WALCHAND COLLEGE OF ENGINEERING

(Government Aided Autonomous Institute)
Vishrambag, Sangli – 416415

First Year B.Tech. Re-Registered Group A & Group B
MSE, ODD SEMESTER, AY 2023-24
Engineering Physics (6PH101)

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 Kirchhoff's law, Stefan's law and Wein's law for Black Body Radiation.	3	CO1
	B)	State Heisenberg Uncertainty Principle. Prove that $\Delta p \cdot \Delta x \geq \hbar$.	5	CO2
	C)	Differentiate between Matter waves and Electromagnetic waves.	3	CO1
	D)	The X-rays of wavelength 1.123A° is incident on a material. Calculate the wavelength of scattered X-rays at an angle 60°. (Given $h = 6.625 \times 10^{-34}$ Js, $m = 9.1 \times 10^{-31}$ kg, $c = 3 \times 10^{8}$ m/s)	2	CO3
Q2	A)	Define diffraction of light. Distinguish between Fresnel's type and Fraunhofer's type diffraction.	5	CO1
	B)	What is zone plate? How it is prepared? What are its types?	4	CO2
	C)	Find the radius of first zone of zone plate with light of wavelength 6000A° to be focused at the distance of 2 meter.	2	CO3
Q3	A)	Define Ultrasonic waves. What is Piezoelectric effect?	3	CO1
	B)	What is Magnetostriction? Draw the circuit diagram of Magnetostriction oscillator	3	CO2

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

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