



Practical Examination

Most practical projects in 2007 were presented as animations with a good number of web sites making up the 240 projects examined by the external markers.

It is interesting to note that some candidates are still producing posters as their preferred method of presentation. A number of these were A0 in size and of a very high standard.

Several candidates failed to include either a written analysis with their project or they did not discuss issues that arose during the completion of the project, in some cases this may have affected the ratings awarded for the project.

Nearly all candidates had ample evidence for the originality of their work and sketching was much improved on recent years.

Design development is still one area in which many candidates fail to provide satisfactory evidence. Projects that have been submitted as an 'animation' need to have more than just a story board to show design development. Animation projects might include initial computer generated 2D/3D shots showing the basic structure, organization, scene sequencing and timing issues for the final animation.

Overall, practical projects were generally of a lower standard to previous years although most colleges had one or two very high level projects.

Written Examination Paper

Section A Part I – Solve problems

Candidates had a choice of completing six (6) of the eight (8) short answer questions in this section of the paper.

Question 1

Most candidates identified the monitor as the only cause of the problem. Better answers mentioned the difference between RGB colours (monitor) and CYMK (printer) colours and that the image could be manipulated in software such as Photoshop.

Question 2

A well answered question with most candidates demonstrating some level of understanding regarding the requirements of a new web site and it's testing. High level answers illustrated the need for the site to be trialled in a variety of browsers with varying resolutions and operating systems. Links, images, sound files and major structure and organization of the site would also need to be checked before it could be listed on the World Wide Web.

Question 3

Generally a well answered question with most candidates able to explain that the primary challenges are posed by default lighting schemes and the need for powerful processing capacity in order to produce realistic global lighting solutions. Many candidates demonstrated a sound understanding of radiosity as a global illumination system to bounce and reflect light. A number of candidates also explained how such solutions could be faked using additional lights set to different colours and intensities to achieve reflected and bounced light effects.

Question 4

Many candidates answered this question but few gave well thought out answers. The policies could have covered: Environment – lighting, windows, airflow and temperature; Workstation – chairs, ergonomics, desks, monitors and mouse; Health – exercise, breaks, water cooler, fruit and healthy snacks; Education – seminars, signs and warnings.

Question 5

Candidates that attempted this question at a high level gave specifications for the CPU, monitor, RAM, VRAM, motherboard and the video card and most commented on how each benefited game play.

Question 6

Generally answered to a high level of accuracy, only a few candidates included a diagram of the x,y,z axis to explain their solution. A few candidates were confused with the fact that the square pyramid had been lifted 20metres above the World Coordinate Plane.

Question 7

The majority of candidates attempted this question, generally to good effect. Many discussed the use of coloured lights to synthesize the effects of radiosity and the use of reflective, texture maps were commonly mentioned.

Question 8

This was a popular question with many candidates discussing file size and associated polygon count as the major issue. Many candidates discussed opening an earlier backup and reducing the complexity of the models. Quite a number of candidates also discussed the removal of excess lights and advanced shadow techniques. A few candidates mentioned Open GL and Direct 3D alternatives.

Section A – Part II

Question 9

The quality of the sketching varied from very poor to very high quality. Candidates who noted the following and put it into practice scored well: time values, camera angles, shot type and movement, dialogue, music/sound and the fact of how important storyboards are in the pre production process.

Question 10

Candidates attempting this question invariably failed to introduce new ideas to the problem.

Many answers were a description of existing airport communication facilities.

Only a very small number of the sketches showed any design ‘flair’.

A few more capable candidates suggested ideas such as interactive information booths that accommodated language differences and provided a map printout showing directions from booth to gate lounge.

Some candidates tackled the problem through reference to the design process and discussed the steps from brief to research/consultation to implementation. These answers often did not discuss what the solution might look like!

Section B

Question 11

This question was answered by the vast majority of candidates with many regurgitating the question without adding any new information. Quite a few candidates failed to show a clear understanding of exactly what layers were or how they were used. More successful answers

commented on the ability to reduce confusion/clutter/error by switching off layers that were not required.

