UNIVERSITY EXAMINATIONS
2022/2023 ACADEMIC YEAR

END OF SEMESTER EXAMINATIONS
YEAR THIRD SEMESTER TWO EXAMINATIONS

FOR THE DEGREE OF
BACHELOR OF SCIENCE COMPUTER SCIENCE

COURSE CODE : **CSC 320**

COURSE TITLE : **COMPUTER GRAPHICS**

DATE: 17/04/2023 TIME: 9:00 A.M – 11:00AM

INSTRUCTIONS TO CANDIDATES
ANSWER QUESTIONS ONE AND ANY OTHER TWO.

SECTION ONE (COMPULSORY)

Question #1 [30 Marks]

a) Differentiate the following terms.   [4Marks]
   i.   Interactive and Non-Interactive Computer Graphics
   ii. Virtual Reality and Simulation

b) In University setup, identify areas where computer graphics can be used. [6Marks]

c) The use of computer graphics in multimedia has been experiencing tremendous rise, discuss technological advances in computer graphics as far as multimedia is concern.   [6Marks]

d) Describe how computer graphics, mathematics, chemistry and physics converge.   [6Marks]

e) Tablet is one of the graphic input devices, discuss how it can be adapted to input 3D graphics.   [4Marks]

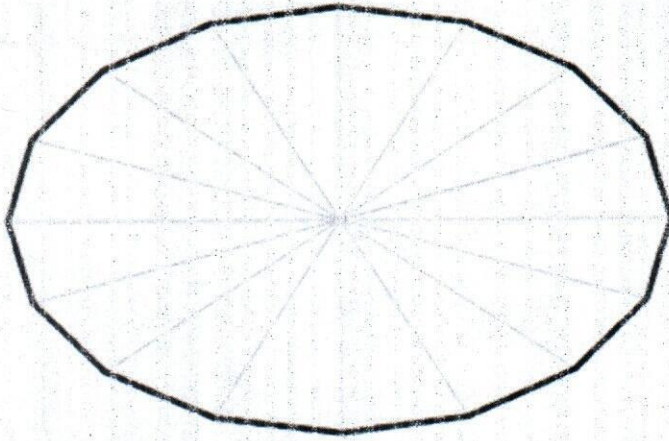f) Discuss features of C that support computer graphics.   [4Marks]

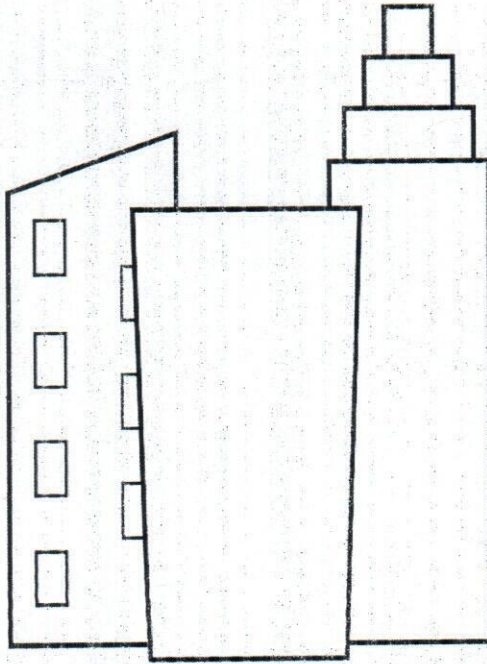## SECTION TWO (ANSWER ANY TWO QUESTIONS)

Question #2 [20 Marks]

a) Discuss how the following difficulties in drawing line can be eliminated.   [4Marks]
   i)   Stair Case effect
   ii) Response Time

b) Explain how Beam Penetration CRT parts help in achieving the common goal of displaying graphics on the screen.   [4Marks]

c) Laser Scan Display has been adopted by modern technologies, discuss how it functions.
   [6Marks]

d) Discuss the properties of phosphors that makes it suitable for CRT?   [4Marks]

e) Pixel is primitive element of graphics, discuss how it can be used to draw other complex graphics.
   [4Marks]

Question #3 [20 Marks]

a) Explain the following concepts used in graphics programming.   [4Marks]
   a. initgraph()
   b. floodfill()

b) Write C program to draw the following figures using lines.   [10Marks]

   i)

ii)

c) Write a C program that simulates a moving car. [6Marks]

Question #4[20 Marks]

a) What do you know about the following terms? [4Marks]
   i) DDA Scan Conversion
   ii) Translation
b) Discuss the functioning of DDA. [4Marks]
c) Write a C program to generate a circle using Bresenham's algorithm [6Marks]
d) Write a C program to subject a graphic to Translation, Scaling and Rotation respectively. [6Marks]

Question #5[20 Marks]

a) Define the following terms with respect to computer graphics. [4Marks]
   i) Event Handling
   ii) Windowing
b) Discuss need for clipping and windowing. [6Marks]
c) Using an example, write a program to demonstrate how events are handled in computer graphics?
   [6Marks]
d) Explain the concept of Rubber band techniques in positioning. [4Marks]