قائمة الاسئلة

امتحان نهاية الفصل الدراسي الثاني - للعام الجامعي 1446 هـ - الموافق -2025/2024مـكلية الحاسوب وتكنولوجيا المعلومات :: رسم بالحاس

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1) Which coordinate system is used to define the scene independently of output devices?
   1) - a) Device Coordinates
   2) - b) World Coordinates
   3) - c) Modeling Coordinates
   4) + d) Normalized Coordinates
2) The formula M=T(xv_"min" ,yv_"min")□S(S_x,S_y)□T(-xw_"min" ,-yw_"min") ⁋represents:⁋
   1) - a) Clipping operations
   2) + b) Composite window-to-viewport transformation
   3) - c) Workstation normalization
   4) - d) Line clipping algorithm
3) In the viewing pipeline, which step involves deleting parts of the picture outside the viewport?
   1) - a) Modeling transformation
   2) + b) Clipping
   3) - c) Normalization
   4) - d) Workstation mapping
4) Normalized coordinates are typically in the range:
   1) - a) [0, 100]
   2) - b) [-1, 1]
   3) + c) [0, 1]
   4) - d) [0, 255]
5) The Cohen-Sutherland algorithm is primarily used for:
   1) - a) Point clipping
   2) - b) Polygon clipping
   3) + c) Line clipping
   4) - d) Curve clipping
6) A clipping window has xw_"min" =10, xw_"max" =30, yw_"min" =20, ⁋yw_"max" =40. The viewport has xv_"min" =0, xv_"max" =1, yv_"min" =0, ⁋yv_"max" =1.⁋
   Calculate S_x and S_y.⁋
   Map the point (xw=20,yw=30) to the viewport.
   1) + S_x=0.05, S_y=0.05
   2) - S_x=0.04, S_y=0.04
   3) - S_x=5, S_y=5
   4) - S_x=1, S_y=1
7) A point (xw=15,yw=25) lies in a clipping window with bounds xw_"min" =10, ⁋xw_"max" =20, yw_"min" =20, yw_"max" =30. The viewport is xv_"min" =0, ⁋xv_"max" =2, yv_"min" =0, yv_"max" =2. Compute xv and yv.
   1) - xv=0, yv=0.⁋
   2) - xv=0.1, yv=0.1.⁋
   3) - xv=2, yv=0.1.⁋
   4) + xv=1, yv=1.⁋
8) Which formula correctly maps yw to yv?⁋
   1) - yv=S_y□yw+t_y
   2) - yv=yw/(yw_"max")
   3) - yv=S_x□yw
   4) + yv=S_y□(yw-yw_"min")+yv_"min" ⁋
9) What defines "what is to be viewed" in the 2D viewing pipeline?

1) - a) Viewport
2) - b) Device Coordinates
3) - c) Normalized Coordinates
4) + d) Clipping Window

10) Normalized coordinates are used to:
1) - a) Define the orientation of the viewport
2) + b) Make the system independent of output devices
3) - c) Rotate the clipping window
4) - d) Scale the modeling coordinates

11) Which algorithm is used for line clipping?
1) + a) Cohen-Sutherland Algorithm
2) - b) Bresenham’s Algorithm
3) - c) Liang-Barsky Algorithm
4) - d) DDA Algorithm

12) The workstation transformation involves mapping:
1) - a) World coordinates to device coordinates
2) - b) Modeling coordinates to normalized coordinates
3) + c) Normalized coordinates to device coordinates
4) - d) Viewing coordinates to world coordinates

13) The formula xv=s_x xw+t_x represents:
1) - a) Rotation in the viewing pipeline
2) + b) Window-to-viewport coordinate transformation
3) - c) Clipping algorithm
4) - d) Normalization of coordinates

14) ‏1.‏ The clipping window and viewport must always have the same aspect ratio.‏
1) - TRUE.
2) + False‏.

15) ‏2.‏ Normalized coordinates are in the range [0, 1].
1) + TRUE.
2) - False‏.

16) ‏3.‏ The viewing pipeline includes converting device coordinates to world coordinates.‏
1) - TRUE.
2) + False‏.

