Department of Mechanical Engineering

ME8691- Computer Aided Design and Manufacturing

Unit I - MCQ Bank

1. A translation is applied to an object by:

   A. Repositioning it along with a straight-line path

   B. Repositioning it along with a circular path

   C. Repositioning it along with an elliptical path

   D. All of these

   Answer: (A)

2. After applying 2D shearing transformation in x-direction unit square becomes:

   A. Parallelogram

   B. Parabola

   C. Rectangle

   D. Hyperbola

   Answer: (A)

3. In which transformation, the shape of an object can be modified in any direction depending upon the value assigned to them?

   A. Reflection

   B. Shearing

   C. Translation

   D. Rotation

   Answer: (B)

4. _____refers to the result obtained by multiplying the matrix of the individual transformation representation sequences.

   A. Wireframe model

   B. Constructive solid geometry methods

   C. **Composite transformation**

   D. None of these

   Answer (C)

5. Sometimes it may require undoing the applied transformation, In such a case which of the following will be used?

   A. Shear

   B. Translation

   C. Reflection

   D. **Inverse transformation**

   Answer (D)

6. The transformation that produces a mirror image of an object relative to an axis is called :

   A. Rotation

   B. Translation

   C. **Reflection**

   D. All of these

   Answer (C)

7. A transformation that slants the shape of objects is called:

   A. **Shear**

   B. Translation

   C. Reflection

   D. Rotation

   Answer (A)

8. The transformation that is used to alter the size of an object is called:

   A. Scaling

   B. Reflection

   C. Rotation

   D. Translation

   Answer (A)

9. For reducing the size of the object we set both scale factor:

   A. Less than 0

   B. Greater than 1

   C. Equals to 1

   D. In between 0 and 1

   Answer (D)

10. For uniform scaling:

    A. Sx = Sy

    B. Sx > Sy

    C. Sx < Sy

    D. Sx! = sy

    Answer (A)

11. The basic geometric transformations are:

    A. Rotation

    B. Reflection

    C. Shear

    Answer (A)

12. A two-dimensional rotation is applied to an object by:

A. Repositioning it along with a straight-line path

B. **Repositioning it along with a circular path**

C. Repositioning it along with an elliptical path

D. None of these

Answer (B)

13. _____ is the rigid body transformation.

A. Scaling

B. Shear

C. **Rotation**

D. Translation

Answer (C)

14. We translate a two-dimensional point by adding**:**

A. Translation distances

B. Translation difference

C. Both A & B

D. None of these

Answer (A)

15. Reflection of a point about x-axis, followed by a counter-clockwise rotation of 90° , is equivalent.

 to reflection about the line

A. x = -y

B. y=-x

C. **x=y**

D. x + y = 1

Answer (C)

16. The point (x,y) becomes (y,x) in _____ transformation.

    A. Reflection about origin y-axis

    B. Reflection about x-axis

    C. **Reflection at line Y=XD. Reflection about y-axis**

    D. Reflection about opposite on y-axis

    Answer (C)

17. When every entity of a geometric model remains parallel to its initial position, the transformation is called as _____ .

    A. scaling

    B. **translation**

    C. rotation

    D. mirror

    Answer (B)

18. In which type of projection, actual dimensions and angles of objects and therefore shapes cannot be preserved?

    A. Orthographic

    B. Isometric

    C. **Perspective**

    D. None of the above

    Answer (C)

19. The number of line required to represent a cube in a wire frame model is

    A. 8

    B. 6

    C. **12**

    D. 16

    Answer (C)

20. The two-dimensional translation equation in the matrix form is

A. **P'=P+T**

B. P'=P-T

C. P'=P*T

D. P'=p

Answer (A)

21. The basic geometric transformation is _____

A. translation

B. rotation

C. scaling

D. **all of the above**

Answer (D)

22. Positive values for the rotation angle ⊖ defines _____ .

A. counterclockwise rotations about the end points

B. counterclockwise translation about the pivot point

C. **counterclockwise rotations about the pivot point**

D. none of the above

Answer (C)

23. The two-dimensional rotation equation in the matrix form is

A. P'=P+T

B. **P'=R*P**

C. P'=P*P

D. P'=R+P

Answer (B)

24. The two-dimensional scaling equation in the matrix form is

A. P'=P+T

B. **P'=S*P**

C. P'=P*R

D. P'=R+S

Answer (B)

25. If the values of the scaling factors sx and sy < 1, then _____ .

    A. **it reduces the size of the object**

    B. it increases the size of the object

    C. it stunts the shape of an object

    D. none of the above

    Answer (A)

26. If the values of the scaling factors sx and sy are assigned to the same value, then _____ .

    A. uniform rotation is produced

    B. **uniform scaling is produced**

    C. scaling cannot be done

    D. none of the above

    Answer (B)

27. If the values of the scaling factors sx and sy are assigned to unequal values, then _____ .

    A. uniform rotation is produced

    B. uniform scaling is produced

    C. **non-uniform scaling is produced**

    D. scaling cannot be done

    Answer (C)

28. If the value of sx=1 and sy=1, then _____ .

    A. reduce the size of the object

    B. distort the picture

    C. produce an enlargement

    D. **no change in the size of an object**

    Answer (D)

29. Reflection about the line y=0, the axis, is accomplished with the transformation matrix with how many elements as '0'?

