Saraswati Mahila Mahavidyalaya, Palwal

Lesson Plan :

Name of the Assistant/Associate Professor: TALAK VERMA / NEERAJ VERMA

Class and Section: M.Sc. Physics (P) [Th & Lab], M.Sc. Physics (F) [Th & Lab], B.Sc Ist Lab (N.M)

Name of subject: M.Sc. Previous - At. & mol. Physics - IInd sem, M.Sc. final - Atomic & molecular Physics - 4th sem.

Subject Lesson Plan : 18 weeks(from January 2018 to April 2018)

(Note: Prepare as per list of holidays declared by Haryana govt.)

WEEK 1	
ASSIGNMENT: UNIT - Ist NMR.	
WEEK 1,DAY1 ,DATE :01/01/2018(MONDAY)	
M.Sc. (F) Th. Introduction of NMR	Lab (Final) Aim - i) e/m by Helical method. ii) Energy Band gap. - Explanation of above -
WEEK 1 ,DAY 2 ,DATE :02/01/2018(TUESDAY)	
M.Sc(F) Th Explanation of NMR with e.g.	Lab (Final) Demo of these exp.
WEEK 1,DAY 3 ,DATE :03/01/2018(WEDNESDAY)	
M.Sc.(F) Th. The Principle of NMR	Lab (final) Experiments Performed.
WEEK 1 ,DAY 4 ,DATE :04/01/2018(THURSDAY)	
M.Sc. (Previous) (Th.) UNIT-Ist one e^- Systems and Pauli Principle. * quantum state of one e^- atoms. * atomic orbital.	-
WEEK 1,DAY 5 ,DATE :05/01/2018(FRIDAY)	
Holiday on account of Guru Govind Singh's Birthday	
WEEK 1 ,DAY 6 ,DATE :06/01/2018(SATURDAY)	

* Hydrogen Spectrum * Pauli Principle
WEEK 2
ASSIGNMENT:
WEEK 2,DAY1 ,DATE :08/01/2018(MONDAY)
Final (M.Sc.) Th. NMR Spectrometer | lab (f) calculations of experiment.
WEEK 2 ,DAY 2 ,DATE :09/01/2018(TUESDAY)
M.Sc. (f) Th Types of NMR | lab (f) Viva of e/m by Helical method.
WEEK 2,DAY 3 ,DATE :10/01/2018(WEDNESDAY)
M.Sc. (f) Th Importance of Types. | lab (f) Viva- of Energy Band gap.
WEEK 2 ,DAY 4 ,DATE :11/01/2018(THURSDAY)
M.Sc (P) Th. * Spectra of alkali elements. *
WEEK 2,DAY 5 ,DATE :12/01/2018(FRIDAY)
M.Sc. (P) Th. * Spin orbit interaction | B.Sc. I st (lab) Aim:- To find the modulus of Rigidity of wire using Maxwell Explain Aim
WEEK 2 ,DAY 6 ,DATE :13/01/2018(SATURDAY)
M.Sc. (P) Th. fine St. in alkali Spectra | B.Sc. I st (lab) Read & Demo.

WEEK 3

ASSIGNMENT:

WEEK 3,DAY1 ,DATE :15/01/2018(MONDAY)

M.Sc.(F) Th.

Types of Nuclei viewed from the Stand point of NMR.

M.Sc.(F) lab

-file checked-

WEEK 3 ,DAY 2 ,DATE :16/01/2018(TUESDAY)

M.Sc.(F) Th.

High Resolution

M.Sc.(F) lab

WEEK 3,DAY 3 ,DATE :17/01/2018(WEDNESDAY)

M.Sc.(F) Th.

Broad line NMR.

M.Sc.(F) lab

WEEK 3 ,DAY 4 ,DATE :18/01/2018(THURSDAY)

M.Sc.(P) Th.

* Spectra of two $\bar{e}$ systems

WEEK 3,DAY 5 ,DATE :19/01/2018(FRIDAY)

MSc. (P) (Th)

* equivalent and Non equivalent electrons.

B.Sc.I N.M. (lab)

Practical conduct.

WEEK 3 ,DAY 6 ,DATE :20/01/2018(SATURDAY)

M.Sc.(P) (Th)

Explation of Salient features of alkali spectra.

lab (B.Sc.I) N.M.

Calculation.

