



MAHATMA GANDHI COLLEGE

THIRUVANANTHAPURAM

POST GRADUATE DEPARTMENT OF CHEMISTRY & RESEARCH
CENTER

NOTICE

ADD-ON COURSE –MOLECULAR SPECTROSCOPY

Department of chemistry is conducting an Add-On course titled "MOLECULAR SPECTROSCOPY" for the academic year 2022-2023. This course aims to provide students with an in-depth understanding of spectroscopic techniques and their practical applications.

Course Duration: 30 hour

Last Date for Registration: 08/06/22

For any queries or additional information, please contact the course coordinator, Head, Department of Chemistry.

Head, Department of Chemistry

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Molecular spectroscopy

Unit I Introduction

8h

General features of absorption - Beer-Lambert's law and its limitations, transmittance, Absorbance, and molar absorptivity. Single and double beam spectrophotometers. Electronic spectroscopy: Interaction of electromagnetic radiation with molecules and types of molecular spectra. Energy levels of molecular orbitals (σ , π , n). Selection rules for electronic spectra. Types of electronic transitions in molecules effect of conjugation. Concept of chromophore and auxochrome.

UNIT-II Infra red spectroscopy

8h

Different Regions in Infrared radiations. Modes of vibrations in diatomic and polyatomic molecules. Characteristic absorption bands of various functional groups. Interpretation of spectra-Alkanes, Aromatic, Alcohols, carbonyls, and amines with one example to each.

UNIT-III Proton magnetic resonance spectroscopy

8h

Principles of nuclear magnetic resonance, equivalent and non-equivalent protons, position of signals. Chemical shift, NMR splitting of signals - spin-spin coupling, coupling constants. Applications of NMR with suitable examples - ethyl bromide, ethanol, acetaldehyde, 1,1,2-tribromo ethane, ethyl acetate, toluene and acetophenone.

UNIT-IV

6h

Instrument demonstration

UV-Visible spectroscopy, IR spectroscopy, Photoluminescence Spectrometer (PL)

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Course Outcome

- Predict which organic compounds should exhibit visible color based upon extent of conjugation.
- Explain the origin of infrared absorptions in terms of vibrational modes of covalent bonds.
- Predict direction of chemical shifts caused by various structural shielding or deshielding effects.
- Explain the principle and instrumentation of electronic spectroscopy, Infrared spectroscopy, NMR spectroscopy and analyze the spectra of different species.

Academic Year 2022-2023		
Molecular Spectroscopy		
Sl.No	Name	Candidate Code
1	Abhaya Vineesh	23520118001
2	Abhiram V.K	23520118002
3	Adarsh Krishnan J	23520118003
4	Aiswarya M.S	23520118004
5	Aiswarya B	23520118005
6	Akhilkrishnan	23520118006
7	Anakha S.R	23520118007
8	Anandu A.S	23520118008
9	Adithya K.H	23520118009
10	Anjali P.S	23520118010
11	Aparna S nair	23520118012
12	Arya A.S	23520118014
13	Aswathy C	23520118015
14	Athira B.S	23520118016
15	Athira O	23520118017
16	Bharath S Krishnan	23520118018
17	Devika A.J	23520118019
18	Farhana Sunil	23520118020
19	Goutham Mohan	23520118021
20	Govind P	23520118022
21	Hari S Prasad	23520118024
22	Harsha G.S	23520118025
23	Jayanth J.S	23520118026
24	Krishna Vinod	23520118027
25	Panchami Krishnan	23520118028
26	Parvathy Nair	23520118029
27	Priyadarshini	23520118030
28	Remya P	23520118031
29	Salmiya S	23520118032
30	Soujith Suresh	23520118033
31	Supriya Rani	23520118034
32	Umeshdev U.K	23520118035
33	Abhijith A.S	23520118036
34	Adithya Vinod	23520118037
35	Amaldev L	23520118038
36	Anandan H.A	23520118039
37	Ananthkrishnan S	23520118040
38	Aneesh S	23520118041
39	Aswanth S.R	23520118042
40	Gowri M.S	23520118043
41	Jishnusiva S	23520118044
42	Lakshmy B	23520118045
43	Megha M.S	23520118046
44	Priyadarshini P.S	23520118047
45	R. Chaithanya	23520118048
46	Vaishnai A.R	23520118049
47	Anuja Ananthan	23520118050

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48	Bhagyasoman U.S	23520118051
49	Gokul G.R	23520118052
50	Sabarinath K.G	23520118053
51	Silpa B.S	23520118054
52	Sreelekshmy Sunil	23520118055
53	Visakh N	23520118056
54	Amaljith A	23520118057
55	Gayathri A.S	23520118058



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Add on Course Examination
Molecular Spectroscopy
MCQ
Answer all the questions

Marks: 10

Time: 15 minutes

1. Absorption of radiation in the UV range attributable to $n \rightarrow \pi^*$ electronic transitions is characteristic of which of the following types of compounds?