17) ‏4.‏ Cohen-Sutherland algorithm is used for point clipping.‏
1) - TRUE.
2) + False‏.

18) ‏5.‏ Workstation transformation allows mapping to multiple output devices.‏
1) + TRUE.
2) - False‏.

19) ‏1.‏ The process of removing parts of a scene outside the clipping window is called _____.‏
1) - Normalized
2) + Clipping

20) ‏2.‏ The _____ coordinate system ensures device independence.
1) - Clipping
2) + Normalized

21) The formula for scaling factor S_x in window-to-viewport transformation is _____.
1) + S_x=(xv_"max" -xv_"min")/(xw_"max" -xw_"min")‏
2) - S_x=(xv_"max" -xv_"min")*(xw_"max" -xw_"min")‏
3) - S_x=(xv_"max" -xv_"min")+(xw_"max" -xw_"min")‏

4) - S_x=(xv_"max" -xv_"min")-(xw_"max" -xw_"min")

22) 4. To set up the viewing coordinate system, we perform _____ and _____ operations.
1) - Translation,
2) - Rotation
3) + Translation, Rotation
4) - all above wronge

23) 5. The final step in the viewing pipeline maps normalized coordinates to _____.
1) - World Coordinates
2) - Modeling Coordinates
3) + Device coordinates

24) Given a clipping window with xw_"min" =2, xw_"max" =8, yw_"min" =3, yw_"max" =9, and a viewport with xv_"min" =0, xv_"max" =1, yv_"min" =0, yv_"max" =1. Calculate S_x, S_y, t_x, and t_y.
1) + S_x=1/6, S_y=1/6
t_x=1/3, t_y=1/2
2) - S_x=1/6, S_y=1/6
t_x=1/2, t_y=1/3
3) - S_x=1/3, S_y=1/3
t_x=1/3, t_y=1/2
4) - S_x=1/2, S_y=1/6
t_x=1/3, t_y=1/2

25) 2. Explain why clipping is performed in normalized coordinates in the second approach
1) - It ensures consistency after mapping to diverse device viewports, avoiding redundant calculations for single devices.
2) - It ensures consistency after mapping to diverse device viewports, avoiding redundant calculations for multiple devices.
3) + It ensures consistency before mapping to diverse device viewports, avoiding redundant calculations for multiple devices.
4) - all above wronge

26) 3. Compare the two normalization approaches . Which is more efficient for multi-device rendering?
1) - The first approach (clipping first) is less efficient as clipping is done once in normalized space, reducing per-device workload.
2) - The second approach (clipping first) is less efficient as clipping is done once in normalized space, reducing per-device workload.
3) - The first approach (clipping first) is more efficient as clipping is done once in normalized space, reducing per-device workload.
4) + The second approach (clipping first) is more efficient as clipping is done once in normalized space, reducing per-device workload.

27) Window-to-Viewport Transformation with Non-Uniform Scaling
Given:
Clipping Window: xw_"min" =0, xw_"max" =20, yw_"min" =0, yw_"max" =10.
Viewport: xv_"min" =0, xv_"max" =4, yv_"min" =0, yv_"max" =8.
Question: What are the scaling factors S_x and S_y?
1) + a) S_x=0.2, S_y=0.8
2) - b) S_x=0.8, S_y=0.2
3) - c) S_x=4, S_y=8
4) - d) S_x=0.25, S_y=0.125

28) 9. Non-Rectangular Viewport
Question: If the viewport is circular, which step in the viewing pipeline is most affected?
1) + a) Clipping

2) - b) Normalization
3) - c) Workstation transformation
4) - d) Coordinate mapping

29) A diagonal matrix has non-zero elements only:
1) + a) On the main diagonal
2) - b) Above the main diagonal
3) - c) Below the main diagonal
4) - d) In the first row

30) Homogeneous coordinates allow translation to be represented as:
1) - a) Addition
2) + b) Matrix multiplication
3) - c) Subtraction
4) - d) Division

31) 2. Matrix addition requires matrices to have the same dimensions.
1) + TRUE.
2) - False.

32) 3. Reflection about the y-axis flips the x-coordinate.
1) + TRUE.
2) - False.

