Reg. No. : ....

Code No. : 1367   **Sub. Code : DNA 3 B**

B.C.A. DEGREE EXAMINATION, NOVEMBER 2014.

Third Year – Non Semester

Computer Applications — Main

Paper XI — COMPUTER GRAPHICS AND MULTIMEDIA

(For those who joined in July 2008 onwards)

Time : Three hours   Maximum : 100 marks

PART A — (5 × 5 = 25 marks)

Answer any FIVE questions out of Eight.

1. How time is spent scanning across each row of pixels during screen refresh on a raster system with a resolution of 1280 by 1024 and the refresh rate of 60 frames per second.

2. Write the matrix representation of rotation and explain.

3. Explain parallel projection and depth cueing methods for three-dimensional display.

4. Prove that the multiplication of three-dimensional transformation matrices for the following sequence of operations is commutative

Any two successive translation

5. Write notes on wire frame methods.

6. Write notes on properties of circle.

7. Explain scaling factors.

8. Illustrate how line clipping using non rectangular clip windows is performed.

PART B — (5 ×15 = 75 marks)

Answer any FIVE questions out of Eight.

9. Write the procedure of parallel version of Bresenham's line algorithm for slopes in the range $0 < m < 1$.

10. What is meant by composite translation. Illustrate with an example.

11. Derive the window-to-viewport transformation equations by first scaling the window to the size of the viewport and then translating the scaled window to the view-port position.

12. Explain the illustrate how an object can rotated about an axis that is

    (a) parallel to one of the coordinate axis

    (b) not parallel to the coordinate axis.

13. Explain area-subdivision method. Illustrate.

14. Write in detail about the hard copy devices used for printing images.

15. Explain the matrix representation of the basic transformation.

16. Implement Cohen-Sutherland in clipping algorithm.

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