



PLACE YOUR CANDIDATE  
LABEL HERE

# COMPUTER GRAPHICS and DESIGN

(CGD315118)

Time allowed: 2 hours

Pages:	24
Questions:	26

## 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**
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 document:

**Criterion 6** Analyse the impact of design in society.

**Criterion 7** Describe and apply key features, applications and influences on contemporary computer graphics systems.

**BLANK PAGE**

**SECTION A**

Answer **FOUR** questions from this section.

All questions in this section are of equal value.

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

This section assesses **Criterion 7**.

**Question 1**

A 3D animator wants to animate a ball bouncing along a path, shown in **Figure 1** as a broken line.

Describe some of the key timeline features you would see in the animation sequence.



**Figure 1**

**For  
Marker  
Use  
Only**

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

**Section A continues**

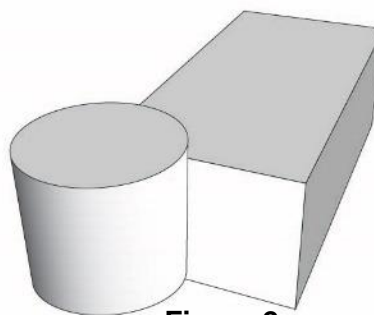
**Section A (continued)**

**Question 2**

**Figure 2** shows two overlapping solids: a cylinder and a rectangular prism that share part of each other's volume.

List and describe three Boolean operations that could be used to work with these shapes.

Sketch one of the resulting shapes.



**Figure 2**

**For  
Marker  
Use  
Only**

.....

.....

.....

.....

.....

.....

**Section A (continued)**

**For  
Marker  
Use  
Only**

**Question 3**

Plotters are now rarely used in printing Computer Graphics work. List several devices that have taken their place and where each might be used.

.....

.....

.....

.....

.....

.....

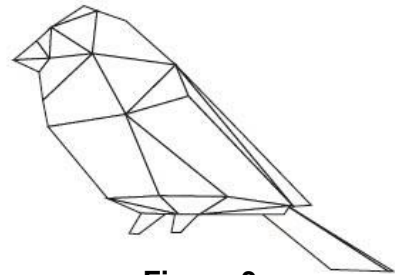
.....

.....

.....

**Question 4**

Describe the 3D model that is shown in **Figure 3**. Suggest some simple techniques to improve it.



**Figure 3**

.....

.....

.....

.....

.....

.....

.....

**Section A continues**

**Section A (continued)**

**For  
Marker  
Use  
Only**

**Question 5**

You produce a detailed 3D model of housing units for your client. Several renderings are forwarded electronically to the client. When the client zooms in for a closer view, the images lack detail.

Describe two possible reasons for this, and how the renderings could be improved to satisfy the client's requirements.

.....

.....

.....

.....

.....

.....

.....

.....

**Question 6**

What are vector graphics? What are the components of a vector graphic model in a 3D environment?

.....

.....

.....

.....

.....

.....

.....

.....

.....

**Section A continues**

**Section A (continued)**

**For  
Marker  
Use  
Only**

**Question 7**

Describe the difference between a CPU and a GPU.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

**Question 8**

What is CNC machining? Describe the process required to produce a physical 3D model.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

**SECTION B**

Answer **FOUR** questions from this section.

All questions in this section are of equal value.

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

This section assesses **Criterion 6**.

**Question 9**

Design is ever growing and ever evolving. Comment on this statement.

**For  
Marker  
Use  
Only**

.....

.....

.....

.....

.....

.....

.....

**Question 10**

**Figure 4** shows the traditional access sign. **Figure 5** shows a stylised access sign intended to convey mobility.

How does the design in **Figure 5** reflect a change in society's thinking about design?



**Figure 4**



**Figure 5**

.....

.....

.....

.....

.....

.....

.....

**Section B continues**



**Section B (continued)**

**For  
Marker  
Use  
Only**

**Question 11**

The balance between form and function is important to consider. Discuss, with an example, ways that a designer must take this into account.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

**Question 12**

Often environmental debate is around our current use of plastics. How can designers take society's concerns into account when designing new products?

