructions:

Attempt any two questions of the following.

- Q.1 Describe in detail instrumentation of electron spin resonance spectroscopy? 10 marks
- Q.2 What is principle of ESR spectroscopy? and Give their applications of ESR spectroscopy 10 marks
- Q.3 Describe instrumentation of mossbauer spectroscopy. 10 marks
- Q.4 Discuss the applications of Mossbauer spectroscopy 10 marks



S. D. Kulkarni
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Internal Examination 2023-24

M.Sc. II Sem-IV

Paper XIV: Coordination Chemistry II

Date: 13/04/2024

Time: 12.00 to 1.00 pm

Total Marks: 20

Answer the following Questions (any two) 10 marks each.

1. What is outer sphere mechanism? Discuss the different steps involved in outer sphere mechanisms of electron transfer reactions. Why is the electron transfer in the system $[\text{Co}(\text{NH}_3)_6]^{2+} - [\text{Co}(\text{NH}_3)_6]^{3+}$ slower than that in system $[\text{Fe}(\text{CN})_6]^{4-} - [\text{Fe}(\text{CN})_6]^{3-}$?
2. Answer the following questions
 - a. Explain pi-bonding theory of Trans effect.
 - b. Classify the following complex ions as labile or inert. Write an explanatory sentence on each:
i) $[\text{V}(\text{H}_2\text{O})_6]^{2+}$ ii) $[\text{Cr}(\text{H}_2\text{O})_6]^{2+}$ iii) $[\text{Cr}(\text{CN})_6]^{4-}$ iv) $[\text{Mn}(\text{CN})_6]^{3-}$
3. What do you understand by $\text{S}_{\text{N}}^1(\text{CB})$ mechanism? Discuss with a suitable example.
4. Answer the following questions
 - a) What do you mean the two electron transfer reactions?
 - b) Through inner sphere mechanism the rate of reaction-I is slower than reaction-II, Explain why?
I. $[\text{Cr}(\text{H}_2\text{O})_6]^{2+} + [\text{Co}(\text{NH}_3)_5(\text{H}_2\text{O})]^{3+} \rightarrow [\text{Cr}(\text{H}_2\text{O})_6]^{3+} + [\text{Co}(\text{NH}_3)_5(\text{H}_2\text{O})]^{2+}$
II. $[\text{Cr}(\text{H}_2\text{O})_6]^{2+} + [\text{Co}(\text{NH}_3)_5(\text{OH})]^{2+} \rightarrow [\text{Cr}(\text{H}_2\text{O})_5(\text{OH})]^{2+} + [\text{Co}(\text{NH}_3)_5(\text{H}_2\text{O})]^{2+}$



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Internal Examination 2023-24

M.Sc. II Sem-IV

Paper XV: Energy and Environmental Chemistry

Date: 15/04/2024

Time: 12.00 to 1.00 pm

Total Marks: 20

Answer the following Questions (any two) 10 marks each.

1. What is the importance of dissolved oxygen (DO) in aquatic environment? Explain in brief the methods used to determine DO of water determined.
2. What are air pollution control methods? Discuss different methods used to control of SO_x pollution.
3. Discuss sampling and monitoring of air pollutants. Explain sampling of gases and vapours (Ambient) with respect to adsorption on solids and absorption in liquids.
4. Discuss chemiluminescence and spectrophotometric method for analysis of ambient NO₂ from atmosphere.



SD/Dr
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Vivekanand College (Empowered Autonomous), Kolhapur

Department of Chemistry

M.Sc. II (Inorganic Chemistry)

Internal Examination – April 2024

Paper: Inorganic Nano materials

Date: 16-04-2024

Time: 12:00 – 1:00 pm

Marks: 20 M

Q.1 Answer the following (Any two)

1. What is binary semiconductor? Explain chemical bath deposition method for the formation of metal oxide film in detail.
2. Define Chalcogens? Discuss Successive ionic layer adsorption and reaction (SILAR) method in brief.
3. Give the different applications of carbon nano-tubes in detail.
4. Discuss in detail, construction, working and applications of solar cell.



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Vivekanand College, Kolhapur (Empowered Autonomous)

Department of Chemistry

M. Sc. II Sem IV (Inorganic Chemistry)

Internal Examination 2023-24

Attendance Sheet

Time 12.00 to 1.00 pm



S. R. Patil

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DEPARTMENT OF CHEMISTRY
VIVEKANAND COLLEGE, KOLHAPUR
(EMPOWERED AUTONOMOUS)

Sr.No	Name of student	Signature			
		Paper no. XIII 12/04/2024	Paper no. XIV 13/04/2024	Paper no. XV 15/04/2024	Paper no. XVI 16/04/2024
1.	Deyani Chandrakant Dabhade	<i>Dabhade</i>	<i>Dabhade</i>	<i>Dabhade</i>	<i>Dabhade</i>
2.	Rupesh Maruti Fisinge	<i>Rupesh Kelam</i>	<i>Rupesh Kelam</i>	<i>Rupesh Kelam</i>	<i>Rupesh Kelam</i>
3.	Sandeep Sanjay Kadam	<i>Kadam</i>	<i>Kadam</i>	<i>Kadam</i>	<i>Kadam</i>
4.	Vaishnavi Ashok Kadam	<i>Kadam</i>	<i>Kadam</i>	<i>Kadam</i>	<i>Kadam</i>
5.	Nandini Siddharthshankar Koli	<i>Koli</i>	<i>Koli</i>	<i>Koli</i>	<i>Koli</i>
6.	Patil Pooja Tularam	<i>Pooja Patil</i>	<i>Pooja Patil</i>	<i>Pooja Patil</i>	<i>Pooja Patil</i>
7.	Patil Shamaj Ramchandra	<i>Patil Shamaj</i>	<i>Patil Shamaj</i>	<i>Patil Shamaj</i>	<i>Patil Shamaj</i>
8.	Pendharkar Shahin Prulla	<i>Pendharkar</i>	<i>Pendharkar</i>	<i>Pendharkar</i>	<i>Pendharkar</i>
9.	Swati Balaso savant	<i>Savant</i>	<i>Savant</i>	<i>Savant</i>	<i>Savant</i>
10.	Shende Sakshi Santosh	<i>S.S. Shende</i>	<i>S.S. Shende</i>	<i>S.S. Shende</i>	<i>S.S. Shende</i>
11.	Saloke Vishwajit Nirvathi	<i>Saloke</i>	<i>Saloke</i>	<i>Saloke</i>	<i>Saloke</i>
12.	81				
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