WEEK 4

ASSIGNMENT:

WEEK 4,DAY1 ,DATE :22/01/2018(MONDAY)

M.Sc.(F) (Th)

M.Sc.(F) lab

Holiday on account of Basant Panchmi.	
WEEK 4 ,DAY 2 ,DATE :23/01/2018(TUESDAY)	
M.Sc.(F) Th. Relaxation mechanisms.	M.Sc. (F) lab
WEEK 4,DAY 3 ,DATE :24/01/2018(WEDNESDAY)	
Holiday on account of Sir Chotu Ram Jayanti.	
WEEK 4 ,DAY 4 ,DATE :25/01/2018(THURSDAY)	
M.Sc. (P) Th. Problems & Assignment (i) atomic orbitals (ii) fine St. of alkali spectra.	M.Sc. —
WEEK 4,DAY 5 ,DATE :26/01/2018(FRIDAY)	
Holiday on account of Republic Day.	
WEEK 4 ,DAY 6 ,DATE :27/01/2018(SATURDAY)	
M.Sc. (P) Th Numerical Related with coupling & Test.	Lab B.Sc. IST written work & Viva
WEEK 5	
ASSIGNMENT:	
WEEK 5,DAY1 ,DATE :29/01/2018(MONDAY)	
M.Sc(F) Th. chemical Shift.	Lab (F)
WEEK 5 ,DAY 2 ,DATE :30/01/2018(TUESDAY)	
M.Sc. (F) Th. 9th Graphical Representation.	Lab (F)
WEEK 5,DAY 3 ,DATE :31/01/2018(WEDNESDAY)	
Holiday on account of Guru Ravi Dass Jayanti	
WEEK 5 ,DAY 4 ,DATE :01/02/2018(THURSDAY)	

M.Sc. (P) Th. Spin-Spin coupling.	
WEEK 5,DAY 5 ,DATE :02/02/2018(FRIDAY) UNIT-IInd	
M.Sc. (P) Th. St. and line broading. Explation of Zeeman effect.	B.Sc. I (lab) Viva- file checked.
WEEK 5 ,DAY 6 ,DATE :03/02/2018(SATURDAY) M.Sc. (P) Th. Normal and anomalous zeeman effect.	B.Sc. I (lab) Aim- Elastic cash. by Searl's Method. Explanation & app. shows.
WEEK 6	
ASSIGNMENT:	
WEEK 6,DAY1 ,DATE :05/02/2018(MONDAY)	
M.Sc. (F) Th. Spin-Spin coupling & its features.	M.Sc. (F) lab Aim- Push Pull amplifier- Type - I Type - II
WEEK 6 ,DAY 2 ,DATE :06/02/2018(TUESDAY)	
M.Sc. (F) Th. Applications of NMR.	M.Sc. (F) lab Demo of above Experiment.
WEEK 6,DAY 3 ,DATE :07/02/2018(WEDNESDAY)	
M.Sc. (F) Th. Limitation and Advantages	M.Sc. (F) lab Experiment Performed.
WEEK 6 ,DAY 4 ,DATE :08/02/2018(THURSDAY)	
M.Sc. (P) Th. Paschen Back effect.	
WEEK 6,DAY 5 ,DATE :09/02/2018(FRIDAY)	

M.Sc. (P) Th.

Stark effect.

WEEK 6 ,DAY 6 ,DATE :10/02/2018(SATURDAY)

Holiday on account of Maharshi Dayanand Saraswati Jayanti.

WEEK 7

ASSIGNMENT:

WEEK 7,DAY1 ,DATE :12/02/2018(MONDAY)

M.Sc. (F)

Numerical Related this unit.
& Problems (Discuss)

Lab

Calculation of type of (A) amplifier-

WEEK 7 ,DAY 2 ,DATE :13/02/2018(TUESDAY)

Holiday on account of Maha Shivaratri.

WEEK 7,DAY 3 ,DATE :14/02/2018(WEDNESDAY)

M.Sc. (P)

ASSIGNMENT :-
(i) Types of NMR (ii) Relaxation mechanism
(iii) High. Resolution.

Lab

Calculation of type of (B) amplifier-

WEEK 7 ,DAY 4 ,DATE :15/02/2018(THURSDAY)

M.Sc. (P) Th.

