Name: Enrolment No:	UPES

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Semester Examination, May 2019

Programme Name: B Tech ADE | **Semester : VIII**
Course Name : CAD/CAM | **Time : 03 hrs**
Course Code : ADEG 424 | **Max. Marks : 100**
Nos. of page(s) : 02
Instructions:

SECTION A

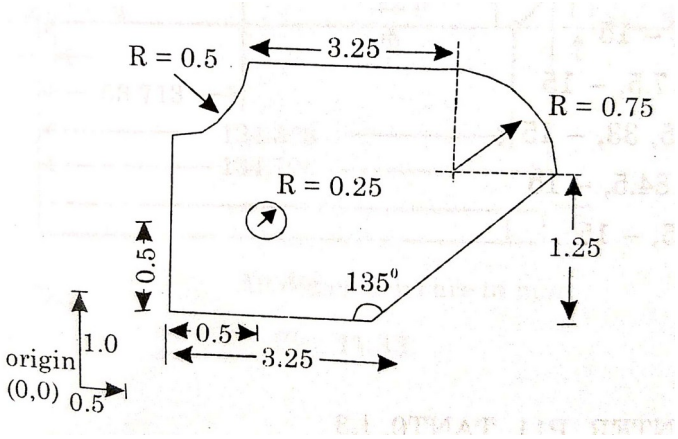
S. No.		Marks	CO
Q 1	How can CAD be used to accelerate the development process? Comment.	5	CO1
Q 2	Differentiate between constructive solid geometry (CSG) and boundary representation (B-rep).	5	CO2
Q 3	What are the main parts of a DNC system?	5	CO4
Q 4	What is adaptive control system? Mention its advantage to the manufacturing technology.	5	CO4

SECTION B

Q 5	Using DDA line algorithm, find the pixel positions along the line path between end points (15, 12) and (25, 20).	10	CO1
Q 6	For the position vectors P_1 (1,1), P_2 (3,1), P_3 (4,2), P_4 (2,3) that define a 2-D polygon develop a single transformation matrix that i. Reflects about the line x=0 ii. Translates by -1 in both x and y- direction iii. Rotates about the origin by 180^0.	10	CO2
Q 7	Under what conditions use of NC/CNC machine is justified? Comment with example.	10	CO4
Q 8	How can you specify a plane in APT? Explain with examples.	10	CO5

SECTION-C

Q 9	Four points of a Bezier polygon are P_0 (1, 1), P_1 (2, 3), P_2 (4, 3) and P_3 (3, 1). Develop a Bezier Curve with seven points.	20	CO3
Q 10	Write APT program for end milling the edges of the part shown in following figure.	20	CO5



OR

For the work piece shown in the figure below, perform the end milling operation to smoothen its edges. Use end mill cutter of 25 mm diameter. Take feed rate of 30 mm per minute. Assume target point to be located at x = -30 mm, y = -30 mm and z = + 10 mm. Note that holes are used for locating and positioning the work piece. Write program in G, M code.