

**LESSON PLAN FOR EVEN SEM**  
**SESSION 2017-18**

**NAME OF ASSISTANT /ASSOCIATE PROFESSOR: ANITA**

**CLASS/SECTION**

**: B.SC.III(B,C,D,E&F)**

**Subject**

**: ATOMIC AND MOLECULAR SPECTROSCOPY (PH-602)**

UNIT/PART I	TOPIC	
	THEORY	PRACTICAL
DAY1 DATE 1-1-18	Introduction of early observations, emission and absorption spectra	.....
DAY2 DATE 2-1-18	atomic spectra, wave number, spectrum of Hydrogen atom in Balmer series	.....
DAY3 DATE 3-1-18	Bohr atomic model(Bohr's postulates), spectra of Hydrogen atom	Determine e/m by Thomson's method GROUP(A-14)
DAY4 DATE 4-1-18	Introduction of early observations, emission and absorption spectra	Determine e/m by Thomson's method GROUP(A-14)
DAY5 DATE 5-1-18	atomic spectra, wave number	Determine e/m by Thomson's method GROUP(A-3)
DAY6 DATE 6-1-18	spectrum of Hydrogen atom in Balmer series	Determine e/m by Thomson's method GROUP(A-3)
DAY7 DATE 8-1-18	explanation of spectral series in Hydrogen atom	....
DAY8 DATE 9-1-18	un-quantized states and continuous spectra, spectral series in absorption spectra	....
DAY9 DATE 10-1-18	effect of nuclear motion on line spectra, variation in Rydberg constant due to finite mass,	Study the C B transistor amplifier GROUP(A-14)
DAY10 DATE 11-1-18	Bohr atomic model(Bohr's postulates), spectra of Hydrogen atom	Study the C B transistor amplifier GROUP(A-14)
DAY11 DATE 12-1-18	explanation of spectral series in Hydrogen atom	Study the C B transistor amplifier GROUP(A-3)
DAY12 DATE 13-1-18	un-quantized states and continuous spectra, spectral series in absorption spectra	Study the C B transistor amplifier GROUP(A-3)
DAY13 DATE 15-1-18	short comings of Bohr's theory, Wilson sommerfeld quantization rule	....
DAY 14 DATE 16-1-18	de-Broglie interpretation of Bohr quantization law, Bohr's corresponding principle	....
DAY15 DATE 17-1-18	Vector atom model; space quantization, electron spin, coupling of orbital and spin angular momentum,	Study the C E transistor amplifier GROUP(A-14)

DAY16 DATE 18-1-18	effect of nuclear motion on line spectra, variation in Rydberg constant due to finite mass,	Study the C E transistor amplifier GROUP(A-14)
DAY17 DATE 19-1-18	short comings of Bohr's theory, Wilson sommerfeld quantization rule	Study the C E transistor amplifier GROUP(A-3)
DAY18 DATE 20-1-18	de-Broglie interpretation of Bohr quantization law, Bohr's corresponding principle	Study the C E transistor amplifier GROUP(A-3)
DAY19 DATE 22-1-18	<b>HOLIDAY</b>	.....
DAY20 DATE 23-1-18	<b>SPORTS DAY</b>	.....
DAY21 DATE 24-1-18	<b>HOLIDAY</b>	.....
DAY22 DATE 25-1-18	Vector atom model; space quantization, electron spin, coupling of orbital and spin angular momentum,	Study the B H curve using oscilloscope GP(A-14)
DAY23 DATE 26-1-18	<b>HOLIDAY</b>	.....
DAY 24 DATE 27-1-18	spectroscopic terms and their notation, quantum numbers associated with vector atom model	Study the B H curve using oscilloscope GP(A-3)
<b>UNIT/PART II</b>	<b>TOPIC</b>	
	<b>THEORY</b>	<b>PRACTICAL</b>
DAY1 DATE 29-1-18	Orbital magnetic dipole moment (Bohr megnaton), behavior of magnetic dipole in external magnetic filed;	.....
DAY2 DATE 30-1-18	Larmors' precession and theorem ,Penetrating and Non-penetrating orbits	.....
DAY3 DATE 31-1-18	<b>HOLIDAY</b>	.....
DAY4 DATE 1-2-18	Orbital magnetic dipole moment (Bohr megnaton), behavior of magnetic dipole in external magnetic filed;	Compute the product of two matrices of different dimension GP(A-14)
DAY5 DATE 2-2-18	Larmors' precession and theorem ,Penetrating and Non-penetrating orbits	Compute the product of two matrices of different dimension GP(A-3)
DAY6 DATE 3-2-18	Penetrating orbits on the classical model	Compute the product of two matrices of different dimension GP(A-3)
DAY7 DATE 5-2-18	Penetrating orbits on the classical model, spin orbit interaction energy of the single valance electron	.....
DAY8 DATE 6-2-18	spin orbit interaction for penetrating and non-penetrating orbits	.....
DAY9 DATE 7-2-18	Main features of Alkali Spectra and their theoretical interpretation	Numerical integration by Simpson 1/3 rule GP(A-14)

