

P552

[4064] - 415

B.E. (Mechanical)

CAD/CAM AND AUTOMATION

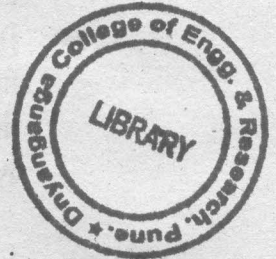
(2008 Course) (402041) (Sem. - I)

Time : 3 Hours]

[Max. Marks :100

Instructions to the candidates:

- 1) Answer three questions from each section.
- 2) Answers to the two sections should be written in separate books.
- 3) Neat diagrams must be drawn wherever necessary.
- 4) Figures to the right indicate full marks.
- 5) Use of calculator is allowed.
- 6) Assume suitable data, if necessary.

SECTION - I

- Q1) a) Derive concatenated transformation matrix for rotation with respect to any reference point (x_r, y_r) . [6]
- b) A triangle with vertices $A(8, 0)$, $B(12, 0)$ and $C(8, 3)$ has undergone the following operations. Find the concatenated matrix and then find new coordinates of ΔABC . [10]
- i) Rotated by 90° in anticlockwise direction about $(3, 0)$.
 - ii) Mirrored about line $y = x$.
 - iii) Scaled using overall scaling factor of 2 with respect to point $(2, 0)$.

OR

- Q2) a) What are the advantages of Open GL? Write down syntax of the commands for rotation, translation & scaling using Open GL. Also explain the significance of the terms in the commands. [8]
- b) A triangle is defined by the vertices $A(1, 2, 4)$, $B(4, 3, 5)$ and $C(5, 8, 3)$. The three orthographic views are to be projected. Write transformation matrices and hence determine coordinates of Front, Top and Right hand side views. [8]

P.T.O