Two electon Systems
Interaction Energy in LS and jj coupling

WEEK 7,DAY 5 ,DATE :16/02/2018(FRIDAY)

M.Sc. (P) Th.

Lande's g-factor in LS & jj coupling

Lab B.Sc. I
Demo &
Reading.

WEEK 7 ,DAY 6 ,DATE :17/01/2018(SATURDAY)

M.Sc.(P) Th. Numerical Based on Langle's g-factor & coupling.	Lab B.Sc.I Experiment Performed.
WEEK 8	
ASSIGNMENT:	
WEEK 8,DAY1 ,DATE :19/02/2018(MONDAY)	
M.Sc.(F) Th Test (Unit Ist) & Assignment checked.	Lab Viva- above experiment.
WEEK 8 ,DAY 2 ,DATE :20/02/2018(TUESDAY)	
M.Sc.(F) Th (Mossbauer spectroscopy) Introduction of mossbauer theory.	Lab file checked-
WEEK 8,DAY 3 ,DATE :21/02/2018(WEDNESDAY)	
M.Sc. (F) Th. Explaination of mossbauer spectrometer	Lab Aim- LED & ~~Diode~~ characteristic
WEEK 8 ,DAY 4 ,DATE :22/02/2018(THURSDAY)	
M.Sc.(P) Th Problems & Assignment:(i) Stark effect. (ii) Paschen Back effect.	
WEEK 8,DAY 5 ,DATE :23/02/2018(FRIDAY)	
M.Sc.(P) Th Test. & Assignment checked.	Lab B.Sc. I calculation. & written.
WEEK 8 ,DAY 6 ,DATE :24/02/2018(SATURDAY) UNIT IIIrd	
M.Sc.(P) Th. Diatomic molecules and their rotation spectra – introduction.	Lab B.Sc. I Viva –

WEEK 9

ASSIGNMENT:

WEEK 9,DAY1 ,DATE :26/02/2018(MONDAY)

M.Sc. (F) Th.

gsomer nuclear transition

(Lab) F

Demo-above experiment

WEEK 9 ,DAY 2 ,DATE :27/02/2018(TUESDAY)

M.Sc. (F) Th.

Resonance fluorescence

(Lab) F

Experiment performed.

WEEK 9,DAY 3 ,DATE :28/02/2018(WEDNESDAY)

VACATION -II

WEEK 9 ,DAY 4 ,DATE :01/03/2018(THURSDAY)

VACATION -II

WEEK 9,DAY 5 ,DATE :02/03/2018(FRIDAY)

VACATION -II

WEEK 9 ,DAY 6 ,DATE :03/03/2018(SATURDAY)

VACATION -II

WEEK 10

ASSIGNMENT:

WEEK 10,DAY1 ,DATE :05/03/2018(MONDAY)

M.Sc. (F) Th.

massbauer effect

(F) Lab.

Viva-

WEEK 10,DAY 2 ,DATE :06/03/2018(TUESDAY)	
M.Sc. (Th) F Mossbauer nuclei	M.Sc. lab(F) – file checked –
WEEK 10,DAY 3 ,DATE :07/03/2018(WEDNESDAY)	
M.Sc. F (Th) Isomer shift with numerical.	M.Sc.(F) Lab Aim– To measure the numerical Apperture (NA) of optical expleing fiber
WEEK 10,DAY 4 ,DATE :08/03/2018(THURSDAY)	
M.Sc. (P) Th * Types of molecules * Diatomic linear symmetric top.	–
WEEK 10,DAY 5 ,DATE :09/03/2018(FRIDAY)	
M.Sc. (P) Th * asymmetric top and Spherical top molecules	B.Sc. I lab – file checked. –
WEEK 10 ,DAY 6 ,DATE :10/03/2018(SATURDAY)	
M.Sc. (P) Th. * Rotational Spectra of diatomic molecules as a rigid rotator.	B.Sc. I (lab) Aim– 'g' by bar Pendulum– explanation –
WEEK 11	
ASSIGNMENT:	
WEEK 11,DAY1 ,DATE :12/03/2018(MONDAY)	
M.Sc. (P) Th. Quadrupole Splitting	M.Sc (P) lab Demo of above experiment
WEEK 11,DAY 2 ,DATE :13/03/2018(TUESDAY)	
M.Sc.(P) Th	(P) Lab

