



# BRAINWARE UNIVERSITY

**Term End Examination 2021 - 22**

**Programme – Bachelor of Technology in Computer Science & Engineering**

**Course Name – Computer Graphics**

**Course Code - BCSE403**

**( Semester IV )**

**Time allotted : 1 Hrs.25 Min.**

**Full Marks : 70**

[The figure in the margin indicates full marks.]

## Group-A

(Multiple Choice Type Question)

1 x 70=70

*Choose the correct alternative from the following :*

- (1) In graphical system, the array of pixels in the picture are stored in
  - a) Memory
  - b) Frame buffer
  - c) Processor
  - d) All of these
- (2) The graphics can be
  - a) Drawing
  - b) Photograph, movies
  - c) Simulation
  - d) All of these
- (3) Vector graphics is composed of
  - a) Pixels
  - b) Paths
  - c) Palette
  - d) None of these
- (4) Raster images are more commonly called
  - a) Pix map
  - b) bitmap
  - c) both pix map and bit map
  - d) None of these
- (5) Each pixel has \_\_\_\_\_ basic color components.
  - a) Two or three
  - b) Two or three
  - c) Three or four
  - d) None of these
- (6) Higher the number of pixels, \_\_\_\_\_ the image quality.
  - a) Bad
  - b) Better
  - c) Smaller
  - d) None of these
- (7) A bitmap is ..... bit(s) per pixels.
  - a) 0
  - b) 1
  - c) 2
  - d) 3
- (8) In information technology, LCD stands for
  - a) Liquid Crystal Display
  - b) Low Cost Display
  - c) Local Current Directory
  - d) Liquid Cathode Display
- (9) To minimize eyestrain, you should adjust your monitor to a degree angle of
  - a) 5
  - b) 10

- c) 15 d) 90
- (10) Term which refers to the sharpness or clarity of an image, is  
 a) pitch b) pixel  
 c) resolution d) signal
- (11) Refresh rate is measured in  
 a) mbps b) hertz  
 c) kilo hertz d) mega hertz
- (12) The stopping criteria of Bresenham circle drawing algorithm is \_\_\_\_\_ .  
 a)  $x=y$  b)  $x>y$   
 c)  $x$  d)  $x\leq y$
- (13) Expansion of line DDA algorithm is  
 a) Digital difference analyzer b) Direct differential analyzer  
 c) Digital differential analyzer d) Data differential analyzer
- (14) Which algorithm is a faster method for calculating pixel positions?  
 a) Bresenham's line algorithm b) Parallel line algorithm  
 c) Mid-point algorithm d) Bresenham's line algorithm
- (15) If the boundary is specified in a single color, and if the algorithm proceeds pixel by pixel until the boundary color is encountered is called  
 a) Scan-line fill algorithm b) Boundary-fill algorithm  
 c) Flood-fill algorithm d) Parallel curve algorithm
- (16) If we want to recolor an area that is not defined within a single color boundary is known as  
 a) Boundary-fill algorithm b) Parallel curve algorithm  
 c) Flood-fill algorithm d) None of these
- (17) In Bresenham's algorithm error term is initialized to ?  
 a) 0 b) 1  
 c)  $-(1/2)$  d) None of these
- (18) The basic element of a picture in volume graphics is?  
 a) pixel b) volve  
 c) voxel d) None of these
- (19) A circle, if scaled only in one direction becomes a ?  
 a) parabola b) hyperbola  
 c) ellipse d) remains a circle
- (20) (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 these
- (21) Aspect ratio is generally defined as the ratio of the?  
 a) a) Vertical to horizontal points b) b) Horizontal to vertical points  
 c) Either a) or b), depending on the convention followed d) Vertical to (horizontal + vertical) points
- (22) The maximum number of points that can be displayed without overlap on a CRT is referred to as?  
 a) Resolution b) Persistence  
 c) Attenuation d) None of these
- (23) The center of display screen is computed as  
 a)  $X_{max}, Y_{max}$  b)  $X_{max}/2, Y_{max}/2$   
 c)  $X_{max}/3, Y_{max}/3$  d) None of these

- (24) Bresenham's Algorithm seeks to select the optimum raster locations that represent a
- a) Straight line
  - b) curve line
  - c) polygon
  - d) None of these
- (25) The DDA algorithm is a faster method for calculating pixel positions than direct use of line equation using  $y = m*x + c$ , because
- a) it eliminates floating point addition
  - b) it eliminates floating point multiplication
  - c) it eliminates rounding operation that drift away from true line path
  - d) none of these
- (26) In Bresenham's circle algorithm, if points are generated from 90 degree to 45 degree and  $(x,y)$  are the Coordinate of last scan converted pixel then the next pixel coordinate is
- a)  $(x+1,y+1)$  or  $(x-1,y-1)$
  - b)  $(x+1,y)$  or  $(x,y+1)$
  - c)  $(x,y+1)$  or  $(x+1,y-1)$
  - d)  $(x+1,y)$  or  $(x+1,y-1)$
- (27) Slope of the line joining the points (1, 2) and (3, 4) is
- a) 0
  - b) 1
  - c) 2
  - d) 3
- (28) In Bresenham's circle generation algorithms. If  $(x, y)$  is the current pixel position then the x-value of the next pixel position is
- a) x
  - b) x+1
  - c) x-1
  - d) x+2
- (29) CMY coordinates of a colour at (0.2, 1, and 0.5) in the RGB space are
- a) (1.2,2,1.5)
  - b) (2.2,2,2.5)
  - c) (0.8,0,0.5)
  - d) (0.1,0.5,0.25)
- (30) A translation is applied to an object by
- a) Repositioning it along with straight line path
  - b) Repositioning it along with circular path
  - c) Both repositioning it along with straight line path and circular path
  - d) All of these
- (31) The two-dimensional translation equation in the matrix form is
- a)  $P' = P + T$
  - b)  $P' = P - T$
  - c)  $P' = P * T$
  - d)  $P' = P$
- (32) To change the position of a circle or ellipse we translate
- a) Center coordinates
  - b) Center coordinates and redraw the figure in new location
  - c) Outline coordinates
  - d) All of these
- (33) To generate a rotation, we must specify
- a) Rotation angle
  - b) Distances dx and dy
  - c) Rotation distance
  - d) All of these
- (34) The transformation that is used to alter the size of an object is
- a) Scaling
  - b) Rotation
  - c) Translation
  - d) Reflection
- (35) A composite transformation matrix can be made by determining the \_\_\_\_\_ of matrix of the individual transformation.
- a) Addition
  - b) Subtraction
  - c) Product
  - d) None of these
- (36) 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
- (37) What are the types of polygon?