    A. 8
    B. 9
    C. 4
    D. **6**
    Answer(D)

30. Which transformation distorts the shape of an object such that the transformed shape appears as if the object were composed of internal layers that had been caused to slide over each other?

    A. Rotation
    B. Scaling
    C. **Shearing**
    D. Reflection
    Answer (C)

31. In a reflection, by how much angle is the object rotated?

    A. 45
    B. 90
    C. **180**
    D. 360
    Answer (C)

32. **Shearing is also termed as _____ .**

    A. selecting
    B. sorting
    C. scaling
    D. **skewing**
    Answer (D)

33. _____can be defined as the creation, storage and manipulation of pictures and drawings by means of a computer.

   A. **Computer graphics**

   B. FEA

   C. Raster scan

   D. none of the above

Answer (A)

34. The memory of the computer is a collection of bits and a bit can take any value in_____

   A. 0

   B. 1

   C. **either 0 or 1**

   D. neither 0 nor 1

Answer (C)

35. All changes performed on the graphic image are done by changing the database of the original picture. These changes are called as_____.

   A. boolean operations

   B. **transformations**

   C. scanning

   D. none of the above

Answer (B)

36. **Scaling can be**

   A. uniform

   B. non-uniform

   C. **both uniform and non-uniform**

   D. none of the above

Answer (C)

37. To achieve scaling, the original coordinates would be _____ by scaling factor.

   A. multiplied

   B. divided

   C. subtracted

   D. none of the above

   Answer (A)

38. Reflection is the process of obtaining a _____ image of the original shape.

   A. smaller

   B. larger

   C. slant

   D. **mirror**

   Answer (D)

39. _____ allows the user to view the objects from different angles.

   A. **Rotation**

   B. Translation

   C. Reflection

   D. Skewing

   Answer (A)

40. Circular arrays can be obtained with the help of _____ transformation.

   A. translation

   B. skewing

   C. mirror

   D. **rotation**

   Answer (D)

41. From the following, which one will require maximum numbers of matrices to multiply?

   A. Rotation about the origin

   B. Rotation about an arbitrary Point

   C. **Rotation about an arbitrary line**

   D. Scaling about the origin

   Answer (C)

42. From the following, which one will require 4 matrices to multiply to get the final position?

   A. Rotation about the origin

   B. **Rotation about an arbitrary Point**

   C. Rotation about an arbitrary line

   D. Scaling about the origin

   Answer (B)

43. From the following, which one will require 6 matrices to multiply to get the final position?

   A. Rotation about the origin

   B. Rotation about an arbitrary Point

   C. Scaling about the origin

   D. **Rotation about an arbitrary line**

   Ansewr (D)

44. To obtain the projection of an entity, projectors are constructed by connecting _____ with
   each point of the entity.

   A. projection plane

   B. viewing plane

   C. **the center of projection**

   D. none of the above

   Answer(C)

45. Parallel projection have the center of projection at_____.

   A. many points

   B. only one point

   C. **infinity**

   D. none of the above

   Answer (C)

46. If the center of projection is at a finite distance from the plane, _____ results.

    A. **perspective projection**

    B. parallel projection

    C. orthographic projection

    D. all of the above

    Answer (A)

47. _____ does not preserve parallelism.

    A. Parallel projection

    B. **Perspective projection**

    C. Orthographic projection

    D. None of the above

    Answer (B)

48. In perspective projection, the size of an entity is _____ proportional to its distance from the center of projection.

    A. **inversely**

    B. directly

    C. either inversely or directly

    D. neither inversely nor directly

    Answer (A)

49. In order to define perspective projection, _____ is required.

    A. a center of projection

    B. a projection plane

    C. **a center of projection and a projection plane**

    D. none of the above

    Answer (C)

50. The transformation of perspective projection must include_____, where d is the distance between the center of projection to the projection plane.

A. D

B. 1/d

C. -d

D. **-1/d**

Answer (D)

51. How many total numbers of projecting planes are required for the complete description of the orthographic projection system?

