



Folios

Two hundred and sixty five candidates from twenty one schools and colleges across Tasmania submitted folios for assessment in this subject.

The general standard of work this year appeared to be of a higher quality than the previous year. 3D rendered animations were typically well represented. In particular it was noted that the increased use of sound effects and voice overs tended to enhance the overall presentation of some projects. Presentation techniques ranged from stop motion, Machinama, Claymation, 3D viewing, video, graphic design, poster displays, magazines, and websites.

Many Research Essays were either personal evaluations or detailed build/creation information with no evidence of genuine research within a specialized area and little or no referencing. Research essay plans were not presented in many cases.

Project support folios presented varied from A3-4 folders, PowerPoint, DVD and Web pages. In some instances the presentation detracted from the projects final presentation. Research, screenshots and build information were either hand written and or images poorly annotated, which detracted from the professional standard of the folio.

Design work was generally of a good standard but in many instances the evolution of the design was not present or had the appearance of being done retrospectively after the completion of the actual folio. The lack of annotation in some story boards and sketches left examiners perplexed as to what the candidate was actually trying to convey.

Some colleges were a little unsure about what was being presented for external assessment and what wasn't. This caused some concern regarding whether the examiners had seen everything that the candidate intended to be assessed. For example, in some cases there was reference to a web page design or an animation that could not be found. In other cases work was presented that could have been course work from earlier in the year that should not have been regarded as contributing to the Major Folio.

The suggestion would be that all work for assessment should be added to one folder and that that folder sits on the desktop of one computer. Each folder should be named as per the TQA candidate code. This would avoid the potential for confusion. (If it is in the folder, it gets marked along with any materials that exist in a hard copy folio or poster presentation).

Written Examination

Section A

Question 1

This was a popular question that was open to a certain amount of interpretation. Most candidates approached it from the point of view of a 3D computer modelling exercise. These responses looked at the computer graphic techniques required to reproduce the modelling shown in the photograph. Such responses typically focussed on the creation of individual components and then using Boolean operands to join the objects together. Alternative strategies looked at using NURBS modelling to construct the item as a single object while others considered mesh editing as an option. The latter option would be a difficult and very time consuming alternative.

Very few candidates considered that the question make have been looking at a way to create the object as a real 3D object. Some of these answers discussed rapid prototyping and stereo lithography techniques.

Quite a number of candidates discussed the need to work through a ‘design process’ involving sketches, client liaison and so on. Answers of that type were typically assessed at the lower end of the mark range as they failed to address the real issues raised in the question.

Question 2

This question was attempted by the majority of candidates. Answers typically discussed attaching a camera to a spline path within a 3d modelling application. The typical ‘common errors’ that were discussed included camera movement being too fast or too slow, camera passing too close or through solid objects, camera not pointing in appropriate direction and inappropriate choice of lens size. Only one candidate mentioned the ability to animate the camera target separately to the camera itself as a means of guaranteeing that the camera ‘sees’ the most appropriate things.

Question 3

This question was designed for the so called Photoshop expert and was very well answered by those to do so. The graininess issue could have been addressed by using the ‘despeckle’ or ‘dust and scratch’ filters being applied to each channel in differing amounts. The ‘unsharp mask’ could also have an effect. Torn edges could be corrected by using clone and paint tools and the creases issue could be adjusted by using clone, healing or patch tools.

Question 4

Answered by the majority of candidates who all had a reasonable view of who the design process works. A variety of design process components were listed with the most common listing being - defining the problem, consultation, design brief, research, brainstorming, prototype, testing, refining and construction.

Question 5

Candidates who answered both parts of the question scored highest marks, unfortunately many only answered one part. Best marks were awarded for knowledge of international copy-write laws and the concept of patents. Researching the originality of the product and logo via the internet or through specific organisations or Lawyers was suggested by many. However few knew much about the process of lodging a patent or length of time that designs were protected once it had been lodged.

Question 6

Candidates who suggested a variety of information scored highest but most focussed on Google Earth, Google Maps, or Google Street View. Other answers which impressed were a knowledge of The LIST website that the Tas govt. provides, an understanding of the importance of contours and topography, soil types or landslip zones along with the need for council zoning. On a more basic level some candidates mentioned vegetation, and nearby buildings, also real estate websites.

