

**2005 HSC Notes from
the Marking Centre
Design and Technology**

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2005 HSC NOTES FROM THE MARKING CENTRE

DESIGN AND TECHNOLOGY

Introduction

This document has been produced for the teachers and candidates of the Stage 6 course in Design and Technology. It provides comments with regard to responses to the 2005 Higher School Certificate examination, indicating the quality of candidate responses and highlighting the relative strengths and weaknesses of the candidature in each section and each question.

This document should be read along with the relevant syllabus, the 2005 Higher School Certificate examination, the marking guidelines and other support documents that have been developed by the Board of Studies to assist in the teaching and learning of Design and Technology.

General Comments

In 2005, approximately 4300 candidates attempted the Design and Technology examination.

Teachers and candidates should be aware that examiners may ask questions that address the syllabus outcomes in a manner that requires candidates to respond by integrating their knowledge, understanding and skills developed through studying the course. This reflects the fact that the knowledge, understanding and skills developed through the study of discrete sections should accumulate to a more comprehensive understanding than may be described in each section separately.

Major Design Project

General Comments

Candidates demonstrated a clear understanding of the Major Design Project and the marking guidelines, and an increased understanding of the ways achievement in relation to outcomes may be demonstrated.

Candidates have become more aware of the processes of design development, from needs analysis to final evaluation and including the processes of production. Candidates need to realise that it is important to identify a genuine need rather than just state a final outcome for the project.

Projects presented in 2005 represented a broad range of technologies and showcased the wide range of skills and abilities of the candidates.

There was again a concern with the extent of outsourcing of projects. Outsourcing may be necessary if the candidate is unable to complete the required task at school, but it should not become an essential or major component of the project. Outsourcing has led, in some cases, to the lowering of quality in the skills achieved by the candidates. It is necessary to point out that Design and Technology is a 'hands on' course involving the use of technologies. Those candidates who tend to outsource the bulk of their project are not demonstrating syllabus outcomes in this regard.

Another issue of concern is that of work completed 'off-site'. Increasingly, folios are depicting photographs of students working in backyards, garages and commercial establishments. It is the

intended spirit of the syllabus that work be completed within the school environment. See also BOS 22/04 – Official Notice.

In conjunction with the ‘off-site’ concern is that of Occupational Health and Safety. Many folios document candidate’s demonstration of practical skills using photos. In these photos there are often demonstrations of unsafe practices. The fact that many of these are depicted in an off-site environment is of concern. Further, it is also the expectation that the teacher closely supervise the development of these projects and if this development is happening off-site, then it becomes increasingly difficult for the teacher to meet this requirement adequately.

Candidates are again reminded that offensive language and images are not acceptable, irrespective of any warnings which may be included as part of the folio. Candidates should consider appropriate means of conveying information.

Many of the best projects were innovative and demonstrated ongoing resolution of design problems in order to achieve a design solution. Candidates also demonstrated extensive and relevant testing to assist them with the final solution.

More appropriate methods of communication are being used, including charts, graphs, photography and other technologies, to express the ideas or development to the HSC markers. Typically, the most successful Major Design Projects show development by models, scale models, hypothetical tests of concepts and design ideas, in addition to a strong and applied evaluation of the overall project. Better projects provided succinct summaries of their research, and demonstrated application of the results of that research. They also provided succinct, less detailed portfolios but provided real evidence of how they developed solutions to identify needs in appendices.

In 2005, candidates were better able to consider the practices of design and development in industrial/commercial settings, and emulate these where appropriate in their own designing.

Candidates should be encouraged to use real evidence of development in model or prototyping form, photographic or brief video evidence where appropriate, and to summarise conclusions and place the source material within an appendix.

Component – Project Proposal and Project Management

This component was addressed well by most candidates. However, weaker responses tended to discuss or simply state what it was that the candidate wanted to make rather than providing a thorough investigation of a problem, situation, want or need. Successful responses indicated that the candidate had embarked on research early and spent time clearly identifying and exploring the need to be addressed in their project.

In the proposal and planning section of the folio, however, many candidates have employed a ‘reverse-engineering’ approach to the project. In this, it has become very obvious that this section of the folio is completed AFTER the project is complete and in so doing does not allow the candidate to demonstrate the evolution of the development process.

Assessment Criteria

- *Identification and exploration of the need*
Better responses demonstrated the application of critical analysis skills to the investigation of the need and drew conclusions regarding their criteria for evaluation. The flow from need identification to the development of evaluative criteria provided candidates with focus and direction for the product, system or environment's development. Poorer responses tended to simply state what they proposed to make without identifying a genuine need and subsequently exploring opportunities for other solutions.
- *Areas of investigation*
Better responses included a detailed analysis of the range of logical and relevant areas that they could possibly research, and the methodologies to be used, to inform the development of the product, system or environment, rather than listing some broad areas which may be considered in future research.
- *Criteria to evaluate success*
The better responses considered the project proposal and the needs that the product, system or environment should meet, in many cases creating an assessment tool for use in the final evaluation of the success or otherwise of the product, system or environment. Better responses linked this work to an analysis of the functional and aesthetic aspects of design. Weaker responses tended to list the criteria without any analysis.
- *Action, time and finance plans and their application*
Better responses used the action plan as an ongoing tool for assessment of progress and found it a management tool to help them achieve success. They frequently referred to it during the process and evaluated it regularly giving a self-evaluation of progress.

Some timelines that were presented clearly did not give specific details relevant to the project. Candidates need to add headings and stages that are relevant to their project in order to make it a well-formulated and useful management tool. The time they assign to each set task MUST be appropriate. It is not appropriate to use a generic template that will fit any project. Candidates need to develop their own timeline, specific to their project and themselves. It was often evident that many candidates completed the generic template AFTER the completion of the project, thereby presenting a very obvious false representation.

