JAYPEE UNIVERSITY OF INFORMATION TECHNOLOGY, WAKNAGHAT

TEST -1 EXAMINATION- 2026

B.Tech-IV Semester (CE)

COURSE CODE (CREDITS): 25B11CE414 (4) MAX. MARKS: 15
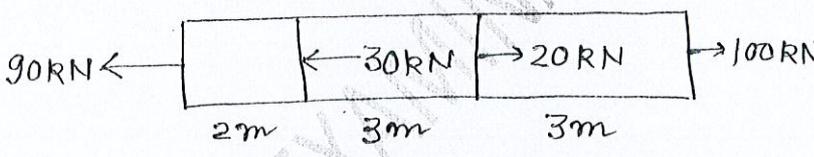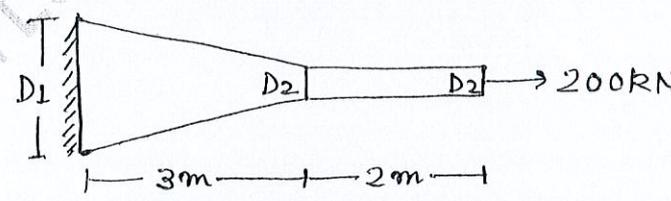
COURSE NAME: Mechanics of Solids

COURSE INSTRUCTOR: Mr. Chandra Pal Gautam MAX. TIME: 1 Hour

Note: (a) *All questions are compulsory.*
(b) *The candidate is allowed to make Suitable numeric assumptions wherever required for solving problems*
(c) *Use of calculators is allowed*

Q.No	Question	CO	Marks
Q1	(i) Draw the stress – strain diagram of mild steel and discuss its different zones. (ii) Define the following terms : Resilience, Toughness and Fatigue (iii) Draw the stress – strain diagram of ideal fluid and elasto plastic material.	1	1+3+1 = 5
Q2	Find the total deflection in the given bar below if the cross section area of the bar is 200mm^2 and E = 2 x 10^5 MPa. 	1	3
Q3	Derive the expression of deflection of a hanging bar of cross sectional area A, elastic constant 'E', length 'L' and total weight 'W'.	2	2
Q4	Find the total elongation in the give circular bars below, with D$_1$ = 20mm and D$_2$ = 10mm. E = 2 x 10^5 MPa. 	2	2
Q5	A circular bar of radius 2mm and length of 5m is pulled with a force of 500kN. Find the change in radius of the bar if the passions ratio of the bar is 0.25 and E = 2 x 10^5 MPa.	2	3