7E 4241

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B.Tech. VII Semester (Main/Back) Examination - 2014
Computer Engg.
7CS5 Computer Graphics & Multimedia Techniques
(Common to CS & IT)

Time : 3 Hours

Maximum Marks : 80
Min. Passing Marks : 24

Instructions to Candidates:

*Attempt any **five** questions, selecting **one** question from each **unit**. All questions carry **equal** marks. (Schematic diagrams must be shown wherever necessary. Any data you feel missing suitably be assumed and stated clearly. Units of quantities used/calculated must be stated clearly.)*

Unit - I

1. a) What is the importance and utility of a display processor in a computer graphics system? **(8)**

   b) Highlight the features of a standard computer graphics system with an example? **(8)**

OR

1. a) What are the general application of computer graphics? **(8)**

   b) Explain Raster scan system. **(8)**

Unit - II

2. a) Prove that 2D rotation and scaling are commutative if $S_x = S_y$ or if $\theta = n\pi$ for integer and that otherwise they are not commutative i.e., $S(S_x, S_y) \cdot R(\theta) = R(\theta) \cdot S(S_x, S_y)$ only if $S_x = S_y$ or $\theta = n\pi$. **(8)**

   b) Write a polygon Clipping algorithm to Clip a polygon against rectangular Clipping area. **(8)**

OR

2. a) What is homogeneous Co-ordinates? Discuss the composite transformation matrices for two successive translations and scaling. **(8)**

   b) Explain perspective projection and vanishing point with example. **(8)**

3. During area filling one start with a point inside the program region and point it outwards towards boundary. Which fill algorithm is this? Explain it showing how 8-connected approach fills complex figures? **(16)**

OR

3. a) Describe Z buffer algorithm for visible surface detection. Also explain backface detection method. **(8)**

   b) What are different types of coherences which may be useful in visible surface determination? How can these be used? Explain. **(8)**

Unit - IV

4. Explain the following : **(16)**

   a) Diffuse reflection and specular reflection

   b) Phong shading

   c) Ray Tracing

   d) RGB and CMY colour models

OR

4. Write short note on the following : **(16)**

   a) Binary ray tracing tree

   b) Antialiased ray tracing.

Unit - V

5. a) What is the use of compression technique in computer graphics? Explain JPEG. **(8)**

   b) Explain TIFF file format **(8)**

OR

5. What is Animation? What are the challenges faced in its implementation? Write the steps in generation of animation. **(16)**

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