- a) Aromatic hydrocarbons.
- b) Unsaturated carbonyl compounds.
- c) Non-conjugated polyenes.
- d) Conjugated polyenes.

2. Which is the correct order of increasing wave number of the stretching vibrations of (1) C-H (alkane), (2) C-H (alkene), (3) C-H (alkyne), and (4) C-H (arene)?

- a) $(1) < (2) \approx (3) < (4)$
- b) $(4) < (3) \approx (2) < (1)$
- c) $(3) < (4) \approx (2) < (1)$
- d) $(1) < (4) \approx (2) < (3)$

3. Which of the following statements in the context of ^1H NMR spectroscopy is true?

- a) Arene C-H chemical shift (δ) values are greater than simple alkenes C-H chemical shift values because of the aromatic ring current.
- b) Arene C-H chemical shift (δ) values are smaller than simple alkenes C-H chemical shift values because of the aromatic ring current.
- c) Arene C-H signals are always multiplets.
- d) Arene C-H signals are always singlets.

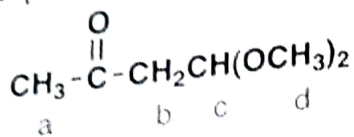
4. Which of the following statements is wrong?

- a) UV absorption is attributable to electronic transitions.
- b) UV spectra provide information about valence electrons.
- c) IR absorption is attributable to transitions between rotational energy levels of whole molecules.
- d) NMR spectrometers use radiofrequency electromagnetic radiation.

5. Which is the correct order of increasing wave number of the stretching vibrations of (1) C-H (alkane), (2) O-H (alcohol), (3) C=O (ketone), and (4) C \equiv C (alkyne)?

- a) $(4) < (3) < (2) < (1)$

- b) (3) < (4) < (2) < (1)
 c) (3) < (4) < (1) < (2)
 d) (4) < (3) < (1) < (2)
6. How many signals does the aldehyde $(\text{CH}_3)_3\text{CCH}_2\text{CHO}$ have in ^1H NMR spectra?
- a) five ^1H signals and six ^{13}C signals
 b) three ^1H signals and four ^{13}C signals
 c) five ^1H signals and four ^{13}C signals
 d) three ^1H signals and six ^{13}C signals
7. Which of hydrogens a-d in the following molecule gives a triplet signal in a normal ^1H NMR spectrum?



- a) hydrogen a
 b) hydrogen b
 c) hydrogen c
 d) hydrogen d
8. Which hydrogen of 1-chloropent-2-ene shows the largest chemical (downfield) shift in its NMR spectrum?
- a) the H on C1
 b) the H on either C2 or C3
 c) the H on C4
 d) the H on C5
9. Which carbon of (a)-(d) of hex-3-en-2-one shows the largest (most downfield) chemical shift in the NMR spectrum?
- a) C1
 b) C2
 c) C4
 d) C6
10. Which of the following statements regarding IR spectroscopy is wrong?
- a) Infrared radiation is higher in energy than UV radiation.
 b) Infrared spectra record the transmission of IR radiation.
 c) Molecular vibrations are due to periodic motions of atoms in molecules, and include bond stretching, torsional changes, and bond angle changes.

d) Infrared spectra give information about bonding features and functional groups in molecules.



Dr. A. S. S. S. S.
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2022 - 2023

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Name	canalidical	Mark
1. Abhaya Vinesh	23520118001	10
2. Abhiram vic	23520118002	9
3. Adarsh Krishnan J	23520118003	9
4. Adithya KH	23520118004	7
5. Aiswarya MS	23520118005	8
6. Aiswarya B	23520118006	7
7. Akhil Krishnan U	23520118007	7
8. Anakha S.R	23520118008	7
9. Anandu A.S	23520118009	7
10. Anjali P.S	23520118010	8
11. Aparna S. Nair	23520118012	9
12. Arya A.S	23520118013	9
13. Aswathy C	23520118015	10
14. Athira B.S	23520118016	10
15. Athira B.	23520118017	9
16. Bharath S. Krish	23520118018	8
17. Devika A.S	23520118019	7
18. Farhana Suml	23520118020	9
19. Gautham Mohan	23520118021	9
20. Govind P.	23520118022	8
21. Hasi S. Prasad	23520118024	10
22. Harsha G.S	23520118025	10
23. Jayanth J.S	23520118026	10
24. Krishna Vinod	23520118027	6
25. Panchami Krishnan	23520118028	8
26. Pasvathy Nair A.V	23520118029	7
27. Priyadarshini	23520118030	9
28. Remya P	23520118031	9
29. Salmiya S	23520118032	9
30. Soufith Suresh	23520118033	9

