Printed Pages: 3 **NCS-403**

(Following Paper ID and Roll No. to be filled in your Answer Books)	
Paper ID : 110411	**Roll No.**

B.TECH.

Theory Examination (Semester-IV) 2015-16

COMPUTER GRAPHICS

Time : 3 Hours ***Max. marks : 100***

Note: Attempt questions from all Sections as per directions.

Section-A

Attempt all parts of this section. Answer in brief.[2×10=20]

1. (a) Explain the role of pixel and frame buffer in graphics devices.

(b) What do you understand by the video controller?

(c) Justify the composite transformation.

(d) What is specular reflection?

(e) Write the properties of B-Spline curve.

(f) What do you understand by the Raster scan display?

(g) Write the rotation matrix about x, y and z axis in 3D.

(h) Write the Bresenham's algorithm of a line.

(i) Give window to viewport transformation matrix.

(j) What is the persistence of phosphor?

Section-B

2. Attempt any five questions from this section.[10×5=50]

(a) Compare the computation done in digital differential analyzer (DDA) algorithm with Bresenham's line drawing algorithm.

(b) Write a procedure for rotation. Drive reflection metrics for reflection about X axis.

(c) Consider two raster systems with resolutions of 640 × 480 and 1280 × 1024. How many pixels could be accessed per second in each of these systems by a display controller that refreshes the screen at a rate of 60 frames per second?

(d) Write an algorithm for Cohen-Sutherland line clipping algorithm. Compare it with Liang-Barsky line clipping algorithm.

(e) What is window to view point coordinate transformation? What are the issues related to multiple windowing?

(f) Explain parallel and perspective projection. Justify the depth curing projection for 3-D display methods.

(g) What are the criteria that should be satisfied by a good line drawing algorithm? Explain in detail.

(h) Explain the midpoint circle generation algorithm.

Section-C

Attempt any two questions from this section. **[15×2=30]**

3. List the advantages and disadvantages of back-face detection and A-buffer method. Write the algorithm for back-face detection.

4. Explain the different illumination methods and different rendering methods in detail. Write its advantages and disadvantages.

5. Compare and contrast among spline, B-spline and Bezier algorithms for curve generation and write the algorithm for Bezier curve generation.