THE UNIVERSITY OF WESTERN AUSTRALIA

Department of Computer Science and Software Engineering

MID-SEMESTER TEST, 2019

CITS3003
Graphics and Animation

FAMILY NAME:_____ GIVEN NAMES: _____

STUDENT ID: | | | | | | | | | SIGNATURE:_____

This Paper Contains: **5** pages **(including title page)**
Time allowed: **40 Minutes**

INSTRUCTIONS:

Write your names and student numbers on this page.

There are 3 questions in total. Question 1 and 3 have subparts. Each question, including any subparts, carries 10 marks. Answer all questions. Write your answers on this sheet in the space provided after each question.

Calculators, notes and books are not allowed.

Total marks are 30.

PLEASE NOTE

Examination candidates may only bring authorised materials into the examination room. If a supervisor finds, during the examination, that you have unauthorised material, in whatever form, in the vicinity of your desk or on your person, whether in the examination room or the toilets or en route to/from the toilets, the matter will be reported to the head of school and disciplinary action will normally be taken against you. This action may result in your being deprived of any credit for this examination or even, in some cases, for the whole unit. This will apply regardless of whether the material has been used at the time it is found.

Therefore, any candidate who has brought any unauthorised material whatsoever into the examination room should declare it to the supervisor immediately. Candidates who are uncertain whether any material is authorised should ask the supervisor for clarification.

Supervisors Only – Student left at:

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Question 1-(a) [2 marks]
Why is ray tracing not a preferred way of rendering in graphics even though it can produce global lighting effects?

Question 1-(b) [2 marks]
Name four primitives and four attributes in OpenGL.

Question 1-(c) [6 marks]
Write the names of the three main elements of image formation [3 marks] and explain briefly [3 marks] why it is beneficial for these elements to be independent of each other.

Question 2. [10 marks]
Draw a diagram [2 marks] showing the four main blocks of the OpenGL pipeline architecture. Briefly explain the functionality of each block [2 marks each].

Question 3-(a) [4 marks]
Describe one advantage [2 marks] and one disadvantage [2 marks] of the OpenGL pipeline architecture. Be specific rather than simply mentioning the speed aspect of the pipeline architecture.

Question 3-(b) [4 marks]
What are the applications of vertex shader i.e. what operations can be performed at the vertex shader. Write any two.

Question 3-(c) [2 marks]
Consider a point and a vector, both represented in homogeneous coordinates. What happens when a vector is added to a point?

---------- END OF PAPER ----------