

D-180281**B. Tech. EXAMINATION, 2018**

Semester V (CBS)

COMPUTER GRAPHICS (CSE, IT)

CS-503

Time : 3 Hours

Maximum Marks : 60

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt *Five* questions in all, selecting *one* question from each Sections A, B, C and D. Section E is compulsory.

Section A

1. (a) What are the various tools and software available for computer graphics ? 5
- (b) Demonstrate Cohen Sutherland line clipping method with example. 5

2. Write down and explain the midpoint circle drawing algorithm. Assume 10 cm as the radius and co-ordinate origin as the centre of the circle. 10

Section B

3. (a) Prove that 2 successive 2-D rotation are additive i.e., $R(\theta_1).R(\theta_2) = R(\theta_1 + \theta_2)$. 5
- (b) What is Line Clipping ? State and explain a line clipping algorithm. 5
4. Describe the matrix formulation of 2D Translation, Scaling and Rotation. 10

Section C

5. (a) With suitable examples, explain any 3D transformation. 5
- (b) What are the different methods to draw 3D objects ? 5
6. Differentiate parallel and perspective projections and derive their projection matrices. 10

Section D

7. Write short notes on the following :
 - (a) Koch Curves
 - (b) C Curves. 10

8. What is hidden surface ? Discuss the subdivision method for hidden surface removal. How is it different from scan line method ?

10

Section E

9. Answer the following questions briefly :

- (a) What is View Port ?
- (b) State DDA algorithm.
- (c) What is Polygon Clipping ?
- (d) Write down the shear transformation matrix.
- (e) List down the properties of piano curves.
- (f) Write down some of Boolean operations on objects.
- (g) State any *four* applications of computer graphics.
- (h) What is a B-spline Curve ?
- (i) What is XYZ Color Model ?
- (j) What is Scaling ?

2×10=20