Magnetic hyperfine structure.	Experiment Performed
WEEK 11,DAY 3 ,DATE :14/03/2018(WEDNESDAY)	
M.Sc. (F) Th. Applications of mossbauer Spectroscopy.	Lab (F) - Viva & experiment checked.
WEEK 11,DAY 4 ,DATE :15/03/2018(THURSDAY)	
M.Sc. (P) Th. Energy levels.	—
WEEK 11,DAY 5 ,DATE :16/03/2018(FRIDAY)	
M.Sc. (P) Th Spectra of non. rigid rotator.	Lab B.Sc.I Read & apparatus Show & know.
WEEK 11 ,DAY 6 ,DATE :17/03/2018(SATURDAY)	
M.Sc.(P) Th. Intensity of rotational lines.	Lab B.Sc.I Experiment Performed
WEEK 12	
ASSIGNMENT:	
WEEK 12,DAY1 ,DATE :19/03/2018(MONDAY)	
M.Sc. (F) Th. Problems of [illegible] & Assignment (i) Isomer shift (ii) magnetic hyperfine St.	Lab (F) Aim- To determine the wavelength of He-Ne laser light using diffraction grating.
WEEK 12,DAY 2 ,DATE :20/03/2018(TUESDAY) UNIT-III	
M.Sc (F) Th Spontaneous and Stimulated emission. Absorption.	Lab (F) Demo of this Experi

WEEK 12,DAY 3 ,DATE :21/03/2018(WEDNESDAY)	
M.Sc. (F) Th. Einstein coefficients. The laser idea. Properties of laser beams.	M.Sc. Lab(F) Exp. Performed.
WEEK 12,DAY 4 ,DATE :22/03/2018(THURSDAY)	
M.Sc. (P) * Problemes discuss and Power point Presentation on topic (i) diatomic molecules as a rigid rotator.	—
WEEK 12,DAY 5 ,DATE :23/03/2018(FRIDAY)	
Holiday on account of Shahidi diwas.	
WEEK 12 ,DAY 6 ,DATE :24/03/2018(SATURDAY)	
M.Sc. (P) Test of unit IIIrd.	Lab B.Sc. I calculation- written
WEEK 13	
ASSIGNMENT:	
WEEK 13,DAY1 ,DATE :26/03/2018(MONDAY)	
M.Sc. (F) Rate Equations, methods of obtaining Population inversions.	Lab (F) _nva_
WEEK 13,DAY 2 ,DATE :27/03/2018(TUESDAY)	
M.Sc. (F) laser resonator. Assignment :- (i) Absorption & Test. (ii) Rate Equations	Lab (F) file checked.
WEEK 13,DAY 3 ,DATE :28/03/2018(WEDNESDAY)	

WEEK 12,DAY 3 ,DATE :21/03/2018(WEDNESDAY)

M.Sc. (F) Th.

Einstein coefficients. The laser idea. Properties of laser beams.

M.Sc. Lab(F)

Exp. Performed.

WEEK 12,DAY 4 ,DATE :22/03/2018(THURSDAY)

M.Sc. (P)

* Problemes discuss and Power point Presentation on topic (i) diatomic molecules as a rigid rotator.

WEEK 12,DAY 5 ,DATE :23/03/2018(FRIDAY)

Holiday on account of Shahidi diwas.

WEEK 12 ,DAY 6 ,DATE :24/03/2018(SATURDAY)

M.Sc. (P)

Test of unit IIIrd.

Lab B.Sc. I calculation-written

WEEK 13

ASSIGNMENT:

WEEK 13,DAY1 ,DATE :26/03/2018(MONDAY)

M.Sc. (F)

Rate Equations, methods of obtaining Population inversions.

Lab (F) -Viva-

WEEK 13,DAY 2 ,DATE :27/03/2018(TUESDAY)

M.Sc. (F)

laser resonator.

Assignment :- (i) Absorption (ii) Rate Equations & Test.

Lab (F) file checked.

