Solution: i) Here, P (15, 35, 95, 5) or P(3, 7, 19, 1)

$$\begin{bmatrix} x' \\ y' \\ z' \\ w' \end{bmatrix} = \begin{bmatrix} 2 & 0 & 0 & 0 \\ 0 & 0.5 & 0.25 & 0 \\ 0 & 0 & 0.25 & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} 3 \\ 7 \\ 19 \\ 1 \end{bmatrix} = \begin{bmatrix} 6 \\ 3.5 \\ 4.75 \\ 1 \end{bmatrix}$$

∴ After scale the point is (6, 3.5, 4.75, 1)

ii) $$\begin{bmatrix} x'' \\ y'' \\ z'' \\ w'' \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 & 0 \\ 0 & \cos\theta & -\sin\theta & 0 \\ 0 & \sin\theta & \cos\theta & 0 \\ 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} 6 \\ 3.5 \\ 4.75 \\ 1 \end{bmatrix} = \begin{bmatrix} 6 \\ 3.031 - 2.375 \\ 1.75 + 4.114 \\ 1 \end{bmatrix} = \begin{bmatrix} 6 \\ 0.656 \\ 5.864 \\ 1 \end{bmatrix}$$

∴ After rotate the point is (6, 0.656, 5.864, 1)

iii) $$\begin{bmatrix} x''' \\ y''' \\ z''' \\ w''' \end{bmatrix} = \begin{bmatrix} 1 & 0 & 0 & 15 \\ 0 & 1 & 0 & 5 \\ 0 & 0 & 1 & \sqrt{5} \\ 0 & 0 & 0 & 1 \end{bmatrix} \begin{bmatrix} 6 \\ 0.656 \\ 5.864 \\ 1 \end{bmatrix} = \begin{bmatrix} 21 \\ 5.656 \\ 8.1 \\ 1 \end{bmatrix}$$

∴ After translate the point is (21, 5.656, 8.1, 1)