



PLACE LABEL HERE

**Tasmanian Certificate of Education**

**COMPUTER GRAPHICS AND  
DESIGN**

**Senior Secondary**

*Subject Code: CGD315108*

**External Assessment**

**2009**

**Time: Two Hours**

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

**Criterion 2** Solve problems.

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

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Questions: 24  
Pages: 24

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## CANDIDATE INSTRUCTIONS

You **MUST** ensure that you have addressed **ALL** of the externally assessed criteria on this examination paper.

You must attempt:

**Section A:**       **FOUR** questions

**Section B:**       **FOUR** questions

**Section C:**       **ONE** question

**Section D:**       **ONE** question

**Sections C and D** have a double weighting compared to **Sections A and B**.

All answers must be written in the spaces provided on the examination paper.

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 text.

It is recommended that you spend approximately:

20 minutes on Section A

20 minutes on Section B

40 minutes on Section C

40 minutes on Section D

All written responses must be in English.

**SECTION A**

**For  
Marker  
Use  
Only**

This section assesses **Criterion 2**.

Answer **FOUR** questions from this section.

All questions are of equal value.

**Question 1**



Describe the process required to construct a one-piece 3D solid model of this metal dolly using a computer graphics application.

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**Question 4**

If a design process is followed a design normally evolves. Typically what are the components of this process that allow a design project to evolve?

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**Question 5**

As a new self-employed designer you have recently been working on an idea for a new invention in the outdoor equipment area. You have even come up with a 'catchy' name for the item and done some initial design work on a logo for the product. Potentially you foresee this invention as being large on a world-wide scale. How could you ensure that your design and name are original? What steps should you take to protect your design ideas?

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**Question 8**

When creating realistic outdoor scenes involving animation it can be difficult to represent the sky to allow for camera movement within the scene. What are some of the problems? Suggest a method of sky representation that could work reasonably well.

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**SECTION B**

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This section assesses **Criterion 7**

Answer **FOUR** questions from this section.

All questions are of equal value.

**Question 9**

Some computer graphic applications are capable of calculating physical reactions between animated solid objects. What benefit does this ability have over more conventional software? Give an example of a solid object physical reaction to illustrate the use of this technology.

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**Question 10**

A simple box can form the basis of a complex organic model. Describe the procedures required to transform a box to a human cartoon character. Use sketches to aid your explanation:

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**Question 11**

Describe some commonly used video file formats and specify where they are used. Discuss any advantages and disadvantages of each.

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**Question 12**

Current computer hardware on a designer’s desk is characteristically quite different from the hardware of ten years ago. What major advances in hardware technology have assisted computer graphic designers?

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**Question 13**

Technological advances will mean that within a relatively short time ‘3D desktop printers’ will become affordable. Describe what 3D printers are, explain how they operate and list some examples of uses of this technology for designers.

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**Question 14**

Lip syncing can range from a relatively simple technique in 2D animation to quite complex in 3D animation. Describe the processes and techniques required to produce lip synced animation.

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**Question 15**

A designer has printed their work to an ink-jet printer but is disappointed because the orange colours appear brown and muddy. What could be the source of the problem and how can it be resolved?

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**Question 16**

A photographer using a digital camera shoots a wedding most weekends, typically resulting in 12 gb of files. How would you recommend that the photographer store the files so that they do not get lost or corrupted?

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## SECTION C

This section assesses **Criterion 2**.

Answer **ONE** question from this section.

Your answer should consist of a series of **annotated sketches** followed by **written notes** explaining important features of the design.

Clearly indicate which question you are answering.

### Question 17

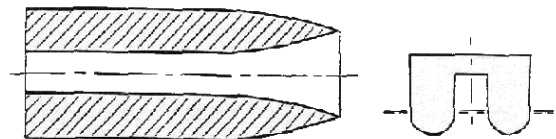
There has been a greater awareness recently of a possible threat to the coastline of south-eastern Tasmania from a **tsunami** emanating from a fault line on the bed of the Southern Ocean. The Tasmanian Government has commissioned your computer graphics animation company to produce a 30-second awareness advertisement.



- (a) Produce a 12-frame annotated storyboard for the advertisement.
- (b) Give a detailed explanation of how your company would go about producing the main sections of the animation and the methods required to edit the project to completion.

