2009 HSC Design and Technology
Sample Answers

This document contains 'sample answers', or, in the case of some questions, 'answer may include'. These are developed by the examination committee for two purposes. The committee does this:

(a) as part of the development of the examination paper to ensure the questions will effectively assess students' knowledge and skills, and

(b) in order to provide some advice to the Supervisor of Marking about the nature and scope of the responses expected of students.

The 'sample answers' or similar advice, are not intended to be exemplary or even complete responses. They have been reproduced in their original form as part of the examination committee's 'working document'. While the handwritten notes have been typed for legibility, no further editorial change or addition has occurred.

Section II

Question 11 (a) (i)

Answers may include:

- brainstorming
- graphic organisers
- PMI
- Communication techniques
- Presentation techniques
- Sketching

OR

Use of a design strategy, eg prototyping, testing or a market survey to make the product different from the existing one.

Question 11 (a) (ii)

Answers may include:

Provides characteristics and features of a strategy such as

- Brainstorming
- Graphic organisers
- PMI
- Communication techniques
- Presentation techniques
- Sketching

and shows how the strategy is used in the design process, for example

- Identification of need and how these may be focused to achieve the desired outcome.

Question 11 (b)

Answers may include:

- Shared expertise
- Specialist knowledge, eg of materials, techniques
- Collaboration to use expertise of teams
- Have clear outcome in mind to act as a focus
- Have a common goal, working in different aspects and come up with a unified approach

With links to:

How these teams can influence the creative design process eg

- Consider the use of new materials
- Process of designing, producing

Question 11 (c)

Answers may include:

Experimentation and testing influences creativity by providing an avenue for feedback and refinement of the creative process. This then allows for a more appropriate design solution to progress through to production stages.

Methods of experimentation and testing have the ability to address and refine creativity in areas of:

- Functionality
- Size of the design and it's components
- Proportion in terms of aesthetics
- Choice of materials – tools and processes
- Durability of the design and its components

Experimentation and testing cause a possible change in design and its direction through the refinement of prototypes and models.

May also justify/support creative ideas through positive results of experimentation and testing.

Section III

Question 12 (a)

Sample answers/Answers may include:

- Social trends:
    - Change in consumer trends, needs and wants.
    - Needs in relation to simpler, multifunction products.

- Economic Trends
    - Workforce and economic patterns/spending.
    - Cheaper manufacturing process and less raw materials.

- Waiter's friend becoming obsolete due to the introduction of screw cap bottles.
    - Cheaper to manufacture and not using cork material as a resource.
    - Easier and faster to open relates to social trend for simpler product design.
    - No need to purchase unnecessary products.
      eg waiter's friend

- Bobby pin/safety pin
    - Babies and safety
    - New faster methods of fastening nappies
    - Emerging technology/use of cloth nappies

Question 12 (b)

Sample answer/Answers may include:

- Large amount of non-renewable resources used in relation to technological change – manufacturing of new products.
- Increase in landfill as older technologies are discarded and replaced.
- The need for sustainable design/manufacture using renewable and recyclable resources (cradle to grave)
- Environmental impact of unethical and sustainable mining practices for minerals and gold to manufacture new technologies like mobile phones/iPods.
  - Deforesteation and land degradation/strip mining resulting in loss of habitat. Change in weather patterns due to deforestation.
- Use of Life Cycle Assessment to determine environmental impact of products.
- Analyse impact of application of new technologies.
- Different environments
  - Social
  - Economic
  - Work
  - Family.

Question 13 (a)

Sample answer/Answers may include:

Safety:
- Improved safety as emergency services can arrive quicker to accidents/breakdowns
- Accurate tracking of location of car
- Lower theft rates as car could shut down or be tracked if stolen
- Telematics system may distract the driver (internet access) creating safety concerns (accidents)
- Impact resistance of the Telematics system. Could it withstand a car accident in order to activate the SOS?
- Reliance on product for safety – Dependent on wireless/satellite network. What happens if you are out of range?
- Electomagnetic radiation and its effect on driver/passengers.

Ethics:
- Constant monitoring 24/7. Privacy issues (invasion of privacy)
- Affordability/Equal Assess to technology – increased cost of Tekematic system, is this available to all people/on all car models?
- Safety v Cost. What value is placed on vehicle safety and people's safety/lives?
- Internet security, hacking, cyber bullying, data security, spam, pranking, etc
- Life span of the system. Elements of the system already available on other technologies such as mobile phones. Possible hidden ongoing costs.

Question 13 (b)

Sample answer/Answers may include:

- New technologies can improve the quality of life, faster more efficient systems/methods giving people more time
- Affordability of new technologies for all – is this possible?
- Increased knowledge, greater access to information from remote locations
- Changing values within society due to technology such as access to internet – cyber bulling, identity issues, etc
- Health issues brought about due to technology. Increased levels of obesity, depression, loss of hearing, etc
- Changing nature of social contact, internet chat rooms, social networking, skype, etc
- Globalisation, instant global communication.
- New technologies, effects on employment both positive and negative.
- Changing nature of employment, technology provides the ability to work remotely (eg from home)
- Privacy issues created from technologies (big brother syndrome)

Question 14 (a)

Sample answer/Answers may include:

- Improved access to experts from remote locations: locally – Flying Doctor to hospital; international links, video conference
- Improved outcomes for patients – faster diagnosis improves quality of life
- Compact design – one device instead of two: saves space, no compatibility issues for operating
- Easy to learn – one operating system saves operator time
- Economical – one device instead of two to purchase cheaper parts replacement
- Common examples of converged designs given: Mobile phones, iPod, iPhone, computers, printer/scanner/faxes

Question 14 (b)

Sample answer/Answers may include:

Ethics:
- Issues of privacy: internet tracking/wireless networks, cyber bullying, mobile phone cameras, facebook
- Intellectual property: design copying/theft, loss of income patents/ licence fees
- Built in obsolescence/technological obsolescence
- Manufacturing: exploitation of third world countries/first world sales
- Nature/science debate: contraception; stem cell research; genetically modified foods

Social:
- Cost of technology to buy and maintain – socio-economic discrimination
- Descrimination: age, gender, religious or cultural beliefs – appropriate to end user
- Green issues: sustainability, life cycle analysis, waste
- New technologies replacing employment opportunities: CAD, CAM, checkouts, ATMs
- Changes in society: reduced personal contact/ increased technological contact: sms, facebook, skype;
- Globalisation – loss of cultural identities/Westernisation