

PLACE LABEL HERE

Tasmanian Secondary Assessment Board

COMPUTER GRAPHICS AND DESIGN

Senior Secondary 5C

Subject Code: TE876

External Assessment

2003

Time: Three 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 5 Solve problems.

Criterion 9 Demonstrate an understanding of technological change.

Questions: 28
Pages: 27

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CANDIDATE INSTRUCTIONS

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

Candidates must attempt:

Section A – Part I	SIX questions
Part II	ONE question
Section B	EIGHT questions
Section C	ONE question
Section D	ONE question

All **sections** are of equal value.

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, **except** in **Section A – Part II** and **Section C** where labelled sketches are required.

It is recommended that you spend approximately:

- 45 minutes on Section A
- 45 minutes on Section B
- 45 minutes on Section C
- 45 minutes on Section D

SECTION A

This section assesses **Criterion 5**.

PART I

Answer **SIX** questions from this **Part**.

All questions are of equal value.

Question 1

An architect has a need to sketch using a computer. Discuss the problems associated with this task, and suggest a strategy, with appropriate input devices, that would help overcome these problems.

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Question 2

There are several techniques that are used in an attempt to display 3D objects on a flat 2D computer screen. None of them are perfect. Select **one** method which is used, explain how it works, and suggest any ways it could be improved.

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Question 3

It has been suggested that an efficient way to transmit large graphics files would be to print drawings onto paper and then fax them to a colleague. A vectorising scanner could then be used to recreate the drawing as a computer file. Is this a good idea? Explain your answer.

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Question 4

Macromedia Flash can be used to create some quite stunning graphic effects for web pages. It can be used, amongst other things, for interesting transitions between pages and exciting and entertaining menu systems. When should a designer include a Flash animation in a site, and when should it be avoided?

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Question 5

When creating a computer-graphic project, there is a real risk of files being corrupted due to a variety of causes, including virus attacks, mistakes, or software and hardware faults. Outline the procedures that you would utilise to minimise these risks, and to avoid loss of data.

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Question 6

Most objects in the real world are illuminated more by reflected light than by light directed from a light-source. It is difficult to achieve this in a 3D rendering package. Explain why this is a problem, and suggest some solutions.

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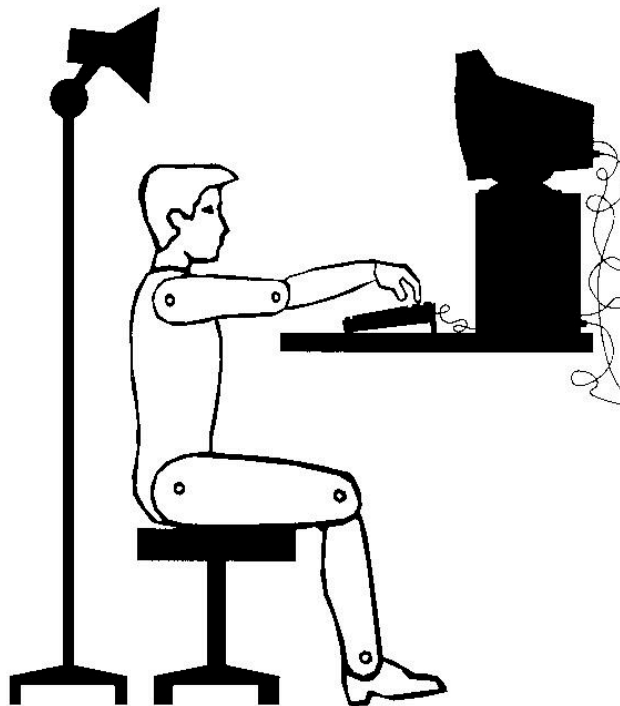
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Question 7

The diagram below illustrates several Occupational Health and Safety (OH & S) problems.



In designing a computer graphics workspace, what would be the key components of your Occupational Health and Safety (OH & S) policy?

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Question 8

A designer complains to the manager of a design studio that he can't work on his 3D model because his machine is too slow, and requests a dual processor machine with 1GB of RAM. What should the manager do to identify and solve the problem?

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PART II

This section assesses **Criterion 5**.

Answer **ONE** question from this **Part**.

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

Clearly indicate which question you are answering.

Question 9

- (a) Provide sketches and text to illustrate the relationship between aircraft, the terminal building and car-parking, in a new security conscious airport. How might this differ from current practice?
- (b) Detail visitor movement around the complex, and specifically show passenger movement and placement of security scanners and any other security devices.

Question 10

Software designers often have the problem of how to design an efficient user interface – i.e. one which assists the user, but does not clutter up the workspace too much. Macromedia and Adobe seem to share a common approach, using many ‘floating’ toolbars, whereas Kinetix (3D Studio Max) favours a ‘tabbed’ interface so that the visible commands can be varied depending upon the current task.