### Question 18

Your company has won the contract to design a new generation hybrid powered catamaran utilising high efficiency solar panels. A problem encountered early in the design process was a lack of physical space for the area of solar panels required. Your team has the task of designing the upper deck and an integrated method of mounting the solar cell panels.



- (a) Produce some concept ideas sketches and a final design for the deck and panel configuration.
- (b) Discuss the design and practical considerations required in undertaking a project of this type.
- (c) What methods could be employed to test the feasibility of the design?

**Question 19**

This coastal shack built in the 1950s has recently been sold to wealthy buyers who plan to update and expand it to be a contemporary beach house. They plan to keep the majority of the original structure. Expansion to both sides and rear is restricted to 2.5 metres due to the block size. Forward and upward expansion is possible but a second storey can only be accommodated directly above the original building.

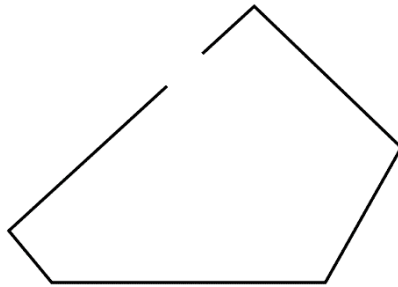


You have been chosen as the designer and your task is to:

- (a) Design, through annotated sketches, an aesthetically pleasing and modern house that incorporates an outdoor living area.
- (b) Discuss the reasoning behind your design, the features you have used and the construction materials you would recommend to the owner.

**Question 20**

A kitchen manufacturing company has employed you as their chief designer. They require you to produce a design for a combined kitchen/dining area for this irregular shaped room.



- (a) Sketch two alternative floor plans that would appeal to people who enjoy the benefits of modern living. Annotate your sketches with your ideas.
- (b) Draw a 3D pictorial sketch of your preferred design.
- (c) Describe the considerations required for this project and the features of your designs. Outline the challenges of using non-conventional shapes for designers and builders in the construction industry.

**Sketch Sheet for Question No: .....**

**Sketch Sheet for Question No: .....**



<b>SECTION D</b>
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This section assesses **Criterion 7**.

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.

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**Question 21**

Car designers use a range of computer graphic based systems in the design, testing and manufacturing processes of a new vehicle design. Describe these systems and state how they contribute to improving the safety and efficiency standards of modern vehicles.

**Question 22**

With the advent of fast broadband, a newly formed Sydney-based design company plans for its eighteen widely dispersed employees to work purely from home. Discuss the feasibility of this scenario; the positives, negatives, implications, equipment required and the likely success of the company.

**Question 23**

‘Claymation’ has had considerable success in animation and movies. Why would a producer use claymation instead of computer generated imagery (CGI)? Discuss the benefits and limitations of each method.

**Question 24**

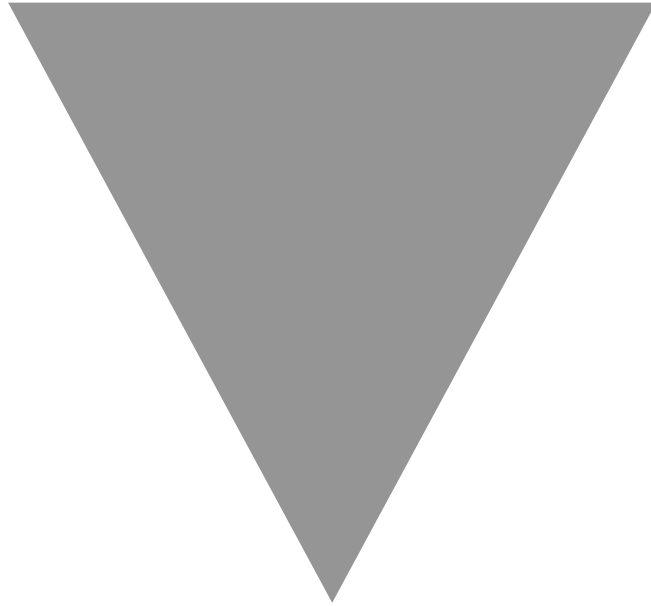
Virtual reality is widely used in many industries around the world. Discuss where it is used successfully and make comment on your predicted take-up of this technology into the future.







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