Lesson plan

Name of the Assistant Professor: Uttam Nain

Class and Section: B.Sc Honors Physics 6th sem

Subject: Mathematical Physics-VI **Sub. Code- Phy-601**

Week	Day No.	Topics	Remarks
1	Day 1	**Introduction to course**	
	Day 2	Laplace transform	
	Day 3	Transform of elementary functions	
	Day 4	--continue--	
2	Day 5	--continue--	
	Day 6	Derivatives and integrals	
	Day 7	--continue-	
	Day 8	Unit step function	
3	Day 9	--continue--	
	Day 10	--continue--	
	Day 11	Periodic function	
	Day 12	Translation substitution	
4	Day 13	Convolution theorem	
	Day 14	--conitnue--	
	Day 15	Solution of first and second order ordinary differential equations	
	Day 16	--continue--	
5	Day 17	Solution of partial differential equations.	
	Day 18	Class Test I	
	Day 19	Evaluation of integrals using transforms	
	Day 20	--continue--	
6	Day 21	Fourier transform	
	Day 22	Fourier integral theorem	
	Day 23	Sine and cosine transforms	
	Day 24	--continue--	
7	Day 25	**Cartesian Tensors**	
	Day 26	Transformation of co-ordinates.	

	Day 27	Class Test II	
	Day 28	Tensorial character of physical quantities.	
8	Day 29	Symmetric and anti-symmetric lasers	
	Day 30	--continue--	
	Day 31	Contraction and differentiation	
	Day 32	--continue--	
9	Day 33	Pseudo tensors	
	Day 34	, Kronecker and attemating tensors	
	Day 35	--continue--	
	Day 36	Step function	
10	Day 37	Dirac delta function.	
	Day 38	--continue--	
	Day 39	Class Test III	
	Day 40	Solution of one dimensional diffusion and wave equations	
11	Day 41	--continue--	
	Day 42	Heat Flow in an infinite and semi-in-finite rod.	
	Day 43	--continue--	
	Day 44	Revision	

Lesson plan

(January-June: 2020)

Name of the Assistant/ Associate Professor: **Ms. Poonam Yadav**

Class: **B.Sc HONS. PHYSICS, Semester 6th**

Subject: **ELECTROMAGNETIC THEORY– II** SubjectCode**:PHY-602**

Week	Day No.	Topics	Remarks
1	Day 1	**Unit:1 POLARISATION**	
16 Jan.	Day 2	Basics About Polarisation	
-	Day 3	Different type of polarisation	
24 Jan.	Day 4	Polarization plane and plane of vibration	
	Day 5	Elliptical polarisation	
	Day 6	Circular polarisation	
	Day 7		
2	Day 8	Propadation of em wave in anisotropic dielectric medium	
27 Jan.	Day 9	Cont…	
-	Day 10	Fresnals formula	
31 Jan.	Day 11	Uniaxial and biaxial crystal	
	Day 12	Propagation of light in Uniaxial crystal	
3	Day 13	CONT….	
02 Feb.	Day 14	Double refraction	
-	Day 15	CONT…..	
07 Feb.	Day 16	Revision of Unit: I	
	Day 17	Production of circularly polarized and elliptically polarisd light	
4	Day 18	CONT….	
10 Feb.	Day 19	Babinet Compensator	
-	Day 20	Nicol prism	
14 Feb.	Day 21	CONT….	
	Day 22	Revision	
5	Day 23	Revision	
17 Feb.	Day 24	Analysis of polarized light	
-	Day 25	**Class test: 01**	
21 Feb.	Day 26	Test discussion	
6	Day 27	Previous year questions of UNIT- I	
24 Feb.	Day 28	**UNIT-II Wave Guides**	
-	Day 29	**First assignment**	
28 Feb.	Day 30	Coaxial transmission lines	

