



VIT

Vellore Institute of Technology
(Deemed to be University under section 3 of U.G. Act, 1956)

SLOT: B2+TB2

REG.NO.: 23BME03

**SCHOOL OF MECHANICAL ENGINEERING
CONTINUOUS ASSESSMENT TEST (CAT) -I
WINTER SEMESTER 2024-2025**

Programme Name & Branch : B Tech Mechanical Engineering
Course Code : BMEE209L
Course Name : Materials Science and Engineering
Faculty Name(s) : Padmanabhan Krishnan
Class Number(s) : VL2024250503783
Date of Examination : 28th January, 2 to 3.30 pm
Exam Duration : 90 minutes

Maximum Marks: 50

General Instruction(s):

- Answer **all**
- M - Max mark; CO - Course Outcome; BL - Blooms Taxonomy Level (1 - Remember, 2 - Understand, 3 - Apply, 4 - Analyse, 5 - Evaluate, 6 - Create)
- Course Outcomes Statements:
CO. 1: Compare different structures based on the atomic arrangement

Q. No	Question	M	CO	BL
1.	Apply the Materials Tetrahedron Diagram to the Structure to other characteristic correlations in a Low Carbon Steel sample.	10	1	3
2.	a) Sketch the Unit cell and evaluate the Bulk density of Iron using the lattice constant of 2.866 Angstroms, atomic weight of 55.86 and other appropriate and derived parameters. Be consistent in units.	10	1	3
3.	Sketch what is meant by a family of planes and Equivalent planes by taking appropriate examples. Are both the same? Justify.	10	1	4
4.	a) State the Weiss-Zone Law and prove the relationship between the planes and their respective directions with an example	10	1	4
5.	With respect to the Unit vector and Burgers Vector Differentiate between Edge and Screw Dislocations with neat Drawings.	10	1	4
