(3 Hours)   **Max. Marks: 80**
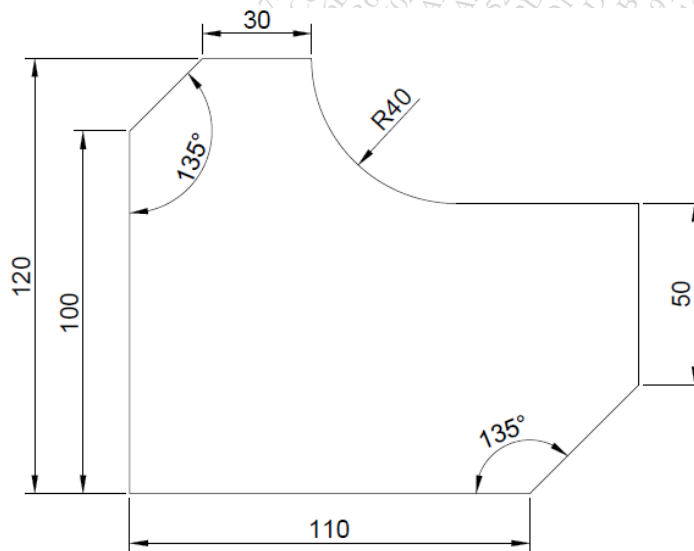
Note:
1. **Question 1 is Compulsory**
2. Solve any three from remaining five
3. Figures to right indicate full marks
4. Assume suitable data if necessary

Q.1	a) Explain an algorithm for hidden surface removal	5
	b) Explain reflection with respect to 3D transformation	5
	c) Explain the significance of rapid prototyping in product development and testing	5
	d) Explain the roughing and finishing canned cycle for turning.	5

Q.2   a) Plot the beizer curve having end points P_0 (1, 1) and P_3 (3, 1). The other   10
control points are P_1 (2, 1) and P_2 (4, 3). Also find the midpoint of the
curve.

         b) Explain Fused Deposition Modelling   10

Q.3   a) Write a complete part program to machine the external contour for the   10
component shown.
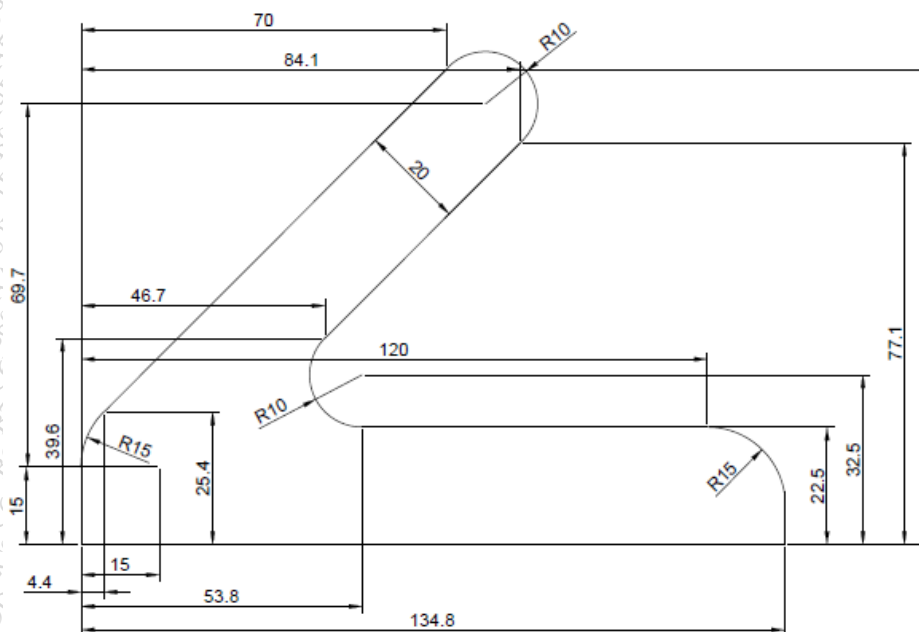
b) Explain Adaptive control system by explaining ACC and ACO   10

Q.4   a) A rectangle ABC has vertices A (5, 10), B (20, 10) and C (20, 20). This   10
triangle is to be reflected about a line P (25, 20) and Q (10, 30).
Determine the new triangle position.

b) Explain the procedure of kinematic analysis of a structural system with
an example.   10

Q.5   a) Write a part program in APT for the component shown in Fig using end   10
mill cutter of 20mm diameter. Clearly show the axes system chosen with
a sketch and the direction of the cutter for the motion statements.

b) Explain the basic components of CIM system.   10

Q.6   Write short note on any **Four**:   20
     a) Benefits of AI
     b) Constructive solid geometry and Boundary representation
     c) Feedback Devices
     d) Advantages of Computer aided part programming as compared to
        manual part programming
     e) Photolithography

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55834   Page **2** of **2**