C 2164 (Pages : 2) Name.....

Reg. No.....

FOURTH SEMESTER (CUCBCSS—UG) DEGREE EXAMINATION APRIL 2021

B.C.A.

BCA 4C 08—COMPUTER GRAPHICS

(2017 Admissions)

Time : Three Hours Maximum : 80 Marks

Section A

Answer **all** *the questions.*
Each question carries 1 *mark.*

1. What is a Bitmap ?
2. What is Aspect ratio ?
3. What is the basic principle of line drawing algorithms ?
4. What is stair step appearance ?
5. What is the homogeneous coordinate representation of co-ordinate (x, y) ?
6. Write short notes on shear transformation.
7. What is polygon clipping ?
8. What is a window ?
9. Explain the difference between color models RGB and CMY.
10. How to remove a window border in GIMP ?

(10 × 1 = 10 marks)

Section B

Answer **all** *the questions.*
Each question carries 2 *marks.*

11. Explain how visualization and image processing finds application in computer graphics.
12. Distinguish between emissive and non-emissive displays.
13. What are output primitives ?
14. Give the DDA line drawing algorithm function.

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15. Explain how to perform Scaling with respect to a selected fixed position.
16. How do we perform reflection about the line $y = 0$.
17. Explain the significance of a color model.
18. How can we draw a circle with gimp ?

(8 × 2 = 16 marks)

Section C

Answer any **six** *questions.*
Each question carries 4 *marks.*

19. Explain the methods used in color CRT monitors.
20. Distinguish between active and passive matrix LCD displays.
21. What are the necessary steps to efficiently perform a polygon fill ?
22. Explain how to identify interior of a polygon.
23. How do we generate inverse transformations ?
24. Explain the transformation matrix to perform two successive scaling operations.
25. Give the transformation matrix for x-direction shear and y-direction shear.
26. Explain the terms purity, brightness and luminance of light.
27. How do we merge an image from a file to the current image in gimp ?

(6 × 4 = 24 marks)

Section D

Answer any **three** *questions.*
Each question carries 10 *marks.*

28. Briefly explain the working of LCD and LED displays with the help of block diagrams.
29. Explain scan line polygon filling algorithm.
30. Describe two dimensional transformations.
31. Explain Window to viewport transformation in detail.
32. Explain in detail the various standards primaries and chromaticity diagram used in color models.

(3 × 10 = 30 marks)