(6 pages)

Reg. No. : _____

Code No. : 10308 E Sub. Code : CMCS 63

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2024

Sixth Semester

Computer Science – Core

COMPUTER GRAPHICS AND VISUALIZATION

(For those who joined in July 2021-2022)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL questions.

Choose the correct answer :

1. Brightness of a display is controlled by varying the voltage on the _____
   (a) Focusing anode (b) Connection pins
   (c) Control grid (d) Power supply

2. Expansion of CRT is _____
   (a) Cathode Ray Tube
   (b) Computer Related Tube
   (c) Component Related Tools
   (d) Common Reflection Tube

3. _____ is applied to an object by repositioning along a straight line.
   (a) Translation (b) Rotation
   (c) Scaling (d) Shearing

4. The scaling transformation alters the size of an _____
   (a) vector (b) edge
   (c) side (d) object

5. The region against which an object is to clipped is called a _____
   (a) clipping (b) window
   (c) view port (d) clip window

6. The two-dimensional viewing transformation is simply referred to as the window-to-viewport transformation or the _____
   (a) viewing pipeline
   (b) transformation
   (c) windowing transformation
   (d) world coordinate

7. A three dimensional reflection can be performed relative to a selected reflection axis or with respect to a selected _____
   (a) rotations (b) reflection plane
   (c) matrix form (d) edges

8. _____ representations are useful for constructing 3D objects that possess translational, rotations or other symmetries.
   (a) Buffer (b) Periodic
   (c) Sweep (d) Spline

9. Identify the colors produced in beam penetration method.
   (a) Red, Green, Blue, White
   (b) Red, Orange, Yellow, Green
   (c) Red, Green, Blue
   (d) Green, Red, White, Orange

10. An RGB color system with 24 bits is storage per pixel is known as _____.
    (a) Color CRT (b) True-color system
    (c) RGB monitor (d) Color- Depth

PART B — (5 × 5 = 25 marks)

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

11. (a) What are the video displaying devices used in graphics? Explain.

    Or

    (b) Describe the properties of circle.

12. (a) Elaborate the basic attributes of line attributes.

    Or

    (b) Summarize the two-dimensional rotation with diagram.

13. (a) What are the composite transformations? Discuss.

    Or

    (b) Point out the viewing co-ordinate reference frame with diagram.

14. (a) Explain the steps to input of graphical data.

    Or

    (b) How the 3D rotation transformation works?

15. (a) Bring out the steps of a depth-buffer method.

Or

(b) Distinguish between the parallel and perspective projection.

PART C — (5 × 8 = 40 marks)

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

16. (a) Examine the expressions for Midpoint circle algorithm.

Or

(b) List out the input devices and explain any two of them.

17. (a) Outline the various types of character attributes.

Or

(b) Illustrate the Scaling an object with 2D transformation.

18. (a) Draw and explain the Sutherland-Hodgman polygon clipping algorithm.

Or

(b) Elaborate the window-to-viewport coordinate transformation.

19. (a) Discuss the graphical input functions of interactive input methods.

Or

(b) Evaluate the scaling in three dimensional geometric and modeling transformations.

20. (a) Demonstrate the concept of RGB color model.

Or

(b) Explain the purpose of 3D viewing pipeline.

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