ZIMBABWE EZEKIEL GUTI UNIVERSITY

FACULTY OF SCIENCE, TECHNOLOGY, AGRICULTURE AND FOOD SYSTEMS DEVELOPMENT

DEPARTMENT OF INFORMATION SYSTEMS

EXAMINATION PAPER

COURSE CODE:	BIS415
COURSE TITLE:	COMPUTER GRAPHICS
SPECIAL REQUIREMENTS:	NONE
LEVEL:	
EXAM DURATION:	3 hours
DATE:	10 JUN 2024

INSTRUCTIONS TO CANDIDATES:

1. Answer any **four** questions

2. Number your answers accordingly

3. Start each question on a new page

4. You can use a calculator.

Question 1

a) Explain 2 D translation with diagrams. [4 marks]

b) Using the Bresenham's line drawing algorithm scan convert the line starting at

point (6,6) and ending at (20,18) [6 marks]

c) Consider three different raster systems with resolutions of 540 x 380, 1080 x

924 and 1560 x 1048. What size is frame buffer (in bytes) for each of these

systems to store 12 bits per pixel? [5 Marks]

d) List the properties of Berzier curves [5 marks]

Question 2

a) To display in a computer screen the programmer needs to poke the video

memory.

Discuss how memory mapping works [6 Marks]

b) Outline FOUR the disadvantages of OLED computer screens [4 Marks]

c) In transformations rotate by 90 degree clockwise an object with the following

endpoints (2,2) (3,4) (4,2) [4 Marks]

d) Explain down four main advantages of laser printers? [6 Marks]

Question 3

a) Consider two raster systems with resolutions of 640* 480 and 1280* 1024. How many pixels could be accessed per second in each of these systems by a display controller that refreshes the screen at a rate of 60 frames per second? [6 marks]

b) Discuss the problems associated with the Digital Differential Analyzer line-drawing algorithm [8 marks]

c) In realistic rendering why is bump mapping important [6 Marks]

Question 4

a) What is meant by projection? Differentiate between parallel projection and perspective projection. [6 Marks]

b) Differentiate between orthographic and oblique projection [4 marks]

d) Differentiate between ambient and diffuse light reflections [4 Marks]

e) In realistic rendering why is bump mapping important [6 Marks]

Question 5

a) Distinguish between Bezier and B-Spline curves [6marks]

b) Explain the merits and demerits of Plasma panel display [4marks]

c) What is meant by projection? [4marks]

d) Explain with a diagram the raster scan display technique. [6marks]