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

**Section B continues**

**Section B (continued)**

**For  
Marker  
Use  
Only**

**Question 13**

Vintage design has become a common component of many contemporary designs. Discuss this statement using examples.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

**Question 14**

Describe the advantages and disadvantages of producing a realistic 3D model for an architectural design.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

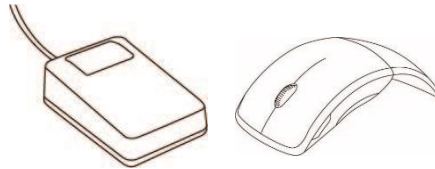
**Section B continues**

**Section B (continued)**

**For  
Marker  
Use  
Only**

**Question 15**

**Figure 6** shows an early model computer mouse. **Figure 7** shows a much more contemporary design.



**Figure 6**

**Figure 7**

Comment on the need for change in product design over time using the illustrations as examples.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

**Question 16**

List and describe some of the external factors that may influence the design of a new product.

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

## SECTION C

Answer **ONE** question from this section.

All questions in this Section are of equal value.

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

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

This section assesses **Criterion 6**.

Section C carries double the weight of Section B.

---

### Question 17

Designers have been developing exoskeleton devices to help people with physical challenges. Your design team has decided to develop ideas in this area.

- (a) Outline the design factors you would incorporate into your design brief. Use sketches and notes to support your response.
- (b) Discuss how your design meets society's expectations of designers in relation to supporting people with varying abilities.
- (c) What audience could you use to test the prototype? Analyse the appropriateness of the chosen audience to the design brief.

**OR**

### Question 18

Large bushfires are a common occurrence in Australia. These threaten homes, schools, and businesses. Governments have called for designs of unmanned aerial firefighting systems to help battle the fires.

- (a) List and describe the social considerations you would take into account when developing a solution for this challenge.
- (b) Present a 3D sketch showing the design development for such a system.
- (c) Analyse the external design factors that have influenced your ideas.

**For  
Marker  
Use  
Only**

**Section C continues**

**Section C (continued)**

**OR**

**Question 19**

With plastics causing significant environmental challenges, you have been asked to develop new, easily recyclable or reusable food packaging solutions, including food wrappers and containers.

- (a) List and describe the design considerations you would take into account when developing your ideas.
- (b) Present sketches to show the development of two alternative ideas.
- (c) Analyse how social and ethical factors have influenced the designs.

**OR**

**Question 20**

Providing affordable living spaces is a current societal problem. Local governments have called for designs of compact affordable living facilities.

- (a) List and describe the social considerations you would take into account when developing a solution for this challenge.
- (b) Present a 3D sketch showing the design development for such a system.
- (c) Analyse the design factors that have influenced your ideas.

**For  
Marker  
Use  
Only**

**Section C continues**

**Section C (continued)**

**Complete sketches for Questions 17, 18, 19 or 20 on this page**

**Question No:.....**

**For  
Marker  
Use  
Only**

**Section C continues**

**Section C (continued)**

**Notes for Question .....**

**For  
Marker  
Use  
Only**

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

**Section C continues**





**BLANK PAGE  
THE EXAM CONTINUES OVER  
THE PAGE**

## SECTION D

Answer **ONE** question from this section.

All questions in this Section are of equal value.

Your answer should consist of an extended response. Clearly indicate which question you are answering.

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

This section assesses **Criterion 7**.

Section D carries double the weight of Section A.

### Question 21

3D Printing is changing the world, particularly in the area of manufacturing. Explain the process for 3D printing from model development to the production of the final physical product. Describe in your answer whether you agree with the opening statement.

**OR**

### Question 22

A car company wishes to produce a television advertisement for its new model car. Using a range of examples, explain what motion graphics is and how these effects might be used in the television commercial.

**OR**

### Question 23

A modern computer game could be thought of as an example of interactive design. Explain what interactive design is. Use examples from popular games to demonstrate your understanding.

**OR**

### Question 24

Your studio has completed the model of a human for an animated sequence. Describe in detail, with reference to your preferred software, how you would go about animating the model to the final render stage.

**OR**

**For  
Marker  
Use  
Only**

**Section D continues**

**Question D (continued)**

**For  
Marker  
Use  
Only**

**Question 25**

Today, an array of different modelling methods is used depending on the developers' needs. Examples could include; edge modelling, box or subdivision modelling, 3D scanning and more. List and describe a range of modelling techniques, including when and why they might be used.

**OR**

**Question 26**

Game designers use a range of high and low resolution assets when developing games. Explain the various types of assets and why they are important in gaming technology.

**Section D continues**

**Question D (continued)**

**For  
Marker  
Use  
Only**

**Question No:**.....

.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....  
.....





**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.*