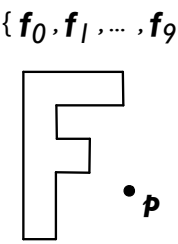
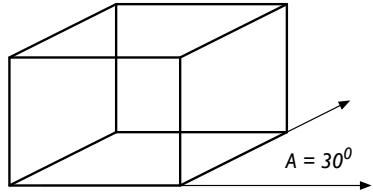
6. (a) The F-shaped object shown below is to be doubled in size and rotated about point **p** by 60^o. Give the homogeneous transformations which are performed on the vertices of the object and the final concatenated matrix.



[6]

(b) A View Volume is specified by the bottom-left hand corner of the Near plane, at (L, B) and the top-right hand corner of the Far clipping plane, at (R, T). If the clipping planes are at distances N and F from the viewpoint, derive the Orthographic Projection Matrix. [12]

(c) An Oblique Projection is required that displays all lines parallel to the z-axis drawn at an angle $A = 30^o$ to the horizontal on the view plane, as shown below.



Work out a transformation matrix that can be concatenated with your answer to (b), to perform this type of projection. [7]