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TCS-702

B. Tech. (CSE) (Seventh Semester)
End Semester EXAMINATION, 2017
COMPUTER GRAPHICS

Time : Three Hours] [Maximum Marks : 100

Note : (i) This question paper contains five questions.

(ii) All questions are compulsory.

(iii) Instructions on how to attempt a question are mentioned against it.

(iv) Total marks assigned to each question are **twenty**.

1. Attempt any *two* questions of choice from (a), (b) and (c). (10×2=20 Marks)

(a) What is Computer Graphics ? What are its applications ? Explain the working of a CRT.

(b) List the operating characteristics for the following display technologies : Raster refresh systems, Vector refresh systems, plasma panels and LCDs.

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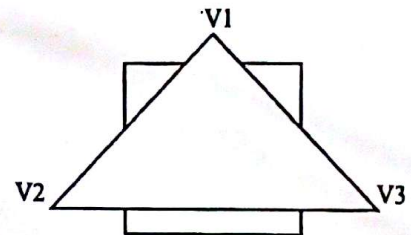
- (c) Discuss basic syntax of OPEN GL Program.
List various libraries and header files used in OPEN GL.
2. Attempt any *two* questions of choice from (a), (b) and (c). (10×2=20 Marks)
- (a) What is homogeneous coordinate system ?
Using homogeneous coordinate system how can we represent two-dimensional Translation, Rotation and Scaling matrix.
- (b) Show that transformation matrix, for a reflection about the line $Y = X$, is equivalent to a reflection relative to the X-axis followed by a counter clockwise rotation of 90° .
- (c) Write short notes on the following :
- Inverse Transformations
 - Two-dimensional Transformations Composite
 - Reflection and Shearing
3. Attempt any *two* questions of choice from (a), (b) and (c). (10×2=20 Marks)
- (a) Explain with diagram the two-dimensional viewing transformation pipeline.

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- (b) What do you mean by Clipping ? Write and describe Cohen-Sutherland Line Clipping algorithm.
- (c) Write short notes on the following :
- Curve Clipping
 - Text Clipping
4. Attempt any *two* questions of choice from (a), (b) and (c). (10×2=20 Marks)
- (a) Use Sutherland-Hodgman algorithm to clip the given polygon.



- (b) What is a B-Spline curve ? Explain with example the steps involved in designing a cubic B-spline curve with given control points.
- (c) Write short notes on the following :
- Polyhedra
 - Quadric Surface

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5. Attempt any *two* questions of choice from (a), (b) and (c). (10×2=20 Marks)

- (a) What is visible surface detection ? Briefly explain Back face detection and Depth buffer algorithm.
- (b) What is an illumination model ? Discuss Ambient Light and Diffuse Reflection model in detail.
- (c) Write short notes on the following :
 - (i) Gouraud Shading
 - (ii) Phong Shading