A. 2

B. 4

C. **6**

D. 8

Answer (C)

52. A world-coordinate area selected for display is called a _____.

A. **window**

B. monitor

C. screen

D. none of the above

Answer (A)

53. An area on a display device to which a window is mapped is called a _____.

A. window

B. **viewport**

C. pixel

D. none of the above

Answer (B)

54. Generally, windows and viewports are _____ in the standard position.

    A. **rectangles**

    B. circles

    C. Polygons

    D. none of the above

    Answer (A)

55. A rectangle is to be rotated by 30° clockwise about an arbitrary point. From the following, which transformation will be performed first?

    A. **Translation**

    B. Scaling

    C. Clockwise rotation

    D. Counter clockwise rotation

    Answer (A)

56. A triangle is to be reflected about an arbitrary line. From the following, which transformation will be performed first?

    A. Scaling

    B. Mirror

    C. **Translation**

    D. Rotation

    E. Answer (C)

57. Which is not a line clipping algorithm?

    A. NLN algorithm

    B. The display large size image

    C. **The display part of an image**

    D. All of these

    Answer (C)

58. Window defines:

    A. Where to display

    B. **What to display**

    C. Why to display

D. None of these

Answer (B)

59. Viewport defines:

A. **Where to display**

B. What to display

C. Why to display

D. None of these

Answer (B)

60. _____refers to the result obtained by multiplying the matrix of the individual transformation representation sequences.

A. Wireframe model

B. Constructive solid geometry methods

C. **Composite transformation**

D. None of these

Answer (C)

61. In Cohen-Sutherland line clipping algorithm a line with endpoints codes as 0000 and 0100 is :

A. **Partially invisible**

B. Completely visible

C. Completely invisible

D. Trivially invisible

Answer (A)

62. The selection and separation of a part of text or image for further operation are called

A. Translation

B. Shear

C. Reflection

D. **Clipping**

Answer (D)

63. The complex graphics operations are

A. Selection

B. Separation

C. **Clipping**

D. None of these

Answer (C)

64. The space in which the image is displayed are called

A. **Screen coordinate system**

B. Clipping window

C. World coordinate system

D. None of these

Answer (A)

65. The rectangle portion of the interface window that defines where the image will actually appear are called

A. Transformation viewing

B. **View port**

C. Clipping window

D. Screen coordinate system

Answer (B)

66. The rectangle space in which the world definition of region is displayed are called

A. Screen coordinate system

B. **Clipping window or world window**

C. World coordinate system

D. None of these

Answer (B)

67. The object space in which the application model is defined

A. Screen coordinate system

B. Clipping window or world window

C. **World coordinate system**

D. None of these

Answer (C)

68. Cohen-Sutherland clipping is an example of _____

    A. polygon clipping

    B. text clipping

    C. **line clipping**

    D. curve clipping

Answer (C)

69. The Cohen-Sutherland algorithm divides the region into _____ number of spaces.

    A. 8

    B. 6

    C. 7

    D. **9**

Answer (D)

70. The logical _____ of the endpoint codes determines if the line is completely inside the window.

    A. AND

    B. **OR**

    C. NOT

    D. NOR

Answer (B)

71. A bitmap is collection of _____ that describes an image.

    A. bits

    B. colors

    C. algorithms

    D. **pixels**

Answer (D)

72. By changing the dimensions of the viewport, the _____ and _____ of the objects being displayed can be manipulated.

    A. Number of pixels and image quality

    B. X co-ordinate and Y co-ordinate

    C. **Size and proportions**

    D. All of these

Answer (C)

73. The shape of the Bezier curve is controlled by _____ .

    A. **control points**

    B. knots

    C. end points

    D. all the above

Answer(A)

74. In the following geometric modeling techniques which is not a three dimensional modeling?

    A. **Wireframe modeling**

    B. Drafting

    C. Surface modeling

    D. Solid modeling

Answer (**B)**

75. In the following three-dimensional modeling techniques, which do not require much computer time and memory?

    A. **Wireframe modeling**

    B. Solid modeling

    C. Surface modeling

    D. All of the above

Answer (**A**)

76. B-rep and C-Rep are the methods of _____ .

A. solid modeling

B. surface modeling

C. wireframe modeling

D. 2D modeling

Answer (**A)**

77. From the following, which modeler defines model without mass properties?

A. **Wireframe**

B. Primitive

C. B-rep

D. CSG

Answer (**A)**

101. The model which is created by using basic entities of two dimensioning is called _____

A. surface model

B. wireframe model

C. solid model

D. isometric model

Answer (**B)**

102. What is the basic part of the surface model on which the surface is to be drawn?

A. Ruled

B. Ruler

C. Size

D. Mesh

Answer (**D)**

103. The time required to retrieve, edit or update is less for _____ .

A. wireframe modeling

B. solid modeling

C. surface modeling

D. can't say

Answer (**A**)