



OFFICE OF TASMANIAN  
ASSESSMENT, STANDARDS  
& CERTIFICATION

Tasmanian Certificate of Education  
External Assessment 2017

PLACE YOUR CANDIDATE  
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# 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.

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**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**.

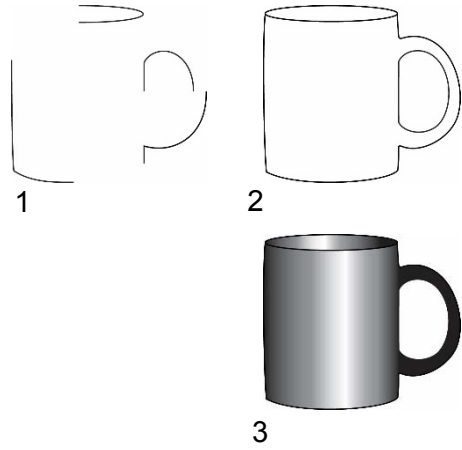
**Question 1**

This graphic shows three different representations of the same 3D object, each using a different element of design.

**Note:** Representation 1 is deliberately incomplete.

Name each element of design represented:

- 1. ....
- 2. ....
- 3. ....



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Choose **one** of the above representations and explain why it is useful to the computer graphics designer.

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**Section A continues**

**Section A (continued)**

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**Question 2**

You have shared some of your photographs using social media. While doing some online shopping you notice that t-shirts are being sold with your images printed on the front. What area of intellectual property protection applies in a case such as this and how is it useful?

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**Question 3**

You are completing a 3D model with a high polygon count. Test renders become time consuming. What steps could you take to improve rendering times?

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**Section A continues**

**Section A (continued)**

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**Question 4**

Two common graphic drawing representations are orthographic and isometric. Describe each and how they can be utilised by the 3D designer.

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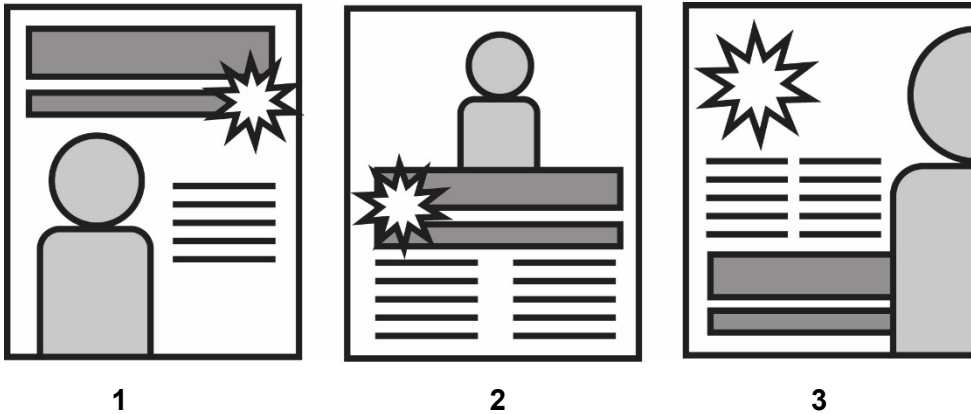
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**Question 5**

Shown below are three poster designs, each with the same features. Comment on how the principles of design have been applied differently in each design.



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**Section A continues**

**Section A (continued)**

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**Question 6**

Whether the goal is to design a space suit or a dining chair, designers follow a process to guide them. Outline the design process that you would recommend a designer use.

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**Question 7**

You have been asked to design a new company logo. The design must be scalable so that it can be used on the side of vehicles as well as on company letterheads. What type of software would you use to undertake this task and why?

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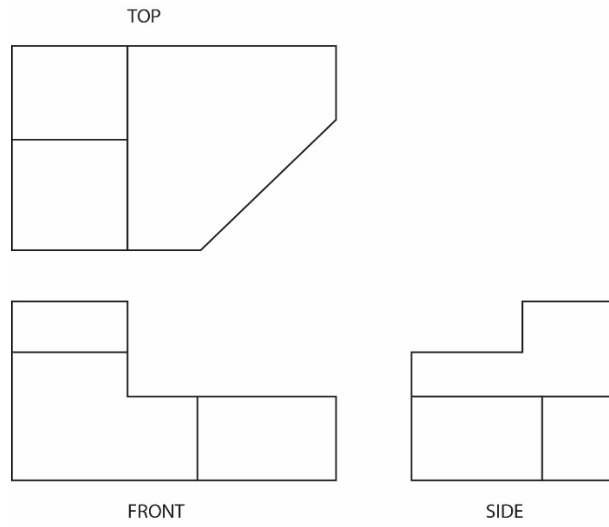
**Section A continues**

**Section A (continued)**

**Question 8**

Sketch an isometric view of the block shown in the orthographic drawing.

