



10CS65

Sixth Semester B.E. Degree Examination, July/August 2021  
**Computer Graphics & Visualization**

Time: 3 hrs.

Max. Marks:100

**Note: Answer any FIVE full questions.**

- 1 a. With a neat diagram, explain the components of a graphics system. (06 Marks)  
b. With a neat diagram, explain the human visual system. (06 Marks)  
c. With a neat block diagram, explain the graphics pipeline architecture. (08 Marks)
- 2 a. What are the graphics functions which give good API support? Explain them. (06 Marks)  
b. Explain RGB color and indexed color model. (06 Marks)  
c. What are the two classes of primitives OpenGL supports? Discuss various polygon types in OpenGL (08 Marks)
- 3 a. Which are the six classes of logical input devices? Explain. (06 Marks)  
b. What are the measure and trigger. Explain the different modes that application program can obtain from the measure of a device. (08 Marks)  
c. Describe window events and keyboard events. (06 Marks)
- 4 a. Explain : (i) Affine sums (ii) Convexity (iii) Dot and Cross products. (06 Marks)  
b. Explain rotation, transformation and scaling with respect to 2-dimensions. (06 Marks)  
c. Explain the modeling of colored cube and bilinear interpolation. (08 Marks)
- 5 a. What is concatenation of transformation? Derive concatenated final matrix M for rotating a 3D object about a fixed point. (10 Marks)  
b. What are quaternions? With an example, explain its mathematical representations. (10 Marks)
- 6 a. Explain the various types of views that are employed in computer graphics system with neat sketches. (10 Marks)  
b. Explain the hidden surface removal algorithm. (10 Marks)
- 7 a. Explain phong-lighting model. Indicate advantage and disadvantage of this method. (10 Marks)  
b. Discuss the polygonal shading and its types. (10 Marks)
- 8 a. What is a Clipper? Explain the Cohen-Sutherland clipping. (08 Marks)  
b. Describe DDA algorithm for scan conversion of line segment. (06 Marks)  
c. Write a note on antialiasing. (06 Marks)

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Important Note : 1. On completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages.  
2. Any revealing of identification, appeal to evaluator and /or equations written eg, 42+8 = 50, will be treated as malpractice.