National Open University of Nigeria
Plot 91, Cadastral Zone, Nnamdi Azikwe Express Way, Jabi – Abuja

Faculty of Sciences
October/November Examination 2016

Course Code: CIT 771
Course Title: Introduction to Computer Graphics and Animation
Credit Unit: 3
Time Allowed: 3 Hours

Instruction: Answer any Five (5) questions
Questions

1.
   (a.) Define Animation (**2 Marks**)
   (b.) Highlight two advantages and two disadvantages of Hierarchies (**4 Marks**)
   (c.) Using a well labelled block diagram discuss geometric pipeline (8 marks)
2.
   (a.) What is raster graphics (2 marks)
   (b.) Define the term "Light" and explain the following properties of light: reflection and refraction (8 Marks)
   (c.) Using diagrams only, illustrate Perspective Projection and orthographic projection (4 marks)
3.
   (a.) Explain what is meant by motion capture. (2 marks)
   (b.) Discuss the properties of Bézier curves (7 marks)
   (c.) Highlight five Advantages of Monte Carlo ray tracing (5 Marks)
4.
   (a.) What is Z-Buffering? (2 Marks)
   (b.) Discuss the Z-culling Process (5 Marks).
   (c.) What is Bump Mapping and how is it achieved? (5 Marks)
   (d.) What is full animation? (2 Marks)
5.
   (a.) Define a Graphic Processing Unit (GPU) (2 marks)
   (b.) Highlight 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.) Highlight the primary limitation of Bump mapping and how to overcome this limitation. (3 Marks)
6.
   (a.) Discuss the Cognitive process Hypothesis (4 Marks)
   (b.) What is a subdivision surface and how are they defined? (3 Marks)
   (c.) Highlight the process of "subdivision surface" (7 Marks)
7.
   (a.) Using a well labelled block diagram discuss geometric pipeline (8 marks)
   (b.) In order to calculate surface radiance at an intersection point, one of the cached photon maps is used. Highlight the steps involved (6 marks)