- (51) In Cohen-Sutherland subdivision line clipping algorithm, bit 1 in region code is set if \_\_\_\_\_.  
 a) end point of line is to the left of the window      b) end point of line is to the right of the window  
 c) end point of line is to the above of the window      d) end point of line is to the below of the window
- (52) In Cohen-Sutherland subdivision line clipping algorithm, bit 4 in region code is set if \_\_\_\_\_.  
 a) end point of line is to the left of the window      b) end point of line is to the right of the window  
 c) end point of line is to the below of the window      d) end point of line is to the above of the window
- (53) In Cohen-Sutherland subdivision line clipping algorithm, if the result of the logical AND operation with two end point region codes is not 0000 \_\_\_\_\_.  
 a) the line is Completely inside the clipping region      b) the line is Completely outside the clipping region  
 c) the line is Completely left to the clipping region      d) the line is Completely right to the clipping region
- (54)  $f(x,y,w)$ ,  $w=0$ , is a point in the homogeneous coordinate system than its equivalent in the two dimensional system is  
 a)  $(x,y,1)$       b)  $(x,y,0)$   
 c)  $(x/w,y/w)$       d)  $(x,y, x-y)$
- (55) An object is viewed by using perspective transformation. The maximum number of principal vanishing point(s) possible is  
 a) 1      b) 2  
 c) 3      d) infinite
- (56) Reflection of an object is same as rotation with angle  
 a) 45      b) 90  
 c) 180      d) 360
- (57) In a convex polygon, each of the interior angles is less than \_\_\_\_ degrees.  
 a) 45      b) 90  
 c) 180      d) 360
- (58) A three dimensional object can also be represented using \_\_\_\_\_.  
 a) Method      b) Equation  
 c) Point      d) None of these
- (59) 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
- (60) The first point on circumference of circle centered on origin with radius 'r' drawn using Midpoint circle drawing algorithm is \_\_\_\_\_.  
 a)  $(0,0)$       b)  $(0,r)$   
 c)  $(r,0)$       d)  $(r,r)$
- (61) Z-Buffer algorithm is \_\_\_\_\_.  
 a) line drawing algorithm      b) line clipping algorithm  
 c) depth sorting algorithm      d) polygon clipping algorithm
- (62) The orthographic projections have the projectors where  
 a) The direction of these projectors is parallel to the view plane      b) The direction of these projectors is perpendicular to the image plane  
 c) The direction of these projectors is perpendicular to the view plane      d) The direction of these projectors is parallel to the image plane
- (63) A projection in which all three foreshortening factors are kept equal is called as  
 a) Isometric projection      b) Diametric projection  
 c) Trimetric projection      d) None of these
- (64) The types of projection are  
 a) Parallel projection and perspective projection      b) Perpendicular and perspective projection  
 c) Parallel projection and Perpendicular projection      d) None of these

- (65) The types of parallel projection are
- a) Orthographic projection and quadratic projection
  - b) Orthographic projection and oblique projection
  - c) Oblique projection and quadratic projection
  - d) None of these
- (66) The projection in which the projection plane is allowed to intersect the x, y and z-axes at equal distances is
- a) Isotonic projection
  - b) Constructive solid geometry projection
  - c) Isometric projection
  - d) Back face removal projection
- (67) In which projection, the plane normal to the projection has equal angles with these three axes
- a) Wire frame projection
  - b) Constructive solid geometry
  - c) Isometric projection
  - d) Perspective projection
- (68) How many matrices are involved in rotating a point  $P(x,y)$  about  $Q(4,3)$ .
- a) 1
  - b) 2
  - c) 3
  - d) 5
- (69) CMY coordinate of  $(0.2, 1, 0.5)$  in RGB space is \_\_\_\_\_.
- a)  $(1.2, 2, 1.5)$
  - b)  $(0.8, 1, 0.5)$
  - c)  $(1.2, 0, 0.5)$
  - d)  $(0.8, 0, 0.5)$
- (70) BSP Tree method stands for \_\_\_\_\_.
- a) both side partition
  - b) b-spline partition
  - c) binary space partitioning
  - d) none of these