GALGOTIAS UNIVERSITY

ADMISSION NUMBER												

School of Engineering

B.TECH Mechanical Engineering
Mid Term Examination - Nov 2023

Duration : 90 Minutes
Max Marks : 50

Sem III - G3UB304B - Material Science Pbl

General Instructions
Answer to the specific question asked
Draw neat, labelled diagrams wherever necessary
Approved data hand books are allowed subject to verification by the Invigilator

1)	Define a unit cell? Write the difference between space lattice and bravais lattice	K2	(2)
2)	How many independent slip systems are required for plastic deformation in polycrystalline materials?	K1	(3)
3)	Write names of important point defects and describe about each of them.	K2	(4)
4)	Define annealing. What are the main objectives of annealing?	K2	(6)
5)	Explain the process of case carburizing of a steel component.	K3	(6)
6)	What are the eutectoid and eutectic reactions in the Fe-C binary phase diagram ?	K3	(9)
7)	Atomic radii of two metal atoms are 0.128 nm and 0.133 nm respectively. Find out whether they form a solid solution, and if they form, state what type of solid solution it is.	K4	(8)
8)	8. Sketch and explain any two types of cast iron, with microstructure, composition and properties.	K4	(12)
	OR		
	Provide a brief description of 7 Crystal Systems with the help of neat diagrams. Differentiate between linear and planner density. Derive linear density expressions for FCC [100] and [111] directions in terms of the atomic radius R	K4	(12)