Lesson Plan

Name of the Associate Professor- MS. TAMANNA ARORA

Subject- Physics

Lesson Plan- 17 Weeks (January-April 2018)

Week	Date	Class B.SC.-II semester (Sec-E,F) Electronic devices	Class B.SC.-IV semester (Sec-B) Statistical Physics
1.	1-Jan-18		Introduction to Statistical Physics
	2-Jan-18		Microscopic and Macroscopic systems, events-mutually exclusive
	3-Jan-18		Dependent and independent. Probability, statistical probability
	4-Jan-18	Discussion of basic terms used in unit	
	5-Jan-18	**Holiday**	
	6-Jan-18	Energy bands in solids	
	7-Jan-18	**Sunday**	
2.	8-Jan-18		A- priori Probability and relation between them, probability theorems
	9-Jan-18		Some probability considerations, combinations possessing maximum probability, combination possessing minimum probability
	10-Jan-18		Tossing of 2,3 and any number of Coins, Permutations and combinations
	11-Jan-18	carrier mobility and electrical resistivity ofd semiconductor	
	12-Jan-18	hall effect	
	13-Jan-18	p-n junction diode &their characteristics	
	14-Jan-18	**Sunday**	
3.	15-Jan-18		Oral Test
	16-Jan-18		Distributions of N (for N= 2,3,4) distinguishable particles in two boxes of equal size
	17-Jan-18		Distributions of N (for N= 2,3,4) indistinguishable particles in two boxes of equal size
	18-Jan-18	zener and avalanche breakdown & zener diode	

	19-Jan-18	zener diode as a voltage regulator	
	20-Jan-18	Light emitting diodes (LED), Photoconduction in semiconductors	
	21-Jan-18	**Sunday**	
4.	22-Jan-18	**Vasant Panchami**	
	23-Jan-18		Micro and Macro states, Thermodynamical probability, Constraints and Accessible states
	24-Jan-18	**Sir Chotu Ram Jayanti**	
	25-Jan-18	Photodiode, Solar Cell,	
	26-Jan-18	**Republic Day**	
	27-Jan-18	p-n junction as a rectifier, half wave and full wave rectifiers (with derivation),	
	28-Jan-18	**Sunday**	
5.	29-Jan-18		Statistical fluctuations, general distribution of distinguishable particles in compartments of different sizes
	30-Jan-18		Condition of equilibrium between two systems in thermal contact-- β parameter, Entropy and Probability (Boltzman's relation
	31-Jan-18	Guru Ravi Das Birthday	
	1-Feb-18	series inductor filter, shunt capacitance filter	
	2-Feb-18	L-section or choke filter, π-filter	
	3-Feb-18	R.C. filter circuits	
	4-Feb-18	**Sunday**	
6.	5-Feb-18		Problem discussion on unit 1
	6-Feb-18		Revision of numericals of unit 1
	7-Feb-18		Unit 1- test
	8-Feb-18	Problem discussion of unit 1	
	9-Feb-18	Unit -1 Test	
	10-Feb-18	**Maharishi Dayanand Saraswati Jayanti**	
	11-Feb-18	**Sunday**	
7.	12-Feb-18		Postulates of statistical physics, Phase space
	13-Feb-18	**Maha Shivratri**	
	14-Feb-18		Division of Phase space into cells, three kinds of statistics,
	15-Feb-18	Junction transistors	
	16-Feb-18	Working of NPN and PNP transistors	
	17-Feb-18	Three configurations of	

