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Reg. No. :

**Code No. : 30385 E Sub. Code : JMCS 63/
JMSE 63**

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

Sixth Semester

Computer Science/Software Engineer – Main

COMPUTER GRAPHICS AND VISUALIZATION

(For those who joined in July 2016 only)

Time : Three hours Maximum : 75 marks

PART A — (10 × 1 = 10 marks)

Answer ALL the questions.

Choose the correct answer :

1. Each screen point is referred to as a _____.
(a) point (b) pixel
(c) position (d) element

2. _____ function is used to retrieve the current frame-buffer intensity setting for a specified position.
- (a) set pixel () (b) put pixel ()
(c) get pixel () (d) return pixel ()
3. The translation distances (t_x, t_y) is called as
- (a) Translation vector
(b) Shift vector
(c) Both (a) and (b)
(d) Neither (a) nor (b)
4. A _____ transformation produces a mirror of an object.
- (a) Rotation (b) Shear
(c) Reflection (d) Translation
5. A world coordinate area selected for display is called _____.
- (a) Window
(b) View port
(c) Transformation
(d) Viewing transformation

6. The process of extracting a portion of a picture that is either inside or outside a specified region is called _____.
- (a) Viewing (b) Morphing
(c) Transforming (d) Clipping
7. Menus are used to select processing options is _____ input device.
- (a) Locator (b) Pick
(c) Choice (d) None of these
8. We can perform 3D rotation about _____ axes.
- (a) x (b) y
(c) z (d) all of these
9. _____ is the color space used by the NTSC color TV system.
- (a) RGB (b) CMY
(c) YIQ (d) All of these
10. _____ projections that show more than one side of an object are called axonometric orthographic projections.
- (a) Orthographic (b) Parallell
(c) Perspective (d) None of these

PART B — (5 × 5 = 25 marks)

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

Each answer should not exceed 250 words.

11. (a) Define Random scan system.

Or

(b) What is Buffer? Explain.

12. (a) Discuss Line width attribute.

Or

(b) Write Rotation transformation matrix.

13. (a) Write about the types of text clipping.

Or

(b) What is view port?

14. (a) Explain the interactive picture construction techniques.

Or

(b) Derive 3D Rotation Matrix.

15. (a) Discuss about Parallel Projection in 3D.

Or

(b) Explain RGB color model.

PART C — (5 × 8 = 40 marks)

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

Each answer should not exceed 600 words.

16. (a) Derive Bresenham line drawing Algorithm.

Or

- (b) Write and explain Circle algorithm.

17. (a) Discuss about flood fill algorithm.

Or

- (b) Explain :

(i) Composite transformation

(ii) Scaling in 2-Dimension.

18. (a) Explain cohen-sutherland line clipping algorithm.

Or

- (b) Explain in details about Polygon clipping.

19. (a) Discuss about orthographic projection.

Or

- (b) Write in details about 3D scaling.

20. (a) What is the use of Depth Buffer? Explain.

Or

(b) Explain the following color model :

(i) YIQ

(ii) HSV.
