UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, April/May 2018

Course: CAD/CAM   (GNEG 365)   **Semester: VI**
Program: B TECH (Mechatronics)
Time: 03 hrs.   **Max. Marks: 100**
Instructions:

SECTION A

S. No.	Statement of question	Marks	CO
Q 1	Briefly describe the role of engineering analysis process in the product design cycle.	5	CO1
Q 2	Explain computer graphics concept in brief.	5	CO1
Q 3	Discuss advantages and limitations of NC systems.	5	CO4
Q 4	Write down the advantages to be gained by the adoption of CAM.	5	CO4

SECTION B

S. No.	Statement of question	Marks	CO
Q 5	Define tool compensation. Justify its need and explain how it is incorporated in the program.	10	CO5
Q 6	Show that a 2-D reflection through the x-axis, followed by a 2-D reflection through the line y= -x, is equivalent to a pure rotation about the origin. OR Find the reflection matrix when the axis of reflection is given by equation $Y = 3x$. Find the reflection of point (6,5) about this line.	12	CO2
Q 7	Explain what you understand by FEM. Define the terms: nodal point, element and degree of freedom.	8	CO3
Q 8	Write a C/C++ program to implement Bresenhem's circle algorithm.	10	CO2

SECTION-C

S. No.	Statement of question	Marks	CO
Q 8	For the four bar truss shown in figure below, determine the displacement at the nodes and the stress in each member. Area of cross-section of each member is 200 mm². Take E = 200 GPa.	20	CO3
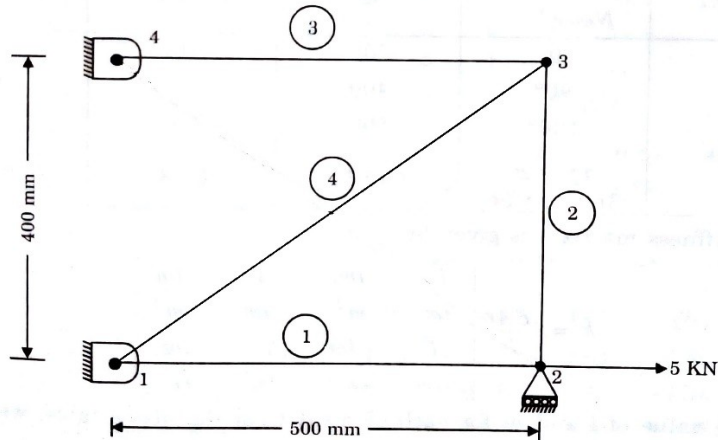
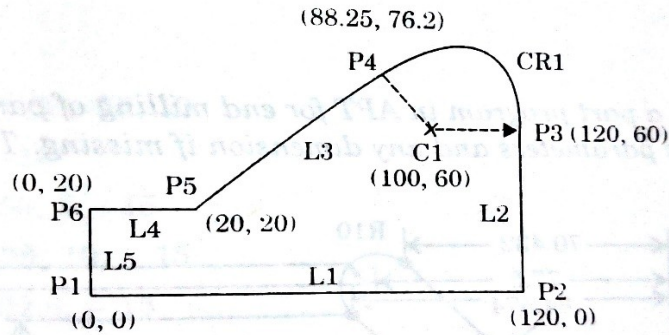| Q 9	For the plate shown in figure below write and APT program for end milling of its edges. Thickness of the plate is 20 mm.	20	CO5

OR

The following component is to be machined. Prepare the part programs to completely machine the parts from metal stock as shown. The slot drill to be used is of 16 mm dia.