C 26802 (Pages : 2) Name.....

Reg. No.....

SIXTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION MAY 2012

CS/PTCS 09605—COMPUTER GRAPHICS

(2009 Admissions)

Time : Three Hours Maximum : 70 Marks

Part A

Answer **all** *questions.*

1. List some applications for large-screen displays.
2. Draw a architecture of a simple random-scan system.
3. What do mean by Blobby objects? Give examples.
4. Differentiate parallel and perspective projections.
5. Define B-spline curves.

(5 × 2 = 10 marks)

Part B

Answer any **four** *questions.*

6. State the steps followed in mid-point subdivision algorithm.
7. Explain the importance of normalized coordinate system in viewing transformation.
8. List the steps involved in depth-buffer algorithm.
9. Prove that the multiplication of three-dimensional transformation matrices for any two successive scaling sequence of operation is commutative.
10. Mention the design techniques of Bezier curves.
11. Briefly discuss about that 2D transformations.

(4 × 5 = 20 marks)

Part C

Answer **all** *questions*

12. (a) Briefly discuss about polar coordinates, Parametric functions, Vectors, Scalar product and Cross product. (10 marks)

Or

(b) Write a procedure to obtain different parallel-projection view of a polyhedron by first applying a specified rotation. (10 marks)

13. (a) Write a note on the following:

(i) Scan line seed fill algorithm (5 marks)

(ii) Explicit line clipping algorithm (5 marks)

Or

Turn over

(b) Given a clipping window A(20, 20) B(60, 20) C(60, 40) and D(20, 40). Find the visible portion of line segment joining the points P(40, 80) Q(l20, 30) using Cohen Sutherland line clipping algorithm. (10 marks)

14. (a) Derive the decision parameter for drawing a circle using Bresenham's Circle drawing method. Write the algorithm for the same. Trace the algorithm for drawing circle with radius=10 and point (5,20). (10 marks)

Or

(b) How can generate ellipse through transformation on circle. (10 marks)

15. (a) Discuss in detail transformation matrix for 3D scaling, rotation and translation. (10 marks)

Or

(b) Derive the transformation matrix to yield one vanishing point in 3D rotation. (10 marks)

(4 × 10 = 40 marks)