		transistor (C-B, C-E, C-C modes),	
	18-Feb-18	**Sunday**	
8.	19-Feb-18		Basic approach in three statistics
	20-Feb-18		M. B. statistics applied to an ideal gas in equilibrium- energy distribution law (including evaluation of σ and β)
	21-Feb-18		Speed distribution law & velocity distribution law
	22-Feb-18	Common base, common emitter and common collector characteristics of transistor	
	23-Feb-18	Constants of a transistor and their relation, Advantages and disadvantages of C-E configuration.	
	24-Feb-18	D.C. load line .Transistor biasing;	
	25-Feb-18	**Sunday**	
9.	26-Feb-18		Expression for average speed, r.m.s. speed, average velocity, r. m. s. velocity
	27-Feb-18		Most probable energy & mean energy for Maxwellian distribution
	28-Feb-18	**Holiday**	
	1-Mar-18	**Holiday**	
	2-Mar-18	**Holi**	
	3-Mar-18	**Holiday**	
	4-Mar-18	**Sunday**	
10.	5-Mar-18		Assignment on M. B. statistics applied to an ideal gas in equilibrium- energy distribution law (including evaluation of σ and β)
	6-Mar-18		Need for Quantum Statistics: Bose-Einstein energy distribution law
	7-Mar-18		Application of B.E. statistics to Planck's radiation law B.E. gas
	8-Mar-18	Assignment on configurations of transistor and D.C Load line	
	9-Mar-18	various methods of transistor biasing and stabilization.	
	10-Mar-18	Problem discussion on unit 2	
	11-Mar-18	**Sunday**	
11.	12-Mar-18		Degeneracy and B.E. Condensation , Problem discussion of unit 2
	13-Mar-18		Unit 2 -test
	14-Mar-18		Fermi-Dirac energy

			distribution law, F.D. gas
	15-Mar-18	Unit 2-Test	
	16-Mar-18	Amplifiers, Classification of amplifiers,	
	17-Mar-18	common base and common emitter amplifiers,	
	18-Mar-18	**Sunday**	
12.	19-Mar-18		F.D. Degeneracy, Fermi energy and Fermi temperature
	20-Mar-18		Fermi Dirac energy distribution law for electron gas in metals,
	21-Mar-18		Zero point energy, Zero point pressure
	22-Mar-18	coupling of amplifiers, various methods of coupling	
	23-Mar-18	**Shaheedi Diwas**	
	24-Mar-18	Resistance- Capacitance (RC) coupled amplifier (two stage, concept of band width, no derivation	
	25-Mar-18	**Sunday**	
13.	26-Mar-18		Assignment on Fermi Dirac energy distribution law for electron gas in metals
	27-Mar-18		Average speed (at 0 K) of electron gas
	28-Mar-18		Specific heat anomaly of metals and its solution
	29-Mar-18	**Mahavir Jayanti**	
	30-Mar-18	Feedback in amplifiers	
	31-Mar-18	Advantages and disadvantages of negative feedback,	
	1-Apr-18	**Sunday**	
14.	2-Apr-18		M.B. distribution as a limiting case of B.E. distributions,
	3-Apr-18		M.B. distribution as a limiting case of F.D. distributions Comparison of three statistics
	4-Apr-18		Introduction to Specific Heat of Solids
	5-Apr-18	emitter follower, distortion in amplifiers	
	6-Apr-18	Problem discussion of unit 3	
	7-Apr-18	Unit 3 -test	
	8-Apr-18	**Sunday**	
15.	9-Apr-18		Dulong and Petit law. Derivation of Dulong and Petit law from classical physics
	10-Apr-18		Derivation of Dulong and

			Petit law from classical physics
	11-Apr-18		Specific heat at low temperature, Einstein theory of specific heat, criticism of Einstein theory
	12-Apr-18	Discussion on basic terms used in unit	
	13-Apr-18	Oscillators,Principle of oscillation,	
	14-Apr-18	**Dr. Ambedkar Jayanti / Vaisakhi**	
	15-Apr-18	**Sunday**	
16.	16-Apr-18		Debye model of specific heat of solids, success and shortcomings of Debye theory
	17-Apr-18		Comparison of Einstein and Debye theories
	18-Apr-18	**Parashurama Jayanti**	
	19-Apr-18	classification of oscillators, Condition for self sustained oscillation: Barkhausen criterion for oscillation,	
	20-Apr-18	classification of oscillators, Condition for self sustained oscillation: Barkhausen criterion for oscillation	
	21-Apr-18	Tuned collector common emitter oscillator	
	22-Apr-18	**Sunday**	
17.	23-Apr-18		Comparison of Einstein and Debye theories
	24-Apr-18		Unit 3 -test
	25-Apr-18		revision of numericals
	26-Apr-18	Hartley oscillator	
	27-Apr-18	C.R.O. (Principle and Working).	
	28-Apr-18	Problem discussion of unit4	
	29-Apr-18	**Sunday**	