Name:

Enrolment No:

UPES

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2018

Course: B tech (Mechanical) **Semester:** VII
Program: CAD/CAM (GNEG 363)
Time: 03 hrs. **Max. Marks:** 100

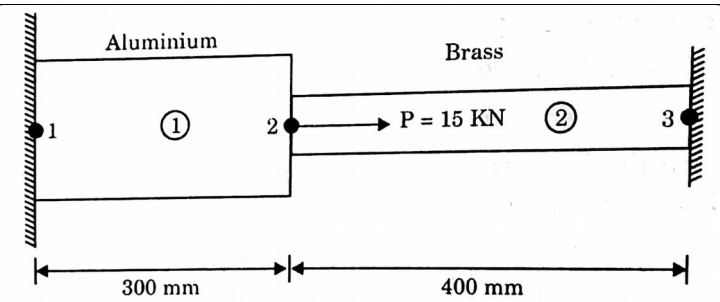
SECTION A

S. No.		Marks	CO
Q 1	Describe concurrent engineering.	5	CO4
Q 2	Explain the computerized product cycle in the manufacturing environment.	5	CO1
Q 3	Explain the steps to be used in lean manufacturing.	5	CO4
Q 4	Discuss the statement "CAD is only a tool in the design process.	5	CO1

SECTION B

Q 5	Give the details of any one rapid prototyping process you are familiar with.	7	CO4
Q 6	Specify the three principal classifications of the geometric modeling system and Write in brief about each of them.	7	CO3
Q 7	A triangle with vertices (4, 6), (9, 11), (6, 3) is first scaled by one unit about a fixed point (5, 6). Then translated by 2 units in y-direction and finally rotated about point (2, 5) in counter clockwise direction by 30^0. Find final position of the triangle. OR Find the reflection of the point (3, 11) about a line y = 3x + 4.	14	CO2
Q 8	Consider the bar shown in the figure below. An axial load of 15 kN is applied as shown in figure. (1) Determine the displacement at each node. (2) Determine the stress in each element and the reaction at the fixed node.	12	CO3

Material	Area	Young's Modulus
Aluminium Brass	600 mm^2 300 mm^2	70 GPa 83 GPa

			
SECTION-C			
Q 9	Generate a three dimensional Bezier curve using the following control points (5, 4, 2), (6, 2, 3), (5, -2, 4) and (6, -4, 3). Take u = 0.0, 0.1, 0.2, 0.3, 0.4, 0.5, 0.6, 0.7, 0.8, 0.9, and 1. **OR** Why do you prefer Bezier form of cubic curves over the Hermite form for interactive computer graphics? Using the Bezier polynomial function, find the cubic Bezier point function in the matrix form and plot the blending function.	**20**	**CO3**
Q 10	(1) Analyze the Opitz coding system generally used in group technology. (2) Evaluate the need of computer aided process planning in modern industries.	**20**	**CO4**