KENYATTA UNIVERSITY

UNIVERSITY EXAMINATIONS 2011/2012

SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE

SCS 314: COMPUTER GRAPHICS

DATE: **Monday 16th April 2012** **TIME:** **2.00p.m – 4.00p.m**

INSTRUCTIONS: *Answer Question one and any other two from the following paper*

QUESTION ONE (30 MARKS)

(a) Define the term "computer graphics" [2 marks]

(b) Outline the role played by OpenGl in computer graphics [3 marks]

(c) Explain the following open GL terms [3 marks]

(i). FLTK

(ii). GLUT

(iii). BOOST

(d) (i) Describe using a diagram the construction and operation of a colored CRT monitor [5 marks]

(ii). Write an OpenGl function that can perform clipping [5 marks]

(f) Give two characteristics of each of the following display devices

(i). Plasma

(ii). LCDs

(iii). LEDs [6 marks]

(g) Define the following terms

(i). Color model

(ii). Pixel

(iii). Vector graphic

(iv). Raster image

(v). Virtual reality environment [5 marks]

(h). List FOUR applications of computer graphics in industry

QUESTION TWO (15 MARKS)

a) Discuss the attributes of a point and explain how they can be set. [4 marks]

b) Discuss three types of OpenGl primitives [5 marks]

c) Write a function that set a 640 by 480 pixels high window. [5 marks]

d) Write a function that set a white background [3 marks]

QUESTION THREE (15 MARKS)

(a) Discuss the three principal sources of raster images [3 marks]

(b) Distinguish between 'world window' and 'viewport window' [3 marks]

(c) Distinguish between GL_LINE_STRIP and GL_LINE_LOOP constants. Which constant do we used when drawing filled regions? [5 marks]

(d) Discuss the format of glVertex2i(). [4 marks]

QUESTION FOUR (15 MARKS)

(a) Distinguish between glVertex2i() and glVertex*(). [3 marks]

(b) Briefly discuss the applications of the following functions

(i) glFlush()

(ii) glutMainLoop() [4 marks]

(c) Distinguish between a Valuator and Locator [3 marks]

(d) Plasma is a technology used to develop the display panel. Explain the two merits and three demerits of this technology

[5 marks]

QUESTION FIVE(15 MARKS)

(a) With the aid of a diagram explain the following major tasks an implementer must perform on an output device

(i). Modeling

(ii) Geometric processing

(iii) Rasterization

(iv) Display [10 marks]

(b) State and briefly describe the five classes of logical input devices used in computer graphics. [9 marks]