National Open Universityof Nigeria
Plot 91, Cadastral Zone, NnamdiAzikwe Express Way, Jabi – Abuja

Faculty of Sciences
October/November Examination 2016

Course Code:CIT 305
Course Title:Advance Computer Graphics and Animation
CreditUnit:3
Time Allowed: 3Hours

Instruction:Answer Any five (5)questions

Questions

1.
   (a.) What are transformations used for in computer graphics? (3 Marks)
   (b.) Given a point cloud, polygon, or sampled parametric curve, enumerate four purposes for which transformations can be used (6 marks)
   (c.) Defne:
      Affine Transformations (2 Marks)
      homogeneous coordinates (2 Marks)

2.
   (a.) When is the curve The curve is CN said to be continuous? (3 Marks).
   (b.) Briefly describe Non-parallel projection and highlight its properties. (6 Marks)
   (c.) Define the following:
      i. Cartesian coordinate system (2 Marks)
      ii. Cartesian coordinate frame (2 Marks)
      iii. Spectroradiometer (1 mark)

3.
   (a.) What is light? (2 Marks)
   (b.) What is a k-d-tree? (2 Marks)

(c.) Briefly describe the construction of a BSP tree highlighting the requirements and procedure (10 Marks).

4.

(a.)Enumerate the major factors which during illumination determine the colour of a particular point (6 marks)

(b.) Illustrate a graphic system using a detailed block diagram (8 marks)

5.

(a.) what is a vector? How are vectors represented? (2 Marks)

(b.) Briefly highlight the layers of a Liquid Crystal Display and how it works (12 Marks)

6.

(a.) Explain what is meant by motion capture. (2 marks)

(b.) How can a vector be normalized? (2 Marks)

(c.) Discuss Ray Tracing. (Highlighting its definition, process and reason it was developed) (10 Marks)

7.

(a.) Define the following:

i. Complementary colours
ii. Dominant wavelength
iii. non-spectral colours

(b.) State two advantages and two disadvantages of each of the following:

i. Explicit Representation $y = f(x)$ (4 Marks)
ii. Implicit Representation $f(x,y,z) = 0$ (4 Marks)