

**PAN AFRICA CHRISTIAN UNIVERSITY
EXAMINATIONS PAPER**



**PAN AFRICA CHRISTIAN UNIVERSITY
BACHELORS OF INFORMATION COMMUNICATION TECHNOLOGY
END OF TERM EXAMINATION**

DEPARTMENT: COMPUTING & INFORMATION TECHNOLOGY
COURSE CODE: BSIT/BBIT400
CAMPUS: ROYSAMBU
COURSE TITLE: COMPUTER GRAPHICS AND ANIMATION
EXAM DATE:
TIME: START HOUR

INSTRUCTIONS

- This exam carry a total of SIX Questions of [10 Marks Each]
- Section One (I) is compulsory.
- Answer any 3(Three) Questions from Section Two (II)
- Read all questions carefully before attempting.

SECTION A
(Answer ALL questions in this section)

Question 1

- (a) Discuss morphing and how it is applied to computer animation (4 marks)
- (b) Describe any 2 main basic transformation in graphic design and animation. (2 marks)
- (c) Discuss the 2 principles of animation in computer graphics. (2 marks)
- (d) Outline different two different techniques that are used to achieve realistic rendering. (2 marks)

SECTION B
((Answer any THREE (3) questions in this section)

Question 2

- a) Filmmakers may use various techniques to manipulate time such as slow or fast motion, freeze frame, split screen, chronology, and editing, among other techniques. Discuss manipulating time through editing. (5 marks)
- b) Explain with the algorithm procedure of drawing a square using mid-point circle algorithm (5 marks)

Question 3

- a) Discuss clipping in the context of OpenGL, and where does it fit in the steps of the OpenGL pipeline architecture. (4 marks)
- b) Suppose you want to build a program using OpenGL that draws two kinds of objects - shiny billiard balls, and dull wooden balls. Discuss how to implement these in a way that realistically represents

the difference in shininess between the two kinds of objects .

(6 marks)

Question 4

- a) Describe request mode and event mode as used in graphics animation. **(2 marks)**
- b) Consider a horizontal row of fragments that form part of a triangle during rasterization. Suppose the coordinates, normal and texture coordinates of the first and last fragment in the row have already been calculated. Describe how quickly to calculate the coordinates of the other fragments as we scan along the row from the first fragment to the last fragment. **(4 marks)**
- c) Discuss the two options for texture sampling in OpenGL. Contrast these options in terms of their rendering outputs and computation times. **(4 marks)**

Question 5

- a) Explain two examples of output devices in computer graphics. **(2 marks)**
- b) Define aliasing and describe a way to ease the aliasing problem in texture mapping. **(4 marks)**
- c) Explain when would it be suitable to use double buffering in graphic animation. **(4 marks)**

Question 6

- a) Define animation giving an examples of how it works it real life situation. **(4 marks)**
- b) State and explain 3 areas where graphics and animation is applicable. **(6 marks)**

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