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Question Paper Code : 33323

B.E./B.Tech. DEGREE EXAMINATION, NOVEMBER/DECEMBER 2013.

Sixth Semester

Computer Science and Engineering

CS 1354/070230053 — GRAPHICS AND MULTIMEDIA

(Common to Seventh Semester Information Technology)

(Regulation 2004/2007)

(Common to B.E. (Part-Time) Fifth Semester, Computer Science and
Engineering, Regulation 2005)

Time : Three hours

Maximum : 100 marks

Answer ALL questions.

PART A — (10 × 2 = 20 marks)

1. What are the chief components of a Raster Graphics System?
2. Draw the 2D viewing pipeline.
3. How would you convert between Cartesian and Homogeneous coordinate systems?
4. How is 'sweep' technique used for representing 3D objects?
5. Present few unique characteristics of Multimedia applications.
6. What are the features of HDTV standard?
7. What are the attributes of Digital Audio?
8. Name the physical layers of a CD-ROM optical disc.
9. What are the factors affect the quality of a displayed digital image?
10. Define "Hypermedia".

PART B — (5 × 16 = 80 marks)

11. (a) Brief the algorithms steps for drawing the following primitives :
- (i) Line-Bresenham's line drawing algorithm for line slopes > 1 . (8)
 - (ii) Circle-Midpoint circle drawing algorithm. (8)

Or

- (b) (i) Prove that uniform scaling and rotation form a commutative pair of operations. (8)
- (ii) For a triangle with vertices at $\{(4, 3), (5, 4), (6, 3)\}$, inside a window as shown in fig. 1 find the equivalent vertices in the viewport which is a standard unit square. (8)

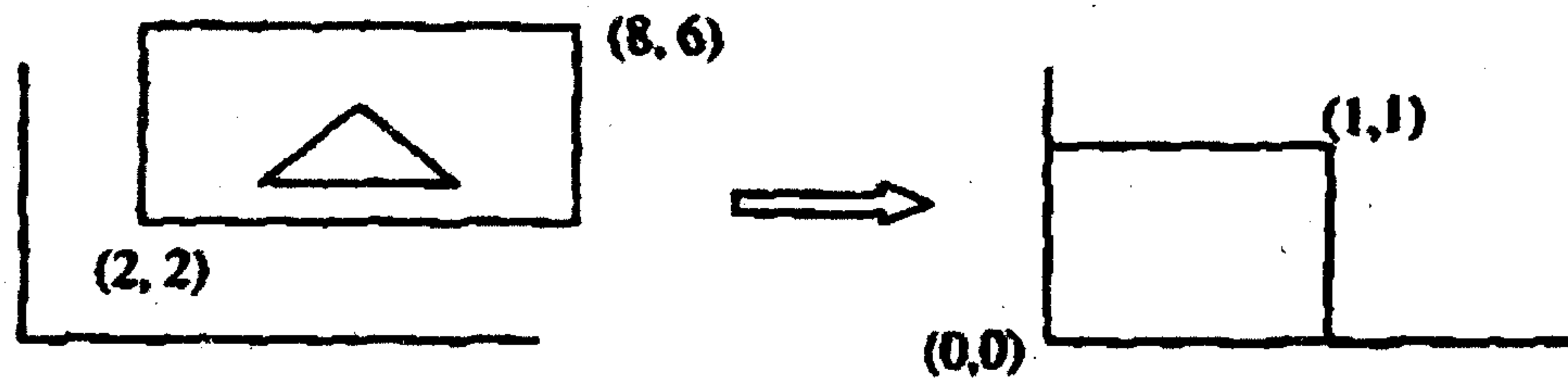


Fig. 1

12. (a) (i) Give the 3D transformation matrices for the basic geometric transformations viz, Translation, Rotation, Scaling. (8)
- (ii) Write notes on HSV and HLS color models. (8)

Or

- (b) (i) Derive the transformation matrix for Cavalier projection of a 3D point. (8)
- (ii) Write short notes on any two popular animation techniques. (8)
13. (a) (i) Present the multimedia systems architecture. (8)
- (ii) What are the characteristics of multimedia databases? (8)

Or

- (b) (i) What are the fundamental objects of multimedia? (8)
- (ii) Write notes on Multimedia Data interface standards. (8)

14. (a) (i) Discuss about MIDI file format and state its significance. (8)
(ii) Present any two techniques for binary image compression. (8)

Or

- (b) (i) Assess the suitability of RAID levels 2 and 3 for multimedia data transfer. (8)
(ii) Discuss the working of a PEN input system. (8)
15. (a) (i) Write about the popular UI metaphors for multimedia applications. (8)
(ii) Discuss the steps in creating a hypermedia message. (8)

Or

- (b) (i) What is hypermedia object linking and embedding? Discuss. (8)
(ii) Brief the design issues for multimedia authoring. (8)
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