Question 12

A very well answered question. Candidates discussed the fact that computer simulation allows for models to be changed readily, aids in safety issues/cost savings and FEA limiting the need to make multiple prototypes.

Question 13

Many pros and cons were discussed both for and against having one company in control. Most candidates stating that complete control of the project, costing, standards and computer data was more likely if under the control of one company.

Question 14

Attempted by most candidates and very well answered. Some candidates either failed to describe another tool or only described the other tool and not the three mentioned.

Question 15

Very well answered! Candidates expressing the fact that items must be firstly functional before form should be considered. Interestingly some candidates cited that the Apple iPod is by no means the most functional MP3 player but looks great and has been marketed very well – hence incredible sales!

Question 16

This was quite an easy question but was poorly answered. Parametric modeling allows for accuracy through a range of specific sizes, it allows for resizing without the need to adjust geometry in the design model and is useful for any graphic task that requires overall precision in the production and design process.

Question 17

Raster scanning and vectorizing software were mentioned with issues such as raster editing not being fully satisfactory in ‘cleaning up’ the paper-based plans. File types such as dxf were mentioned by some for the transfer of the plans to the architectural software. Many

failed to suggest the correct type of vectorizing scanner. Some candidates got sidetracked describing how to create a 3D model.

Question 18

Most candidates who answered this question demonstrated in-depth knowledge of the advances in these aspects of digital technology. While not required, some candidates made the link between these areas and how advances have assisted the Computer Graphics practitioner.

Question 19

Many candidates answered this question well. Better answers provided a number of clearly defined reasons behind their thoughts in either agreeing or disagreeing with the statement

Question 20

Candidates had a good understanding of the advantages of 2D orthographic images in terms of the capacity to isolate particular areas for clarity, to gain a better sense of proportional relationship between two axis and in the capacity to define size to a scale, place measurements and as a basis for manufacturing and construction.

Question 21

A majority of candidates mentioned simple lighting effects but failed to mention the many shading methods that are available to the 3D graphic artist/designer. A majority of the high level answers mentioned Gouraud and Phong shading methods, several candidates discussed some of the proprietary 'shader' software available for today's graphic artist.

Question 22

DVD's, CD's, external data disk drives and USB memory devices were the most popular methods mentioned by the many candidates who answered this question. A number mentioned hardware and file transfer developments across the internet and other networking systems, making file transfer and portability more readily accessible to the masses.

Section C

Question 23

This question was attempted by the majority of candidates. A number of candidates still need to take more care with their sketching and spend more time explaining their design in greater detail. Many candidates preferred established design paradigms – a simple stacking system. A few candidates showed their new innovative design concepts with high level sketching.

Some innovative answers discussed the use of HDD type data storage to create digital libraries and databases to store, sort and retrieve DVD content.

Question 24

The sketching for this question was of a very high standard. Most candidates presented quality 2D and 3D sketches of the folding chair with annotations throughout. The following notes were generally written in point form, clearly explaining the main features of the collapsible chair.

Section D

Question 25

This was a popular question with most candidates showing a good understanding of the product simulation and prototyping software available for today's design industries. Candidates generally discussed the savings in time and production costs through the use of this technology. A small number mentioned the safety factors when new product is being tested, comparing IPS technology to traditional methods of testing and prototyping.

Question 26

Only a small number of candidates attempted this question with most covering the basics of crash investigation and the use of CG technology. Very few candidates could give an in-depth discussion on the various personnel that could be involved and the role of computer graphics in the investigation of the crash data.

Several mentioned the use of FEA, pilots and aeronautical engineers in the analysis of crash data and how graphical crash simulation and reconstructions would make excellent visuals for TV media, families of victims and investigating government bodies.

Question 27

This was a very popular question that was generally well answered with most candidates highlighting the main differences between 2D and 3D animation. There was a general consensus that 2D animation is quicker and easier to produce than 3D and thus more suited to the television market. A surprising number of candidates assumed that all 2D animation is still produced using traditional cell techniques rather than harnessing the capacity of IT systems. Better answers made specific reference to software and hardware requirements/skill sets/human resource issues and associated costs.

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