- (a) Criticise and compare these two approaches to interface design, and suggest any ways that they could be improved.
- (b) Sketch each interface, showing your suggested improvements.

Sketch Sheet for Question No:

Sketch Sheet for Question No:

SECTION B

Answer **EIGHT** questions from this section.

All questions are of equal value.

This section assesses **Criterion 9**.

Question 11

A computer graphic designer wishes to buy a camera. Describe the factors which would influence the choice between a film or a digital camera.

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Question 12

Why is it that, although the latest computer games have very impressive graphics, they still cannot use bump mapping?

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Question 13

Some people argue that our modern ‘throw-away’ society is a direct result of the use of computers in manufacturing and design. Do you agree? Explain your answer.

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Question 14

Because plastics are so easily moulded into complex shapes, and are also strong, attractive and light materials, they are ideal for CAD/CAM production methods. Is it desirable that plastics should replace metals in more and more products?

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Question 15

Do you agree with the statement that: ‘The use of computers in design and manufacturing actually promotes poor, unimaginative design, because the designer’s imagination is restricted by the software and the computer hardware’? Explain your answer.

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Question 16

When architects first began using Computer Assisted Drawing (CAD), they used the computer simply as a drawing aid – a replacement for a drawing board and paper. Now, building sketches are starting to be represented as databases and not drawings. Why is this change happening, and what are the advantages?

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Question 17

Although computer-aided design has benefited many industries, there are some for which it is not really applicable. Is there a place for CAD in a company which is designing glass bottles for its products? Explain your answer.

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Question 18

When a product is being developed, it is often important that, at some stage, an actual physical model is created so that it can be tested by touching and handling it. How can computers assist in this process?

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Question 19

A computer graphics professional requires a computer for high end three dimensional presentation graphics. He has a limited budget. Which components are essential, and which may be less than cutting-edge? Why?

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Question 20

Describe the steps required, including appropriate hardware and software, to produce a web animation from a series of film clips on VHS tape.

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Question 21

Explain in detail the principles and mode of operation of **one** graphics input device and the circumstances when it is **least** useful.

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Question 22

It seems likely that it will soon be possible to use a computer using reasonably normal speech commands instead of a mouse and keyboard. Will graphic designers use voice-commands to develop models and animations, or will they use other input methods?

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SECTION C

Answer **ONE** question from this section.

Answers should consist of an essay accompanied by a sketch as described in the question.

Clearly indicate which question you are answering.

This section assesses **Criterion 5**.

Question 23

Night Orienteering is a popular sport held at night in forested terrain. Competitors use maps and compasses to find, in order, a number of marked features. Sporting fairness is the primary consideration in the event organisation.

- (a) Discuss the needs of the sport and the technology required to allow a participant to perform at a high level.
- (b) Develop the technology and provide notes showing the sorts of decisions that you would need to make prior to designing a 'night orienteering system'.
- (c) Sketch two preliminary designs with appropriate notation clearly showing the functioning of your system.

Question 24

A consortium of businesses wishes to promote Tasmania as a tourist destination, and have decided to set up a website as their primary activity. They would like to include high-quality graphics and movies showing national parks, flora and fauna, and other tourist attractions, all with an attractive musical background. In addition, they would like to provide information about accommodation, activities, travel packages, suggested itineraries, and any other tourist news.

- (a) Prepare a submission to the consortium outlining how you would approach the task, specifying any resources or professional services you would require, and
- (b) Indicate the structure of the proposed site. Include sketches to support your submission.

Sketch Sheet for Question No:

Sketch Sheet for Question No:

SECTION D

Answer **ONE** question from this section.

Clearly state which question you are answering.

All questions are of equal value.

This section assesses **Criterion 9**.

Question 25

The internet has had a profound effect in all areas of computer graphics. Discuss how the key players in the computer graphics arena (**teachers, students, software developers, graphic designers**) have been affected by the spread of the internet.

Question 26

Nominate a film or video having a significant computer graphics content.

- (a) Explain the importance of this film in the development and evolution of computer graphics, and
- (b) How might these computer graphical effects impact on a person's behaviour in society?

Question 27

Medicine is an area that has made increasing use of computer graphics technology.

- (a) Discuss some of the scanning, imaging, modeling and image guiding techniques used in medicine and the benefits of this technology in the training of medical staff, and in the early diagnosis and treatment of disease.
- (b) Make predictions regarding the use of medical computer graphics technology in the future.

Question 28

As electronic components are becoming more and more miniaturised, so designers are free to make devices which do not look like their traditional counterparts. Thus it is now possible to design tiny mobile phones with a camera which can record and transmit movies to another phone. Discuss any issues, for example privacy or security issues, which this raises.

