JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND TECHNOLOGY

SCHOOL OF INFORMATICS AND INNOVATIVE SYSTEMS

UNIVERSITY UNDERGRADUATE EXAMINATIONS

4TH YEAR 1ST SEMESTER 2016/2017 ACADEMIC YEAR

MAIN CAMPUS

COURSE CODE: IIT 3416

COURSE TITLE: COMPUTER GRAPHICS

EXAM VENUE: **STREAM: FORENSCIS**

DATE: **EXAM SESSION:**

TIME: 2.00 HOURS

INSTRUCTIONS:

1. **Answer Question 1 (Compulsory) and ANY other two questions**
2. **Candidates are advised not to write on the question paper**
3. **Candidates must hand in their answer booklets to the invigilator while in the examination room**

QUESTION ONE: (30 MARKS)

a) Discuss Six (6) major industrial consumers (application areas) of Computer Graphics.

(12 Marks)

b) Discuss the following terms as used in Computer Graphics. (6 marks)
    a. Modelling
    b. Rendering
    c. Animation

c) Using an image, describe the workings of a graphics system (7 marks)

d) Outline five possibilities of 2D primitives? (5 marks)

QUESTION TWO: (20 MARKS)

a) Using diagrams, explain the following types of 2D linear transformations.
    i. Scaling
    ii. Shearing
    iii. Rotation
    iv. Reflection

(8 Marks)

b) Differentiate between the following device input modes
    i. Request mode
    ii. Sample mode
    iii. Event mode

(12 marks)

QUESTION THREE: (20 MARKS)

You have been appointed to head a team in developing a 3D computer game.

a) Outline your team composition in relation to the skill-set needed. (6 Marks)

b) Outline the steps involved in a 3D game development. (14 marks)

QUESTION FOUR: (20 MARKS)

a) Explain the following concepts.
    i. Radiosity
    ii. Ray Tracing (10 Marks)

b) The architecture of a raster-graphics system is partly made up of the components listed below. Briefly explain the function of the following components and terms as used in image formation and display in the display device.
    i. Display processor
    ii. Frame Buffer
    iii. Scan Conversion
    iv. Video Controller
    v. Display Processor Memory (10 Marks)

QUESTION FIVE :(20 MARKS)

a) Discuss briefly the implementation of the following display technologies in computer graphics

i.	CRT	(5 Marks)
ii.	LCD	(5 Marks)
iii.	Plasma	(5 Marks)
iv.	DMDs	(5 Marks)
v.	FEDs	(5 Marks)