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**Reg. No. :** .....

**Code No. : 30696 E      Sub. Code : SMCA 63**

B.C.A. (CBCS) DEGREE EXAMINATION, APRIL 2020.

Sixth Semester

Computer Applications – Main

**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 most widely used input device is the \_\_\_\_\_  
(a) Modem                      (b) Keyboard  
(c) Printer                      (d) Monitor
2. Name the component of an LCD panel, a plane metallic foil reflects back the incident beam.  
(a) Reflector                      (b) Liquid Crystal  
(c) Color polarize                      (d) Thin glass plate

3. In Bresenham's line algorithm, if the distances  $d_1 < d_2$  then decision parameter  $P_k$  is \_\_\_\_\_
- (a) Positive                      (b) Equal  
(c) Negative                      (d) Option (a) or (c)
4. Bresenham circle algorithm uses the approach of
- (a) Midpoint                      (b) Point  
(c) Line                          (d) Square
5. The transformation in which an object is moved from one position to another in circular path around a specified pivot point is called
- (a) Translation                  (b) Scaling  
(c) Rotation                      (d) Reflection
6. Basic geometric transformation include
- (a) Translation                  (b) Rotation  
(c) Scaling                        (d) All of these
7. Cohen-sutherland subdivision line clipping algorithm uses \_\_\_\_\_ regions with different codes.
- (a) 8                                  (b) 6  
(c) 4                                  (d) 9

8. A closed polygonal area in the device coordinate space that is used to display a part of the scene found in a window is called a
- (a) window
  - (b) viewport
  - (c) region
  - (d) segment
9. The method which is based on the principle of checking the visibility point at each pixel position on the projection plane are called
- (a) Object-space method
  - (b) Image-space method
  - (c) Segmentation
  - (d) Restoration
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

PART B — ( $5 \times 5 = 25$  marks)

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

Each answer should not exceed 250 words.

11. (a) Comment on display adapter cards.

Or

- (b) Mention the components of an LCD panel.

12. (a) Illustrate the DDA algorithm for Circle generation.

Or

- (b) Explain the winding number method.

13. (a) How to perform 2D Scaling Transformation?()

Or

- (b) What is meant by Homogeneous Coordinate system?

14. (a) List out the steps used to performed viewing transformation.

Or

- (b) Explain the concepts of Parametric Clipping.

15. (a) Illustrate the Back faces using Dot product.

Or

- (b) Define Cramer's rule.

PART C — ( $5 \times 8 = 40$  marks)

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

16. (a) Describe the operations of Computer graphics.

Or

- (b) Draw a CRT and Explain its functions.

17. (a) Illustrate the Bresenham's Circle algorithm.

Or

- (b) Explain the Solid Area Filling algorithms.

18. (a) How to perform 2-D Shearing transformation?  
Explain.

Or

- (b) Explain the 3-D Scaling and 3-D Reflection transformation.

19. (a) Describe the working principles of Sutherland-Hodgeman Polygon Clipping algorithm.

Or

- (b) Narrate the Sutherland-Cohen midpoint subdivision algorithm.

20. (a) Explain Warnocks algorithm used to remove hidden surfaces with example.

Or

- (b) Discuss the insufficiency of object space methods.
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