

Important Instruction: Write your **name** and **roll number** on the top of the first page.

Attempt **any 14 questions.**

Marks: 14 X 5 = 70

Q1. Generate points from P1(2,4) to P2(5,11) using DDA algorithm. Show calculation for each decision parameter.

Q2. Generate points from P1(1,1) to P2(7,6) using Bresenham's line generation algorithm. Show calculation for each decision parameter.

Q3. Generate points of the circle using Bresenham's circle generation algorithm, Given radius = 9 **Upto diagonal line of 1st quadrant only.** Show calculation for each decision parameter.

Q4. Generate points of the circle using Midpoint circle generation algorithm, Given radius = 7 **Upto diagonal line of 1st quadrant only.** Show calculation for each decision parameter.

Q5. Given $R_x = 5$, $R_y = 4$. Generate first **four** points only for Region I using ellipse generation algorithm.

Q6. Describe two dimensional rotation in detail.

Q7. Given points of a triangle are A(1,1) B(10,1) and C(5,5). (i) Apply translation $T_x=2$ and $T_y=3$ to each point of the triangle using translation matrix. (ii) Then apply scaling $S_x=2$ and $S_y=2$ to the results obtained using scaling matrix (iii) Then apply reflection transformation with respect to y axis to the result obtained using reflection matrix.

Q8. Describe any three types of parallel projection with diagram. Write transformation matrix for parallel projection.

Q9. Describe perspective projection along with its diagram and transformation matrix..

Q10. Derive Quadratic Bezier Curve and write its transformation matrix.

Q11. Describe RGB color model in detail.

Q12. Write about any five visual changes of animation that appears on the display screen. Describe animation techniques i) Morphing 2) Panning

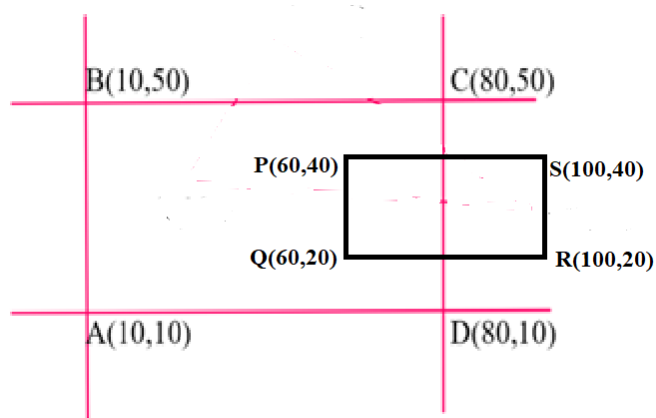
Q13 Write algorithm for area subdivision algorithm.

Q14 Describe z buffer algorithm with suitable example.

Q15 Describe Boundary filling algorithm for eight connected components using STACK by taking a suitable example.

Q16. Let ABCD be the rectangular window with A(10,10) B(80,10) C(80,80) and D(10,80) . Use Cohen-Sutherland Algorithm to clip the line P1P2 with points P1(50,50) P2(90,30) showing Region codes for endpoints P1 and P2.

Q17. Clip the rectangle PQRS from the following diagram using Sutherland Hodgeman Polygon clipping algorithm. Given (Xmin,Ymin)=(10,10) and (Xmax,Ymax)=(80,50)



Q18. Write any five differences between Radter Scan and Random Scan display devices.

Q19. Write about any five applications of Computer Graphics.