DAY10 DATE 8-2-18	spin orbit interaction energy of the single valance electron	Numerical integration by Simpson 1/3 rule GP(A-14)
DAY11 DATE 9-2-18	<b>ASSIGNMENT 1</b> ( spin orbit interaction for penetrating and non-penetrating orbits)	Numerical integration by Simpson 1/3 rule GP(A-3)
DAY12 DATE 10-2-18	<b>HOLIDAY</b>	.....
DAY13 DATE 12-2-18	Rydeburg-Ritze combination principle, Absorption spectra of Alkali atoms	.....
DAY14 DATE 13-2-18	<b>HOLIDAY</b>	.....
DAY15 DATE 14-2-18	observed doublet fine structure in the spectra of alkali metals	With the help of a program arrange the marks in ascending of descending order GP(A-14)
DAY16 DATE 15-2-18	Main features of Alkali Spectra and their theoretical interpretation, Rydeburg-Ritze combination principle	With the help of a program arrange the marks in ascending of descending order GP(A-14)
DAY17 DATE 16-2-18	observed doublet fine structure in the spectra of alkali metals	With the help of a program arrange the marks in ascending of descending order GP(A-3)
DAY18 DATE 17-2-18	Main features of Alkali Spectra and their theoretical interpretation, Rydeburg-Ritze combination principle	With the help of a program arrange the marks in ascending of descending order GP(A-3)
DAY19 DATE 19-2-18	Intensity rules for doublets	.....
DAY20 DATE 20-2-18	comparison of Alkali spectra and Hydrogen spectrum .	.....
DAY21 DATE 21-2-18	Hydrogen fine spectra	Diameter of a Lycopodium powder using corona rings. GP(A-14)
DAY22 DATE 22-2-18	Intensity rules for doublets, comparison of Alkali spectra and Hydrogen spectrum .	Diameter of a Lycopodium powder using corona rings. GP(A-14)
DAY23 DATE 23-2-18	Hydrogen fine spectra	Diameter of a Lycopodium powder using corona rings. GP(A-3)
<b>UNIT/PART III</b>	<b>TOPIC</b>	
	<b>THEORY</b>	<b>PRACTICAL</b>
DAY1 DATE 24-2-18	Essential features of spectra of Alkaline-earth elements, Vector model for two valance electron atom: application of spectra.	Diameter of a Lycopodium powder using corona rings. GP(A-3)
DAY2 DATE 26-2-18	Coupling Schemes;LS or Russell – Saunders Coupling Scheme and JJ coupling scheme,	.....
DAY3 DATE 27-2-18	Interaction energy in L-S coupling (sp, pd configuration), Lande interval rule	.....
DAY4	<b>HOLIDAY</b>	.....

