



OFFICE OF TASMANIAN
ASSESSMENT, STANDARDS
& CERTIFICATION

Tasmanian Certificate of Education
External Assessment 2016

PLACE YOUR CANDIDATE
LABEL HERE

COMPUTER GRAPHICS and DESIGN (CGD315113)

Time allowed for this paper

- Working time: 2 hours
- Plus 15 minutes recommended reading time

Pages:	24
Questions:	24

Candidate Instructions

1. You **MUST** make sure that your responses to the questions in this examination paper will show your achievement in the criteria being assessed.
2. There are **FOUR** sections to this paper.
3. You must answer:
 - **FOUR** questions from **Section A**
 - **FOUR** questions from **Section B**
 - **ONE** question from **Section C**
 - **ONE** question from **Section D**

Sections C and D have a double weighting compared to **Sections A and B**.
4. All answers must be written in the spaces provided on the examination paper.
5. The recommended time to be spent on a section is given in the instructions in that section.
6. Care should be taken with the presentation of answers. The answers should be comprehensive and to the point. Diagrams are encouraged but **NOT** to the exclusion of all written text.
7. All written responses must be in English.

On the basis of your performance in this examination, the examiners will provide results on each of the following criteria taken from the course statement:

Criterion 2 Solve problems in a design based context.

Criterion 7 Demonstrate knowledge and understanding of contemporary computer graphics systems.

BLANK PAGE

SECTION A

Answer **FOUR** questions from this section.

All questions are of equal value.

It is recommended that you spend approximately **20 minutes** on this section.

This section assesses **Criterion 2**.

Question 1

An animator rendering a 60 second 3D animation is finding that due to the complexity of the scene it is taking a very long time. How can the animator save time with the rendering process?

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

**For
Marker
Use
Only**

Section A (continued)

**For
Marker
Use
Only**

Question 2

Your client is having difficulty visualising your design ideas. Outline some strategies that you could use to solve this problem.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

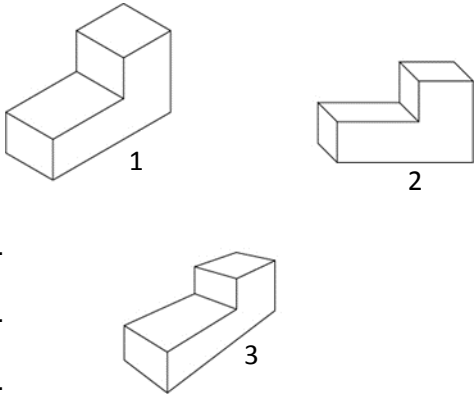
.....

.....

.....

Question 3

Three different representations of the same 3D object are shown.



Name each of the representations.

- 1.
- 2.
- 3.

Which representation, and why, do you think is the most useful to the computer graphics designer?

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Section A continues.

Section A (continued)

**For
Marker
Use
Only**

Question 4

A large company has discovered that a small local company is using a business logo that is very similar to its own. What area of intellectual property protection can be applied and how would it be useful in a case such as this?

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Question 5

A designer wishes to send files electronically to a client for proofing (checking for errors). The designer is worried that the files could be intercepted by competitors. How can the designer protect the work during transmission?

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Section A continues.

Section A (continued)

**For
Marker
Use
Only**

Question 6

A designer has been employed to design a poster for an up-coming event. An important part of the design brief is that attention should be drawn to the location of the event. Using the principles of design, how can the designer achieve this?

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Question 7

Image 1 shows a 3D representation of a block that is being modelled in a 3D modelling program.
Image 2 shows an initial test render of the block.

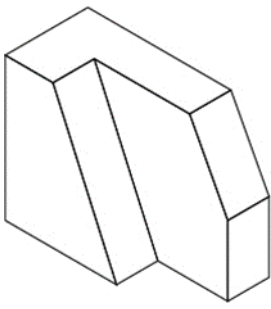


Image 1

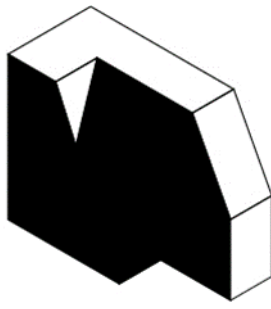


Image 2

What would be the best way to modify the lighting so that more detail can be seen in a high quality final render?

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Section A continues.

Section A (continued)

**For
Marker
Use
Only**

Question 8

You have completed a fully rendered 3D model of a house. You now need to produce a presentation to show the design features of the house. Identify and explain one way that you could go about creating the presentation.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

SECTION B

Answer **FOUR** questions from this section.

All questions are of equal value.

It is recommended that you spend approximately **20 minutes** on this section.

This section assesses **Criterion 7**.

Question 9

Computer graphics designers rely heavily on input devices to complete their work. Name **two** contemporary input devices and describe why they are important to the computer graphics designer.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

**For
Marker
Use
Only**

Section B continues.

