

# Manufacturing System Technology

## Assignment 1

### Section: - A (multiple choice questions)

1. The first successful numerical machine tool was developed at MIT in the year:

- (a) **1950**      (b) 1957      (c) 1959      (d) 1960      (e) 1941

2. The first computer type robot programming language was developed a Stanford Research Institute in.

- (a) 1942      (b) 1957      (c) 1960      (d) **1973**      (e) 1965

3. A translation is applied to an object by:

- (a) **Repositioning it along with straight line path**  
(b) Repositioning it along with circular path  
(c) Either (a) or (b)  
(d) Only (b)

4. In 2D-translation, a point (X, Y) can move to the new position (X', Y') by using the equation

- (a)  $X' = X + dX$  and  $Y' = Y + dX$       (b)  **$X' = X + dX$  and  $Y' = Y + dY$**   
(c)  $X' = X + dY$  and  $Y' = Y + dX$       (d)  $X' = X - dX$  and  $Y' = Y - dX$

5. The basic geometric transformations are:

- (a) Translation      (b) Scaling  
(c) Rotation      (d) **all of these**      (e) none of these

6. \_\_\_\_\_ is a rigid body transformation that moves objects without deformation.

- (a) Rotation      (b) scaling      (c) **translation**      (d) all of these

7. The types of projection are

- (a) Parallel projection and Perpendicular projection  
(b) Perpendicular and perspective projection  
(c) **Parallel projection and perspective projection**  
(d) None of these

8. \_\_\_\_\_ refer to a model that represent all the dimension of an object external as well as internal

- (a) Constructive solid geometry methods
- (b) **Wire frame model**
- (c) Composite transformation
- (d) None of these

9. In which projection, the plane normal to the projection has equal angles with these three axes

- (a) Wire frame model
- (b) Constructive solid geometry methods
- (c) **Isometric projection**
- (d) Back face removal

10. After Developing the equation of a Bezier curve, find the points on the curve for  $t = \frac{1}{4}$  and  $\frac{3}{4}$ . The coordinates of the four control points are given by  $V_0 = [0, 0, 0]$ ,  $V_1 = [0, 2, 0]$ ,  $V_2 = [4, 2, 0]$  and  $V_3 = [4, 0, 0]$ .

- (a)  $[5/8, 9/8, 0]^T$  and  $[27/8, 9/8, 0]^T$
- (b)  $[9/8, 9/8, 0]^T$  and  $[27/8, 5/8, 0]^T$
- (c)  $[27/8, 9/8, 0]^T$  and  $[5/8, 9/8, 0]^T$
- (d)  $[5/8, 9/8, 0]^T$  and  $[9/8, 27/8, 0]^T$

11. Surface modeling system contains definition of

- (a) Surfaces
- (b) vertices
- (c) Edges
- (d) **all of these**
- (e) none

12. More the control points of a Bezier curve, \_\_\_\_\_ quality of the curve

- a. **Higher**
- b. Lower
- c. Bad
- d. None of these

13. The transformation in which the size of an object can be modified in x-direction, y-direction and z-direction

- (a) Translation
- (b) **Scaling**
- (c) Rotation
- (d) All of these

14. The equation for describing surface of 3D plane are

- (a)  **$Ax + By + Cz + D = 0$**
- (b)  $Ax + By + Cz = 0$
- (c)  $Ax + By + D = 0$
- (d)  $Ax + By + Cz + D = 1$

15. The Bezier curve obtained from the four control points is called a

- (a) **Square Bezier curve**

- (b) **Cubic Bezier curve**
- (c) Hectare Bezier curve
- (d) Rectangle Bezier curve

**16.** The new position of object **A** placed on a round holding table after the table has been rotated by 35 degree will be.

- (a)  $[x,y] = [199.07, 321.32]$     (b)  $[x,y] = [199.07, 312.32]$
- (c)  $[x,y] = [205.07, 321.32]$     (d)  $[x,y] = [321.32, 199.07]$

