Q.1. What is Raster Scan Display. State the difference between Raster Scan Display and Random Scan Display.

Q.2. What do you mean by Computer Graphics System? Write the application of computer graphics.

Q.3. Write short note on:
   1) Anti-aliasing Techniques.
   2) Storage Tube Display


Q.5. Describe Bresenham’s Circle Algorithm with example.

ASSIGNMENT SHEET
Unit-II

Q.1. Describe the following transformation in 2D co-ordinate system:
   1) Translation
   2) Scaling
   3) Reflection
   4) Rotation

Q.2. Describe the flood filling and boundary filling algorithm.

Q.3. Explain Cohen-Sutherland line clipping algorithm.


Q.5. Describe Sutherland-Hodgeman polygon clipping algorithm.
Q.1. State the difference between image space and object space with examples.

Q.2. Explain depth buffer methods.

Q.3. Describe B-spline curve and Bezier curve.

Q.4. Describe parametric and non parametric representation of curves.

Q.5. Explain scan line and area based algorithm.

Q.1. Describe the basic illumination model.

Q.2. Explain diffuse reflection and specular reflection with figures.

Q.3. Describe phong shading.


Q.5. Write short note on the following color models:
   1) RGB
   2) CMY
   3) YIQ
   4) HSV

Q.1. Write short note on:
   a) SCSI
   b) MIDI

Q.2. Explain the TIFF file format with its merits and demerits.

Q.3. Explain the various files format of multimedia.
Q.4. Write short note on:
i) Animation techniques
ii) Multimedia storage technologies

Q.5. Explain the hardware and software components of multimedia.

**QUESTION BANK**

*Unit-I*

**Unit 1 Introduction:**

Q.1. Describe Storage Tube Display with its significance.

Q.2. Write short note on:
1) Flickering.
2) Refreshing
3) Interlacing

Q.3. Explain Raster Scan Display with figure.

Q.4. Explain Random Scan Display with figure.

Q.5. State the difference between Raster Scan Display and Random Scan Display.


Q.7. What is Scan Conversion? What are the major side effects of Scan Conversion?

Q.8. Given the display screen of resolution 640 x 480 with the refresh rate of 60 frames per second, compute access time per pixel.

Q.9. What is the refresh rate in a 512 x 512 raster if pixels are accessed at the rate of 200 nano seconds.

Q.10. Give the advantage of Bresenham’s line algorithm over DDA line algorithm. Draw a line segment from point (2,4) to (9,9) using DDA algorithm.

Q.11. Explain the DDA line drawing algorithm? What modifications are required to convert the DDA algorithm to Bresenham’s line drawing algorithm.

Q.12. Consider the line from (1,1) to (4,6). Use Bresenham’s line drawing algorithm to rasterize this line and give output pixels.

Q.13. What is Scan Conversion. Explain Raster Scan System with the help of Block diagram.

Q.15(a) Explain the Mid Point Ellipse Algorithm?
   (b) Given Ellipse x and y radius 8 and 6 respectively. Illustrate the steps for Midpoint Ellipse Algorithm in I quadrant.

Q.16. (a) Explain DDA Line Drawing Algorithm?
       (b) Define Scan Conversion.

Q.17. Write a short note on:
       (A) Beam penetration technique
       (B) Shadow Mask Technique

Q.18. (a) List the important characteristics of Video Display Devices.
       (b) How are Colors generated on a CRT screen?

Q.19. Write a short note on:
       a) Trackball and Spaceball
       B) Joystick
       C) Digitizer
       D) Touch Panels
       E) Scanner

Q.20. Derive the Bresenham’s Circle Algorithm. Generate the intermediate points of a circle whose centre is at (0, 0) and two given points on the circumference are (0, 10), and (√10,√10) i.e., intermediate points in the second quadrant.

Q.21. (a) Explain DDA Line Drawing Algorithm between points (a, b) and (c, d).
       (b) Give the differences between Line Printer and Dot Matrix Printer

QUESTION BANK
Unit-II

Unit 2  2D & 3D Co-Ordinate System:

Q.1. Describe the following transformation in 2D co-ordinate system:
   1) Translation
   2) Scaling
   3) Reflection
   4) Rotation
Q.2. Describe the Flood Filling and Boundary Filling Algorithm.

Q.3. Explain Cohen-Sutherland Line Clipping Algorithm.

Q.4. Describe Weiler-Atherton Polygon Clipping Algorithm.

Q.5. Describe Sutherland-Hodgeman Polygon Clipping Algorithm.

Q.6. Translate a square ABCD with the coordinates A(0,0), B(5,0), c(5,5), D(0,5) by 2 units in X direction and 3 units in Y direction.


Q.8. Describe Flood Fill Algorithm with significance.


Q.10. Explain the methods to represent a Polygon.

Q.11. Derive the equations for Parameteric Representation.


Q.13. Distinguish between Window Port & View Port?

Q.14. Distinguish between uniform scaling and differential scaling?

QUESTION BANK
Unit-III

Unit 3 Hidden Lines and Surfaces:

Q.1. State the difference between Image Space and Object Space with examples.


Q.3. Explain Scan Line Method of backface removal using an example.


Q.5. Write a short note on B–Spline Curve.
Q.6. Determine eleven points on a Beizer curve with equidistant parametric values, having control points (50,180),(250,100),(600,300) and (500,50)

Q.7. Explain Depth Buffer Methods.

Q.8. Describe Blending Function and Bezier Curve.


Q.10. Explain Scan Line and Area Based Algorithm.

Q.11. Derive the equations for Non-Parameteric Expression.

Q.12. What are the different techniques of Curve Generation? Discuss any one technique in detail.

Q.13. Determine the blending functions for uniform, periodic B-spline Curve for d=5.

Q.14. Given that A0(1,1), A1(2,3), A2(4,2) and A3(3,1) are the vertices of Bezier polygon determine seven points of Bezier curve.

Q.15. What are the different algorithm used for removing hidden surfaces?
   Explain any one in detail

**QUESTION BANK**

**Unit-IV**

**UNIT 4 BASIC ILLUMINATION MODEL:**

Q.1. Describe the Basic Illumination Model.

Q.2. Explain Diffuse Reflection and Specular Reflection with figures.


Q.5. Write short note on the following Color Models:
   1) RGB
2) CMY
3) YIQ
4) HSV

Q.6. What are Complementary Colors in Color Model? Brief the following terms:
   1. Chromaticity
   2. Color gamut
   3. Saturation
   4. Hue
   5. Tint
   6. Tone
   7. Shade

Q.7. State the difference between Diffuse Reflection and Specular Reflection.

QUESTION BANK
Unit-V

UNIT 5 MULTIMEDIA:

Q.1. What is MPEG and JPEG? Describe their working.

Q.2. Explain the structure of image file header in the TIFF files? Discuss the merits and demerits of TIFF file format?

Q.3. Write short notes on
   (i) RTF File Format
   (ii) BMP File Format

Q.4. Explain Multimedia Communication Model? What are the major application areas of multimedia?

Q.5. What are the rules of Animation? Write Animation Technique.

Q.6. Write short note on:
   a) SCSI
   b) MIDI

Q.7. Explain the TIFF file format with its merits and demerits.

Q.8. Explain the various files format of multimedia.

Q.9. Write short note on:
   i) Animation Techniques
   ii) Multimedia Storage Technologies
Q.10. Explain the Hardware and Software Components of Multimedia.

Q.11. What is Hypermedia?

Q.12. What is Hypertext?

Q.13. What is Multimedia PC.

Q.14. Where to use Multimedia? What are the application of multimedia.

Q.15. What is meant by Multimedia User Interface?

Q.16. What is Image Animation?

Q.17. How Image Annotation is done?

Q.18. State the resolution of Facsimile, Document Images and Photographic Images?