DATE 28-2-18		
DAY5 DATE 1-3-18	<b>HOLIDAY</b>	.....
DAY6 DATE 2-3-18	<b>HOLIDAY</b>	.....
DAY7 DATE 3-3-18	<b>HOLIDAY</b>	.....
DAY8 DATE 5-3-18	Pauli principal and periodic classification of the elements	.....
DAY9 DATE 6-3-18	Interaction energy in JJ Coupling (sp, pd configuration)	.....
DAY10 DATE 7-3-18	Essential features of spectra of Alkaline-earth elements, Vector model for two valance electron atom: application of spectra.	Study double slit interference by He-Ne laser.GP(A-14)
DAY11 DATE 8-3-18	Coupling Schemes;LS or Russell – Saunders Coupling Scheme and JJ coupling scheme,	Study double slit interference by He-Ne laser.GP(A-14)
DAY12 DATE 9-3-18	Interaction energy in L-S coupling (sp, pd configuration), Lande interval rule	Study double slit interference by He-Ne laser.GP(A-3)
DAY13 DATE 10-3-18	<b>ASSIGNMENT 2</b> ( equivalent and non-equivalent electrons)	Study double slit interference by He-Ne laser.GP(A-3)
DAY 14 DATE 12-3-18	Two valance electron system	.....
DAY15 DATE 13-3-18	spectral terms of non-equivalent and equivalent electrons	.....
DAY16 DATE 14-3-18	Pauli principal and periodic classification of the elements	Determine the diameter of a wire using (He-Ne Laser)GP(A-14)
DAY17 DATE 15-3-18	Interaction energy in JJ Coupling (sp, pd configuration)	Determine the diameter of a wire using (He-Ne Laser)GP(A-14)
DAY18 DATE 16-3-18	isotope effect, comparison of spectral terms in L-S And J-J coupling	Determine the diameter of a wire using (He-Ne Laser)GP(A-3)
DAY19 DATE 17-3-18	comparison of spectral terms in L-S And J-J coupling	Determine the diameter of a wire using (He-Ne Laser)GP(A-3)
DAY20 DATE 19-3-18	Hyperfine structure of spectral lines and its origin	.....
DAY21 DATE 20-3-18	isotope effect	.....
DAY22 DATE 21-3-18	<b>CONDITIONAL TEST</b>	Determine the resolving power of a prism.GP(A-14)
DAY23 DATE 22-3-18	<b>CONDITIONAL TEST</b>	Determine the resolving power of a prism.GP(A-14)
DAY 24 DATE 23-3-18	<b>HOLIDAY</b>	.....

DAY 25 DATE 24-3-18	nuclear spin	Determine the resolving power of a prism.GP(A-3)
<b>UNIT/PART IV</b>	<b>TOPIC</b>	
	<b>THEORY</b>	<b>PRACTICAL</b>
DAY1 DATE 26-3-18	Zeeman Effect (normal and Anomalous), Experimental set-up for studying Zeeman effect,	.....
DAY2 DATE 27-3-18	Explanation of normal Zeeman effect(classical and quantum mechanical	.....
DAY3 DATE 28-3-18	Explanation of anomalous Zeeman effect(Lande g-factor), Zeeman pattern of D1 and D2 lines of Naatom,	Thickness of a paper using interference fringes in an air wedge.GP(A-14)
DAY4 DATE 29-3-18	<b>HOLIDAY</b>	.....
DAY5 DATE 30-3-18	Zeeman Effect (normal and Anomalous), Experimental set-up for studying Zeeman effect,	Thickness of a paper using interference fringes in an air wedge.GP(A-3)
DAY6 DATE 31-3-18	Explanation of normal Zeeman effect(classical and quantum mechanical	Thickness of a paper using interference fringes in an air wedge.GP(A-3)
DAY7 DATE 2-4-18	Paschen-Back effect of a single valence electron system	.....
DAY8 DATE 3-4-18	Weak field Stark effect of Hydrogen atom	.....
DAY9 DATE 4-4-18	General Considerations, Electronic States of Diatomic Molecules	Determine the resolving power of a transmission grating.GP(A-14)
DAY10 DATE 5-4-18	Paschen-Back effect of a single valence electron system	Determine the resolving power of a transmission grating.GP(A-14)
DAY11 DATE 6-4-18	Weak field Stark effect of Hydrogen atom	Determine the resolving power of a transmission grating.GP(A-3)
DAY12 DATE 7-4-18	General Considerations, Electronic States of Diatomic Molecules	Determine the resolving power of a transmission grating.GP(A-3)
DAY13 DATE 9-4-18	Rotational Spectra (Far IR and Microwave Region)	.....
DAY14 DATE 10-4-18	Vibrational Spectra (IR Region)	.....
DAY15 DATE 11-4-18	Rotator Model of Diatomic	With the help of a program arrange the marks in ascending of descending order.GP(A-14)
DAY16 DATE 12-4-18	Rotational Spectra (Far IR and Microwave Region)	With the help of a program arrange the marks in ascending of descending order.GP(A-14)

