

(6 pages)

Reg. No. :

Code No. : 30609 E Sub. Code : SMCS 62

B.Sc. (CBCS) DEGREE EXAMINATION, APRIL 2020.

Sixth Semester

Computer Science – Main

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. Picture definition is stored in a memory area called the
 - (a) refresh buffer
 - (b) frame buffer
 - (c) Either (a) or (b)
 - (d) Cell

2. Expansion of line DDA algorithm is _____
- (a) Digital Difference Analyzer
 - (b) Direct Differential Analyzer
 - (c) Digital Differential Analyzer
 - (d) Data Differential Analyzer
3. If the magnitude of the curve slope is lesser than 1, then _____
- (a) We can plot horizontal spans
 - (b) We can plot vertical spans
 - (c) Both (a) and (b)
 - (d) None of these
4. _____ is a rigid body transformation that moves object without deformation.
- (a) Rotation (b) Scaling
 - (c) Translation (d) All of the above
5. The process of elimination of part of a scene outside a window or a viewport is called
- (a) Cutting (b) Plucking
 - (c) Clipping (d) Editing

6. For a point to be clipped, which of the following condition must be satisfied by the point?
- (a) $yw_{\min} < y < yw_{\max}$
 - (b) $yw_{\min} > y > yw_{\max}$
 - (c) $yw_{\min} = y = yw_{\max}$
 - (d) $xw_{\min} < x < xw_{\max}$
7. In _____ the application program initiates data entry.
- (a) request mode (b) sample mode
 - (c) event mode (d) none of these
8. In a three-dimensional homogeneous coordinate representation of translation matrix is
- (a) $P'=T.P$ (b) $P=t.P'$
 - (c) $P'=T+P$ (d) $P=T.P$
9. In a parallel projection, coordinate positions are transformed to the vied plane along _____ lines.
- (a) Perpendicular (b) Horizontal
 - (c) parallel (d) Vertical
10. Each position in the A-buffer has _____ fields
- (a) three (b) four
 - (c) one (d) two

PART B — (5 × 5 = 25 marks)

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

11. (a) Write short notes on Hard-Copy Devices.

Or

- (b) Discuss the Midpoint Circle Algorithm.

12. (a) Give an account of Curve Attributes.

Or

- (b) Discuss about Matrix representation of 2-D Geometric Transformation.

13. (a) Write about Viewing Coordinate Reference Frames.

Or

- (b) Define Clipping operation. Explain the various types of Clipping Operations.

14. (a) Estimate the value of input using Locator Devices and Valuator Devices for Graphical Data.

Or

- (b) Describe the String input, Choice input, Pick input in Request mode of Graphical Function.

15. (a) Write short notes on Viewing Pipeline in Three Dimensional.

Or

- (b) Explain about Scan-Line method.

PART C — (5 × 8 = 40 marks)

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

16. (a) Explain the following:
- (i) Color CRT Monitors
 - (ii) Three Dimensional Viewing Devices
 - (iii) Stereoscopic and Virtual Reality Systems.

Or

- (b) Write detailed notes on Line Drawing algorithms.

17. (a) Demonstrate the various attributes of Output Primitives.

Or

- (b) Summarize about Composite Transformation.

18. (a) Clarify the Two-Dimensional Viewing Function.

Or

- (b) Summarize about Cohen-Sutherland line Clipping.

19. (a) Investigate the Graphical Input Functions.

Or

(b) Outline about Rotation in Three Dimensional Transformation.

20. (a) Define Projection. Explain the various types of projections in Three Dimensions.

Or

(b) Explain in detail about Depth-Buffer Method.
