NATIONAL OPEN UNIVERSITY OF NIGERIA
UNIVERSITY VILLAGE, 91 CADASTRAL ZONE, NNAMDI AZIKWE EXPRESSWAY, JABI, ABUJA
FACULTY OF SCIENCES
DEPARTMENT OF COMPUTER SCIENCE
2021_1 EXAMINATION

COURSE CODE: CIT 371
COURSE TITLE: COMPUTER GRAPHICS AND ANIMATION
CREDIT: 3 UNITS
TIME ALLOWED: $2^{1}/_{2}$ HOURS
INSTRUCTION: ANSWER QUESTION ONE (1) AND ANY OTHER FOUR (4) QUESTIONS

QUESTIONS

Question One (22 marks)

1a) Give a detailed analysis of the raster image representation. **(4mks)**

1b. Summarize the meaning of Computer graphics. **(2mks)**

1c. briefly distinguish between modelling and animation. **(2mks)**

1d. Outline the three animation techniques and their areas of application. **(9mks)**

1e. Itemize the three common forms of culling. **(3mks)**

1f. Analyse the back-face culling. **(2mks)**

[Total = 22 marks]

Question Two (12marks)

2a. Itemize the four things we need to work with in Computer graphics. **(4mks)**

2b. Outline any four varieties of raster hardcopy devices. **(5mks)**

2c. In a cathode ray tube, state the two factors on which the Critical Fusion Frequency depend. **(2mks)**

2d. Briefly distinguish between quadtrees and octrees. **(1mk)**

Question Three (12marks)

3a. Briefly describe the BSP tree. **(4mks)**

3b. Itemize the two things needed to construct a BSP tree. **(4mks)**

3c. Given a color spectrum, how do you find the corresponding X, Y, Z quantities. **(4mks)**

Question Four(12marks)

4a. Briefly describe the spectroradiometer. **(3mks)**

4b. What are complimentary colors? **(1mk)**

4c. In a tabular form, Outline the eight colors and their associated axes in the RGB color cube. **(8mks)**

Question Five (12marks)

5a. Show that $w.w = lwl^2$ **(3mks)**

5b. Find the sum of the two vectors a + b if

$a = [u,v]^T$ and $b = [s,t]^T$. **(5mks)**

5c. When is a curve G^I continues? **(4mks)**

Question Six (12marks)

6a. Explain why light rays bend? **(2mks)**

6b. Write briefly the concept of texture within the context of geometric modelling. **(2mks)**

6c. In geometrical modelling, discuss in detail backward mapping. **(8mks)**