DAY17 DATE 13-4-18	Vibrational Spectra (IR Region)	With the help of a program arrange the marks in ascending of descending order.GP(A-3)
DAY18 DATE 14-4-18	<b>HOLIDAY</b>	.....
DAY19 DATE 16-4-18	Raman Effect	.....
DAY20 DATE 17-4-18	Electronic Spectra	.....
DAY21 DATE 18-4-18	<b>HOLIDAY</b>	.....
DAY22 DATE 19-4-18	Raman Effect	Study the B H curve using oscilloscope.GP(A-14)
DAY23 DATE 20-4-18	Electronic Spectra	Study the B H curve using oscilloscope.GP(A-3)

**NAME OF ASSISTANT PROFESSOR:** ANITA  
**CLASS/SECTION:** B.SC.II GROUP(B-9)  
**SUBJECT:** PHYSICS PRACTICALS

UNIT/PART I	TOPIC	
	THEORY	PRACTICAL
DAY3 DATE 3-1-18	.....	To measure the (a) area of a window (b) height of an inaccessible object
DAY4 DATE 4-1-18	.....	To measure the (a) area of a window (b) height of an inaccessible object
DAY9 DATE 10-1-18	.....	Refractive index and dispersive power of a prism material by spectrometer
DAY10 DATE 11-1-18	.....	Refractive index and dispersive power of a prism material by spectrometer
DAY15 DATE 17-1-18	.....	To draw a graph between wave length and minimum deviation for various lines from a Mercury discharge source.
DAY16 DATE 18-1-18	.....	To draw a graph between wave length and minimum deviation for various lines from a Mercury discharge source
DAY21	<b>HOLIDAY</b>	Wave length by Newton's Rings.

DATE 24-1-18		
DAY22 DATE 25-1-18	.....	Wave length by Newton's Rings.
<b>UNIT/PART II</b>	<b>TOPIC</b>	
	<b>THEORY</b>	<b>PRACTICAL</b>
DAY3 DATE 31-1-18	<b>HOLIDAY</b>	
DAY4 DATE 1-2-18	.....	Resolving power of a telescope.
DAY9 DATE 7-2-18	.....	To find the equivalent focal length of a lens system by nodal slide assembly
DAY10 DATE 8-2-18	.....	To find the equivalent focal length of a lens system by nodal slide assembly
DAY15 DATE 14-2-18	.....	To draw common base and common emitter characteristics of a transistor and calculate transistor characteristics parameters.
DAY16 DATE 15-2-18	.....	To draw common base and common emitter characteristics of a transistor and calculate transistor characteristics parameters.
DAY21 DATE 21-2-18	.....	To study the ripple factor in a d.c. power supply
DAY22 DATE 22-2-18	.....	To study the ripple factor in a d.c. power supply
<b>UNIT/PART III</b>	<b>TOPIC</b>	
	<b>THEORY</b>	<b>PRACTICAL</b>
DAY4 DATE 28-2-18	<b>HOLIDAY</b>	
DAY5 DATE 1-3-18	<b>HOLIDAY</b>	
DAY10 DATE 7-3-18	.....	To find out the frequency of a tuning fork by Melde's experiment
DAY11 DATE 8-3-18	.....	To find out the frequency of a tuning fork by Melde's experiment
DAY16 DATE 14-3-18	.....	Study of series and parallel resonance circuits
DAY17 DATE 15-3-18	.....	Study of series and parallel resonance circuits

DAY22 DATE 21-3-18	<b>CONDITIONAL TEST</b>	To print out all natural (even/odd) numbers between given limits using computer
DAY23 DATE 22-3-18	<b>CONDITIONAL TEST</b>	To print out all natural (even/odd) numbers between given limits using computer
<b>UNIT/PART IV</b>	<b>TOPIC</b>	
	<b>THEORY</b>	<b>PRACTICAL</b>
DAY3 DATE 28-3-18		To find maximum, minimum and range of a given set of numbers using computer.
DAY4 DATE 29-3-18	<b>HOLIDAY</b>	.....
DAY9 DATE 4-4-18	.....	Find the roots of a quadratic equation.
DAY10 DATE 5-4-18	.....	Find the roots of a quadratic equation.
DAY15 DATE 11-4-18	.....	To find the area of a triangle, sphere and cylinder.
DAY16 DATE 12-4-18	.....	To find the area of a triangle, sphere and cylinder.
DAY21 DATE 18-4-18	<b>HOLIDAY</b>	.....
DAY22 DATE 19-4-18	.....	Study of series and parallel resonance circuits

**NAME OF TEACHER**

**ANITA**