5ᵗʰ   Semester Regular Examination 2017-18
Computer Graphics
BRANCH: CSE
Time: 3 Hours
Max Marks: 100
Q.CODE: B312

Answer Question No.1 and 2 which are compulsory and any four from the rest.
The figures in the right hand margin indicate marks.

Q1   **Answer the following questions: multiple type or dash fill up type**   **(2 x 10)**
   a) Each screen point is referred to as ....
   a) Resolution b)Pixel c)Persistence d)Dot Pitch.
   b) In CRT, the electron intensity is adjusted using ....
   Accelerating anode b) Control grid c) Electron gun d) Focusing anode
   c) The transformation in which an object is moved from one position to another
   in circular path around a specified pivot point is called
   Rotation b) Shearing c) Translation d) Scaling
   d) The region against which an object is clipped is called a ....
   Clip window b) Boundary c) Enclosing rectangle d) Clip square
   e) 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 .
   f) Sutherland Hodgeman algorithm works well for...........
   a) Concave polygon b) Convex polygon d)Smooth curves d) Line segment
   g) Coordinates of viewport are known as ....
   a) World coordinates b)Polar coordinates c) Screen coordinates d)Cartesian
   coordinates
   h) A transformation that slants the shape of an object is called ....
   a) Reflection b) Shear c) Distortion d) Scaling
   i) 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
   j) Identify odd one out
   a) Vector based b) Hardware based c) Bitmap based d) Scanline based

Q2   **Answer the following questions: Short answer type**   **(2 x 10)**
   a) Define computer graphics.
   b) Define persistence, resolution and aspect ratio .
   c) Mention the types of line caps.
   d) What is ant aliasing by post filtering and pre filtering?
   e) What are the different ways of specifying spline curve?
   f) How will you clip a point?
   g) Distinguish between view port and window port.
   h) What is polygon mesh?
   i) Define rendering.
   j) What is random fractal and geometric fractal ?

Q3 **a)** Explain about the simple raster scan display system.   **(10)**
     b) Explain the basic operations of direct view storage tube.   **(5)**

Q4 **a)** Discuss in detail about parallel line algorithms.   **(10)**
     b) Write a note on viewing function.   **(5)**

Q5 **a)** Determine a sequence of basic transformations that are equivalent to the Y-direction shearing matrix. **(10)**

b) Show that the two successive rotations about the origin are commutative. **(5)**

Q6 **a)** Determine the equation of Bezier curve for five control points. Evaluate the point at u= 0.5 where u is the normalized parameter. **(10)**

b) Discuss the nature of blending functions a Hermites cubic spline. **(5)**

Q7 **a)** List out and explain various polygon rendering methods. **(10)**

b) Define blending function for B-Spilne curve. **(5)**

Q8 **a)** Implement the depth-buffer method to display the visible surfaces of a given polyhedron. How can the storage requirements for the depth buffer be determined from the definition of the objects to be displayed? **(10)**

b) Explain about 3D viewing pipeline. **(5)**

Q9 **a)** Write a procedure to perform a one-point perspective projection of an object. **(10)**

b) Write a brief note on computer animation function. **(5)**