

Roll No.....

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BCA-401(N)

B.C.A (Semester-IV) Examination-2014

(New Course)

Paper: I

Computer Graphics and Multimedia Application

Time: Three Hours]

[Maximum Marks: 75

Note: Section 'A' is compulsory. Attempt any six questions from Section 'B' and any one question from Section 'C'.

Section-A

Note: Both questions are compulsory.

1. Multiple choices. (1 marks each)

- (i) Pixel is.
 - (a) Smallest addressable point on the screen
 - (b) Input device
 - (c) A memory block
 - (d) A data structure
- (ii) Aspect ratio is.
 - (a) Ratio of images width to its height
 - (b) Ratio of window to view port height
 - (c) Ratio of image's intensity levels
 - (d) Ratio of image's height to its width

- (iii) Isometric projection is.
 - (a) An orthographic projection
 - (b) A perspective projection
 - (c) An oblique projection
 - (d) A multi view projection
- (iv) Algorithm for drawing a circle is
 - (a) Bresenham's Algorithm
 - (b) DDA algorithm
 - (c) Ellipse axis rotation
 - (d) Shearing transformation
- (v) The slope of the line joining the points (1,2) and (3,4) is

(a) 0	(b) 1
(c) 2	(d) 3
- (vi) The property that adjacent pixels are likely to have same characteristics is called
 - (a) Spati coherence
 - (b) Area coherence
 - (c) Scan line coherence
 - (d) Pixel coherence

2. Fill in the blanks: **(2 marks each)**
- (i) A 512x512 raster requiresbits in a bit plane.
 - (ii) The Cohen-Sutherland line clipping algorithm divides the entire region into..... number of sub-regions.
 - (iii) The equivalent representation of a two dimensional point (x,y) in the homogeneous coordinate system is
 - (iv) is a process of changing the position of an object.
 - (v) Multimedia includes.....
 - (vi) curves are used in computer graphic to produce curves which appear reasonably smooth at all scales.
 - (vii) is a transformation which either magnifies or reduces the size of the object.

Section-B

Note: Attempt any six questions. Each question carries 7 marks (7x6=42)

- 3. Write about the functions available in C for pixel manipulation.
- 4. Explain using a diagram how does Raster refresh graphics device works.
- 5. Write the steps required to plot a line whose slope is between 0° and 45° using the slope intercept equation.

- 6. Explain DDA line drawing algorithm.
- 7. What do you understand by scaling? Show the complete steps to scale the square ABCD where A (0,0), B (3,0), C (3,3) and D (0,3) by 3 units in X direction and 3 units in Y direction w.r.t. origin.
- 8. Write in short about window to view port transformation.
- 9. Derive the rotation matrix of a point rotated by angle θ . <http://csjmuonline.com>
- 10. Explain any one of the line clipping algorithm with example.

Section-C

Note: Attempt any one question. Each question carries 13 marks. (13x1=13)

- 11. Write in short about the following:
 - (a) Raster Graphics.
 - (b) Vectors Graphics.
 - (c) Different types of coherence.
 - (d) Difference between image processing and computer graphics.
- 12. Write in short about multimedia, its usage, components of multimedia.