Reg. No. : ....

Code No. : 20607 E   **Sub. Code : SMCS 62/**
                                              SMSE 62

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2021.

Sixth Semester

Computer Science/Software Engineering — Core

COMPUTER GRAPHICS AND VISUALIZATION

(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.   In Raster scan display, picture definition is stored in memory area is called —————

   (a)   Frame buffer

   (b)   CRT

   (c)   DVST

   (d)   Plasma panel

2. ——————— algorithm is a line drawing algorithm.

   (a) Bresenham's   (b) Boundary fill

   (c) Flood fill   (d) Cohen-Sutherland

3. ————————— is a rigid body transformation.

   (a) Scaling   (b) Rotation

   (c) Translation   (d) Reflection

4. ————————— transformation that produces a mirror image of an object.

   (a) Reflection   (b) Rotation

   (c) Scaling   (d) Translation

5. An area on a display device to which a window is mapped is called a ——————

   (a) Window   (b) Viewport

   (c) Spanport   (d) Worldport

6. In Cohen-Sutherland clipping algorithm, the 4-bit codes are called ————————— codes.

   (a) binary   (b) decimal

   (c) region   (d) hexadecimal

7. In ——————, input devices are requested and processing is suspended until the required values are received.

    (a) sample mode   (b) request mode

    (c) event mode   (d) read

8. —————— is a device for specifying a series of coordinate positions.

    (a) Stroke device   (b) Valuator device

    (c) Pick device   (d) Locator device

9. In viewing coordinate reference frame, we first pick a world coordinate positions called the ———

    (a) View reference point

    (b) Window reference point

    (c) Viewing

    (d) Windowing

10. —————— buffer is a method used for visible surface deduction.

    (a) Depth   (b) Sutherland

    (c) Orthographic   (d) Image

PART B — (5 × 5 = 25 marks)

Answer ALL questions, choosing either (a) or (b).

11. (a) Write brief note on CRT system.

               Or

     (b) Explain briefly about filling polygon.

12. (a) Explain about composite transformations.

               Or

     (b) Explain rotation transformation matrix for 2D transformation.

13. (a) Explain briefly about point clipping.

               Or

     (b) Discuss window to viewport coordinate transformation.

14. (a) Write a note on 3D-translation.

               Or

     (b) Explain the following :

          (i)   Parallel projection

          (ii) Visible line and surface identification

15. (a) Discuss about viewing pipeline in 3D.

               Or

     (b) Discuss briefly about 3D-scan-line method.

PART C — (5 × 8 = 40 marks)

Answer ALL questions, choosing either (a) or (b).

16. (a) Discuss briefly about Graphics software.

Or

(b) Explain Bresenham's line drawing algorithm.

17. (a) Describe the attributes of output primitives.

Or

(b) Explain the following :

(i) Shearing in 2D transformation

(ii) Reflection in 2D transformation

18. (a) Describe Cohen-Sutherland out code algorithm for line clipping.

Or

(b) Explain polygon clipping.

19. (a) Explain 3-D rotation.

Or

(b) Explain the following 3D display methods :

(i) Perspective projection

(ii) Depth cueing

(iii) Surface rendering

(iv) Three dimensional and stereoscopic views.

20. (a) Describe parallel and perspective projection.

Or

(b) Describe depth buffer method.

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