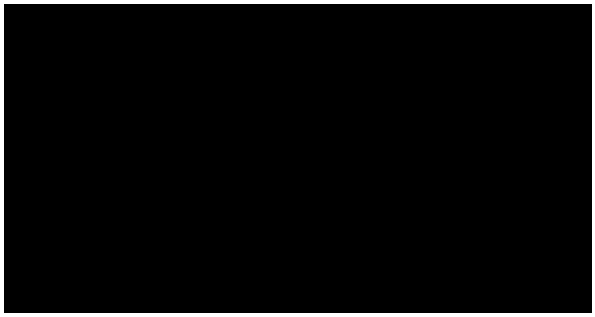
Assignment 2

Manufacturing Systems Technology

1. The transformation in which an object can be rotated about origin as well as any arbitrary pivot point are called

(a) Translation (b) scaling **(c) rotation** (d) all of these

2. What rotation does the transformation matrix represent?



(a) a rotation through θaround the x-axis

(b) a rotation through θaround the y-axis

(c) a rotation through θ around the z-axis

(d) a rotation through θ around the -x-axis

3. What is the use of homogeneous coordinates and matrix representation?

a) To treat all 3 transformations in a consistent way

b) To scale

c) To rotate

d) To shear the object

4. To generate a rotation , we must specify

a) Rotation angle Θ

b) Distances dx and dy

c) Rotation distance

d) All of the mentioned

5. Positive values for the rotation angle Θ defines

a) Counterclockwise rotations about the end points

b) Counterclockwise translation about the pivot point
c) Counterclockwise rotations about the pivot point
d) Negative direction

6. B-Splines are a way of creating sets of Bezier curves with a guaranteed continuity at their join points.

a) true
b) false

7. Which of the following is a good use of Bezier volumes?
(a) Design of airplane wings
(b) Global Illumination rendering
(c) Free-form deformation
(d) Surface normal extraction

8. Which of the following properties of Bezier curves guarantees that a line passes through the control polygon as many times or more times than the line passes through the Bezier curve itself?
(a) Coordinate System Independence
(b) Convex-Hull
(c) Symmetry
(d) Variation Diminishing

9. _____curve is one of the sp line approximation methods
(a) **Bezier**
(b) Ellipsoid
(c) Shearing
(d) None of these

10. Translate the rectangle (2,2), (2,8), (10,8), (10,2) 2 units along x-axis and 3 units along y-axis. What will be new coordinates?

(a) (4,6), (4,24), (20,24) and (20,6)

(b) (4,5), (14,11), (12,11) and (22,5)

(c) (4,5), (4,11), (12,11) and (12,5)

(d) (4,8), (4,17), (12,10) and (12,15)

11. Rotate the rectangle (0,0), (2,0), (2, 2), (0, 2) shown below, 30^0 ccw about its centroid and find the new coordinates of the rectangle.

(a) (0.634,-0.366), (-0.236, 1.366), (1.366,2.366) and (-0.366, 1.366)

(a) (0.734,-0.366), (-0.336,1.366), (4.366,2.366) and (-0.366, 1.366)

(a) (0.834,-0.366), (-0.336,1.366), (1.166,2.366) and (-0.366, 1.221)

(a) (0.634,-0.366), (-0.336,1.366), (1.366,2.366) and (-0.366, 1.366)