	Day 31	CONT…	
7	Day 32	Cont….	
02 Mar.	Day 33	Modes in reactangular wave guide	
-	Day 34	Cont…	
06 Mar.	Day 35	Energy flow and attenuatin in waveguides	
	Day 36		
8	Day 37	Reactangular resonant cavities	
09 Mar.	Day 38	Planer optical waveguide	
-	Day 39	Cont….	
13 Mar.	Day 40	Cont….	
9	Day 41	Planer dielectric wave guide	
16 Mar.	Day 42	Cont….	
-	Day 43	Continuity at interface	
20 Mar.	Day 44	Cont….	
	Day 45		
10	Day 46	Phase shift on total reflection	
23 Mar.	Day 47	Eigen value equations	
-	Day 48	Cont..	
27 Mar.	Day 49	**Class test: 02**	
	Day 50		
11	Day 51	Test discussion	
30 Mar.	Day 52	Phase and group velocity	
-	Day 53	Cont..	
03 Apr.		***Ram navmi***	
	Day 54	Field energy and power transmission	
12	Day 55	Cont…	
06 Apr.	Day 56	RIVISION	
-	Day 57	RIVISION	
10 Apr.	Day 58	RIVISION	
	Day 59	RIVISION UNIT -I	
13	Day 60	Solution of Previous Year Question Papers	
13 Apr.	Day 61	Solution of Previous Year Question Papers	
-	Day 62	Solution of Previous Year Question Papers	
17 Apr.	Day 63	--continue--	
	Day 64	--continue--	

Lesson plan

(January-June: 2020)

Name of the Assistant/ Associate Professor: **Mr. Somveer**

Class: **B.Sc HONS. PHYSICS, Semester 6th**

Subject: **Statistical Physics-II** **Subject Code: PHY-603**

Week	Day No.	Topics	Remarks
1	Day 1	**INTRODUCTION**	
16 Jan. - 24 Jan.	Day 2	Introduction of Bose Einstein Statistics	
	Day 3	B.E. distribution law	
	Day 4	Thermodynamic functions of an ideal weakly degenrate gas	
	Day 5	Bose-Einstein condensation properties of liquid He.	
	Day 6	Planck' law Derivation	
	Day 7	Thermodynamic function of Photon gas	
2	Day 8	problems of above topic (Numerical Type)	
27 Jan. - 31 Jan.	Day 9	Specific Heat of Hydrogen	
	Day 10	Quantization of Rotational & Vibrationa Motion	
	Day 11	Ortho and Para hydrogen	
	Day 12	Repeating of above for any Problem	
3	Day 13	CONT….	
02 Feb. - 07 Feb.	Day 14	Test of Unit-I	
	Day 15	Test distribution and test solution	
	Day 16	Fermi-Dirac Distribution Law	
	Day 17	Fermi-Energy	
4	Day 18	problems discussion	
10 Feb. - 14 Feb.	Day 19	Thermodynamic function of an Ideal weakly Gas	
	Day 20	Weakly degenerate Fermi-Gas	
	Day 21	Strongly degenerate Fermi-Gas	
	Day 22	Problems of above topic (Numerical Type	
5	Day 23	Electron Gas in a Metal	
17 Feb. - 21 Feb.	Day 24	Revision	
	Day 25	**Class test: 01**	
	Day 26	Test discussion	
6	Day 27	Previous year questions of UNIT- I	
24 Feb. -	Day 28	Specific heat of Metals	
	Day 29	**First assignment**	

28 Feb.	Day 30	Richardson equation of thermionic emission	
	Day 31	Third Law of thermodynamics	
7	Day 32	Application of third law & thermodynamics	
02 Mar.	Day 33	Entropy & its definition	
-	Day 34	Absolute definition of entropy	
06 Mar.	Day 35	Consequence & third law	
	Day 36		
8	Day 37	Unattniability of Absolute Law	
09 Mar.	Day 38	Remaining Problems of Above topic	
-	Day 39	Seminar representation	
13 Mar.	Day 40	Seminar representation	
9	Day 41	Seminar Allotement	
16 Mar.	Day 42	Revision	
-	Day 43	Ppt on different topics	
20 Mar.	Day 44	Discussion of problem facing during PPT	
	Day 45		
10	Day 46	Revision	
23 Mar.	Day 47	Revision	
-	Day 48	**Revision**	
27 Mar.	Day 49	**Class test: 02**	
	Day 50		
11	Day 51	Test discussion	
30 Mar.	Day 52	Previous year Question paper	
-	Day 53		
03 Apr.		***Ram navmi***	
	Day 54	Previous year Question paper	
12	Day 55	Cont…	
06 Apr.	Day 56	RIVISION	
-	Day 57	RIVISION	
10 Apr.	Day 58	RIVISION	
	Day 59	RIVISION UNIT -I	
13	Day 60	Solution of Previous Year Question Papers	
13 Apr.	Day 61	Solution of Previous Year Question Papers	
-	Day 62	Solution of Previous Year Question Papers	
17 Apr.	Day 63	--continue--	
	Day 64	--continue--	

