Quiz # 3 (30 Marks)

Write your roll number and section. Attempt ALL questions. Keep your answers BRIEF as irrelevant detail would be marked negatively. Questions that require pseudo-code should be answered ONLY with readable pseudo-code, no descriptions are necessary. Start answering on your question paper and attach additional sheets (with your roll numbers atop each sheet) as necessary.

1. Assuming a resolution of 640 by 480 for a display system and the associated video controller having a 1MB memory, define the bit per pixel that can be represented by the display system for • Grey scale • RGB color combinations

2. Assume the system as in question # 1. If the color system represents each pixel with 8 bits (grey level), what are the maximum number of line pairs that can be maintained by the display system? [2]

3. Write a pseudo code for the Digital Differential Analyzer algorithm to draw lines for |m|>1? [2]

4. Explain the scan line polygon fill algorithm for filling a polygon region. What are the special cases that must be taken into consideration when implementing the algorithm?[3]

5. Identify the characteristics for each of the following line attributes and provide algorithms for adequately implementing them on a raster scan system. [4] • Line width. • Pen and brush options.

6. Discuss different anti-aliasing methods with reference to the computational cost associated with each. [3]

7. Derive the General fixed point scaling for a 2-dimensional Cartesian coordinate system.[3]