5E1354

B. Tech. V - Sem. (Main / Back) Exam., January - 2022
Computer Science & Engineering
5CS4 – 04 Computer Graphics & Multimedia
CS, IT

Time: 3 Hours

Maximum Marks: 120
Min. Passing Marks: 42

Instructions to Candidates:

Attempt all ten questions from Part A, five questions out of seven questions from Part B and four questions out of five from Part C.

Schematic diagrams must be shown wherever necessary. Any data you feel missing may suitably be assumed and stated clearly. Units of quantities used /calculated must be stated clearly.

Use of following supporting material is permitted during examination. (Mentioned in form No. 205)

1. NIL _____ 2. NIL _____

PART – A

(Answer should be given up to 25 words only)   [10×2=20]

All questions are compulsory

Q.1 What is resolution in computer graphics?

Q.2 Explain Raster Scan System.

Q.3 Define Aspect ratio.

Q.4 What is the role of Scaling?

Q.5 What is point clipping?

Q.6 What does text clipping mean? Explain.

Q.7 What is Animation?

Q.8 What is Morphing?

Q.9 What is Translation?

Q.10 What is Scan conversion?

PART – B

(Analytical/Problem solving questions)   [5×8=40]

Attempt any five questions

Q.1 Discuss properties of Bezier curves.

Q.2 Describe Phong shading in detail.

Q.3 Explain scan conversion, write Bresenham's algorithm of line $m > 1$.

Q.4 Explain in brief RGB, CMY and HSV colour models.

Q.5 Draw a circle having radius $r = 10$, using mid-point circle generation algorithm.

Q.6 Write short note on –

(a)   Cathode ray tube

(b)   Anti-aliasing technique

Q.7 Write short note on –

(a)   Shadow mask technique

(b)   Beam penetration technique

PART – C

Q.1 What is Homogeneous Coordinate? Discuss the composite transformation matrices for two successive translation and scaling.

Q.2 Describe different types of parallel projection used in computer graphics.

Q.3 What is Animation? What are the challenges faced in its implementation? Write the steps in generation of animation.

Q.4 Use Cohen-Sutherland line clipping algorithm to find the visible portion of the line P(40, 80), Q(120, 30) inside the window, the window is defined as ABCD – A(20, 20), B(60, 20), C(60, 40) and D(20, 40)

Q.5 Explain the followings –

(a) Diffuse reflection and Specular reflection

(b) Phong shading

(c) Ray tracing

(d) RGB and CMY colour models