Lesson plan

Name of the Assistant Professor: Deepika

Class and Section: B.Sc Honors Physics 6th sem

Subject: Physics of Materials –II **Sub. Code- Phy-604**

Week	Date	Topics
1	Day1	Introduction
	Day2	Qualitative description of free electron theory
	Day3	its inadequacies with reference to Hall effect
2	Day4	specific heat of electrons in a metal
	Day5	Elementary band theory-Bloch theorem
	Day6	Continue…
3	Day7	Kronig-Penney model
	Day8	Continue…..
	Day9	effective mass of electron
4	Day10	Assignment-1
	Day11	concept of hole.
	Day12	Band gaps, difference between conductors, semiconductors and insulators,
5	Day13	Class test
	Day14	intrinsic and action, conductivity in semiconductors
	Day15	mobility of carriers (lattice & semiconductors (qualitative)
6	Day16	SESSIONAL
	Day17	Polarization, Local electric field at an atom
	Day18	Depolarization field,

7	Day19	Lorentz fields of dipoles inside a cavity
	Day20	Dielectric constant and polrizability:
	Day21	Revision
8	Day22	Electric susceptibility, polarizability)
	Day23	Clausius- Mosotti equation
	Day24	Continue…..
9	Day25	Qualitative discussion of ferroelectric properties of materials
	Day26	Class Test
	Day27	Revision
10	Day28	P-E hysteresis loop
	Day29	Class test
	Day30	revisioon
11	Day31	Numerical problems & assignment
	Day32	Doubts
	Day33	Previous year question paper
12	Day34	Syllabus Complete
	Day35	Numerical problems & assignment
	Day36	Revision
13	Day37	Numerical problems & assignment
	Day38	Doubts
	Day39	Class test

Lesson plan

(January-June: 2020)

Name of the Assistant/ Associate Professor: **Dr. Jitendra Kumar**

Class: **B.Sc HONS. PHYSICS, Semester 6th**

Subject: **Electronics devices: Physics and application- II** Subject Code**: Phy-605**

Week	Day No.	Topics	Remarks
1	Day 1	**Introduction**	
16 Jan. - 24 Jan.	Day 2	Amplifiers – Only bipolar junction transistor	
	Day 3	CB	
	Day 4	CE	
	Day 5	CC	
	Day 6	Single stage CE amplifier	
	Day 7	Biasing	
2	Day 8	stabilization circuits	
27 Jan. - 31 Jan.	Day 9	Q-point	
	Day 10	equivalent circuit	
	Day 11	Input impedance	
	Day 12	output impedancex	
3	Day 13	CONT….	
02 Feb. - 07 Feb.	Day 14	output impedance	
	Day 15	CONT…..	
	Day 16	voltage and current gain	
	Day 17	Class A amplifiers	
4	Day 18	Class B amplifiers	
10 Feb. - 14 Feb.	Day 19	Class C amplifiers	
	Day 20	Revision	
	Day 21	Revision	
	Day 22	Revision	
5	Day 23	Revision	
17 Feb. - 21 Feb.	Day 24	Revision	
	Day 25	**Class test: 01**	
	Day 26	Test discussion	
6	Day 27	Previous year questions of UNIT- I	
24 Feb. - 28 Feb.	Day 28	**UNIT-II oscillator**	
	Day 29	**First assignment**	
	Day 30	Barkhausen criterion	

	Day 31	Colpitts oscillators	
7	Day 32	phase shift oscillators	
02 Mar.	Day 33	crystal oscillators	
-	Day 34	Multivibrators	
06 Mar.	Day 35	sweep circuits	
	Day 36	Basic circuits of astable multivibrators	
8	Day 37	Bistable multivibrators	
09 Mar.	Day 38	monostable multivibrators	
-	Day 39	Details of astable multivibrators (Derivation of time period)	
13 Mar.	Day 40	Cont....	
9	Day 41	Sweep circuit using transistor as a switch	
16 Mar.	Day 42	Cont....	
-	Day 43	UJT (derivation of time period).	
20 Mar.	Day 44	Cont....	
	Day 45		
10	Day 46	**Second assignment**	
23 Mar.	Day 47	**Numericals**	
-	Day 48	Cont..	
27 Mar.	Day 49	**Class test: 02**	
	Day 50		
11	Day 51	Test discussion	
30 Mar.	Day 52	Previous years question papers	
-	Day 53	Cont..	
03 Apr.		***Ram navmi***	
	Day 54	RIVISION	
12	Day 55	RIVISION	
06 Apr.	Day 56	RIVISION	
-	Day 57	RIVISION	
10 Apr.	Day 58	RIVISION	
	Day 59	RIVISION UNIT -I	
13	Day 60	Solution of Previous Year Question Papers	
13 Apr.	Day 61	Solution of Previous Year Question Papers	
-	Day 62	Solution of Previous Year Question Papers	
17 Apr.	Day 63	--continue--	
	Day 64	--continue--	

