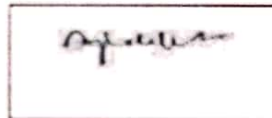# ELIZADE UNIVERSITY

ILARA-MOKIN

FACULTY: BASIC AND APPLIED SCIENCES
DEPARTMENT: MATHEMATICS AND COMPUTER SCIENCE
1st SEMESTER EXAMINATION
2020 / 2021 ACADEMIC SESSION

COURSE CODE: CSC 427

COURSE TITLE: Computer Graphics and Visualization

COURSE LEADER: Prof. Bukola Ojokoh

DURATION: 2 Hours

INSTRUCTION:

Candidates should answer any FOUR Questions.

Students are warned that possession of any unauthorized materials in an examination is a serious offence.

1a. What is Computer Graphics? A typical graphics system consists of a host computer with some other basic components; itemize them.
b. Discuss six important application areas of Computer Graphics.
c. Describe five basic output primitives for drawing pictures.

2a. Distinguish between active and passive Computer Graphics System.
b. Discuss the technologies behind the three common types of CRT display devices
c. What are the advantages and disadvantages of each of the types discussed in (b) above

3a. With the aid of a diagram, describe the architecture of a raster system with a fixed portion of the system memory reserved for the frame buffer.
b. Describe the following:
(i) Refresh Buffer
(ii) Vector Generator
(iii) Phosphorescence
(iv) Phosphor's Persistence
(v) Horizontal Scan Rate
c. Outline the characteristics of Liquid-Crystal Display (LCD).

4a. Outline five types of transformation in Computer Graphics.
b. Three of these basic transformation techniques outlined in (a) are used to alter an object. Describe them and why and how they are used with the aid of mathematical notations.
c. Magnify a triangle placed at A(0,0), B(1,1) and C(5,2) to twice its size keeping the point C(5,2) fixed.

5a. Given a triangle with coordinate points A(3, 4), B(6, 4), C(5, 6). Apply the reflection on the X axis and obtain the new coordinates of the object.
b. Given a square object with coordinate points A(0, 3), B(3, 3), C(3, 0), D(0, 0). Apply the scaling parameter 2 towards X axis and 3 towards Y axis and obtain the new coordinates of the object.
6a. Given a line segment with starting point as (0, 0) and ending point as (4, 4). Apply 30 degree rotation anticlockwise direction on the line segment and find out the new coordinates of the line.

b. Given a circle C with radius 10 and center coordinates (1, 4). Apply the translation with distance 5 towards X axis and 1 towards Y axis. Obtain the new coordinates of C without changing its radius.