**Multiple Choice Questions**

Unit -1

1. The graphics can be
   a. Drawing
   b. Photograph, movies
   c. Simulation
   d. All of these

2. Computer graphics was first used by
   a. William fetter in 1960
   b. James fetter in 1969
   c. James gosling in 1991
   d. John Taylor in 1980

3. The component of interactive computer graphics are
   a. A light pen
   b. Display unit
   c. Bank of switches
   d. All of these

4. Personal computer become powerful during the late
a. 1960  
b. 1970  
c. 1980  
d. 1950

5. Three dimensional computer graphics become effective in the late  
a. 1960  
b. 1980  
c. 1970  
d. 1950

6. Which environment has been one of the most accepted tool for computer graphics in business and graphics design studios  
a. graphics  
b. Macintosh  
c. quake  
d. multimedia

7. Graphics is one of the_________ major key element in design of multimedia application  
a. Five  
b. Three  
c. Four  
d. Eight

8. Three dimensional graphics become popular in games designing, multimedia and animation during the late  
a. 1960  
b. 1970  
c. 1980  
d. 1990

9. The quake, one of the first fully 3D games was released in year  
a. 1996  
b. 1976  
c. 1986  
d. 1999

10. Types of computer graphics are  
a. Vector and raster  
b. Scalar and raster  
c. Vector and scalar  
d. None of these

11. Vector graphics is composed of  
a. Pixels  
b. Paths
12. Raster graphics are composed of
   a. **Pixels**  
   b. Paths  
   c. Palette  
   d. None of these

13. Raster images are more commonly called  
   a. Pix map  
   b. **bitmap**  
   c. both a & b  
   d. none of these

14. Pixel can be arranged in a regular  
   a. One dimensional grid  
   b. **Two dimensional grid**  
   c. Three dimensional grid  
   d. None of these

15. The brightness of each pixel is  
   a. Compatible  
   b. **Incompatible**  
   c. Both a & b  
   d. None of these

16. Each pixel has ________basic color components  
   a. Two or three  
   b. One or two  
   c. **Three or four**  
   d. None of these

17. The quantity of an image depend on  
   a. **No. of pixel used by image**  
   b. No. of line used by image  
   c. No. of resolution used by image  
   d. None

18. Higher the number 0f pixels,_______ the image quality  
   a. Bad  
   b. **Better**  
   c. Smaller  
   d. None of above

19. A palette can be defined as a finite set of colors for managing the
20. Display card are
a. VGA
b. EGA
c. Both a & b
d. None of above

21. Display card is used for the purpose of
a. Sending graphics data to input unit
b. Sending graphics data to output unit
c. Receiving graphics data from output unit
d. None of these

22. LCD means
a. Liquid crystal displays
b. Liquid crystal data
c. Liquid chrome data
d. None

23. LCD are commonly used in
a. Calculators
b. Portable
c. Laptop computers
d. All of these

24. LCD is an ______ device
a. Emissive
b. Non emissive
c. Gas discharge
d. None of these

25. Plasma panel is an ___ device
a. Emissive
b. Non emissive
c. Expensive
d. None

26. Plasma device converts
a. Electrical energy into light
b. Light into electrical energy
c. Light into graphical energy
d. None of these
27. Plasma panel have_________ resolution
a. High
b. Good
c. Both a & b
d. Low

28. Plasma panel are also called
a. Liquid crystal display
b. Gas discharge display
c. Non emissive display
d. None of these

29. The basic graphical interactions are
a. Pointing
b. Positioning
c. Both a & b
d. None

30. GUI means
a. Graphical user interface
b. Graphical user interaction
c. Graphics uniform interaction
d. None

31. Which one is the basic input device in GUI
a. Mouse
b. Graphics tablet
c. Voice system
d. Touch panel

32. Pen or inkjet plotters use the following devices
a. Drum
b. Flat bed
c. Both a & b
d. None of these

33. Grey scale images have a maximum color depth of
a. 8bit
b. 16bit
c. 24bit
d. 32bit

34. Graphics with limited features is known as
a. Active graphics
b. Passive graphics
c. Grayscale image
d. None of these
35. Computer of present time have much higher memory and ________ storage capacity
   a. Much smaller
   b. **Much bigger**
   c. Much slower
   d. None

36. CRT means
   a. Common ray tube
   b. **Cathode ray tube**
   c. Common ray tube
   d. None

37. Refresh CRT consist of
   a. Glass wrapper
   b. The phosphor viewing surface
   c. The electron gun assembly
   **d. All of above**

38. The amount of time the phosphor produce light or shine is controlled by chemical composition of the phosphor. This is known as
   a. **Persistence**
   b. Resistance
   c. Generators
   d. None

39. The electron beam in a color picture tube is refreshed_______ times in a second to make video realistic
   a. 15 times
   b. **25 times**
   c. 35 times
   d. 45 times

40. DUST means
   a. **Direct view storage tube**
   b. Domain view storage tube
   c. Direct view store tube
   d. None

41. DUST is rarely used today as part of
   a. Input device
   b. Output device
   c. **Display systems**
   d. None

42. In DUST, is there refresh buffer
a. Yes  
b. No  
c. Both  
d. None

43. The electron beam in DUST is designed to draw directly to  
a. Phosphor  
b. **Storage mesh**  
c. Glass  
d. None

44. The second grid in DUST is called  
a. Phosphor  
b. Storage mesh  
c. **Collector**  
d. None

45. To increase the energy of these slow moving electron and create a bright picture in DUST, the screen is maintained at  
a. Low positive potential  
b. High negative potential  
c. **High positive potential**  
d. None

46. A major disadvantage of DUST in interactive computer graphics is  
a. Ability to selectively erase part of an image  
b. **Inability to selectively erase part of image from screen**  
c. Inability to produce bright picture  
d. None

47. Interactive graphics is useful in  
a. Training pilots  
b. Computer aided design  
c. Process control  
d. **All of these**

48. The origin of computer graphics was developed in  
a. **1950**  
b. 1960  
c. 1970  
d. 1990

49. The term business graphics came into use in late  
a. 1950  
b. 1960  
c. **1970**
d. 1990

50. Computer graphics is used in many DTP software as
a. Photoshop
b. Paint brush
c. Both a & b
d. None of these

51. Any CRT based display must be refreshing at least_______ times a second
a. 20
b. 30
c. 40
d. 10

52. The standardization is needed
a. To make application programs more portable
b. To increase their utility
c. To allow them to use in different application environment
d. All of these

53. GKS stands for
a. Graphics kernel system
b. Graphics kernel stands
c. Generic kernel system
d. None of these

54. GKS was developed by the
a. International standards organization
b. National standard organization
c. Both a & b
d. None of these

55. The resolution of raster scan display is
a. Low
b. High
c. Medium
d. None

56. Random scan systems are designed for
a. Line drawing application
b. Pixel drawing application
c. Color drawing application
d. None of these

57. Solid pattern in random scan display is ____ to fill
a. Difficult
b. Easy
c. Not fill
d. None of these

58. Raster scan is _______ expensive than random scan
a. More
b. Less
c. Both a & b
d. None

59. Two basic technique for producing color display with a CRT are
a. Shadow mask and random scan
b. Beam penetration method and shadow mask method
c. Random scan and raster scan
d. None of above

60. In beam penetration method of color CRT, two layer of phosphor coated are
a. Red and blue
b. Red and green
c. Blue and green
d. None of these

61. In beam penetration method of color CRT, which layer is red and which is green
a. Outer is red and inner is green
b. Inner is red and outer is green
c. Inner is red and inner is green
d. None

62. A shadow mask CRT has ______ phosphor color dots at each pixel position
a. 1
b. 2
c. 3
d. None of these

63. Which color is produced with the green and red dots only
a. Blue
b. Yellow
c. Magenta
d. White

64. Which color is produced with the blue and red dots
a. Blue
b. Yellow
c. Magenta
d. White
65. Cyan color is produced when the blue and green are activated
   a. Equally
   b. Unequally
   c. Both a & b
   d. None

66. Which technique of color CRT is used for production of realistic image
   a. Shadow mask method
   b. Beam penetration method
   c. Both a & b
   d. None of these

67. In which method of CRT, convergence problem occur
   a. Beam penetration method
   b. Shadow mask method
   c. Both a & b
   d. None of these

68. Beam penetration method is used in
   a. Random scan system
   b. Raster scan system
   c. Both a & b
   d. None of these

69. Shadow mask method is used in
   a. Random scan system
   b. Raster scan system
   c. Both a & b
   d. None of these

70. Graphics data is computed by processor in form of
   a. Electrical signals
   b. Analog signals
   c. Digital signals
   d. None of these

71. An example of impact device is
   a. Electrostatic printer
   b. Inkjet printer
   c. Line printer
   d. Laser printer

72. To generate the characters, which are required
   a. Hardware
   b. Software
   c. Both a & b
   d. None of these
73. The method which uses array of dots for generating a character is called
   a. Stoke method
   b. **Bitmap method**
   c. Star bust method
   d. None of these

74. An example of black and white laser printer is
   a. **HP 4000**
   b. QMS
   c. Both a & b
   d. None

75. An example of color printer is
   a. HP 4000
   b. QMS
   c. Both a & b
   d. None

76. Non impact use various techniques to combine three color pigment ______ to produce a range
    of color patterns
   a. Cyan, magenta and yellow
   b. Cyan, white and black
   c. Cyan, white and yellow
   d. Black, magenta and yellow

77. Printers produce output by either
   a. Impact method
   b. Non impact method
   c. **Both a & b**
   d. None of these

78. What is name of temporary memory where the graphics data is stored to be displayed on screen
   a. RAM
   b. ROM
   c. **Frame buffer**
   d. None

79. The division of the computer screen into rows and columns that define the no. of pixels to
display a picture is called
   a. Persistence
   b. **Resolution**
   c. Encapsulated post script
   d. None

80. The hardware devices contain
UNIT-2

1. Basic geometric transformation include

   a. Translation
   b. Rotation
   c. Scaling
   d. All of these

2. Some additional transformation are

   a. Shear
   b. Reflection
   c. Both a & b
   d. None of these

3. The transformation in which an object is moved in a minimum distance path from one position to another is called

   a. Translation
   b. Scaling
   c. Rotation
   d. Reflection

3. The transformation in which an object is moved from one position to another in circular path around a specified pivot point is called

   a. Translation
   b. Scaling
   c. Rotation
   d. Reflection
5. The transformation in which the dimension of an object are changed relative to a specified fixed point is called

   a. Translation
   b. **Scaling**
   c. Rotation
   d. Reflection

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

   a. Translation
   b. Shear
   c. Reflection
   d. **Clipping**

7. The complex graphics operations are

   a. Selection
   b. Separation
   c. **Clipping**
   d. None of these

8. In computer graphics, a graphical object is known as

   a. Point
   b. **Segment**
   c. Parameter
   d. None of these

9. An object can be viewed as a collection of
a. One segment
b. Two segment
c. **Several segments**
d. None of these

10. Every segment has its own attributes like

a. Size, visibility
b. Start position
c. Image transformation
d. **All of these**

11. By using the attributes of segment, we can________ any segment

a. Change
b. **Control**
c. Print
d. None of these
e.

