(3 Hours) Max. Marks: 80

5

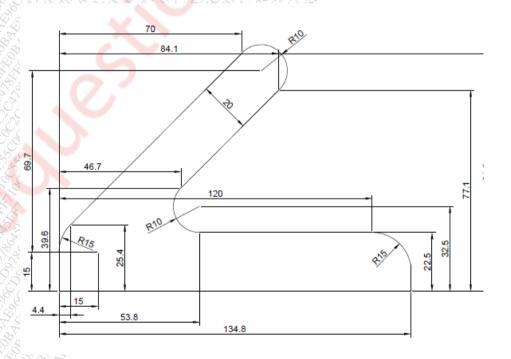
Note:

Q.1

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
- 5 b) Explain reflection with respect to 3D transformation c) Explain the significance of rapid prototyping in product development 5 and testing 5 d) Explain the roughing and finishing canned cycle for turning. 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 P₁ (2, 1) and P₂ (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.

a) Explain an algorithm for hidden surface removal

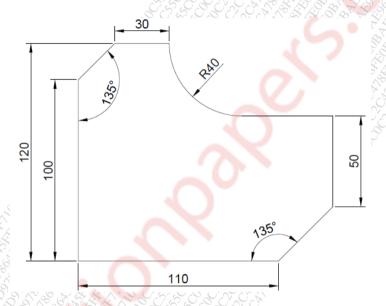


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b) Explain Adaptive control system by explaining ACC and ACO	7 - 10
a) A rectangle ABC has vertices A (5, 10), B (20, 10) and C (20, 20). This	10
triangle is to be reflected about a line P (25, 20) and Q (10, 30). Determine the new triangle position.	
b) Explain the procedure of kinematic analysis of a structural system with	200
an example.	3,000

Q.5 a) Write a part program in APT for the component shown in Fig using end 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

20

Q.6 Write short note on any **Four**:

Q.4

- 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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