Section B (continued)

**For
Marker
Use
Only**

Question 10

When an image is saved it is usually saved in a compressed file format. What is file compression? Explain the advantages and disadvantages.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Question 11

You have produced a detailed 3D model. To get the best final print render you have decided to use antialiasing. What are the advantages and disadvantages of antialiasing?

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Section B continues.

Section B (continued)

**For
Marker
Use
Only**

Question 12

After a USB flash drive was removed a message appeared indicating that files may have been corrupted.

What is file corruption? Explain how the device should have been removed to prevent this happening.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Question 13

Computer graphics files can be produced using raster or vector graphics software. Explain what raster and vector graphics are and describe the advantages and disadvantages of each.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Section B continues.

Section B (continued)

**For
Marker
Use
Only**

Question 14

Animators can animate using either frame by frame or tweening. Briefly describe these **two** techniques, including how and when they are used.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Question 15

Many schools and home computer users are using simple melted filament 3D printers to form a solid model or prototype. Briefly explain how this type of 3D printer creates the solid model.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

Section B continues.

Section B (continued)

**For
Marker
Use
Only**

Question 16

Three terms used in relation to lighting and reflection in 3D modelling are; ambient, diffuse and specular. Describe and compare **two** of these in relation to 3D modelling.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

SECTION C

Answer **ONE** question from this section.

Your answer **MUST** consist of **written notes accompanied by sketches with annotations** explaining important features of the design.

Clearly indicate on page 15 which question you are answering.

It is recommended that you spend approximately **40 minutes** on this section.

This section assesses **Criterion 2**.

Question 17

The company that produces your favourite computer graphics software has decided to release a book to help users improve their use of the software. You have been asked to submit **two** different design ideas for the cover of the new book.

- (a) Describe in detail the design considerations you would take into account in developing your design for the book cover.
- (b) Provide sketches, with relevant annotations, of **two** book cover designs.
- (c) Discuss the design principles that you have used in developing each of the cover ideas.

Question 18

A large city has won the right to host a major sporting event. You have decided to submit designs for the event's toy character to the organising committee. A representation of the character needs to be useable as a 2D logo. The character will be made into a toy souvenir for promotional sales.

- (a) Name your chosen sport and provide notes showing the sorts of decisions that you would need to make before designing the toy character (design considerations).
- (b) Sketch at least **two** preliminary designs with annotations showing clearly how your toy character will be presented.
- (c) Discuss the design process that you will use in developing the 3D toy from the 2D logo.

For
Marker
Use
Only

Section C continues.

Question C (continued)

Question 19

Your country has had an ongoing debate about changing its national flag. You have decided to submit **two** new designs for a new flag for consideration by the government.

- (a) Name your country and describe in detail the design considerations you would take into account in developing a new flag.
- (b) Provide sketches of **two** flags with relevant annotations justifying your design choices.
- (c) Discuss the design elements of each of your **two** flag designs.

Question 20

Infographics are used to visually present data.

The egg production authority has asked you to produce an infographic for them that represents annual egg sales so that the data is more accessible to a larger audience. They have given you the following data.

Egg Sales		
	Price per dozen (12 eggs)	Percentage of egg sales
Cage eggs	\$3.30	51%
Free Range eggs	\$5.50	39%
Barn-Laid eggs	\$4.80	9%
Specialty eggs	\$9.20	1%

Note: Specialty eggs include Quail, Duck and Goose eggs

- (a) Describe in detail the design considerations you would take into account in developing an infographic.
- (b) Provide a detailed sketch, with relevant annotations, of the infographic that you would propose to the client.
- (c) Discuss the design principles and elements of the infographic.

Sketch Page for Question No:.....

Sketch Page for Question No:.....

SECTION D

Answer **ONE** question from this section.

Your answer should consist of a written response in an **essay** format.

Clearly indicate which question you are answering.

It is recommended that you spend approximately **40 minutes** on this section.

This section assesses **Criterion 7**.

Question 21

CAD and CAM now play an integral role in the mass production of products. Outline and explain what CAD and CAM are and how these are linked in the production process. Support your discussion with examples.

Question 22

Online shopping has become very popular. A large department store has decided to enhance its online store by introducing a virtual reality experience. Explain virtual reality, how it works and the advantages it could bring to the online shopping environment.

Question 23

A large computer gaming company is considering expansion into the animated movie industry. Describe the differences between creating 3D content for games and for animated movies. Support your discussion with appropriate examples of 3D games and movies.

Question 24

You have discovered an extensive collection of old family photographs from the 1960s and 1970s. You have decided to convert these photographs to digital form to preserve them and also allow for digital enhancement. Outline the hardware and software that would be necessary for a process such as this. Discuss how this process might be undertaken giving consideration to how the family will most efficiently be able to use the collection.

For
Marker
Use
Only

Section D continues.

BLANK PAGE

BLANK PAGE



OFFICE OF TASMANIAN
ASSESSMENT, STANDARDS
& CERTIFICATION

This question paper and any materials associated with this examination (including answer booklets, cover sheets, rough note paper, or information sheets) remain the property of the Office of Tasmanian Assessment, Standards and Certification.