12. A two-dimensional array contain the details of all the segment are called

a. **Segmentation table**
b. Segment name
c. Operation
d. None of these
e.

13. We assign all the attributes of segment under this

a. **Segment name**
b. Segment size
c. Array
d. None of these

14. The initial size of segment will be_______

a. 1
b. 0
c. 2
d. 3

15. The removal of a segment with its details are called

a. Alter the segments
b. **Deletion of segments**
c. Closing the segment
d. None of these

16. Deletion of any segment is much_______ than creation of any new segment

a. Easier
b. **Difficult**
c. Higher
d. None

17. ______is very important in creating animated images on the screen

a. **Image transformation**
b. Morphing
c. Clipping
d. None of these
18. Which attributes of image transformation change the size of an image corresponding to the x-axis and y-axis

a. SCALE-X  
b. SCALE-Y  
c. Both a & b  
d. None of these

19. Which attributes of image transformation change the position of image corresponding to the x-axis and y-axis

a. TRANSLATE-X  
b. TRANSLATE-Y  
c. Both a & b  
d. None of these  
e. None of these

20. Which attributes of image transformation rotate the image by a given angle

a. TRANSLATE-X  
b. TRANSLATE-Y  
c. Both a & b  
d. None of these

21. Which attributes of image transformation rotate the image by a given angle

a. ROTATE-X  
b. ROTATE-Y  
c. Both a & b  
d. None of these

22. The graphics method in which one object is transformed into another object are called
23. Example of morphing are

a. Oil takes the shape of a car
b. A tiger turns into a bike
c. Both a & b
d. None of these

e.

24. A many sided figure is termed as

a. Square
b. Polygon
c. Rectangle
d. None

25. The end point of polygon are called as

a. Edges
b. Vertices
c. Line
d. None of these

26. The line segment of polygon are called as

a. Edges
b. Vertices
27. How many types of polygon are

a. One
b. Two
c. Three
d. Four

28. What are the types of polygon

a. Convex polygon
b. Concave polygon
c. Both a & b
d. None of these

29. If a line joining any of its two interior points lies completely within it are called

a. Convex polygon
b. Concave polygon
c. Both a & b
d. None of these

30. If a line joining any two of its interior points lies not completely inside are called

a. Convex polygon
b. Concave polygon
c. Both a & b
d. None of these
e.
31. In which polygon object appears only partially

a. Convex polygon
b. Concave polygon
c. Both a & b
d. None

32. If the visit to the vertices of the polygon in the given order produces an anticlockwise loop are called

a. Negatively oriented
b. Positively oriented
c. Both a & b
d. None of these
e. 

33. If the visit to the vertices of the polygon in the given order produces a clockwise loop are called

a. Negatively oriented
b. Positively oriented
c. Both a & b
d. None of these

e.

34. Which things are mainly needed to make a polygon and to enter the polygon into display file

a. No of sides of polygon
b. Vertices points
c. Both a & b
d. None of these

35. Two types of coordinates are
a. Positive and negative coordinates
b. **Absolute and relative coordinates**
c. Both a & b
d. None

36. Which approaches are used for determine whether a particular point is inside or outside of a polygon

a. Even-odd method
b. Winding number method
c. **Both a & b**
d. None of these

36. The transformation that produces a parallel mirror image of an object are called

a. **Reflection**
b. Shear
c. Rotation
d. Scaling

38. The transformation that disturbs the shape of an object are called

a. Reflection
b. **Shear**
c. Rotation
d. Scaling

39. The process of mapping a world window in world coordinate system to viewport are called

a. **Transformation viewing**
b. View Port
40. In which transformation the shape of an object can be modified in x-direction, y-direction as well as in both the direction depending upon the value assigned to shearing variables

a. Reflection
b. Shearing
c. Rotation
d. Scaling

41. The process of extracting a portion of a database or a picture inside or outside a specified region are called

a. Translation
b. Shear
c. Reflection
d. Clipping

42. 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

43. 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
44. 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

45. 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

45. The process of cutting off the line which are outside the window are called

a. Shear
b. Reflection
c. **Clipping**
d. Clipping window

47. Some common form of clipping include

a. curve clipping
b. point clipping
c. polygon clipping
d. **All of these**

48. A composite transformation matrix can be made by determining the _______ of matrix of the individual transformation

a. Addition
49. Each successive transformation matrix ________ the product of the preceding transformation.

   a. **pre-multiples**
   b. **post-multiples**
   c. both a & b
   d. none of these

50. Forming products of transformation matrices is often referred as

   a. Composition of matrix
   b. **Concatenation of matrix**
   c. **Both a & b are same**
   d. None of these

51. The alteration of the original shape of an object, image, sound, waveform or other form of information are called

   a. Reflection
   b. **Distortion**
   c. Rotation
   d. None of these

52. Two consecutive translation transformation $t_1$ and $t_2$ are

   a. **Additive**
   b. Subtractive
   c. Multiplicative
   d. None of these
53. Two consecutive rotation transformation $t_1$ and $t_2$ are

a. Additive
b. Subtractive
c. Multiplicative
d. None of these

53. Two consecutive scaling transformation $t_1$ and $t_2$ are

a. Additive
b. Subtractive
c. Multiplicative
d. None of these

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**Unit-3**

1. _______ curve is one of the spline approximation methods
   a. Bezier
   b. Ellipsoid
   c. Shearing
   d. None of these

2. A Bezier curve is a polynomial of degree _________ the no of control points used
   a. One more than
   b. **One less than**
   c. Two less than
   d. None of these

3. Spline curve can be either
   a. Bezier spline
   b. B spline
   c. **Both a & b**
   d. None of these

4. Bezier spline always passes through
   a. **First and second control point**
   b. Does not pass from First and second control point
   c. Both a & b
   d. None of these

5. 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. \[ Ax + By + Cz + D = 1 \]

6. The object refers to the 3D representation through linear, circular or some other representation are called
   a. Quadric surface
   b. **Sweep representation**
   c. Torus
   d. None of these

7. The distance of a line from the projection plane determines
   a. **Its size on projection plane**
   b. Its length on projection plane
   c. Its width on projection plane
   d. Its height on projection plane

8. The further the line from the projection plane, ______ its image on the projection plane
   a. Smaller
   b. Larger
   c. Neither smaller nor larger
   d. None of these

9. 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

10. The shape of a Bezier curve primarily depends upon the
    a. **Position of control points**
    b. Distance of control points
    c. Position of control panel
    d. None of these

11. The no of control points in a Bezier curve ensures the
    a. Jaggies of curve
    b. **Smoothness of curve**
    c. Straightness of curve
    d. None of these

12. More the control points of a Bezier curve, ______ quality of the curve
    a. Higher
    b. Lower
    c. Bad
    d. None of these
13. ______ is a flexible strip that is used to produce smooth curve using a set of point
   a. Spline
   b. Scan-line method
   c. Depth-sorting method
   d. None of these

14. The types of spline curve are
   a. Open spline
   b. Closed spline
   c. Both a & b
   d. None of these

15. Cubic spline are
   a. Simple to compute
   b. Provides continuity of curves
   c. Both a & b
   d. None of these
   e.

16. The parametric form of 3D spline are
   a. $X=f(t), y=g(t), z=h(t)$
   b. $X=a_0, y=b_0, z=c_0$
   c. $F(t)=0, g(t)=0, h(t)=0$
   d. None of these
   e.

