TCS-501 Total no. of printed pages: 2

Roll no. | | | | | | | | | | |

ODD SEMESTER EXAMINATION, 2019-20
B. Tech (CSE, 5th Semester)
COMPUTER GRAPHICS

Time: 3 hour **Max. Marks: 100**

Note: *(i)* *Attempt **ALL** questions.*
(ii) *All Questions carry equal marks.*
(iii) *Be precise in your answer.*

1. Attempt ***any four*** parts of the following: (5 × 4 = 20)
   (a) Explain how to display file structure and control test?
   (b) Explain in detail DDA algorithm of line?
   (c) A laser printer is capable of printing two pages (size 9*11 inch) per second at resolution of 900 pixels per inch. How many bits per second does such device require?
   (d) Explain the different display devices?
   (e) Explain the display file structure.
   (f) Explain what do you mean by OpenGL API?

2. Attempt ***any four*** parts of the following: (5 × 4 = 20)
   (a) Explain the different polygon filling algorithms.
   (b) Write procedures for creation and deletion of segement with suitable examples?
   (c) What is a segment and segment table? Write the utility of segment.
   (d) Explain visibility in detail.
   (e) Explain the concept of fractured segment with suitable diagram if required. You are also required to explain the structure of display file in brief.
   (f) Define windowing and viewport. Derive window to viewport transformation.

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3. Attempt ***any two*** parts of the following: $(10 \times 2 = 20)$

(a) Describe the Cohen Sutherland polygon algorithm with suitable example.

(b) Explain Liang barsky line clipping algorithm..

(c) state and prove the following 2d transformations matrix

1. Rotation
2. scaling
3. shearing

4. Attempt ***any two*** parts of the following: $(10 \times 2 = 20)$

(a) What are various back face detection algorithm? Explain any one of them.

(b) Determine transformation matrix for rotating (clockwise or anticlockwise) a point in 3-D around the line y=x in x-y plane by angle Θ.

(c) With suitable examples, explain all 3D transformations.

5. Attempt ***any two*** parts of the following: $(10 \times 2 = 20)$

(a) Briefly explain Sierpinski Gasket and open GL control functions.

(b) Write notes on RGB and HSV color models?

(c) What are the various logical graphics input primitives? What is the various input modes in which they work?