Question 7

This was a well answered question by candidates and a range of potential optimisation methods were cited. These included further compression of image data, breaking up of any large images to load image content in smaller chunks, reducing page content and breaking up page content into multiple pages, optimising code by removing any unnecessary scripting, optimising high bandwidth data such as audio and video, and implementing better technology solutions at the server side end of delivery.

Question 8

Most candidates who answered this question demonstrated good understanding of the potential problems and solutions to the animation of realistic outdoor scenes with a sky. Many candidates cited that often the problem is due to not 'mapping' the sky map to a backdrop or a hemispherical dome that then allows for the sky appear to be 'unified' with the camera motion. Higher level answers also included techniques as subtly animating the hemispherical dome with the applied panoramic sky texture to simulate cloud movement,

how clouds could be animated in a sky using tools such as atmospheric apparatus tools and particle systems, and how high level renderers such as Mental Ray have in-built physical sky tools that can be used.

Section B

Question 9

This question was fairly well answered by the majority of candidates that attempted it. Most talked about physics engines within 3D modelling and animation applications. Quite a few answers discussed Finite Element Analysis especially in regard to determining loads and forces on structures. Many also referred to physics engines in gaming applications and in simulations such as vehicle crash damage predictions. Many answers discussed the use of this technology as a way of creating realistic animation scenes without the need for tedious and often unrealistic 'manual' manipulation of the software to create the desired effects.

Question 10

This looks like a simple question but many of the answers were overly simplistic. Quite a few of the weaker answers looked at the use of Boolean operations to shape the box into a human cartoon character. Other weak answers discussed the creation of a boxy looking character by joining several boxes together to make up the body parts. The better answers looked at mesh editing and NURBS modelling as a way of converting a box into a realistic looking character. Quite a few answers overlooked the requirement to use sketches to aid in the explanation.

Question 11

Most candidates used video files in their folio presentation and in so doing had a good knowledge of common video formats. Some of these being:

Flash Video Format (.flv) – every browser on every platform

AVI Format (.avi) –audio video interleave – Microsoft, audio and video data – less compression.

Quicktime Format (.mov) – Apple – very common

Mp4 Format (.mp4) – audio and visual streams online

Windows Media Video Format (.wmv) – only Windows

Question 12

The rate at which new computer hardware products are arriving in the market is simply mind-boggling. As the technology advances, the size and the price of the devices come down,

while the efficiency and capacity increase. The scenario is same in all cases, whether it is about internal components like processor, motherboard, RAM, graphics card, and hard disk or for peripheral accessories like mouse, keyboard, and monitors. All of these component advancements have assisted the computer graphics designer.

Question 13

Almost all candidates who answered this question had a very good understanding of the operation of 3D printers and the range of applications they are suited for in a range of design situations. Better answers addressed all elements of the question by describing suitable methods of producing objects using differing 3D printing technologies, how the 3D graphic data is prepared prior to printing using the STL file format and could include a number of contexts for use such as design prototyping, models and pre-visualisation of product concepts as just a few examples.

Question 14

Candidates answering this question had a good idea of how lip synching works in either 2D or 3D animation contexts. The high level answers cited the method of lip synching in 2D animation using techniques such as implementing various mouth shapes to match language phonemes and also cited 3D techniques of using morph targets for lip synching in a similar way to the 2D animation methodology and also the use of facial motion capture technologies. Top level answers also cited how such facial motion capture often needs further refinements as it is applied to the animation rig of the 3D character model in order to effectively match the audio track of speech.

Question 15

Most candidates recognised that screens operate using the RGB colour model which is additive and printers predominantly use the CMYK colour model which is subtractive. Many candidates listed what the acronyms stood for hoping that this would boost their marks. Many candidates failed to give realistic ways to solve the problem. Some wrote about colour matching but those who scored highest understood that most printers allow the option to change the colour settings before printing, and some software such as Photoshop has similar options. Unfortunately a majority of candidates believed that the problem was caused by an empty ink cartridge.

Question 16

Sadly the words 'floppy disk' appeared in some answers along with CD which showed that some candidates had no concept of how much space these two media have on them. The

more complex answers discussed internal hard drives and RAID, multiple DVD's which are named and dated. External HDD, SD cards and data management systems. Some candidates mentioned anti-virus software or not to connect the computer to the internet so as not to allow viruses access. A few candidates suggested to use a MAC which has virtually no viruses. Better answers also suggested 3 separate types of data storage including off site.