17. The value of t lies between
   a. 1 and 2
   b. 1 and 10
   c. 0 and 1
   d. 0 and 3
   e.

18. The surfaces that is blocked or hidden from view in a 3D scene are known as
   a. Hidden surface
   b. Frame buffer
   c. Quad tree
   d. None of these

19. Why we need removal of hidden surfaces
   a. for displaying realistic view
   b. for determining the closest visible surface
20. How many types of hidden surface algorithm are
a. 1
b. 2
c. 3
d. None of these

21. The algorithm of hidden surface are
a. Object-space method
b. image-space method
c. Both a & b
d. None of these

22. The method which is based on the principle of comparing objects and parts of objects to each other to find which are visible and which are hidden are called
a. Object-space method
b. image-space method
c. Both a & b
d. None of these

23. The method which is based on the principle of checking the visibility point at each pixel position on the projection plane are called
a. Object-space method
b. image-space method
c. Both a & b
d. None of these

24. The types of hidden surface removal algorithm are
a. Depth comparison, Z-buffer, back-face removal
b. Scan line algorithm, priority algorithm
c. BSP method, area subdivision method
d. All of these

25. Which surface algorithm is based on perspective depth
a. Depth comparison
b. Z-buffer or depth-buffer algorithm
c. Subdivision method
26. In which year Z-buffer algorithm are described
   a. 1995
   b. 1974
   c. 1945
   d. 1981

27. Z-buffer algorithm are
   a. Simplest algorithm
   b. Complex algorithm
   c. Largest algorithm
   d. None of these

28. Which is a tree type of data structure in which every internal node has at most four children
   a. Point quad tree
   b. Edge quad tree
   c. Quad tree
   d. None of these

29. The scan line coherence algorithm was developed by
   a. Wylie
   b. Evans
   c. Cat mull
   d. Both a & b

30. The array are used with scan line coherence algorithm are
   a. For intensity value
   b. For depth value
   c. Both a & b
   d. None of these

31. Scan lines are used to scan from
   a. Top to bottom
   b. Bottom to top
   c. Both a & b
   d. None of these

32. The painter algorithm were developed on
a. 1972 by Newell
b. 1972 by Evans
c. 1974 by Cat mull
d. None of these

33. The painter algorithm are also called
   a. Depth sort algorithm
   b. Priority algorithm
   c. Both a & b
   d. None of these

34. The painter algorithm are based on the property of
   a. Polygon
   b. Frame buffer
   c. Depth buffer
   d. None of these

35. The name of a visible surface detection algorithm are
   a. Back face detection
   b. Back face removal
   c. Ray tracing
   d. None of these

36. Which type of quad tree can be defined as an adaptation of a binary tree represented two dimensional point data
   a. Point quad tree
   b. Edge quad tree
   c. Curves quad tree
   d. Areas quad tree

37. Which type of quad tree is specifically used to store lines rather than points
   a. Point quad tree
   b. Edge quad tree
   c. Curves quad tree
   d. Areas quad tree

38. Which quad tree defines a partition of space in two dimension by dividing the region into four equal quadrants, sub quadrants and so on
   a. Curves quad tree
b. Areas quad tree

c. **Region quad tree**

d. None

39. The depth sorting method reforms surfaces sorting in________ order of depth

a. Increasing

b. **Decreasing**

c. Both a & b

d. None of these

40. The problem of discontinuity of lines is known as

a. Jaggies

b. Stair-casing

c. **Both a & b**

d. None of these

41. A quad-tree is a data structure which is used for graphical representation of

a. **2D digital picture or object**

b. 3D picture or object

c. Both a & b

d. None of these

42. A octree is a data structure which is used for alternative representation of

a. 2D digital picture or object

b. **3D picture or object**

c. Both a & b

d. None of these

43. How many data elements for each region in quad-tree data structure

a. 2

b. **4**

c. 6

d. 8

44. How many data elements for each region in octree data structure

a. 2

b. 4

c. 6
45. The main property of _______ is that their shape is irregular
   a. Fractals
   b. Quad-tree
   c. Rendering
   d. None of these

46. The word fractals is coined by
   a. Mandelbrot in 1975
   b. Gosling in 1962
   c. Mandelbrot in 1974
   d. Mandelbrot in 1979

47. The fractals is used to
   a. Generate image of natural object
   b. Viewing of various mathematical system
   c. Viewing of various physical system
   d. All of these

48. A process with the help of which images or picture can be produced in a more realistic way is called
   a. Fractals
   b. Quad-tree
   c. Rendering
   d. None of these

49. For which purpose, one needs to apply natural light effects to visible surface
   a. Fractals
   b. Quad-tree
   c. Rendering
   d. None of these

UNIT-4

1. The basic ray tracing algorithm provides
   a. Transparency
   b. Visible-surface detection
   c. Shadow effect, multiple light source illumination
2. Ray-tracing is an extension of
   a. Ray calling
   b. **Ray casting**
   c. Ray sampling
   d. None of these

3. A fast and simple method for rendering an object with polygon surface is
   a. Constant-intensity shading
   b. Flat shading
   c. **Both a & b**
   d. None of these

4. The additive color models use the concept of
   a. Printing ink
   b. **Light to display color**
   c. Printing line
   d. None of these

5. The subtractive color model use the concept of
   a. **Printing ink**
   b. Light to display color
   c. Printing line
   d. None of these

6. Color apparent in additive model are the result of
   a. Reflected light
   b. **Transmission of light**
   c. Flow of light
   d. None of these

7. Color apparent in subtractive model are the result of
   a. **Amount of Reflected light**
   b. Transmission of light
   c. Flow of light
   d. None of these

8. Two dimensional color model are
   a. RGB and CMKY
   b. RBG and CYMK
c. RGB and CMYK
d. None

9. RGB model are used for
   a. Computer display
   b. Printing
   c. Painting
   d. None of these

10. CMYK model are used for
    a. Computer display
    b. Printing
    c. Painting
    d. None of these

11. The intersection of three primary RGB color produces
    a. White color
    b. Black color
    c. Magenta color
    d. Blue color

12. The intersection of primary CMYK color produces
    a. White color
    b. Black color
    c. Cyan color
    d. Magenta color

13. The RGB model display a much ______ percentage of the visible band as compared to CMYK
    a. Lesser
    b. Larger
    c. Medium
    d. None of these

14. Color depth can be defined by ________ which can be displayed on a display unit
    a. Bits per pixel
    b. Bytes per pixel
    c. Megabyte per pixel
    d. None of these

15. Each bit represent
    a. One color
    b. Two color
    c. Three color
    d. None

16. RGB true color model has _______ color depth
17. CMYK true color model has _______ color depth
   a. 24bit
   b. 32bit
   c. 64bit
   d. None

18. Grey scale images have a maximum color depth of
   a. 8bit
   b. 16bit
   c. 24bit
   d. 32bit

19. Graphics with limited features is known as
   a. Active graphics
   b. Passive graphics
   c. Grayscale image
   d. None of these

20. Computer of present time have much higher memory and _______ storage capacity
   a. Much smaller
   b. Much bigger
   c. Much slower
   d. None

UNIT-5

1. Display card are
   a. VGA
   b. EGA
   c. Both a & b
   d. None of above

2. Display card is used for the purpose of
   a. Sending graphics data to input unit
   b. Sending graphics data to output unit
   c. Receiving graphics data from output unit
   d. None of these

3. Several graphics image file formats that are used by most of graphics system are
   a. GIF
   b. JPEG
   c. TIFF
d. All of these

4. The GIF format is much _________ to be downloaded or uploaded over the www
   a. Slower
   b. Faster
   c. Medium
   d. None of these

5. Once a file is saved in JPEG format, some data is lost
   a. Temporarily
   b. Permanently
   c. Both a & b
   d. None

6. EPS image file format is used for
   a. Vector graphics
   b. Bitmap
   c. Both a & b
   d. None of these

7. TIFF (tagged image file format) are used for
   a. Vector graphics
   b. Bitmap
   c. Both a & b
   d. None of these

8. EPS means
   a. Entire post script
   b. Entire post scale
   c. Encapsulated post script
   d. None of these

9. Which environment has been one of the most accepted tools for computer graphics in business and
   graphics design studios
   a. graphics
   b. Macintosh
   c. quake
   d. multimedia

10. Graphics is one of the _________ major key element in design of multimedia application
    a. Five
    b. Three
    c. Four
    d. Eight
11. Three dimensional graphics become popular in games designing, multimedia and animation during the late
   a. 1960
   b. 1970
   c. 1980
   d. 1990

12. The quake, one of the first fully 3D games was released in year
   a. 1996
   b. 1976
   c. 1986
   d. 1999

13. What is ZUI in computer Graphics?
   a. A Widget
   b. Logical Enhancement of GUI
   c. An application that saves memory
   d. None of above

14. Examples of Presentation Graphics is?
   a. Bar Charts
   b. CAD
   c. Line Graphs
   d. A and C

15. The technique used to summarize the financial, statistical, mathematical, scientific and economic data is?
   a. Computer Art
   b. Image processing
   c. Presentation Graphics
   d. None of above

16. Computer generated models of physical, financial and economic systems are often used for?
   a. Entertainment
   b. Quality Control
   c. Educational Aid
   d. None of above

MISCELLANEOUS MULTIPLE CHOICE QUESTIONS
1. Smallest size object that can be displayed on a monitor is called ....................
   a) Picture element
   b) Point
   c) Dot Pitch
   d) aspect ratio
2. Each screen point is referred to as ........................
   a) Resolution  
   b) Pixel  
   c) Persistence  
   d) Dot Pitch  
   Ans: Pixel

3. On a monochromatic monitor, the frame buffer is known as ..................
   a) Display file b) Pixmap c) Bitmap d) Refresh buffer  
   Ans: Bitmap

4. On a color monitor, the refresh buffer is also called ..................
   a) Frame buffer b) Pixmap c) Bitmap d) Display file  
   Ans: Pixmap

5. ........................ refers to pixel spacing.
   a) Pixmap b) Resolution c) Pixel depth d) Persistence  
   Ans: Resolution

