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 at 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) \([x, y] = [321.32, 199.07]\)