33) Scaling with s_x=s_y=1 preserves the object's size.
1) + TRUE.
2) - False.

34) To rotate a point (x,y) about the origin by θ, the formula is x^'= _____ and y^'= _____.
1) - xsinθ-ycosθ, xsinθ+ycosθ
2) - xsinθ-ycosθ, xcosθ+ysinθ
3) - xcosθ+ysinθ, xsinθ+ycosθ
4) + xcosθ-ysinθ, xsinθ+ycosθ

35) Translate the point (3,5) by t_x=2, t_y=-1.
1) - (4,5)
2) - (5,1)
3) - (5,2)
4) + (5,4)

36) Rotate (4,2) by 90^□ (clockwise) about the origin.
1) + x^'=4cos(-90)-2sin(-90)=2
y^'=4sin(-90)+2cos(-90)=-4
2) - x^'=4cos(90)-2sin(90)=2
y^'=4sin(90)+2cos(90)=-4
3) - x^'=4cos(90)-2sin(90)=2
y^'=4sin(-90)+2cos(-90)=-4
4) - x^'=4cos(-90)+2sin(-90)=2
y^'=4sin(-90)+2cos(-90)=-4

37) Rotate (4,2) by 90^□ (clockwise) about the origin.
1) - Final Coordinates: (-2,4)
2) - Final Coordinates: (2,4)
3) + Final Coordinates: (2,-4)
4) - Final Coordinates: (-2,-4)

38) Scale the triangle A(1,1),B(3,1),C(2,3) by s_x=2, s_y=2 with fixed point (2,1).
1) + A^'=(0,1), B^'=(4,1), C^'=(2,5)
2) - A^'=(1,1), B^'=(4,1), C^'=(2,5)

3) - A^'=(1,1), B^'=(4,1), C^'=(1,5)‎
4) - A^'=(0,1), B^'=(4,1), C^'=(1,5)‎

39) Reflect the point (5,7) about the line y=x.
1) - ‎(7,7).‎
2) - ‎(5,7).‎
3) - ‎(2,5).‎
4) + ‎(7,5).‎

40) Compute the shear transformation matrix for sh_x=3 and apply it to (1,2).
1) - ‎(7,1)‎
2) + ‎(7,2)‎
3) - ‎(2,7)‎
4) - no one

41) For an ellipse with r_x=6 and r_y=4, calculate the initial decision parameter p1_0 for the Midpoint Ellipse Algorithm.
1) - p1_0=116.‎
2) - p1_0=118.‎
3) + p1_0=119.‎
4) - no one

42) 1. What is the y-intercept of the line from (3, 2) to (9, 6)?
1) + A) 0
2) - B) 1
3) - C) 2
4) - D) 3

43) 1. In the Midpoint Ellipse Algorithm, the slope of the curve is used to divide the ellipse into _____ regions.
1) + A) two
2) - B) three
3) - C) four
4) - D) five

44) ….....A graphics method in which one object is transformed into another.
1) - Electronic painting
2) - Manipulating
3) - Imaging
4) + Morphing

45) ….... is a special effect in motion pictures and animations that changes (or morphs) one image or shape into another through a seamless transition.
1) - Electronic painting
2) - Manipulating
3) - Imaging
4) + Morphing

46) ….... sample positions and orientations of markers on actors over time
1) - Electronic painting
2) + Motion capture
3) - Imaging

47) ….... Is the use of graphical techniques to communicate information and support reasoning or analysis.
1) - Image analysis
2) - Image Processing
3) + Visualization

48) ….....is the study of any algorithm that takes an image as input and returns an image as output.
1) - Image analysis
2) + Image Processing
3) - Visualization

49) Image Processing Includes:
1) + Image display and printing ,Image editing and manipulation , Image enhancement , Feature detection and extraction , Image compression
2) - Image display and printing ,Image editing and manipulation , Image enhancement , Image compression
3) - Image display and printing , Image enhancement , Feature detection and extraction , Image compression
4) - Image editing and manipulation , Image enhancement , Feature detection and extraction , Image compression

50) .....Involves extracting meaningful information from an image
1) - Computer Vision
2) - Image Processing
3) + Image analysis