6. The distance from one pixel to the next pixel is called .......... 
   a) Resolution b) Dot Pitch c) Pixmap d) ppi  
   Ans: Resolution

7. The maximum number of points that can be displayed without overlap on a CRT 
   a) Aspect Ratio b) Resolution c) Brightness d) Pixel 
   Ans: Resolution

8. ................... is the number of points per centimeter that can be plotted horizontally and vertically. 
   a) Aspect Ratio b) Pixel Depth c) Resolution d) Dot Pitch  
   Ans: Resolution

9. ........................ is the ratio of horizontal points to vertical points necessary to produce equal length lines in both direction. 
   a) Dot Pitch b) Resolution c) Aspect Ratio d) Height-Width Ratio  
   Ans: Aspect Ratio

10. Identify the odd one out from the following
a) Frame Buffer b)Pixmap c)Display program d)Refresh Buffer

**Ans: Pixmap**

11. The shortest distance between any two dots of the same color is called ..................
a) Resolution b) Dot Pitch c) Pixel Depth d) ppi

**Ans: Dot Pitch**

12. The standard aspect ratio for PC is ................
a) 6:5 b) 4:3 c) 3:2 d) 5:3

**Ans: 4:3**

13. In CRT, the electron intensity is adjusted using ................
a) Accelerating anode b) Control grid c) Electron gun d) Focusing anode

**Ans: Control grid**

14. Brightness of a display is controlled by varying the voltage on the ................
a) Focusing anode b) Connection pins c) Control grid d) Power supply

**Ans: Control grid**

15. Lower persistence phosphorus is used in
   a) Animation b) Simple object c) Complex object d) All of these

**Ans: Animation**

16. Lower persistence phosphorus needs _______ refresh rate
   a) Lower b) Higher c) Medium d) None of these

**Ans: Higher**

17. Higher persistence phosphorus needs _______ refresh rate
   a) Lower b) Higher c) Medium d) None of these

**Ans: Lower**

18. Higher persistence phosphorus is used in
   a) Animation b) Simple object c) High Complex object d) All of these

**Ans: High Complex object**

15. Memory area holding the intensity information of an image is called ............
a) Refresh buffer b) Font cache c) Picture definition d) Video controller

**Ans: Refresh buffer**
16. Intensity representation of an image is called ......................  
  a) Frame buffer b) Picture definition c) Display list d) Brightness  
  Ans: Picture definition  

17. The purpose of refreshing a CRT is .........................  
  a) To avoid flickering b) To maintain steady picture c) To avoid fading of pixels d) All of the above  
  Ans: All of the above  

18. The fly-back of electron beams from one scanline to next is known as ..................  
  a) Vertical Retrace b) Horizontal Retrace c) Raster scanning d) Refreshing  
  Ans: Horizontal Retrace  

19. The return of electron beam to top left corner of the screen after one frame is called ...............  
  a) Horizontal fly-back b) Vertical Fly-back c) Scanning d) None of the above  
  Ans: Vertical Fly-back  

20. In raster scan display, the frame buffer holds ......................  
  a) Line drawing commands b) Scanning instructions c) Image Resolution d) Intensity information  
  Ans: Intensity information  

21. In random scan display, the frame buffer holds ......................  
  a) Line drawing commands b) Scanning instructions c) Image Resolution d) Intensity information  
  Ans: Line drawing commands  

22. Identify the odd one out from the following  
  a) Vector display b) Raster scan display c) Calligraphic display d) Stroke-writing display  
  Ans: Raster scan display  

22. Interlaced refresh procedure is allowed in ......................  
  a) LCD b) DVST c) Raster scan display d) Random scan display  
  Ans: Raster scan display  

23. Vector display is well suited for .......................  
  a) Animation b) Line drawing applications c) Cartoons d) All of the above  
  Ans: Line drawing applications  

24. Beam penetration method is usually used in .........................  
  a) LCD b) Raster Scan display c) Random scan display d) DVST  
  Ans: Random scan display
25. Shadow mask method is usually used in ............................
a) LCD b) Raster Scan display c) Random scan display d) DVST
Ans: Raster Scan display

26. Identify the colors produced in beam penetration method.
a) Red, Green, Blue, White b) Red, Orange, Yellow, Green c) Red, Green, Blue d) Green, Red, White, Orange
Ans: Red, Orange, Yellow, Green

27. An RGB color system with 24 bits of storage per pixel is known as ..........................
a) Color CRT b) True-color system c) RGB monitor d) Color-Depth
Ans: True-color system

28. Identify the features of Vector display
a) High resolution, Jagged lines, Lack in color depth b) Smooth lines, Poor resolution, Black & White
c) High resolution, Lack in color depth, Smooth lines d) Inexpensive, monochromatic, smooth lines
Ans: High resolution, Jagged lines, Lack in color depth

29. Identify different type of computer graphics
a) Monochrome and Color b) CRT and Flat panel c) Vector and Raster d) Monitors and Hardcopy devices
Ans: Vector and Raster

30. DVST stands for ..........................
a) Digital View Storing Table b) Direct Visual Storage Tube c) Direct View Storage Tube
c) Digital View Storage Tube
Ans: Direct View Storage Tube

31. Refreshing is not needed in DVST because of the presence of ...............
a) Primary gun b) Flood gun c) Focusing anode d) Control grid
Ans: Flood gun

32. In DVST, the electron beam from primary electron gun strikes on ..............
a) Phosphor screen b) Collector mesh c) Storage mesh d) Flood gun
Ans: Storage mesh

33. The purpose of flood gun in DVST is .............................
a) To store the picture pattern b) To slow down the flood electrons c) To enable color
pixels d) To focus the electron beam

**Ans: To slow down the flood electrons**

34. Identify the features of DVST from the following.
a) Monochromatic, Flicker free, Low resolution b) Monochromatic, Flicker free c) Color
screens, Refresh monitors, High resolution d) Expensive, Low resolution

**Ans: Monochromatic, Flicker free**

35. Video devices with reduced volume, weight and power consumption are collectively
known as ........
a) Light weight monitors b) Flat-panel displays c) CRT d) Portable display

**Ans: Flat panel displays**

36. Pick out the odd one out
a) LED b) LCD c) Gas Discharge tube d) Plasma Panel

**Ans: LCD**

37. Match the following Part A Part B
A. Plasma panel 
   i) Polarizer B. DVST 
   ii) Zinc sulfide C. LCD 
   iii) Dielectric mesh D. Thin film electroluminescent 
   iv) Neon gas 

a) A-ii, B-iv, C-i, D-iii b) A-ii, B-iii, C-iv, D-i c) A-iv, B-iii, C-i, D-ii d) A-i ,B-iv, C-ii, D-iii

**Ans: A-iv, B-iii, C-i, D-ii**

38. ................. is responsible for accessing the frame buffer to refresh the screen.
a) Graphics package b) Video controller c) CPU d) Monitor

**Ans: Video controller**

39. Digitizing a picture definition into a set of intensity values is known as ............
a) Digitization b) Scan conversion c) Refreshing d) Scanning

**Ans: Scan conversion**

40. ................. will free the CPU from graphics chores.
a) Display processor b) Monitor c) ALU d) Video controller

**Ans: Display processor**
41. Write an example for non-emissive displays
   a) LED  b) LCD  c) Gas Discharge tube  d) Plasma Panel
   Ans: LCD

42. Identify impact printer from the following
   a) Drum Plotter  b) Inkjet printer  c) Electrostatic printer  d) Dot-matrix printer
   Ans: Dot-matrix printer

45. Write an example for non-impact printer
   a) Drum plotter  b) Electrostatic printer  c) Laser printer  d) All of the above
   Ans: All of the above

46. Identify the odd one out.
   a) Mouse  b) Keyboard  c) Trackball  d) Space ball
   Ans: Keyboard

47. GIF stands for .................. 
   a) Global Image Format  b) Graphics Interchange Format  c) Graphics Image Format  d) None of the above
   Ans: Graphics Interchange Format

48. The ................ simply reads each successive byte of data from the frame buffer.
   a) Digital Controller  b) Data Controller  c) Display Controller  d) All of above
   Ans: Display Controller

49. The refresh rate below which a picture flicker is ................
   a) 25  b) 30  c) 35  d) 60
   Ans: 25

50. ........ used to regulate the flow of elections in CRT ?
   a) Electron gun  b) Focusing anode  c) Control grid  d) All of the above
   Ans: Control grid

51. The technique used to summarize the financial, statistical, mathematical, scientific and economic data is ?
   a) Computer Art  b) Image processing  c) Presentation Graphics  d) None of the above
   Ans: Presentation Graphics
52. Graphics and image processing technique used to produce a transformation of one object into another is called
   a) Animation b) Morphing c) Half toning d) None of the above
   Ans: Animation

53. The amount of light emitted by the phosphor coating depends on the?
   a) Number of electrons striking the screen b) Speed of electrons striking the screen c) Distance from the cathode to the screen d) None of above
   Ans: Number of electrons striking the screen

54. Gray scale is used in ....................................
   a) A Monitor that have color capability b) A Monitor that have no color capability c) Random scan display d) Raster scan display
   Ans: A Monitor that have no color capability

