



**NATIONAL OPEN UNIVERSITY OF NIGERIA,
91 CADASTRAL ZONES, NNAMDI AZIKIWE EXPRESSWAY, JABI, ABUJA.**

**FACULTY OF SCIENCES
JULY 2017 EXAMINATION.**

**COURSE CODE: CIT 771
COURSE TITLE: INTRODUCTION TO COMPUTER GRAPHICS AND ANIMATION
CREDIT UNIT: 3
TIME ALLOWED: 3 HOURS
INSTRUCTION: ANSWER QUESTION ONE (22 MARKS) AND ANY FOUR (12 MARKS EACH) QUESTIONS.**

1.
 - a. What is a Bézier? (1 Mark)
 - b. In Vectors, highlight the Properties of Dot products and Cross Products (4 Marks)
 - c. Explain the following
 - d. State three Uses of bounding volumes (3 Marks)
 - e. State any five uses of NURBS curves and surfaces (5 Marks)
 - f. Illustrate using a well labelled diagram the thin lens model diagram. From the diagram write the equation for the thin lens model and explain the parameters where applicable. (6 Marks)
2.
 - a. Briefly discuss the terms graphics pipeline as it relates to 3D computer graphics (2 Marks)
 - b. Highlight and illustrate with diagrams (where applicable) the steps necessary to project a triangle from object space to the image plane (10 Marks)
3.
 - a. List six major elements in the Graphic system (3 Marks)
 - b. Discuss any three Related functions of BRFD (4 ½ Marks)
 - c. Discuss the three basic classes of transformations (4 ½ Marks)
4.
 - a. State three advantages and three disadvantages of Physically-based animation (6 Marks)
 - b. State and briefly discuss the types which Cognitive illusions are divided into. (6 Marks)
5.
 - a. What the steps in Calculating radiance at an intersection point using the photon map 9 (4 Marks)
 - b. Discuss the steps involved performing bump mapping using the method invented by Blinn which uses the height of the map for simulating the surface displacement (5 Marks)
 - c. Briefly Discuss the Two important properties of perspective projection (3 Marks)

6.

- a. Define: “key frame” and Keyframing (2 Marks)
- b. State two advantages and disadvantages of Keyframing (2 Marks)
- c. Given a point cloud, polygon, or sampled parametric curve, state any two purposes for which use transformations can be used. (2 marks)
- d. Briefly discuss the properties of Bézier curves (6 Marks)