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Isometric sketch

**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**

A pixel on a computer monitor display uses the colours of red, green and blue. How do these colours combine to create all the colours that can be displayed on a monitor?

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**Question 10**

Data backup is vital to business. List several backup storage methods, choose **one** and explain why a design business would use that method.

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**Section B continues**



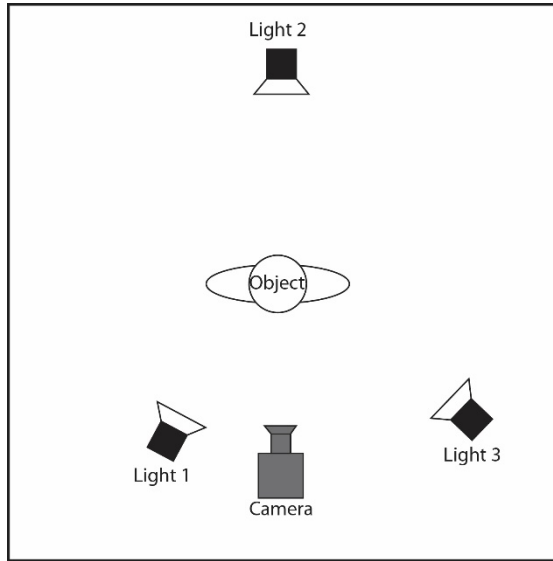
**Section B (continued)**

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**Question 11**

Describe the simple 3D lighting setup shown. Using your preferred 3D software, how might it be improved?

**3D Lighting Setup (overhead view)**



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**Question 12**

Briefly describe what layers are in computer graphics software and how they can be used.

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**Section B continues**

**Section B (continued)**

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**Question 13**

A home computer user recently bought a low priced multi-function printer that can print, scan and copy. Resolution specifications quoted are, copying 600 x 300, printing 4800 x 1200 and scanning 1200 x 1200. What do these numbers mean and explain why they are important?

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**Question 14**

A designer is setting up a new studio. List the **three** most important output devices that you would recommend for the studio. Explain why they are important and how they would be used.

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**Section B continues**

**Section B (continued)**

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**Question 15**

A digital artist asks you whether they need a graphics tablet. What would be your reply?

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**Question 16**

One of the key elements of design is texture. Briefly discuss how realistic texture can be achieved in your preferred computer graphics software, **either** 2D or 3D.

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## 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.

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

This section assesses **Criterion 2**.

### Question 17

The animation company that you work for has been asked to complete a 2D animation of the story shown below.

Story:

A kindly old lady came across a little boy sitting on the pavement crying.

'What's the matter?' she asked.

'It's my birthday!' he cried.

'And I had a bicycle and new clothes and this afternoon at my house there's to be a party with party food and a birthday cake. Then we'll play party games.'

He had to stop talking because he was crying so hard.

'But that's lovely,' said the old lady. 'Why are you crying?'

'Because I can't find my way home!'

- (a) Sketch a storyboard sequence (with the relevant number of cells) that provides a detailed overview for the animation team. Your annotations should include text and appropriate sound effect ideas.
- (b) Describe, in detail, the steps that you would take in completing the animation.

### Question 18

A school is planning to install a shelter for the bus stop at the front of the school. You have decided to submit a series of designs.

- (a) List and describe the design considerations you would take into account in developing your ideas for the shelter.
- (b) Provide **two** detailed sketches (including 3D) of the shelter ideas that you propose, with relevant annotations.
- (c) Discuss the design principles and elements of your designs.

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**Section C continues**

## Question C (continued)

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### Question 19

A new clothing brand aimed at 16 – 25 year olds called 'Back Beach Surf' is planned for release on to the market. The company requires a logo for branding purposes.

- (a) Describe in detail the design considerations you would take into account in developing the branding for the new clothing.
- (b) Provide **two** detailed sketches of the logo that you propose for the company, with relevant annotations.
- (c) Discuss the design principles and elements of your logo designs.

### Question 20

*Complete this question on pages 16 and 17 of this booklet.*

A sports club has decided to purchase a mini-bus. Club management would like to display club imagery on the side and rear of the bus for promotion purposes. You have been asked to submit **two** design layouts.