55. A wireless mouse works on
   a) Infra blue radiation b) Infra Red radiation c) X-rays d) UV rays
   Ans: Infrared radiation

56. Vector graphics is composed of
   a. Pixels b. Paths c. Palette d. None of these
   Ans: Paths

57. Raster graphics are composed of
   a. Pixels b. Paths c. Palette d. None of these
   Ans: Pixels

58. EPS image file format is used for
   a) Vector graphics b) Bitmap c) Both a & b d) None of these
   Ans: Both a & b

59. TIFF (tagged image file format) are used for
   a. Vector graphics b. Bitmap c. Both a & b d. None of these
   Ans: Bitmap

60. Two dimensional color model are
   a. RGB and CMKY b. RBG and CYMK c. RGB and CMYK d. None
   Ans: RGB and CMYK
61. RGB model are used for
   a. Computer display b. Printing c. Painting d. None of these
   Ans: Computer display

62. CMYK model are used for
   a. Computer display b. Printing c. Painting d. None of these
   Ans: Printing

63. The intersection of three primary RGB color produces a. White color b. Black color
c. Magenta color d. Blue color
   Ans: White color

64. The intersection of primary CMYK color produces
   a. White color b. Black color c. Cyan color d. Magenta color
   Ans: Black color

65. Random scan systems are designed for
   a. Line drawing application b. Pixel drawing application c. Color drawing application d. None of these
   Ans: Line drawing application

66. A major disadvantage of DVST in interactive computer graphics is
   a) Ability to selectively erase part of an image b) Inability to selectively erase part of image from screen
c) Inability to produce bright picture d) None
   Ans: Inability to selectively erase part of image from screen

67. Which of the following allow for 8 mirror images?
   a) Parabola b) Ellipse c) Hyperbola d) Circle
   Ans: Circle

68. The simplest output primitive is ............
   a) Straight line b) Straight line segment c) Point d) Circle
   Ans: Point

69. A bitmap is ............ bit(s) per pixels.
   a) 0 b) 1 c) 2 d) 4
   Ans: 1
70. The intensity of a grayscale pixel is expressed within a given range between a minimum and a maximum
   a) 1 and 2  b) 2 and 1  c) 0 and 1  d) 0 and 2
   **Ans: 0 and 1**

71. Each pixel has ________ basic color components
   a. Two or three  b. One or two  c. Three or four  d. None of these
   **Ans: Three or four**

72. The quality of an image depend on
   a. No. of pixel used by image  b. No. of line used by image  c. No. of resolution used by image  d. None
   **Ans: No. of pixel used by image**

73. The basic geometric structures that describes a scene on display is called .................
   a) Attributes  b) Output primitive  c) Lines  d) Curves
   **Ans: Output primitive**

74. ................. controls the basic display properties of output primitives.
   a) Attribute parameter  b) setpixel  c) getpixel  d) None of the above
   **Ans: Attribute parameter**

75. To set line width attributes in a PHIGS package, .................. function is used.
   a) setLineThickness(lw)  b) setLineWidth(lw)  c) setLineWidthScaleFactor(lw)
   d) setPolylineWidth(lw)
   **Ans: setLineWidthScaleFactor(lw)**

76. Identify the values for fill-style parameter from the following
   a) Hollow  b) Hatch  c) Pattern  d) All of the above
   **Ans: All of the above**

77. ..................... function is used to set the basic fill style.
   a) setFillStyle(fs)  b) setFillStyleIndex(fs)  c) setInteriorStyle(fs)  d) FillType(ft)
   **Ans: setInteriorStyle(fs)**

78. ..................... is defined as the distance between the baseline and cap line of the character body.
   a) Character Size  b) Character Height  c) Character Width  d) Character Length
   **Ans: Character Height**
80. ................ function is used to change the size of a character without changing the
height:width ratio.
a) setTextSize(ts) b) setCharacterHeight(ch) c) setCharacterSize(cs) d) setTextHeight(th)
Ans: setCharacterHeight(ch)

81. ................ will define a group of attribute values of each primitive to be used on a
monitor a) Primitive table b) Bundle table c) Attribute table d) None of the above
Ans: None of the above

82. ............... function is used to set how text is to be positioned with respect to the start
coordinates
a) setTextAlignment(h,v) b) setTextPrecision(tp) c) setTextPosition(h,v) d) setText(ts)
Ans: setTextAlignment(h,v)

83. ................ is used to check the current status of each attributes
a) setpixel b) getpid b) inquiry function d) status function
Ans: Inquiry function

84. The basic transformations include
a) Translation b) Rotation c) Scaling d) All of the above
Ans: All of the above

85. The transformation in which an object is moved in a minimum distance path from one
position to another is called
a) Rotation b) Replacement c) Translation d) Scaling
Ans: Translation

86. The translation distances (dx, dy) is called as
a) Translation vector b) Shift vector c) Both a and b d) Neither a nor b
Ans: Both a and b

88. The transformation in which an object is moved from one position to another in
circular path around a specified pivot point is called
a) Rotation b) Shearing c) Translation d) Scaling
Ans: Rotation

89. The transformation in which the dimension of an object are changed relative to a
specified fixed point is called
90. The transformation that produces a parallel mirror image of an object are called
a) Rotation b) Reflection c) Translation d) Scaling
Ans: Reflection

91. If an object is rotated through an angle A in clockwise direction, the rotation matrix
\[ R = \begin{pmatrix} \cos A & -\sin A \\ \sin A & \cos A \end{pmatrix} \]
a) \( \cos A \sin A \) b) \( \cos A -\sin A \) c) \( \sin A \cos A \) d) None
Ans: \( \cos A \sin A -\sin A \cos A \)

92. If a point \((x,y)\) is reflected about an axis which is normal to the XY plane and passing
through the origin, the reflected point \((X,Y)\) is:
\ a) \( (x,-y) \) \ b) \( (-x,y) \) \ c) \( (-x,-y) \) \ d) \( (y,x) \)
Ans: \( (-x,-y) \)

93. Reflection of a point about x-axis, followed by a counter-clockwise rotation of 900 ,
is equivalent to reflection about the line ?
a) \( x=-y \) \ b) \( x=0 \) \ c) \( x=y \) \ d) \( x+y=1 \)
Ans: \( x=y \)

94. A circle, if scaled only in one direction becomes a ?
a) Hyperbola b)Ellipse c) Parabola d)remains a circle
Ans: Ellipse

95. \((2,4)\) is a point on a circle that has center at the origin. Which of the following points
are also on circle ?
a) \( (2,-4) \) \ b) \( (-2,4) \) \ c) \( (-4,-2) \) \ d) All of above
Ans: All of above

96. Which technique of color CRT is used for production of realistic image
a) Beam penetration b) Shadow mask c) both a&b d)None of above
Ans: Shadow mask

97. A composite transformation matrix can be made by determining the ______of
matrix of the individual transformation
a) Sum b) Product c) Difference d) None of the above
98. Each successive transformation matrix ________ the product of the preceding transformation
   a) pre-multiplies b) post-multiplies c) adds d) subtracts
   **Ans: pre-multiplies**

99. Which of the following is not a rigid body transformation?
   a) Translation b) Rotation c) Shearing d) Reflection
   **Ans: Shearing**

100. Forming products of transformation matrices is often referred as
   a) Concatenation b) Composition c) both a&b d) None of above
   **Ans: both a&b**

101. Two consecutive translation transformation t1 and t2 are
   a) Additive b) Multiplicative c) Subtractive d) none of above
   **Ans: Additive**

102. Two consecutive rotation transformation r1 and r2 are
   a) Additive b) Multiplicative c) Subtractive d) none of above
   **Ans: Additive**

103. Two consecutive scaling transformation s1 and s2 are
   a) Additive b) Multiplicative c) Subtractive d) none of above
   **Ans: Multiplicative**

104. The process of mapping a world window in world coordinate system to viewport are called
   a) Transformation viewing b) Viewport c) Clipping window d) Screen coordinate system
   **Ans: Transformation viewing**

105. The process of extracting a portion of a database or a picture inside or outside a specified region are called
   a) Transformation b) Projection c) Clipping d) Mapping
   **Ans: Clipping**

106. 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  
\textbf{Ans: View port}

107. The phenomenon of having a continuous glow of a beam on the screen even after it is removed is called as?
\ a) Fluorescence  b) Persistence  c) Phosphorescence  d) Incandescence  
\textbf{Ans: Phosphorescence}

108. Coordinates of window are known as ............
\ a) Screen coordinates  b) World coordinates  c) Device coordinates  d) Cartesian coordinates  
\textbf{Ans: World coordinates}

109. Coordinates of viewport are known as ............
\ a) World coordinates  b) Polar coordinates  c) Screen coordinates  d) Cartesian coordinates  
\textbf{Ans: Screen coordinates}

110. The region against which an object is clipped is called a ............
\ a) Clip window  b) Boundary  c) Enclosing rectangle  d) Clip square  
\textbf{Ans: Clip window}

111. ............ identifies the picture portions that are exterior to the clip window
\ a) Interior clipping  b) Exterior clipping  c) Extraction  d) None of the above  
\textbf{Ans: Exterior clipping}

112. Identify line clipping algorithms from the following
\ a) Cohen-Sutherland algorithm  b) Liang-Barsky clipping  c) Nicholl-Lee-Nicholl clipping  d) All of the above  
\textbf{Ans: All of the above}

113. The region code of a point within the window is ............
\ a) 1111  b) 0000  c) 1000  d) 0001  
\textbf{Ans: 0000}

114. According to Cohen-Sutherland algorithm, a line is completely outside the window if ............
\ a) The region codes of line endpoints have a '1' in same bit position.  b) The endpoints region code are nonzero values  c) If L bit and R bit are nonzero.  d) The region codes of line endpoints have a '0' in same bit position.
Ans: The region codes of line endpoints have a '1' in same bit position.

