B4.4-R4: COMPUTER GRAPHICS AND MULTIMEDIA

NOTE:

> 1. **Answer question 1 and any FOUR from questions 2 to 7.**
> 2. **Parts of the same question should be answered together and in the same sequence.**

Time: 3 Hours   **Total Marks: 100**

1.
a) Give the block diagram of how sound card processes MIDI files?
b) What are the problems of putting an animation on the web?
c) What is the difference between Bazier curve and B-Spline?
d) Find the reflected view of a triangle with vertices (30, 40), (50, 50) and (40, 70) about the mirror which is vertically placed such that it passes through (20, 0) and (0, 20)?
e) Explain the JPEG decoding technique with block diagram.
f) What is MPEG? Give some typical features of MPEG-4.
g) What do you mean by perspective transformation?

(7x4)

2.
a) Describe Bresenham's Midpoint Circle Algorithm for the First Quadrant.
b) How can the light pen differentiate between two points on the screen when both have the same color/intensity?
c) Given a clipping window P(0, 0), Q(30, 0) R(30, 20), S(0, 20), use Sutherland-Cohen algorithm to determine the visible portion of the line A(10, 30) and B(40, 0).

(6+6+6)

3.
a) How I, P and B-frames technique help in the MPEG video compression technique?
b) A Polygon has four vertices located at A (20, 10), B(60, 10) C(60, 30) and D(20, 30). Indicate a transformation matrix to double the size of the polygon with point A located at the same place?
c) Draw a circle in first quadrant having center (0, 0) and radius 5.

(7+5+6)

4.
a) How antialiasing is down in case of area boundaries.
b) How are characters of various fonts generated on the screen?
c) What are the important properties of Bezier Curve? Differentiate between interpolation splines and approximation splines? What do you mean by parabolic splines?

(6+6+6)

5.
a) What is multimedia authoring? Name the tools used for this.
b) Explain the Gourad Shading Method. How is it superior to Phong Shading?
c) Explain the Painters algorithm. What is the difference between Painters algorithm and BSP method?

(6+6+6)

6.
a) What is the coordinate of a unit cube after taking reflection about zx-plane?
b) Describe scan-line seed fill algorithm with the help of a suitable example.

(6+12)

7.
a) Explain why QoS is important in multimedia communication
b) Develop a general form of a B-Spline blending function of degree 3.
c) Discuss the note of key frames in the tweening process. What type of animation is particularly appropriate for tweening?

(4+8+6)