



# MASENO UNIVERSITY

## UNIVERSITY EXAMINATIONS 2012/2013

THIRD YEAR SECOND SEMESTER EXAMINATIONS FOR  
THE DEGREE OF BACHELOR OF SCIENCE IN  
COMPUTER SCIENCE  
(HOMA BAY CAMPUS)

### CCS 312: COMPUTER GRAPHICS

*Date: 27<sup>th</sup> July, 2013*

*Time: 11.00 a.m.- 1.00 p.m.*

---

#### INSTRUCTIONS:

- ◆ Answer Question ONE and any other TWO questions.
- ◆ Use of MOBILE PHONES is PROHIBITED in the examination room.

### QUESTION 1

- a) Define Random Scan and Raster Scan displays.(2 marks).
- b) Define the following words: (4 MARKS)
  - I. Persistence
  - II. Resolution
  - III. Aspect Ratio
  - IV. Dot Size
- c) Give the syntax for a simple callback procedure.(4 marks)
- d) What are the 3 steps required to perform a flying sequence transformation.(3 marks)
- e) Distinguish between window port & view port? (2 marks)
- f) What does refreshing of the screen mean?(2 marks)
- g) What is the difference between impact and non-impact printers.(2 marks)
- h) Define : (5 marks)
  - 1. Clipping
  - 2. shearing
  - 3. homogenous coordinates
  - 4. projection
  - 5. computer graphics animation
- i) Define Animation (2 marks)
- j) Why should a graphics designer aim for better device independence? (3 marks)

### QUESTION 2

- a) Define transformation. Explain the 3 types of Affine transformation and give the matrix of Transformation for each type. (10 marks)
- b) Write the DDA Line Drawing Algorithm.(3 marks)
- c) Write the Bresenham Line drawing algorithm and give an example of its usage.(7 marks)

### QUESTION 3

- a) Explain refresh cathode ray tube. Give a well labeled diagram .(10 marks)

- b) Give the syntax for the method used to set a pixel in graphics. (1 mark)
- c) What are the steps involved in 3D transformation? (4 marks)
- d) What are the features of Inkjet printers? (5 marks)

**QUESTION 4**

- a.) Define the different types of projection. (4 marks)
- b.) What are the advantages of a Physically-based animation?(4 marks)
- c.) Mention the 3 animation techniques .(6 marks)
- d.) What are an object properties that govern reflection of the an object?(2 marks)
- e.) List the important properties of a light source.(2 marks)
- f.) Distinguish between uniform scaling and differential scaling?(2 marks)

**QUESTION 5**

- a) Explain the following?
    - 1. Z-mouse
    - 2. Joysticks
    - 3. Touch panels
    - 4. Image scanners
  - 5. Data glove
- (10 MARKS)
- b) Discuss Rotation on all axes, give the matrix for each axis and give an example of a rotation done on the z axis. (10 marks)