115. The region code of a point is 1001. The point is in the ................. region of window.
a) Top right b) Top left c) Bottom left d) Bottom right
Ans: Top left

116. The result of logical AND operation with endpoint region codes is a nonzero value. Which of the following statement is true?
a) The line is completely inside the window b) The line is completely outside the window
c) The line is partially inside the window d) The line is already clipped
Ans: The line is completely outside the window

117. The left (L bit) bit of the region code of a point (X,Y) is '1' if ....................
a) X > XWMIN b) X < XWMIN c) X < XWMAX d) X > XWMAX
Ans: X < XWMIN

118. The right bit (R bit) of the region code of a point (X,Y) is '1' if ......................
a) X > XWMIN b) X < XWMIN c) X < XWMAX d) X > XWMAX
Ans: X > XWMAX

119. The Most Significant Bit of the region code of a point (X,Y) is '1' if ....................
a) Y > YWMIN b) Y < YWMIN c) Y < YWMAX d) Y > YWMAX
Ans: Y > YWMAX

120. The bottom bit of the region code of a point is '0' if .........................
a) Y > YWMIN b) Y < YWMIN c) Y < YWMAX d) Y > YWMAX
Ans: Y < YWMIN

121. The ......................... algorithm divides a 2D space into 9 regions, of which only the middle part (viewport) is visible.
a) Cohen-Sutherland b) Liang Barsky c) Sutherland Hodegeman d) N-L-N
Ans: Cohen-Sutherland

122. A method used to test lines for total clipping is equivalent to the ................
a) logical XOR b) logical OR c) logical AND d) both a & b
Ans: logical AND

123. Sutherland Hodgeman algorithm works well for ..............
a) Concave polygon b) Convex polygon d) Smooth curves d) Line segment
Ans: Convex polygon

124. A transformation that slants the shape of an object is called ....................
a) Reflection  b) Shear  c) Distortion  d) Scaling
Ans: Shear

125. The text clipping strategy to reject an entire character string that overlaps a clip window is called ................ a) All-or-none character clipping b) All-or-none string clipping c) Curve clipping d) both a & b
Ans: All-or-none string clipping

126. The object refers to the 3D representation through linear, circular or some other representation are called
a) Quadric surface  b) Sweep representation  c) Torus  d) None of these
Ans: Sweep representation

127. A quad-tree is a data structure which is used for graphical representation of .................... a) 2D digital picture or object b) 3D picture or object c) Both a & b d) None of these
Ans: 2D digital picture or object

128. A octree is a data structure which is used for alternative representation of ....................
   a) 2D digital picture or object c) 3D picture or object c) Both a & b d) None of these
Ans: 3D picture or object

129. How many data elements for each region in quad-tree data structure
   a) 2  b) 4  c) 8  d)6
Ans: 4

130. How many data elements for each region in octree data structure
   a) 2  b) 4  c) 6  d) 8
Ans: 8

131. ................ refer to the shapes created by union, intersection and difference of given shapes
   a) . Wire frame model b) Composite transformation c) Constructive solid geometry methods d) None
Ans: Constructive solid geometry methods
132. The center of display screen is computed as
a) X max , y max b) Xmax/2, ymax/2 c) Xmax/3, ymax/3 d) None of these
Ans: Xmax/2, ymax/2

133. The operation that is used for repositioning the object is called
a) Rubber band method b) Gravity method c) Dragging d) None
Ans: Dragging

134. Which method are used to construct and position the straight lines, arcs and circles etc.
   a) Rubber band method b) Gravity method c) Dragging d) None of these
Ans: Rubber band method

135. Which are used to connect a line to already drawn line
   a) Rubber band method b) Gravity method c) Dragging d) None of these
Ans: Gravity field

136. The rubber band method is also applicable to ................. objects.
   a) Scale b) Scalar c) Vector d) Rotate
Ans: Scale

137. ............... is known as standard graphics objects
   a) Octree b) Quadtree c) Polygon surfaces d) Ellipsoid
Ans: Polygon surfaces

138. ................ includes vertex coordinates and parameters to identify the spatial orientation of polygon surfaces
   a) Attribute table b) Geometric table c) Orientation table d) Position table
Ans: Geometric table

139. Identify the data structures used to store the data about polygon surfaces
   a) Vertex table b) Polygon table c) Edge table d) All of the above
Ans: All of the above

140. Coordinate values for each vertex is stored in .................
   a) Coordinate table b) Vertex table c) Edge table d) Location table
Ans: Vertex table

141. ..................... data structure is used to identify the vertices for each polygon edge.
a) Vertex table b) Polygon table c) Edge table d) Surface table

**Ans: Edge table**

142. .................. data structure is used to identify the edges for each polygon.
a) Vertex table b) Polygon table c) Edge table d) None of the above

**Ans: Polygon table**

143. A triangular strip connected with 50 triangles connects ................ vertices.
a) 52 b) 48 c) 50 d) 49

**Ans: 52**

144. When a circle is subjected to translational sweep, a .............. is formed.
a) Ellipse b) Cone c) Sphere d) Cylinder

**Ans: Cylinder**

145. A surface of revolution is generated by a .................. of a 2D curve.
a) Translational sweep b) Rotational sweep c) union d) intersection

**Ans: Rotational sweep**

146. A prism is generated by translational sweep of a .................. 
a) Circle b) Square c) Polygon d) Triangle

**Ans: Polygon**

147. The .............. combines the volumes occupied by overlapping 3D objects using set operations
a) Beam penetration b) CSG Method c) Sweep representation d) None of the above

**Ans: CSG Method**

148. A .................. is a data structure that recursively subdivides a plane into 4 quadrants 
a) Octree b) 4-way tree c) quadtree d) 4-way mesh

**Ans: quadtree**

149. Identify the methods for Constructive Solid Geometry operations
a) Ray casting b) Ray tracing c) Beam penetration d) Ray sorting

**Ans: Ray casting**

150. .................... solid representation take advantage of spatial coherence to reduce the storage representations.
a) Sweep representation b) Octree c) Polygon surfaces d) CSG
Ans: Octree

151. ................... is a data element to store the pixels within an octant having same color
a) Voxel b) Void c) Tex d) Flag
Ans: Voxel

152. Empty regions of the space are represented by type ....................
a) int b) void c) null d) empty
Ans: void

153. If all the pixels within an octant have the same color, it is referred to as ....................
a) Heterogeneous octant b) Homogeneous octant c) Simultaneous octant d) Similar octant
Ans: Homogeneous octant

154. ................... is a label set of output primitives and its associated attributes.
a) Structure b) Function c) Table d) List
Ans: Structure

155. ................... enables easy modification to each picture element
a) Structure b) Function c) Table d) List
Ans: Structure

156. A structure is created using the function ........................
a) initstructure( ) b) startstructure( ) c) openstructure( ) d) none
Ans: openstructure( )

157. ................... is the reference portion value of each structure element.
a) element pointer b) index c)attribute d)attribute index
Ans: element pointer

158. Identify the following data structure. " If a region is uniform, store its properties. If a region is non-uniform, subdivide it and repeat the process"
a) Octree b) List c) Table d) Polygon surface
Ans: Octree

159. Identify the data structures that works on divide and conquer strategy.
a) List b) Table c) Octree d) Pointer
Ans: Octree
160. Can be produced by interpolating shading patterns across the polygon surfaces to eliminate or reduce the presence of polygon edge boundaries.
   a) Rasterizing b) Rendering c) Smoothing d) None
   **Ans:** Rendering

161. Function is used to display a structure on the screen.
   a) poststructure( ) b) displaystructure( ) c) enablestructure( ) d) structurepost( )
   **Ans:** poststructure( )

162. All structures can be removed from the screen using the function
   a) deletestructure( ) b) unpoststructure( ) c) removestructure( ) d) unposalltstructures( )
   **Ans:** unpostallstructures( )

163. In representation, an octree is decomposed into identical cells arranged in a fixed regular grid.
   a) cell b) voxel c) pixel d) array
   **Ans:** voxel

164. Identify the odd one out
   a) Input mode b) Accept mode c) Sample mode d) Event mode
   **Ans:** Accept mode

165. The typical input operation in a general programming language will be in mode
   a) Sample b) request c) Event d) Read
   **Ans:** request

