BOARD OF STUDIES
NEW SOUTH WALES

2012 HSC Design and Technology 'Sample Answers'

When examination committees develop questions for the examination, they may write 'sample answers' or, in the case of some questions, 'answers could include'. The committees do this to ensure that the questions will effectively assess students' knowledge and skills.

This material is also provided to the Supervisor of Marking, to give some guidance about the nature and scope of the responses the committee expected students would produce. How sample answers are used at marking centres varies. Sample answers may be used extensively and even modified at the marking centre OR they may be considered only briefly at the beginning of marking. In a few cases, the sample answers may not be used at all at marking.

The Board publishes this information to assist in understanding how the marking guidelines were implemented.

The 'sample answers' or similar advice contained in this document are not intended to be exemplary or even complete answers or responses. As they are part of the examination committee's 'working document', they may contain typographical errors, omissions, or only some of the possible correct answers.

Section II

Question 11

Answers could include:

- Ease of use, user friendly
- Comfort
- Reduce injury, eg RSI
- Safety – WHS/OHS
- Standards

Question 12

Answers could include:

- Global communication, real-time feedback, faster, available and allows for effective collaboration
- Email, mobile technologies, Skype provides the forum for team members to communicate design processes easily
- Visual presentations, 3D modelling via software and model/prototyping printing technologies
- Video conferencing facilitates global collaboration
- Issues targeted to specific team members
- Team members can modify, change or adjust design concepts in 'real time'

Question 13

Answers could include:

- Social trends to assist consumer wants/needs/expectations regarding aesthetics and therefore product choice
- To foster initial product interest
- To draw customers to the product/grab attention
- Colour, shape, size, feature, texture to make products appealing
- Internet shopping – aesthetics is key since function, form cannot be easily determined

Question 14

Answers could include:

- Interactive devices to engage clients and improve quality of feedback
- Online surveys and questionnaires to inform marketing strategies
- Monitoring 'hits' on web sites and social media, eg Facebook
- Using data analysis to inform change/decisions in product design and marketing
- 3D modelling/rapid prototyping for communicating to focus groups

Section III

Question 15 (a)

Sample answer

- Examples of emerging technologies integrated into new products/systems:
  - SIRI (software application technology) integrated into mobile phones
  - lithium ion battery technology integrated into mobile devices
  - scanning technologies integrated into devices
  - WiFi and bluetooth technologies into devices
  - multifaceted technologies, eg camera, phone, iPod integrated into one product
  - new operating systems being integrated into electronic devices, eg iPad
  - communication technologies integrated into SMART televisions
  - automatic identification system (AIS) that electronically exchanges data with nearby ships and AIS base stations. (supplements marine radar) integrated into new, affordable devices for all water craft
  - alternate manufacturing technologies affecting product design
- Resulting technological changes:
  - the need for higher-functioning microphones in phones and increased memory
  - allows for electronic devices to become smaller, more compact and faster
  - more complex products that require a higher order of skill to operate
  - resulting in the need for a more integrated mobile communication network
  - leads to the forced obsolescence of existing products
  - alternate materials used in product construction
  - pricing of new products
  - the need to update/develop software programs and 'apps' due to new operating systems

Question 15 (b)

Answers could include:

- More products means more resources used/waste/landfill/continual updating/obsolescence.
- Changing nature of work/flexible time and location/lifestyle/family pressure.
- Multifunctional technology (smart phones) make everyday tasks easier/faster/more efficient/increased communication, eg Skype.
- Continual updating leads to financial and social pressure for the individual's social reliance on new technologies/social divide/retraining to understand technology.
- Improved manufacturing processes, such as robotic, resulting in:
  - increased accuracy
  - less waste and wiser use of resources
  - greater profit/shift in jobs
  - nature of employment may lead to unemployment and reliance on
  - economic support

- – more taxation revenue
- – increase in imports and exports
- – globalisation
- – multinational companies
- – offshore manufacturing impacts
- – costs and consequences.
- Green products reduce carbon footprint, wiser resource use, reduction in waste, eg Toyota Prius, government schemes and incentives to encourage purchase.
- Positive economic impact on the individual and environment.
- Medical improvements (surgery, artificial limbs) improve quality of life, less strain on the health system, individual and society.