WALCHAND COLLEGE OF ENGINEERING

(Government Aided Autonomous Institute)
Visharambag, Sangli – 416415

First Year B.Tech. Group A (ELN, CSE. IT)
MSE, ODD SEMESTER, AY 2022-23
Engineering Physics (6PH101)

MSE

PRN: _____

y & Date: Wednesday, 11/01/2023 Time : 10.30 am to 12.00 noon

Max Marks: **30**

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

structio ns

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.

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

		Marks	
A)	State Kirchhoff's law, Stefan's law and Wein's law for Black Body Radiation.	3	CO1
B)	State Planck's quantum hypothesis. What are the properties of photon?	3	CO2
A)	State Compton Effect. Derive expression of Compton scattering with neat diagram.	7	CO1
B)	The X-ray of wavelength 1.12A° is incident on carbon material. Calculate the wavelength of scattered X-rays at an angle 90°. (Given h = 6.625 x 10^{-34} Js, m = 9.1 x 10^{-31} kg, c = 3 x 10^{8} m/s)	2	CO3
A)	Derive an expression for focal length of zone plate.	5	CO2
B)	Define: i) Diffraction of light ii) Zone plate iii) Plane diffraction grating **OR** Write the difference between Fresnel's diffraction and Fraunhofer's diffraction	3	CO1
A)	What is the phenomenon of Magnetostriction? Using this phenomenon, explain how the ultrasonic waves can be generated.	5	CO2
B)	What are the missing orders in Fraunhofer's double slit diffraction pattern, if the width of each slit is 0.16 cm and their separation is 0.8 cm.	2	CO3

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