ELIZADE UNIVERSITY, ILARA-MOKIN, ONDO STATE

FACULTY OF ENGINEERING

DEPARTMENT OF INFORMATION AND COMMUNICATION TECHNOLOGY

SECOND SEMESTER EXAMINATION, 2018/2019 ACADEMIC SESSION

COURSE TITLE: COMPUTER GRAPHICS AND ANIMATIONS

COURSE CODE: ECT 524

EXAMINATION DATE: 17th JULY, 2019

COURSE LECTURER: MISS. T. T. ADEYEMO

HOD's SIGNATURE

TIME ALLOWED: 2 HOURS

INSTRUCTIONS:

1. ANSWER FOUR QUESTIONS ONLY
2. SEVERE PENALTIES APPLY FOR MISCONDUCT, CHEATING, POSSESSION OF UNAUTHORIZED MATERIALS DURING EXAM.
3. YOU ARE **NOT** ALLOWED TO BORROW ANY WRITING MATERIALS DURING THE EXAMINATION.

Question 1

a. Write short notes on the twelve (12) basic principles of 3D animation. (12 marks)

b. Using set theory, draw a constructive geometry tree of the solid object below.

(2 marks)

c. Clarify the difference between loops and faces (1 marks)

Question 2

a. Discuss the differences between animations and videos (2 marks)

b. Compare and contrast between the three (3) basic types of 3D computer geometric modeling methods with illustrations where necessary. (6 marks)

c. Spaces are like coordinate system by which points are plotted on. Indicate the differences between world space and object space. (4 marks)

d. Mention at least six (6) properties of solid models (3 marks)

Question 3

a. What do you understand by computer graphics? (1 mark)

b. Explain the following basic 3D transforms and state at least one of its commands:

i. Translation;
ii. Rotation; and
iii. Scaling. (6 marks)

c. Mention Ten (10) notable programs for 2D and 3D animations respectively. (5 marks)

d. List the attributes that makes a good surface representation (3 marks)

Question 4

a. Discuss briefly the six (6) basic animation techniques (6 marks)

b. Write short notes on the followings:

i. Vertex
ii. Edge; and
iii. Polygon mesh; (3 marks)

c. Write the important applications of computer graphic? (3 marks)

d. List six (6) Solid Modelling Approaches (3 marks)

Question 5

a. Explain the following types of modelling:

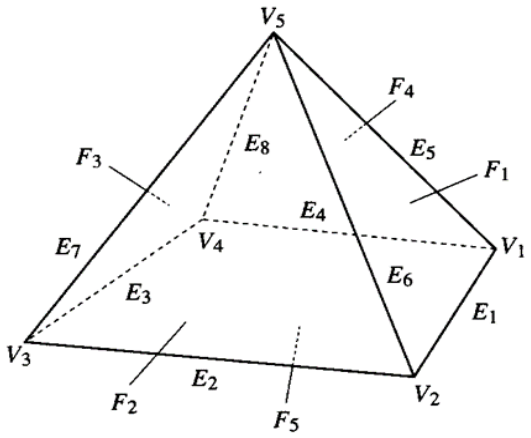
i. Polygon modelling; and
ii. Box modelling. (4 marks)

b. Explicate the differences between 2D and 3D animations. (3 marks)

c. Polygon meshes may be represented in a variety of ways, using different methods to store the vertex, edge and face data. Write short notes on the following polygon mesh representations:

i. Face-vertex meshes;
ii. Winged-edge meshes;
iii. Half-edge meshes and
iv. Quad-edge meshes. (2marks)

d. The wireframe model below shows all its vertices, face and edges and their numbers, respectively. Draw a vertex, face and edge table for this model. (6 marks)



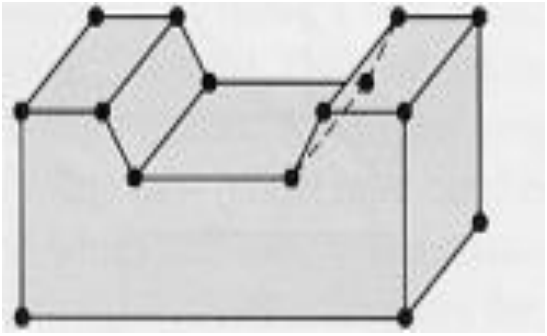
Question 6

a. Write short notes on the followings:
i. Planar surface;
ii. Ruled surface;
iii. B-Spline surface;
iv. Bezier Surface; and
v. Coon Surface. (5 marks)

b. Explain the concept of Right-Hand Construction System (RHS) and Left-Hand construction system (LHS). (4 marks)

c. List the advantages and disadvantages of boundary representation in solid modelling. (3 marks)

d. Based on Euler's formula find the followings for the figure below:
i. Number of vertices;
ii. Number of faces; and
iii. Number of edges.



(3 marks)