



TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR:
BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY
(BSIT 11M/BTIT 12J/13M)

ICS 2311/EIT 4214: COMPUTER GRAPHICS

END OF SEMESTER EXAMINATION
SERIES: DECEMBER 2013
TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

This paper consists of **FIVE** questions.

Attempt question **ONE (COMPULSORY)** and any other **TWO** questions

Maximum marks for each part of a question are as shown

This paper consists of **THREE** printed pages

Question One (Compulsory)

- a) Differentiate between computer graphics and interactive computer graphics. **(3 marks)**
- b) Describe the **THREE** types of perspective projections **(6 marks)**
- c) Define the following terms:
- (i) Raster
 - (ii) Vector
 - (iii) Pixel
 - (iv) Scan line
- d) List **FOUR** types of 3D input devices **(4 marks)**
- e) Outline **FIVE** OpenGL primitives **(5 marks)**

- f) Provide the OpenGL syntax for generating the rectangle 8mm x 8mm figure 1 **(4 marks)**

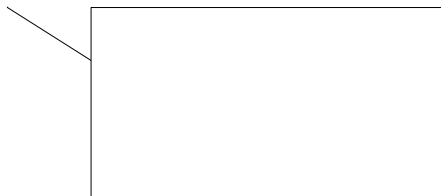


Figure 1

- g) Explain the importance of Homogenous coordinates in transformations **(2 marks)**
h) Convert the point (x, y) to a homogenous coordinates **(1 mark)**

Question Two

- a) Explain the term Random scan display **(3 marks)**
b) Describe how a raster display is generated **(6 marks)**
c) Define the term clipping as used in graphics **(2 marks)**
d) List FOUR types of clipping **(4 marks)**
e) Outline the procedure for clipping the line in figure 2 **(5 marks)**



Question Three

- a) Identify FOUR features of a window manager **(4 marks)**
b) List FIVE hardware components of computer graphics **(5 marks)**
c) Distinguish between world coordinate system, world window and view ports **(6 marks)**
d) Write the DDA line drawing algorithm **(5 marks)**

Question Four

- a) Outline FIVE key features of the cathode Ray tube **(5 marks)**
b) Identify THREE standard graphic formats for the web **(3 marks)**
c) Distinguish between the RGB and the CMYK color model clearly stating where each may be used **(4 marks)**

d) List FOUR features of a plasma display (4 marks)

e) Identify any FOUR OpenGL primitives (4 marks)

Question Five

a) Define the term OpenGL (2 marks)

b) Describe the following features of OpenGL (8 marks)

(i) Texture mapping

(ii) Z-buffering

(iii) Double buffering

(iv) Transformation matrix

c) identify FIVE 2D primitive objects used in computer graphics (5 marks)

d) Describe how a 3D-2D Transformation takes place using OpenGL (5 marks)