166. Identify the input mode in which the application program initiates data entry.
   a) Sample b) request c) Event d) Read
   **Ans:** request

167. In input mode, the input devices initiates data input to the application program.
   a) Sample b) request c) Event d) Read
   **Ans:** Event

168. The maximum number of devices that can provide input in request mode is
   a) 2 b) 4 c) Any number of devices d) 1
169. When an input device is placed in event mode, data input from the device is accumulated in ............
   a) Event queue  b) Read queue  c) Device list  d) None
   **Ans: Event queue**

170. The device for specifying a coordinate position (x,y) is known as ............
   a) String device  b) Stroke device  c) Valuator device  d) Locator device
   **Ans: Locator device**

171. Which device is suitable to input a series of coordinate positions.
   a) Locator  b) Stroke  c) Valuator  d) String
   **Ans: Stroke**

172. .................. device is used to specify scalar values.
   a) Locator  b) Stroke  c) Valuator  d) String
   **Ans: Valuator**

173. ..................... enables selection of picture components.
   a) PICK  b) LOCATOR  c) STROKE  d) CHOICE
   **Ans: PICK**

174. Choice devices are suitable to select ......................
   a) Scalar values  b) Menu options  c) Text input  d) Picture components
   **Ans: Menu options**

175. Identify the string device from the following
   a) Mouse  b) Webcam  c) Keyboard  d) Joystick
   **Ans: Keyboard**

176. In ................... picture construction, the entity shape and size is dynamically changed with every mouse movement
   a) Gravity  b) Rubber band  c) Constraint  d) Painting
   **Ans: Rubber band**

177. ............... technique is employed for drawing entities using mouse only.
   a) ) Gravity  b) Rubber band  c) Constraint  d) Painting
   **Ans: Rubber band**
178. ................. constraint forces the input point to the nearest intersection on a grid.
    a) Directional b) Homogeneous c) Modular d)Gravity
    **Ans: Modular**

179. ............... is a type of window which is invoked by an application when multiple inputs are required to specify the desired action.
    a) Dialog box b) Panel c) Icon d)Menu
    **Ans: Dialog box**

180. Symbolic representation of some object or process is called ..............
    a) Icons b) Menu c) List d) Label
    **Ans: Icon**

181. .................. is used to connect a new line to a previously drawn line.
    a) Gravity field b) Rubberband method c) Paiting d) None
    **Ans: Gravity field**

182. Give an example for absolute locator device
    a) Mouse b) Touch panel c) Light pen d) None
    **Ans: Touch panel**

183. Identify an relative locator device from the following
    a) Mouse b) Touch panel c) Light pen d) Keyboard
    **Ans: Mouse**

184. Identify the odd one out
    a) Icon b) Slider c) Spin box d) Locator
    **Ans: Locator**

185. Which of the following is a 3D graphics package?
    a) Paint b) AC3D c) Dreamweaver d) Lightroom
    **Ans: AC3D**

186. .................. displays a list of commands
    a) Menu b) List c) Icon d) Checkbox
    **Ans: Menu**
187. ................ is used to set a value by viewing dynamically the entire data range
a) Menu b) Slider c) Spin boxes d) Text fields
   Ans: Slider

188. ................ is used to select limited choices of predictable values
a) Menu b) Slider c) Spin boxes d) Text field
   Ans: Spin boxes

189. The process of calculating the product of matrices of a number of transformations in
      sequence is called ....................
a) Concatenation b) Continuation c) Mixing d) None
   Ans: Concatenation

190. The point about which an object is rotated is called ................
a) Fixed point b) Central point c) Pivot point d) None
   Ans: Pivot point

191. In ................ mode the program requests input and suspends processing until
      input is received.
a) Request b) Event c) Sample d) Constraint
   Ans: Request

192. Identify odd one out
    a) Vector based b) Hardware based c) Bitmap based d) Scanline based
   Ans: Scanline based

193. When the polygon surfaces are to be tiled, ............. is used
    a) Polygon net b) Polygon mesh c) Polygon block d) Polygon cell
   Ans: Polygon mesh

194. ................ is the practice by which an object is drawn by fixing one (or more)
      points, and then stretching the remain points out, connected by a line or lines that grow
      and shrink according to various properties.
    a) Rubber banding b) Gravity c) Dragging d) grid
   Ans: Rubber banding

195. ................ is created by revolution of a circle about an axis lying in its plane.
    a) Sphere b) Ellipsoid c) Torus d) Cylinder
   Ans: Torus
196. A region quad tree with depth of 'n' may be used to represent an image having resolution ............
   a) 2n b) 2 x 2n c) 2n x 2n d) 2n
   Ans: 2n x 2n

197. ......................... is a true tree because the centre of a subdivision always lies on a point.
   a) Region quad tree b) Edge quad tree c) Point quad tree d) Child quad tree
   Ans: Point quad tree

198. ......................... is an adaptation of binary tree representing the 2-D point data
   a) Region quad tree b) Edge quad tree c) Point quad tree d) Child quad tree
   Ans: Point quad tree

199. ......................... quad tree stores line rather than point.
   a) Region quad tree b) Edge quad tree c) Point quad tree d) Child quad tree
   Ans: Edge quad tree

200. ......................... is commonly used to store sparse data
   a) quad tree b) Table c) Binary tree d) Octant
   Ans: quad tree

**ARTIFICIAL INTELLIGENCE TECHNIQUES(7EE3A)**

Q1. What is Artificial Intelligence? Explain how an AI system is different from a conventional Computing system.
Q2. What are the AI techniques? Discuss with example.
Q3. What is an agent explain with the help of example.
Q4. Explain the progress of AI and its relevance to the industry.
Q5. What is knowledge based expert system? Discuss the use of KBES for AI.
Q6. Explain Expert system shells in detail.
Q7. Compare Radian Rule Master, Knowledge Engineering Environment and OPS5 expert system building tools.
Q8. Explain expert system and its architecture.
Q9. Explain the application areas of AI; Knowledge based system and Expert System.
Q10. Explain the characteristics of AI; Knowledge based system and Expert system.
Q11. Distinguish between data, information, and knowledge. Also explains the knowledge representation methods.
Q12. Differentiate between Forward and Backward Chaining discuss with the example.
Q13. Explain the way to represent knowledge using logic rules.
Q14. Explain the algorithm for hill climbing.
Q15. Explain algorithm for generate and test method.
Q16. Discuss the algorithm for A* with the advantage of best first search procedure.
Q17. Define heuristic search and its technique.
Q18. Give four different ways to represent the facts that “John is Bill’s father”.
Q19. Consider the following facts:
   - Peter only likes easy courses.
   - Mathematics courses are hard.
   - All the courses in textile department are easy.
   - TXT281 is a textile course.

Answer the question,” What course would Peter like.”
Q20. Describe the salient features of LISP, PROLOG, and Logic Programming.

Q21.a) Explain the characteristics of neural network.
   b) Explain the biological neuron with diagram
Q22. a)What do you mean by activation function? Explain its 3 types.
   b) Construct a neural network which computes the XOR function of two inputs.
Q23. What is perceptron? Explain single layer and multilayer architecture of perceptron, Also describe back propagation algorithm in this context.
Q24. What is the difference between supervised and unsupervised learning?
Q26. What do you mean by McCulloch Pitts Model?
Q27. Explain the term “linearly separable”. How it differs from non-linearly separable?
Q28. Explain the various applications of neural network.

**MULTIPLE CHOICE QUESTIONS**

1. ............ is called the father of AI.
   A) James C Gosling
   B) Dennis Ritchie
   C) Alan Turing
2. In AI ………………… is a combination of data structures and interpretive procedures.
A) Knowledge
B) Meta-knowledge
C) Artificial Knowledge
D) Performance

3. The ………………… approach uses the knowledge of mathematics and engineering.
A) rationalist
B) Top-down
C) bottom-up
D) push-pop approach

4. We also use knowledge about what we know, called …………………
A) Meta-Knowledge
B) Performance Knowledge
C) Standard knowledge
D) Specific knowledge

5. The Artificial Intelligence is concerned with designing intelligent computer systems that exhibit intelligent characteristics expressed by …………………
A) Functional behavior
B) Human behavior
C) Human brain
D) Statistical analysis

6. ………………… includes what we know about our own performance as cognitive processors.
A) Meta-Knowledge
B) Performance Knowledge
C) Standard knowledge
D) Specific knowledge

7. State whether the following true or false.
   i) AI is used in diverse fields like space exploration, robotics.
ii) AI is used for military purpose
A) i-True, ii-False
B) i-True, ii-True
C) i-False, ii-False
D) i-False, ii-True

8. The goals of AI systems can be described in terms of cognitive tasks like
A) Recognizing objects
B) Answering questions
C) Manipulating robotic devices
D) All of the above

9. ………………….. is computerized advice-giver, that is capable of reasoning but which is usually confined to a rather narrow field of knowledge.
A) Expert system
B) Knowledge system
C) Common system
D) Communication system

10. …………….. involves relating something new to what we already know in a psychologically complex way.
A) Knowledge Acquisition
B) Knowledge retrieval
C) Reasoning
D) Meta-level reasoning