

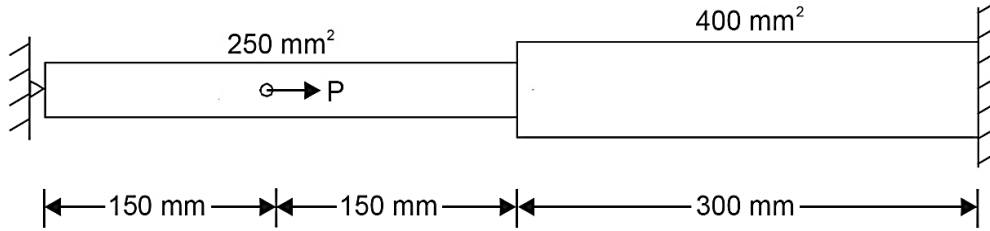


Name:			
Enrolment No:			
UNIVERSITY OF PETROLEUM AND ENERGY STUDIES End Semester Examination, May 2023			
Course: CAD/CAM		Semester: VIII	
Program: B Tech Mechanical		Time : 03 hrs.	
Course Code: MEPD 4001		Max. Marks: 100	
Instructions: Attempt All			
SECTION A (5Qx4M=20Marks)			
S. No.		Marks	CO
Q 1	Describe design-related tasks, which are performed by a modern computer-aided design system.	4	CO1
Q 2	Discuss future trends in manufacturing.	4	CO1
Q 3	Draw and explain the coordinate system used by various NC machines.	4	CO1
Q 4	Explain the process of assembly of element matrices as applicable in finite element modeling.	4	CO1
Q 5	Illustrate point-to-point (PTP) and contouring operations in NC/CNC machining systems.	4	CO4
SECTION B (4Qx10M= 40 Marks)			
Q 6	A square having endpoints A (1, 1), B (6, 1), C (6, 6), and D (1, 6) is rotated by 50° in a clockwise direction keeping point (6, 1) fixed. Find the final coordinates.	10	CO2
Q 7	Derive Bresenham's algorithms for the linear interpolation for graphic terminals.	10	CO2
Q 8	Explain the concept of the three basic Boolean operations used in solid modeling. Draw neat sketches showing the effect of these operators on any two basic primitives.	10	CO3
Q 9	Explain the adaptive control technique, used in CNC. OR How is cutter compensation given in the case of a machining center? Explain with the help of an example.	10	CO4

SECTION-C
(2Qx20M=40 Marks)

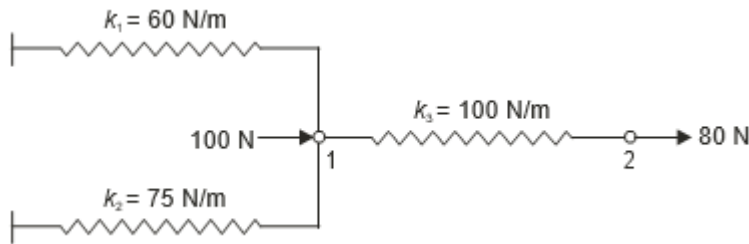
Q 10

Determine the nodal displacement, element stresses, and support reactions of the axially loaded bar as shown in Figure. Take, $E = 200 \text{ GPa}$ and $P = 30 \text{ kN}$



OR

Determine the displacements of nodes 1 and 2 in the spring system shown in Fig.

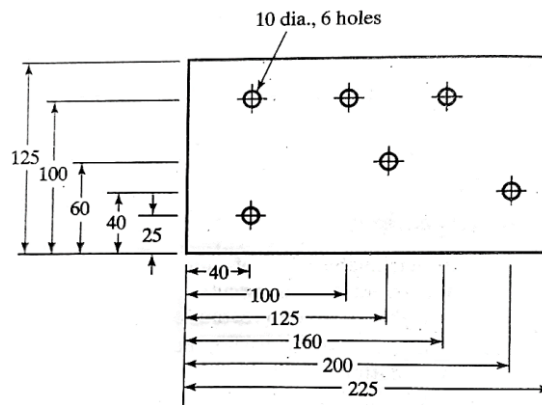


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CO3

Q 11

Write the part program to drill the holes in the part shown in the figure. The part is 12 mm thick. Cutting speed = 1000 rpm and feed is 12. Use the lower left corner as the origin.



20

CO5