31. Supriya Rani	23520118034	6
32. Umeshdev U.L	23520118035	8
33. Abhijeth. A.S	23520118036	8
34. Adithya Vinod	23520118037	8
35. Amal dev L	23520118038	8
36. Anandani H.A	23520118039	7
37. Ananthakrishna S.	23520118040	7
38. Anush S	23520118041	8
39. Aswanth S.R	23520118042	8
40. Gowri M.S	23520118043	9
41. Dikshu Siva S	23520118044	9
42. Lakshmi B	23520118045	6
43. Megha M.S	23520118046	6
44. Priyadarsini P.S	23520118047	10
45. R. Chanthanya	23520118048	10
46. Vybhavai A.R	23520118049	10
47. Anuja Ananthu	23520118050	6
48. Bhagyashomanus	23520118051	7
49. Golbal C.R	23520118052	9
50. Sabarinath K.S	23520118053	10
51. Silpa B.S	23520118054	6
52. Sree Lakshmi Suml	23520118055	7
53. Visalak N	23520118056	8
54. Amal jith ac	23520118057	10
55. Prayathri A.S	23520118058	10



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Second Add on course

(2022 - 23)

Molecular Spectroscopy.

Sl.no	Name	Candidate code	10/10	12/10	18/10	26/10
1	Abhaya Vinesh	23520118001	/	/	/	/
2	Abhiram.V.K	23520118002	/	/	/	/
3	Adarshkrishnan J	23520118003	/	A	/	/
4	Adithya.K.H	23520118004	/	/	/	/
5	Aiswarya M.S	23520118005	/	/	/	/
6	Aiswarya.B	23520118006	/	/	/	A
7	Akhilkrishnan U.M	23520118007	/	/	/	/
8	Anakha.S.R	23520118008	/	/	/	/
9	Anandhu.A.S	23520118009	/	/	/	/
10	Anyali.P.S	23520118010	/	/	/	/
11	Aparna.S.Naidu	23520118012	/	/	/	/
12	Arya.A.S	23520118014	/	A	/	/
13	Aswathy.C	23520118015	/	/	/	/
14	Athira.B.S	23520118016	/	/	/	/
15	Athira.O	23520118017	/	/	/	/
16	Bharath.S.Krishna	23520118018	/	/	/	/
17	Devika.A.J	23520118019	A	/	/	/
18	Jasxana.dunil	23520118020	/	/	/	/
19	Geetham.Mohan.Y.M	23520118021	/	/	/	/
20	Govind.P	23520118022	/	/	/	A
21	Hari.S.Prasad.	23520118023	/	/	A	/
22	Hirsha.G.S	23520118024	/	/	/	/
23	Jayanth.J.S	23520118025	/	/	/	/
24	Krishna Vinod.A.	23520118027	/	/	/	/
25	Panchami Krishna.P	23520118028	/	/	/	/
26	Parvathy.Nair.A.V	23520118029	/	/	/	/
27	Priyadharshini.S.	23520118030	/	/	/	/
28	Remya.P	23520118031	A	/	/	/
29	Salmiya.S.	23520118032	/	/	/	/
30	Lojith.Luvash.	23520118033	/	/	/	/
31	Lupriya.Rani	23520118034	A	/	/	/
32	Umeshdev.U.K	23520118035	/	A	/	/
33	Abhijith.A.S.	23520118036	/	/	/	/
34	Adithya Vinod.	23520118037	/	/	/	/
35	Amal Dev.L.	23520118038	/	/	A	/
36	Anandan.H.A	23520118039	/	/	/	/
37	Anasthakrishnan.S.	23520118040	/	/	/	/

Sl. No.	Name of candidate	Candidate Code	4/7	6/7	11/7	14/7	18/7	24/7	25/7	27/7	28/7	29/7	30/7	31/7	1/8	03/8	04/8	05/8	06/8	09/8	17/8	18/8	20/8	21/8	23/8	24/8	25/8	26/8	27/8	29/8	30/8	19/9	21/9	28/9	30/9	10/10		
38.	Amush. S	23520118041	A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
39.	Abhinav. S.R	23520118042	A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
40	Gauri. M.S	23520118043	/	A	/	/	A	/	/	A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
41	Jyoti Siva.S	23520118044	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
42	Lakshmi.B	23520118045	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
43	Megha.M.S	23520118046	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
44	Megha.M.S	23520118047	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
44	Paryadevini.P.S	23520118047	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
45	R. Gaitkanyan	23520118048	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
46	Vyshnavi.A.R	23520118049	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
47	Amiya Anantkulkarni	23520118050	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
48	Bhagya Sonam. V.S	23520118051	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
49	Gadgil.G.R	23520118052	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
50	Sobarnalal.K.G.	23520118053	A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
51	Silva.B.S.	23520118054	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
52	Sudalekshmi.Sunil	23520118055	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
53	Vainaky.N.	23520118056	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
54	Anjalika.A.L.	23520118057	A	/	/	A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
55.	Gayatri.A.S.	23520118058	/	/	/	/	A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/


