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**Question Paper Code: 47202**

B.E./B.Tech. DEGREE EXAMINATION, MAY 2022

Seventh Semester

Computer Science and Engineering

14UCS702 - INTERACTIVE COMPUTER GRAPHICS

(Regulation 2014)

Duration: Three hours

Maximum: 100 Marks

PART A - (10 x 1 = 10 Marks)

(Answer all Questions)

- Describe how pictures are stored in Raster scan system
  - Intensity value
  - Line commands
  - Pixel commands
  - Image Resolution
- \_\_\_\_\_ is an example of filling object interiors using the odd-even rule to locate
  - Scan-line fill algorithm
  - Parallel line fill algorithm
  - Frame-buffer fill algorithm
  - Mid-point fill algorithm
- A composite transformation matrix can be made by determining the \_\_\_\_\_ of matrix of the individual transformation.
  - Sum
  - Reflection
  - Difference
  - Product
- The region against which an object is clipped is called a \_\_\_\_\_.
  - Clip Window
  - Boundary
  - Enclosing rectangle
  - Clip square
- The matrix formulation for rotation in homogeneous coordinates is
  - $P' = T + P$
  - $P' = S * P$
  - $P' = R * P$
  - $P' = dx + dy$
- we can take a view of an object from different directions and different distances
  - Projection
  - Rotation
  - Translation
  - Scaling

7. \_\_\_\_\_ uses color descriptions that have a more intuitive appeal to a user.
- (a) RGB color Model (b) CMY Color Model  
(c) YIQ Color Model (d) HSV Color Model
8. \_\_\_\_\_ can be produced by interpolating shading patterns across the polygon surfaces to eliminate the presence of polygon edge boundaries.
- (a) Rasterizing (b) Rendering (c)Smoothing (d)None
9. \_\_\_\_\_ refers to any type of application or presentation that involves more than one type of media, such as text, graphics, video, animation, and sound.
- (a) An executable file (b) Desktop publishing (c) Multimedia (d) Hypertext
10. The GIF standard is limited to \_\_\_\_\_ color images only.
- (a) 32-bit (b) 24-bit (c) 16-bit (d) 8-bit

PART – B (5 x 2= 10Marks)

11. Write in detail about Raster Scan System
12. Differentiate the window and viewport.
13. Differentiate interpolation and approximation splines.
14. Mention the various characteristics of a light
15. What are the features of PNG files?

PART – C (5 x 16= 80Marks)

16. (a) Explain the architecture of a raster-graphics system with a Display processor. (16)
- Or
- (b) (i) Write the Bresenham's line drawing algorithm. (8)
- (ii) Apply the Bresenham's line drawing algorithm to indicate raster locations from screen coordinate (20, 10) to the coordinate (30, 18). (8)
17. (a) Describe the two dimensional basic transformations (16)
- Or
- (b) Explain in detail about Cohen-Sutherland line Clipping Algorithm? (16)

18. (a) What are quadric surfaces? Explain. . (16)  
Or  
(b) Differentiate parallel and perspective projections and derive their projection matrices. (16)
19. (a) Discuss the HLS and RGB color models in detail (16)  
Or  
(b) What are the steps involved in the design of animation sequence? Explain. (16)
20. (a) (i) Explain the various common authoring metaphors (8)  
(ii) Briefly outline some effects for presenting multimedia (8)  
Or  
(b) Interpret the file format used data representation in multimedia. (16)  
(i) GIF  
(ii) JPEG  
(iii) PNG  
(iv) TIFF

