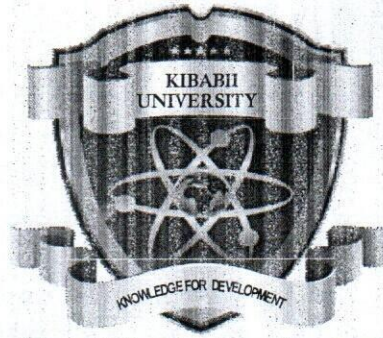


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(Knowledge for Development)

KIBABII UNIVERSITY

**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]

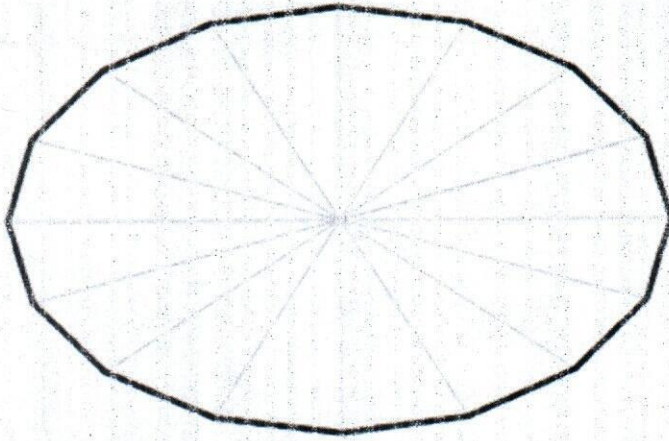
SECTION TWO (ANSWER ANY TWO QUESTIONS)

Question #2 [20 Marks]

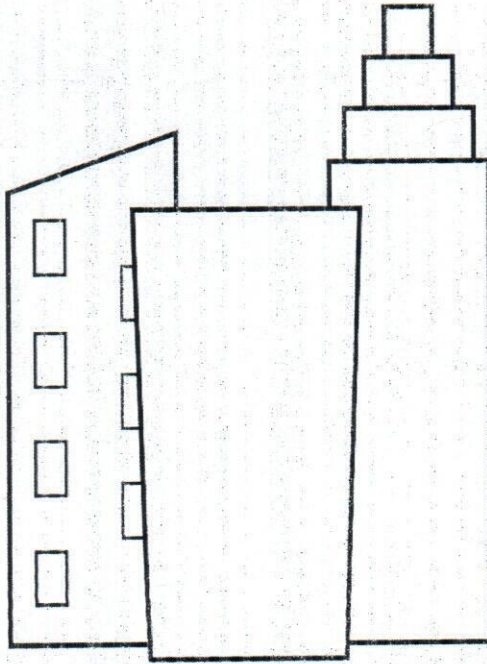
- a) Discuss how the following difficulties in drawing line can be eliminated. [4Marks]
- i) Stair Case effect
 - ii) Response Time
- b) Explain how Beam Penetration CRT parts help in achieving the common goal of displaying graphics on the screen. [4Marks]
- c) Laser Scan Display has been adopted by 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]