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Sl.no	Name	Candidate code	12/10	18/10	26/10
38	Aneesh . S	23520118041	/	/	/
39	Aswanth . S R	23520118042	/	/	/
40	Gouri . M . S	23520118043	/	/	/
41	Jishnu . Piva . S	23520118044	/	/	/
42	Lakshmi . B	23520118045	/	/	/
43	Megha . M . S	23520118046	/	/	/
44	Priyadevini . P . S	23520118047	/	/	/
45	R. Chaitanyan	23520118048	/	A	/
46	Vyshnavi . A . R .	23520118049	/	/	/
47	Anuja . Anantkrishnan	23520118050	/	/	/
48	Bhagya Loman . U . S ^{Gr}	23520118051	A	/	/
49	Gokul . G . R .	23520118052	A	/	/
50	Subasinath . K . G .	23520118053	/	/	/
51	Silpa . B . S .	23520118054	/	/	/
52	Sheelekshmi . Sunil .	23520118055	/	/	/
53	Vaisakh . N	23520118056	/	/	/
54	Amaljith . A . L .	23520118057	/	/	A
55.	Gayathri . A . S .	23520118058	/	/	/

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Candidate code

Sr.no	Name	23521118001	23521118002	23521118003	23521118004	23521118005	23521118006	23521118007	23521118008	23521118009	23521118010	23521118011	23521118012	23521118013	23521118014	23521118015	23521118016	23521118017	23521118018	23521118019	23521118020	23521118021	23521118022	23521118023	23521118024	23521118025	23521118026	23521118027	23521118028	23521118029	23521118030	23521118031	23521118032	23521118033	23521118034	23521118035	23521118036	23521118037						
1	Prinayya. H	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/		
2	Prinayya. V. R	/	A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
3	Prinayya. B. R	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
4	Prinayya. A. B	/	/	/	A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
5	Prinayya. Laxithan.	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
6	Prinayya. P. S.	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
7	Prinayya. K. S.	/	A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
8	Prinayya. Ram	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
9	Prinayya. S	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
10	Prinayya. V. R	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	
11	Prinayya. K. S. R.	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
12	Prinayya. S. V	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
13	Prinayya. R	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
14	Prinayya. P. S.	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
15	Prinayya. G. N.	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
16	Prinayya. G. N.	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
17	Prinayya. G. N.	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
18	Prinayya. G. N.	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
19	Prinayya. R. S.	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
20	Prinayya. M.	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
21	Prinayya. R. S.	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
22	Prinayya. S. S.	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
23	Prinayya. S. S.	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
24	Prinayya. S. S.	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
25	Prinayya. S. S.	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
26	Prinayya. S. S.	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
27	Prinayya. S. S.	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
28	Prinayya. M. B	/	A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
29	Prinayya. L. R	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
30	Prinayya. B	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
31	Prinayya. P. R. K	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
32	Prinayya. K. S. R. A	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
33	Prinayya. G.	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
34	Prinayya. S. N. A. S.	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
35	Prinayya. S. N. A. S.	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
36	Prinayya. B. V.	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/
37	Prinayya. R.	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/	/



MAHATMA GANDHI COLLEGE
DEPARTMENT OF CHEMISTRY
CERTIFICATE OF COMPLETION

This is to certify that Salmiya S has successfully completed the Add On course entitled

“ Molecular Spectroscopy ”

Dr. Nitha L.P.
Course coordinator

Dr. Sikha T.S
Head of the Department

31/03/2023

HEAD
Chemistry & Research Centre

Mahatma Gandhi College

Thiruvananthapuram

Thiruvananthapuram



MAHATMA GANDHI COLLEGE
DEPARTMENT OF CHEMISTRY
CERTIFICATE OF COMPLETION

This is to certify that Abhinav V.R has successfully completed the Add On course entitled

“ Molecular Spectroscopy”

Dr. Nitha L.P
Course coordinator

Dr. Sikha T.S
Head of the Department

31/03/2023

Dr. AD
Mahatma Gandhi College
Trivananthapuram

SUMMARY REPORT OF ADD-ON COURSE – MOLECULAR SPECTROSCOPY(2022-2023)

As per the request of several students we started an Add on course on Molecular spectroscopy and it was successfully completed in the academic year 2022-2023, 55 students were enrolled for the course. Classes conducted from 04/07/ 2022 to 08/02/2023 for 30 hours. Theory and practical sessions were included in this course.

After the completion of the course, students were assessed by written examination. Those who secured 60% marks and above in written examinations were honoured by certificates.



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Mahatma Gandhi College
Thiruvananthapuram