JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -2 EXAMINATION- 2025

M.Tech-II Semester (SE)

COURSE CODE (CREDITS): 11M1WCE214 (3)　　　　　MAX. MARKS: 25

COURSE NAME: THEORY OF PLATES AND SHELLS

COURSE INSTRUCTORS: DR. SAURAV　　　　　　　　MAX. TIME: 1 Hour 30 Min

Note: (a) All questions are compulsory.

(b) The candidate is allowed to make Suitable numeric assumptions wherever required

for solving problems

Q.No	Question	CO	Marks
Q1	Deduce the equation to compute the direction of maximum slope in case of pure bending of plates. Prove that directions of maximum and minimum slopes are mutually orthogonal.	3	6
Q2	Show that at any point of the middle surface of a plate the sum of the curvature in two perpendicular directions is independent of the angle α.	3	5
Q3.	Find the maximum deflection at the center of the circular plate of radius "**a**" whose both ends are fixed having load intensity **q**. Also draw the illustrative fig to support your value.	3	6
Q4.	The deflection w for an isotropic rectangular plate is given as $w = 6x^3 - 3y^3$. Thickness of the plate is 12 mm. E= 210 kN/mm^2. Poison's ration is υ =0.3 Find M_x , M_y and M_{xy} at point (2,1)	2	4
Q5.	Using Mohr's circle representation compute principal curvature and principal planes in case of pure bending of plates. Also find the angle at which maximum twist takes place.	3	4