Lesson plan

Name of the Assistant Professor: Dr. Rajni Bansal
Class and Section: B.Sc. Honors Physics
Subject: Nanotechnology (PHY606)

Week	Day No.	Topics	Remarks
14 Jan.	Day 1	**Basic Introduction to Nanomaterials**	
-	Day 2	Properties and Applications of nanomaterials	
18 Jan.	Day 3	Classification of Nanomaterials	
	Day 4	Definitation of Particle size	
	Day 5	Definitation of Crystallite size	
21 Jan.	Day 6	Definitation of Crystallite size	
-	Day 7	Difference between particle size and crystallite size	
26 Jan.	Day 8	Different techniques used to determine particle size	
	Day 9	Continue	
	Day 10	Short revision and **Numerical problems**	
28 Jan.	Day 11	XRD technique	
-	Day 12	Increase in width of XRD peaks of Nanoparticles	
02 Feb.	Day 13	Continue	
	Day 14	**Numerical problems**	
	Day 15	**Surprise Quiz**	
04 Feb.	Day 16	Quiz distribution and discussion	
-	Day 17	Photoluminescence (PL): An Introduction	
09 Feb.	Day 18	PL spectra of various Nanomaterials	

	Day 19	PL spectra of various Nanomaterials	
	Day 20	continue	
11 Feb. - 15 Feb.	Day 21	Observation of PL peaks	
	Day 22	Continue…	
	Day 23	**Numerical problems**	
	Day 24	Major revision	
	Day 25	**Class Test**	
18 Feb. - 23 Feb.	Day 26	Test distribution and discussion	
	Day 27	Techniques used to observe the PL peaks	
	Day 28	Continue	
	Day 29	Shift in PL peaks	
	Day 30	Continue	
25 Feb. - 02 Mar.	Day 31	Red Shift and Blue shift in PL peaks	
	Day 32	Continue	
	Day 33	Raman spectra: An Introduction	
	Day 34	Continue	
	Day 35	Short revision & **Numerical problems**	
04 Mar. - 09 Mar.	Day 36	Raman spectra in bulk- and Nano-materials	
	Day 37	Continue	
	Day 38	Properties and Applications of Raman Spectra	
	Day 39	Variation of Raman spectra of Nanomaterials	
	Day 40	Continue	

11 Mar. - 15 Mar.	Day 41	Numerical based on XRD peaks	
	Day 42	Numerical based on XRD peaks	
	Day 43	Numerical based on particle size determination	
	Day 44		
	Day 45	**Assignment**	
18 Mar. - 23 Mar.	Day 46	Bottom-up and Top-down approaches	
	Day 47	Chemical Bath Deposition (CBD)	
	Day 48	Bottom-up approaches: Cluster Beam evaporation	
	Day 49	CBD with Capping technique	
	Day 50	Continue	
25 Mar. - 30 Mar.	Day 51	Revision of all Bottom-up methods	
	Day 52	Top-down approaches	
	Day 53	Different types of Top-down methods	
	Day 54	**Continue**	
	Day 55	Difference between Bottom-up and Top-down approaches	
01 Apr. - 06 Apr.	Day 56	Ball-Milling	
	Day 57	Continue	
	Day 58	**Numerical problems**	

	Day 59	Conservation Laws & **Surprise Quiz**	
	Day 60	**(Revision)**	
08 Apr. - 13 Apr.	Day 61	Continue and **Numerical problems**	
	Day 62	Classification of Nanomaterials	
	Day 63	Facile synthesis of nanomaterials	
	Day 64	Mechanism for the synthesis of Nanomaterials	
	Day 65	Continue	
15 Apr. - 19 Apr.	Day 66	**Class Test**	
	Day 67	Test distribution and discussion	
	Day 68	**(Revision)**	
	Day 69	discussion of previous paper **(Unit I)**	
	Day 70	**(Revision)** & discussion of previous paper **(Unit II)**	