

FACULTY OF ENGINEERING & TECHNOLOGY

S.E(CSE/IT) Examination - DEC - 2014

Computer Graphics (Revised)

[Time: THREE Hours]

[Max. Marks: 80]

“Please check whether you have got the right question paper.”

- N.B**
- 1) Q No. 1 and Q No. 6 are compulsory
 - 2) Solve any two questions from Q.2 to Q.5 and any two questions from Q.7 to Q.10.
 - 3) Assume suitable data, if necessary

SECTION A

- Q.1 Answer the following (Attempt any five) 10
- a) What do you mean by emissive and non- emissive display
 - b) Define translation and translation vector.
 - c) What is RGB color model? How RGB model is represented.
 - d) List out the merits and de- merits of beam penetration method.
 - e) Define resolution and aspect ratio.
 - f) Explain the working mechanism of any two physical devices.
 - g) Explain open GL library organization
 - h) List out the characteristics of Design of Interactive program.
- Q.2 A Explain the concept of pinhole camera of an imaging system. Also, derive the expression for angle of view. 08
- B What are the major components of Graphics pipeline and how do they interact. 07
- Q.3 A List out and explain the different open GL primitives, giving examples of each with suitable diagram. 08
- B Write explanatory note on open GL pipeline. 07
- Q.4 A Discuss input model? Explain different input modes with the figures wherever required. 08
- B Write a program in open GL to draw a small box at each location on the screen, wherever the left mouse button is clicked 07
- Q.5 A Define and represent 3D transformation matrix for Translation, scaling and Rotation. 08
- B Translate the square ABCD whose co-ordinate are A(0, 0), B(3, 0), C(3,3) and D(0,3) by 2 units in both direction and then scale it by 1.5 units in x- direction and 0.5 units in y – direction 07

SECTION B

- Q.6 Answer the following (Attempt any five) 10
- a) What is parallel and perspective view?
 - b) What is shading?
 - c) Define culling
 - d) What is ambient reflection?
 - e) Which function is used for parallel view in open GL?
 - f) What is meant by scan conversion?
 - g) What is view volume
 - h) Define hue, saturation and lightness.
- Q.7 A What are different approaches used for hidden surface removal algorithm? Explain any one in detail. 08
- B Explain modified Phong model. What are the advantages of modified Phong model? 07

Q.8	A	Find the transformation of triangle A(1,0), B(0, 1), C(1, 1) by i) Rotating 60 degree about the origin and then translating 2, 3 units in x and y directions respectively. ii) Translate 2, 3 units in x and y direction respectively and then rotating 60 degrees about the origin.	08
	B	What is rasterization? Explain scan conversion algorithm with proper example.	07
Q.9	A	What are different line clipping techniques? Explain any one in detail.	08
	B	Explain light sources in detail with suitable example.	07
Q.10	A	What is concatenation transformation? Explain rotation about a fixed point	08
	B	What are different methods available for shading a polygon? Briefly discuss any two of them.	07