Section C

Question 17

Many of the candidates who attempted this question understood the idea of producing storyboards with sketches and annotated notes to describe key points to produce storyboards. Unfortunately, many candidates attempting this question seemed to have below average drawing skills in producing their story boards. Only a few candidates produced high quality storyboards with clear detailed concept sketches of key points in time supported by annotated notes.

Almost all candidates could provide good notes as to the production of the main sections of the animation and editing requirements for completion. High level answers communicated practical processes of producing and editing the animation along with a deeper level of understanding of the design considerations required before getting to the storyboarding stage. These discussed ideas such as developing an overall concept, creation of model sheets to define the look and feel, colour palette, and the target audience, which are often required for the production of animation

Question 18

Designs for the catamaran upper deck were quite varied, with some candidates at to attempting to accommodate seating and solar panels on the one deck which proved to be a very difficult design prospect. Others more successfully situated the panels on a separate level and used varied panel configurations including flat, tilting and those which electronically followed the sun. It was mentioned that the panels should produce consistent power without noise, smell or moving parts.

Question 19

Surprisingly very few candidates chose to answer this question. Generally well answered with candidates offering a range of solutions that both suited the beach site and the compact nature of the dwelling. Most candidates had good justifications for their design alterations which ranged from passive solar design to indoor/outdoor living. Unfortunately materials were not well understood with many candidates suggesting brick as the preferred construction which did not fit with their design concept or philosophy.

Question 20

Most of the attempts at this question were well done. There were some very high standard 3D sketches. The weaker answers often only provided 2D floor plans even though the question specifically required a 3D pictorial sketch. The written components of the answers were generally well considered with issues such as form, function, aesthetics and texture being frequently mentioned. Answers commonly discussed the structural difficulties of creating kitchen cabinets to fit a non uniform shaped room.

Section D**Question 21**

A variety of catamaran deck layouts were considered by candidates with some suggesting that the panels be incorporated into the upper deck seating. Many configurations were discussed – ranging from flat, rotating, tilting and electronically controlled so as to track the sun. The best answers mentioned the panels would produce consistent power without noise, smell or moving parts. The standard of sketching for this question was extremely high.

Question 22

This was a popular question and most candidates answered it well and demonstrated a good understanding of the positives and negatives of running a business where all the staff worked remotely and relied on broadband for communication, data transfer and storage. Positives of such an arrangement cited were issues such as work flexibility, family & life balance and the lack of a need to travel to work in Sydney where transport for work can be a time consuming process. Negative issues cited were the lack of face-to-face in person communication, the onus being on employees to be highly motivated and self managing and the potential problems for clients in being able to readily access designers for face to face discussion. The arguments presented for whether the company would be a success were mixed, although higher level answers tended to support the idea of it potentially being a success provided the necessary infrastructure was put in place to support the important decision of ensuing the right work force was recruited that would be self-motivated and self-managing. Higher level answers cited infrastructure requirements, in addition to basic hardware and software facilities, as the necessity for the implementation of video conferencing applications and hardware, the implementation of a remote network storage capacity and data transfer and a need for the contracting of system support services to ensure maximum up time and to quickly repair any system issues. In addition, in the implementation of such a business model the necessity of a reliable and affordable Internet service provider service was also cited as a critical aspect of ensuring the business's potential success.

Question 23

This question was attempted by a significant number of candidates. Answers invariably discussed the different techniques required for claymation and CGI along with the benefits and limitations of each. Examples from popular CGI and claymation movies were discussed. Clearly there is no 'right' or 'wrong' answer in this type of question. The higher achieving answers were those that presented a well structured essay that included an introductory statement, a body that included definitions and descriptive examples and a well reasoned concluding statement.

Question 24

Very few candidates chose to answer this question. Most mentioned role play games such as The Sims, WOW and Second Life that use avatars or similar. Many mentioned careers such as Soldiers, Pilots, and Surgeons who use VR in their training. Some discussed stimulation of other senses such as virtual roller-coaster rides or V8 supercar cockpits. Some candidates understood that wii is a form of VR that has made its way into households with wii sports and golf virtual driving ranges being mentioned. Almost all predicted that VR would be used much more extensively in the future.

All correspondence should be addressed to:

Tasmanian Qualifications Authority
PO Box 147, Sandy Bay 7006
Ph: (03) 6233 6364 Fax: (03) 6224 0175
Email: reception@tqa.tas.gov.au
Internet: <http://www.tqa.tas.gov.au>