- (a) Describe in detail the design considerations you would take into account in developing the design layouts for the bus.
- (b) Provide detailed sketches (on the template provided on page 17), with relevant annotations of the **two** design layouts that you would propose to the sports club.
- (c) Discuss the design principles and elements of your design layouts.

**Section C continues**

**Question C (continued)**

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

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

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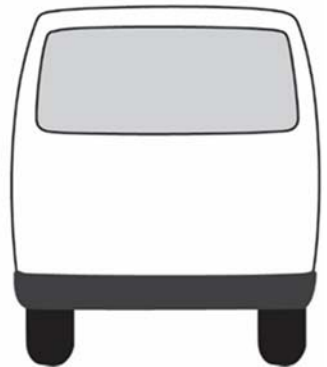
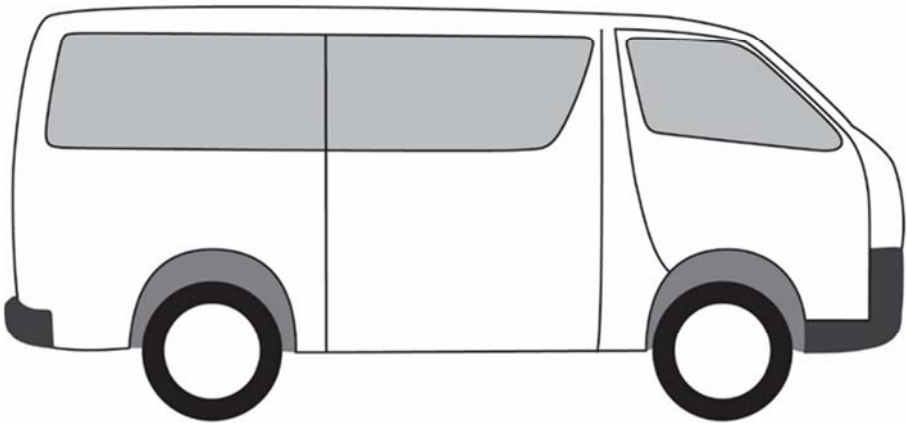
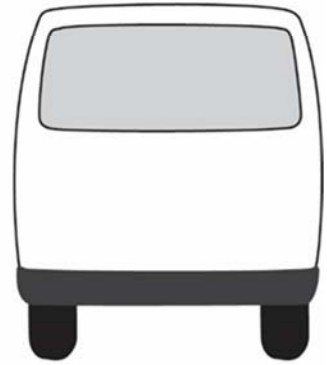
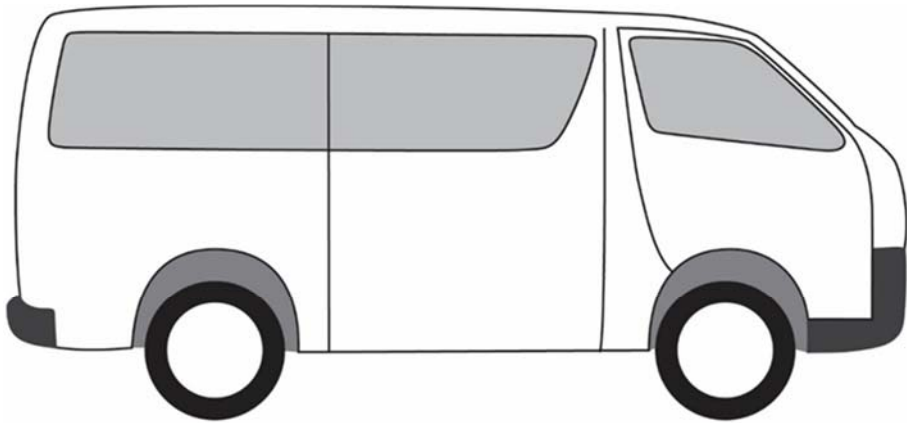






Complete sketches for question 20 on this page

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## 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**.

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### Question 21

As well as the script, 3D animators use various techniques and processes when planning the animation of a story. Identify and discuss techniques and processes that are important and describe how animators could use them.

### Question 22

Both 2D and 3D animation software use inverse kinematics (IK) to aid the animation process. Describe inverse kinematics, its benefits and how data can be captured to aid inverse kinematics in the animation process.

### Question 23

Computer graphic users can choose between open source and proprietary commercial software. Describe and compare the **two** types of software including their advantages and disadvantages. Support your response with examples.

### Question 24

Minimum system requirements describe the unseen but extremely important relationship between computer hardware and software. Discuss in detail this relationship, supported by a range of examples.

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Section D continues







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