

**PAN AFRICA CHRISTIAN UNIVERSITY
EXAMINATIONS PAPER**



PAN AFRICA CHRISTIAN UNIVERSITY

BACHELOR OF BUSINESS INFORMATION TECHNOLOGY

END OF SEMESTER EXAMINATION

DEPARTMENT: COMPUTING AND INFORMATION TECHNOLOGY

COURSE CODE: BIT/BICT 400

COURSE TITLE: COMPUTER GRAPHICS AND ANIMATIONS

EXAM DATE: APRIL, 2023

TIME:

INSTRUCTIONS

- This exam script has **TWO (2)** sections.
- Read all questions carefully before attempting.
- Answer All questions in Section **A** and any other Three questions in Section **B**.
- Write only your **student number** on the answer booklet provided.
- None programmable calculator permitted
- Calculators on phones, tablets and computers are NOT permitted in Theory Papers

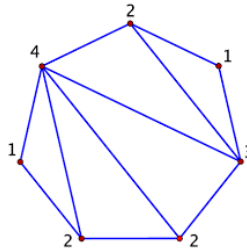
SECTION A

(Answer ALL questions in this section)

QUESTION ONE

a) Using suitable examples explain any **THREE** types of animation **[3 Marks]**

b) Use the following heptagon diagram to answer questions that follow:



Determine the following:

- i. Edge in a table [1 Mark]
- ii. Compute a vertex table [2 Marks]
- c) Outline any **TWO** 2D transformation in graphic [2 Marks]
- d) Explain the function of the following tools in Adobe Photoshop [2 Marks]
 - i. Lasso tool
 - ii) Clone stamp tool
- e) Differentiate between sculpting and modelling in graphic design [2 Marks]

SECTION B (Answer Any Three (3) Questions)

QUESTION TWO

- a) Given a triangle with coordinate points A(3, 4), B(6, 4), C(5, 6). Compute the reflection on the X axis and obtain the new coordinates of the object. [4 Marks]
- b) Describe **TWO** roles of perspective projection [4 Marks]

c) Differentiate between 3-D clipping and 2-D clipping

[2 Marks]

QUESTION THREE

a) Explain why the rendering equation is computationally expensive to solve complex scenes in graphics.

[3 marks]

b) Sometimes in mornings and evenings when the sun is low above the horizon and there is a thin layer of water on the road, the road surface reflects large quantities of light, introducing a strong source of glare that makes the road difficult to see.

i) Explain the reflection properties of the road surface that are responsible for this effect.

[2 Marks]

ii) Critique why can we not observe such reflection when the sun is high above the horizon

[2 marks]

c) Outline **THREE** disadvantages of Bresenham Circle Drawing Algorithm

[3 Marks]

QUESTION FOUR

a) Outline specifications of the RGB color model

[3 Marks]

b) With clear examples discuss any **TWO** important techniques in graphics

[4 Marks]

c) Explain any **THREE** types of layers in graphic design

[3 Marks]

QUESTION FIVE

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- a) Discuss **THREE** latest trends in graphic technology today. **[6 Marks]**
- b) With clear diagram explain **3D** object representation using polygonal meshes **[4 Marks]**

QUESTION SIX

- a) Explain any **TWO** circle drawing algorithms in graphic design **[2 Marks]**
- b) Outline **THREE** advantages of vector graphics **[3 Marks]**
- c) Discuss any **TWO** video display devices in graphics. Give the advantages and disadvantages of each of them **[4 Marks]**
- d) Highlight **TWO** factors to consider when choosing a graphic design software **[1 Mark]**