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TCS-501

(Following Paper ID and Roll No. to be filled in your Answer Book)

PAPER ID : 1073

Roll No.

B. Tech.

(SEM. V) EXAMINATION, 2007-08

COMPUTER GRAPHICS

Time : 3 Hours]

[Total Marks : 100

Note : Attempt all questions.

1 Attempt any **four** questions : **5×4=20**

- (a) Draw and explain the architecture of a raster graphics system with a display processor.
- (b) Determine the resolution (pixel per centimeter) in the x and y directions for the video monitor in use on your system. Determine the aspect ratio, and explain how relative proportions of object can be maintained on your system.
- (c) Explain vector and character generation.
- (d) Compare digital differential analyzer with Bresenham's line drawing algorithm.
- (e) What are logical interactive devices ? Explain some of the logical functions with examples.
- (f) List and explain the principles behind the working of output devices.

- 2 Answer any **four** questions : **5×4=20**
- (a) Explain different ways to represent a polygon in a Graphics device.
 - (b) Compare Scan line fill and Boundary fill algorithms.
 - (c) Write a procedure of representing segments. Give the advantages and lackings of your procedure.
 - (d) Why image transformation necessary and important in computer graphics ? Explain any one image transformation method.
 - (e) Write a program to scan convert the interior of a specified ellipse into solid colour.
 - (f) Develop and implement a flood fill algorithm to fill the interior of any specified area.
- 3 Answer any **two** questions : **10×2=20**
- (a) What is composite transformation ? Derive general Pivot-Point Rotation and General fixed-point scaling matrices. Compute the computational efficiency of each.
 - (b) Explain transformation between coordinate systems and Affine transformation.
 - (c) Write the algorithm for point clipping. Explain different line clipping algorithms.
- 4 Attempt any **two** questions : **10×2=20**
- (a) Explain the issues related to three dimensional display methods. Compare Parallel projection and Perspective projection methods for 3-D objects.

- (b) Explain different device handling algorithms.'
- (c) What are different interactive techniques used in computer graphics ? Explain.

5 Attempt any **two** questions : **10×2=20**

- (a) Write procedures for implementing Bezier and Hermite algorithm for curve generation. Clearly state any assumption made.
 - (b) Explain basic rendering and illumination method/ models.
 - (c) Write a procedure for Back face detection method. Compare Back face detection methods with A- Buffer method.
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