

Reg. No. :

**Question Paper Code : 31216**

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2010.

Seventh Semester

Information Technology

CS 1354 — GRAPHICS AND MULTIMEDIA

(Regulation 2004)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. Use DDA algorithm to rasterize the line from (0,0) to (6,7).
2. What will be the effect of scaling factor  $S_x = \frac{1}{2}$  and  $S_y = \frac{1}{3}$  on a given triangle ABC whose co-ordinates are  $A = [4,1]$ ,  $B = [5,2]$ ,  $C = [4,3]$ .
3. Define three dimensional viewing pipeline.
4. List the common representation in solid modeling technique.
5. What is task based multilevel networking?
6. Write down the features of Apple's quick time standard for compression.
7. Define entropy encoding.
8. List any two methods used to reduce rotational latency while retrieving huge multimedia objects.
9. What are the functions of an object request broker in managing distributed multimedia objects.
10. List the essential steps needed for designing a good hypermedia system.

PART B — ( $5 \times 16 = 80$  marks)

11. (a) (i) Using mid point circle drawing algorithm determine the pixels that will be put ON for an origin centered circle of radius 4. (8)
- (ii) A clipping window PQRS has left corner at (3, 4) and upper right corner at (10, 9). Find the section of the clipped line AB (2, 11), (9, 2) using Cohen Sutherland line clipping algorithm. (8)

Or

- (b) (i) Use Lang-Barsky line clipping algorithm to clip the line  $P_1(-15, -30)$   $P_2(30, 60)$  against the window having diagonally opposite corners as (0, 0) and (15, 15). (8)
- (ii) Prove that the reflection of a square ABCD [(2,2), (4,2), (4,4), (2,4)] about  $x$ -axis ( $y = 0$ ) and then rotation of the resulting square about  $60^\circ$  will not be same if the order of transformation is charged. (8)
12. (a) (i) Discuss on approximation spline characteristics, representation and properties. (8)
- (ii) Derive the oblique projection matrix and apply it to find the transformation for cavalier projection with  $\theta = 45^\circ$  and cabinet projection with  $\theta = 30^\circ$ . (8)

Or

- (b) (i) How will you construct deterministic self similar fractals? Explain. (8)
- (ii) Apply 3D geometric transformations to make the given tetrahedron ABCD rotate about the  $x$ -axis, making it erect with its base ABC resting on the  $x$ - $z$  plane. Next, magnify it four times about a fixed

$$\text{point } P[1,1,2] \begin{bmatrix} A \\ B \\ C \\ D \end{bmatrix} = \begin{bmatrix} 0 & 0 & 0 & 1 \\ 2 & 0 & 0 & 1 \\ 1 & \sqrt{5} & 0 & 1 \\ 1 & 1 & 1 & 1 \end{bmatrix} \quad (8)$$

13. (a) Discuss the task based networking and their standards required to transfer multimedia data. (16)

Or

- (b) Discuss any four multimedia applications in detail. (16)

14. (a) (i) Differentiate tiff fill structure from riff fill structure. (8)  
(ii) Explain CCITT H.261 video coding algorithm. (8)

Or

- (b) (i) Explain how scanners are used for image enhancements. (8)  
(ii) Which storage device is used for storing archival media? Why? Explain. (8)
15. (a) (i) Explain hypermedia linking and embedding. (8)  
(ii) Explain transaction management for distributed multimedia database systems. (8)

Or

- (b) Write short notes on the following :  
(i) Multimedia object manager. (5)  
(ii) User Interface design. (5)  
(iii) Multimedia authoring systems. (6)
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