

VIVEKANANDA INSTITUTE OF PROFESSIONAL STUDIES - TECHNICAL CAMPUS

Grade A++ Accredited Institution by NAAC

NBA Accredited for MCA Programme; Recognized under Section 2(f) by UGC;
Affiliated to GGSIP University, Delhi; Recognized by Bar Council of India and AICTE
An ISO 9001:2015 Certified Institution

SCHOOL OF ENGINEERING & TECHNOLOGY

ASSIGNMENT 1 (UNIT-I & II)				
SUBJECT: APPLIED PHYSICS		SUBJECT CODE: BS 106		SEM: II
				Maximum Marks:20
S. NO	QUESTION	CO	BL	MARKS
1	How does the zero-point energy of a quantum harmonic oscillator compare to that of a particle in a box, and what fundamental differences in their energy quantization lead to this contrast?	1	1,2,3,4	3
2	Set up the Schrodinger equation for a particle in one dimensional box of size 'L'. Obtain the energy eigenvalues for n=1,2,3 and plot their corresponding wavefunctions.	1	1,2,3	5
3	How does Heisenberg's uncertainty principle help us to decide whether electrons exist in the nucleus or not?	1	1,2,3	2
4	Show explicitly that the average molecular energy in an ideal classical gas is $\frac{3}{2} k_B T$.	2	1,2	5
5	Distribute two particles in two cells according to Maxwell-Boltzmann, Bose-Einstein and Fermi-Dirac distribution functions.	2	1,2,3,4	3
6	Distinguish between a Boson and a Fermion.	2	1,2	2