WEEK 13,DAY 3 ,DATE :28/03/2018(WEDNESDAY)

M.Sc. (F) Th. (b) fine structure (c) hyperfine st. (d) Ligand hyperfine st.	lab(F) calculation & viva
WEEK 14,DAY 4 ,DATE :05/04/2018(THURSDAY)	
M.Sc. (Pr.) Th. * Vibrational energy of diatomic molecules	—
WEEK 14,DAY 5 ,DATE :06/04/2018(FRIDAY)	
M.Sc. (Pr.) * Salient features of Vibrational - Rotational Spectra * As a simple harmonic oscillator.	Lab B.Sc. I Ex-4th- Varification of inverse square law Principle based Explanation-
WEEK 14 ,DAY 6 ,DATE :07/04/2018(SATURDAY)	
M.Sc. (Pr) * Energy levels & Spectrum. with population of energy levels.	lab B.Sc. I Read & Demo.
WEEK 15	
ASSIGNMENT:	
WEEK 15,DAY1 ,DATE :09/04/2018(MONDAY)	
M.Sc. (F) Th Application of ESR. & Take Problems, & Test.	lab(F) file checked
WEEK 15,DAY 2 ,DATE :10/04/2018(TUESDAY) UNIT-IV	
M.Sc. (F) Th Nd: YAG Laser.	lab(F) Revision of e/m by Helical method.

WEEK 15,DAY 3 ,DATE :11/04/2018(WEDNESDAY)	
M.Sc. (F) Th. Co2 laser, Dye laser.	lab f Revision of Energy band gap.
WEEK 15,DAY 4 ,DATE :12/04/2018(THURSDAY)	
M.Sc. (Pr.) * morse Potential Energy curve.	~~lab~~
WEEK 15,DAY 5 ,DATE :13/04/2018(FRIDAY)	
M.Sc. (Pr.) * molecules as vibrating rotator.	B.Sc. I (lab) Experiment performed-
WEEK 15 ,DAY 6 ,DATE :14/04/2018(SATURDAY)	
Holiday on account of Vaisakhi & Dr B.R. Ambedkar's Jayanti.	
WEEK 16	
ASSIGNMENT:	
WEEK 16,DAY1 ,DATE :16/04/2018(MONDAY)	
M.Sc. (F) Th. Nitrogen laser, Laser Applications:-	lab(F) Revision of Type Push Pull (A) amplifier
WEEK 16,DAY 2 ,DATE :17/04/2018(TUESDAY)	
M.Sc. (F) Th. (i) Holography material Processing fusion reaction.	lab(F) Type A Type B.
WEEK 16,DAY 3 ,DATE :18/04/2018(WEDNESDAY)	

Holiday on account of Maharshi Pasuram Jayanti

WEEK 16,DAY 4 ,DATE :19/04/2018(THURSDAY)

M.Sc. (P) Th.

* Vibration Spectrum of diatomic molecules.

WEEK 16,DAY 5 ,DATE :20/04/2018(FRIDAY)

M.Sc. (P) Th.

* fine St. of Rotation - vibrations Bands

B.Sc. lab. IST calculation written

WEEK 16 ,DAY 6 ,DATE :21/04/2018(SATURDAY)

M.Sc.(P) Th.

Solved Numericals.

B.Sc. lab IST

-Viva-

file cheeked.

WEEK 17

ASSIGNMENT:

WEEK 17,DAY1 ,DATE :23/04/2018(MONDAY)

M.Sc. (F) Th,

laser Isotope separation.

Lab F.

Revision of LED

WEEK 17,DAY 2 ,DATE :24/04/2018(TUESDAY)

M.Sc(F) Th,

Numerical Related this UNIT.

Lab F.

Revision of (NA)

WEEK 17,DAY 3 ,DATE :25/04/2018(WEDNESDAY)

M.Sc.(F) Th.

Problem Discuss & Test. & Assignment given.

WEEK 17,DAY 4 ,DATE :26/04/2018(THURSDAY)

M.Sc. (Th) Pr.

* PQR Branches.

WEEK 17,DAY 5 ,DATE :27/04/2018(FRIDAY)

B.Sc. I st Lab

M.Sc. (Pr.) (Th)

* Applications of Vibrational Spectroscopy & Problems Discuss.

Ex-5th Aim - Freq. of A.C. mains. Ex- Performed.

WEEK 17 ,DAY 6 ,DATE :28/04/2018(SATURDAY)

B.Sc. I st Lab.

M.Sc. (Pr.) Th.

Test unit IV , Revision work.

calculation - checked - file. with viva-

WEEK 18

ASSIGNMENT:

WEEK 18,DAY1 ,DATE :30/04/2018(MONDAY)

Revision & Test. & PPt.

Palak verma