WALCHAND COLLEGE OF ENGINEERING

(Government Aided Autonomous Institute)
Vishrambag, Sangli – 416415

First Year B.Tech. Group-A (Computer Science & Engineering)
MSE, ODD SEMESTER, AY 2023-24
Engineering Physics (CSE/IT) (7PH103)

MSE

PRN: _____

Day & Date: Thursday, 26/10/2023 Time: 3.30 pm to 5.00 pm Max Marks: **30**

IMP: Verify that you have received question papers with correct course code, branch etc.

Instructions
a) All questions are compulsory.
b) Writing question number on answer book is compulsory otherwise answers may not be assessed.
c) Assume suitable data wherever necessary.
d) Figures to the right of question text indicate full marks.
e) Mobile phones, smart gadgets and programmable calculators are strictly prohibited.
f) Except PRN anything else writing on question paper is not allowed.
g) Exchange/Sharing of stationery, calculator etc. not allowed.

Text on the right of marks indicates course outcomes (Only for faculty use)

			Marks	
Q1	A)	State and explain Planck's Quantum Hypothesis. What are the properties Photon?	4	CO1
	B)	State Heisenberg Uncertainty Principle. Explain the application **"Non-existence of electron inside the nucleus"** of Heisenberg Uncertainty Principle.	4	CO2
	C)	Derive the expression of relation between Phase velocity and Group velocity. Comment on their relation.	3	CO2
	D)	The X-rays of wavelength 1.450A° are scattered by a carbon material. Calculate the wavelength of scattered X-rays at an angle 45°. (Given h = 6.625×10^{-34} Js, m = 9.1×10^{-31} kg, c = 3×10^{8} m/s)	2	CO3
Q2	A)	What are half period zones? How do they constructed on the wavefront? Mention about their radius and area. Show that resultant amplitude at point is only half the amplitude of first half-period zone.	6	CO1
	B)	Define Zone Plate. Derive an expression for focal length of zone plate.	4	CO2
	C)	Find the radius of first zone of zone plate required to bring parallel beam of wavelength 5000A° to a focus 2 meter away.	2	CO3
Q3	A)	Define Ultrasonic waves. What is Magnetostriction?	3	CO1
	B)	What is piezoelectric effect?	2	CO1

..... End of question paper .....