

Code No. : 20244 E Sub. Code : SMCA 63

B.C.A. (CBCS) DEGREE EXAMINATION,
NOVEMBER 2022.

Sixth Semester

Computer Application — Core

COMPUTER GRAPHICS

(For those who joined in July 2017 onwards)

Time : Three hours

Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. The device used to provide hardcopy is
(a) CRT (b) Computer console
(c) Printer (d) Card reader
2. Any data and instruction entered in the memory of a computer is
(a) storage (b) output
(c) input (d) information

7. Clipping in computer graphics is primarily used for
(a) Zooming
(b) Copying
(c) Removing objects and lines
(d) All of the above
8. The Cohen-Sutherland algorithm divides the two-dimensional space in how many regions?
(a) 4 (b) 8
(c) 9 (d) 23
9. Which surface algorithm is based on perspective depth?
(a) Depth comparison
(b) Z-buffer or depth-buffer algorithm
(c) Subdivision method
(d) Back-face removal
10. The types of hidden surface removal algorithm are
(a) Depth comparison, Z-buffer, back-face removal
(b) Scan line algorithm, priority algorithm
(c) BSP method, area subdivision method
(d) All of these

3. Which algorithm is a faster method for calculating pixel positions?
(a) Bresenham's line algorithm
(b) Parallel line algorithm
(c) Mid-point algorithm
(d) DDA line algorithm
4. If we want to recolor an area that is not defined within a single color boundary is known as
(a) Boundary-fill algorithm
(b) Parallel curve algorithm
(c) Flood-fill algorithm
(d) None of the above
5. The process of repositioning an object along a circular path is called
(a) Rotation (b) Scaling
(c) Translation (d) Transformation
6. Which of the following device is used for the 3D positioning of an object?
(a) Trackball (b) Mouse
(c) Spaceball (d) All of the above

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PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).
Each answer should not exceed 250 words.

11. (a) List the applications of computer graphics and discuss any one.
Or
(b) Differentiate raster scan display and random scan display.
12. (a) Explain the DDA line drawing algorithm.
Or
(b) Explain boundary fill algorithm with merits and demerits.
13. (a) How shearing transformations in 3D graphics are achieved?
Or
(b) Explain in detail about 2D scaling.
14. (a) Differentiate between window port and view port.
Or
(b) Write notes on point clipping.

15. (a) Explain briefly about back face removal algorithm.

Or

- (b) Write short notes on object space methods.

PART C — ($5 \times 8 = 40$ marks)

Answer ALL questions, choosing either (a) or (b)
Each answer should not exceed 600 words.

16. (a) Explain the working of refresh Cathode-ray tubes with a diagram.

Or

- (b) Draw the architecture and explain working of raster scan display system.

17. (a) Explain the steps in midpoint circle drawing algorithm with suitable diagram.

Or

- (b) Discuss in detail Bresenham's line-drawing algorithm.

18. (a) Explain about 2D composite transformation.

Or

- (b) What is shear transformation in 2D? Explain X-shear and Y-share with example.

19. (a) Write down the procedure for the Cohen-Sutherland line-clipping algorithm.

Or

- (b) Briefly explain about Sutherland Hodgeman polygon clipping algorithm.

20. (a) Explain in detail about Z-buffer algorithm.

Or

- (b) Discuss Hidden surface elimination and various coherences.
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