Malaviya National Institute of Technology Jaipur
Department of Computer Science Engineering
Computer Graphics CST310
Assignment-1, Date: Feb 18, 2024

Deadline: Feb 23, 2024 (5:00 pm)   Spring 2024, VI Semester   Max marks: 30

All questions are compulsory.

1. Use pseudo-code to describe the DDA algorithm for scan-converting a line whose slope is

    (a) between $45°$ and $-45°$ (i.e., $|m| > 1$) **(5)**

    (b) between $-45°$ and $45°$ (i.e., $|m| \leq 1$) **(5)**

2. (a) Show that for three 3D vectors a, b, c, the following identity holds $|abc| = (a \times b).c$ **(5)**

    (b) Describe in words what this 3D transform matrix does:

$$\begin{bmatrix} 0 & -1 & 0 & 3.5 \\ 1 & 0 & 0 & 0.5 \\ 0 & 0 & 1 & 10 \\ 0 & 0 & 0 & 1 \end{bmatrix}$$

(5)

3. Find the

    (a) vanishing points for a given perspective transformation in the direction given by a vector U, and, **(5)**

    (b) principal vanishing points. **(5)**

Best wishes