



NATIONAL OPEN UNIVERSITY OF NIGERIA
UNIVERSITY VILLAGE, 91 CADASTRAL ZONE, NNAMDI AZIKWE EXPRESSWAY, JABI, ABUJA
FACULTY OF SCIENCES
DEPARTMENT OF COMPUTER SCIENCE
2021_2 EXAMINATION

COURSE CODE: CIT 371

COURSE TITLE: COMPUTER GRAPHICS AND ANIMATION

CREDIT: 3 UNITS

TIME ALLOWED: 2¹/₂ HOURS

INSTRUCTION: ANSWER QUESTION ONE (1) AND ANY OTHER FOUR (4) QUESTIONS

QUESTIONS

Question One (22 marks)

- 1a) Write briefly on the different connotations of Computer Graphics. **(3mks)**
- 1b. Find the (i) sum and (ii) difference of two vectors a,b if $a = [u,v]^T$ and $b = [s,t]^T$. **(2mks)**
- 1c. Identify the three uses of transformation as it relates to rendering in Computer Graphics. **(3mks)**
- 1d. Briefly explain the interfacing between the Central Processing Unit (CPU) and the display. **(2mks)**
- 1e. Write the expression for the explicit, implicit and parametric forms of a line and a circle respectively. **(8mks)**
- 1f. State one difference between antialiasing and direct manipulation. **(2mks)**
- 1g. State the three types of culling. **(2mks)**

Question Two (12mks)

- 2a. Discuss the origin of Sketchpad. **(2mks)**
- 2b. Outline the various layers that make up the Liquid Crystal Display (LCD). **(5mks)**
- 2c. Compare the working principles of the Field Emission Devices (FEDs) and the Liquid Crystal Display (LCD). **(5mks)**

Question Three (12 marks)

- 3a. Briefly describe the application of Computer Graphics in Medical Imaging and Computer Aided Design (CAD). **(2mks)**
- 3b. Briefly distinguish between a quadtree and an octree. **(3mks)**



3c. Outline and describe briefly any two of the basic line drawing algorithms. **(7mks)**

Question Four (12mks)

4a. Briefly discuss what you understand by interactive Computer Graphics. **(4mks)**

4b. Enumerate the procedures for the construction of Binary Space Partition (BSP) tree. **(6mks)**

4c. what is Bounding Volume Hierarchies (BVH)? **(2mks)**

Question Five (12mks)

5a. What is rendering in Computer Graphics? **(2mks)**

5b. Discuss the uses of Bounding Volume Hierarchies (BVH). **(4mks)**

5c. Outline the three primary colors. **(3mks)**

5d. Briefly describe how the human eye sees the object in front of it. **(3mks)**

Question Six (12marks)

6a. In Computer Graphics rendering, outline the five coordinate systems used. **(5mks)**

6b. Describe electromagnetic spectrum in terms of its wave length. **(5mks)**

6c. In a tabular form, summarize the properties of the four primary types of painting ink. **(2mks)**