Better responses had clear project management strategies applied, with quality action plans in place from the commencement of the project, and evaluated throughout its development.

Finance planning is often quite poor and not a demonstration of actual planning, rather a documentation and listing of costs. Many candidates listed their source of income with a well-justified reason for the amount of money they allocated to their project. Many provided receipts to demonstrate all expenses. Better responses demonstrated a genuine effort to develop a budget based on available financial resources and likely costs and expenses. Poorer responses were simply a collection of receipts after the event with no real evidence of financial planning or management. Little ongoing evaluation was evident with these projects. Hence, few justified financial decisions were made throughout.

Aspects of development and realisation, investigation and experimentation, prototype development, production, implementation and evaluation should be built into the process of planning. Candidates should be advised that it is appropriate to develop a plan of action, provide this and then evaluate this document during the project development to show new directions that

may arise. It is also appropriate to deviate from this plan and document variations that may occur. It is essential, however, that the original documentation, written at the commencement of the project, remains as evidence of its early development.

- *Selection and use of ideas and resources*

Better projects identified resources that may be available to be used for the project and its development, then evaluated these resources and selected from the range. This selection of resources is part of project management, and was appropriately documented at this point. Many candidates used a table to succinctly communicate in this section. Better responses used this action as a link to the identification and justification of resources utilised in the major design project.

Candidates were better able to demonstrate their understanding and application of design processes when they communicated the development of their design project in its natural order, rather than artificially structuring it to fit a series of headings. Candidates who merely listed the marking criteria as sub-headings in their folio without the necessary information have not demonstrated the evolution of the project.

The ongoing process of resource identification, evaluation, selection, justification and use should continue throughout the project, and does not need to be broken into sections.

Component – Project Development and Realisation

In this section, the development and realisation of the Major Design Project, the folio and product, system or environment, should be clearly evidenced and explained. Application of the conclusions of research should be evident in the development. This is best shown by models, scale and not-to-scale, made of a range of materials and, where appropriate, photographic evidence or similar. Long-winded discussion within a portfolio is neither appropriate nor encouraged. The development and the results should be clear in the final product, system or environment. Better projects often presented a 3D folio, where design development was evident by the samples of modelled solutions shown.

Better responses demonstrated an ability to critically assess existing designs and research relevant areas, which ultimately impact on the success of their final project. They were able to distinguish between relevant and irrelevant research. They analysed their findings and conducted relevant tests and experiments, which ultimately impacted positively on their end result.

Poorer projects demonstrated little design development. The final design was shown immediately without any research and investigation into existing designs. They often included irrelevant testing, which unfortunately rarely had an impact on the final project. Many did not distinguish materials, tools, and techniques. In many instances, tools were described but very few actually tested. Some candidates listed tests and experiments without evidence of ever carrying them out.

Assessment Criteria

- *Evidence of creativity – ideas generation, degree of difference and exploration of existing ideas*

This aspect was well understood by candidates. Many demonstrated a thorough understanding of a definition of innovation versus invention, recognising that a degree of difference in the ideas, technology use and/or final product, system or environment was an acceptable indicator of these outcomes.

- *Consideration of design factors relevant to the Major Design Project*
Though the design factors are explicitly listed in the syllabus, many candidates could not relate these factors directly to their project. Candidates tended to list these factors and write a description of them rather than relate them to the product, system or environment they were developing. Better responses addressed these factors by actually considering them in context rather than listing them in isolation.
- *Documentation of research, experimentation and testing of design ideas, materials, tools and techniques*
The ad hoc testing of ‘design solutions’ was again of concern in the overall development of the design project. Some candidates continued to test and experiment unnecessarily, resulting in some of their work being irrelevant. Testing became superficial and many candidates could not see its relevance in the development of the whole project. The best responses referred to the use of appropriate testing and created a broad range of model solutions to inform the design development.

Some candidates also demonstrated clear evidence of relevant testing being carried out. The better responses drew their conclusions explicitly, which ultimately impacted positively on their product, system or environment, with the evidence of the impact being annotated in the product, system or environment. Weaker responses indicated that these candidates struggled to complete relevant tests and research. Candidates need to avoid irrelevant testing.

Research that can be extracted from external and well respected sources can be referenced in projects, but should not simply be downloaded and duplicated by candidates. Many candidates relied heavily upon downloads from the internet, without summarising and relating it to their product, system or environment.

- *Application of conclusions*
Those candidates who carried out relevant developmental processes did very well in providing evidence of their application of the conclusions drawn to their product, system or environment.
- *Identification and justification of ideas and resources*
The justification of the selection of the ideas and resources used remains a concept that is not well understood. Better responses identified the resources used in the major design project and justified their application and value, while weaker responses just listed the resources used.
- *Evidence of the testing of design solutions and application of conclusions*
Many responses showed no evidence of a process of model, digital 3D modelling or mock-up development. Processes of development such as this enable candidates to demonstrate both the testing of solutions to design challenges that they meet as they progress, and the testing of whole concepts.
- *Use of communication and presentation techniques*
A broad range of technologies was used in the presentation of all aspects of product, systems and environment development. From the written word to multimedia presentations, excellent use of the Internet for research and person-to-person communication, candidates showed a growth in the range of techniques they could apply appropriately.
- *Evidence and application of practical skills to produce a quality project*
Successful projects demonstrated production of work at the highest technical level. This was evident in many products, systems and environments, and in a growing range of technologies. Many of the better responses tended to communicate their construction phase through the use of

photographs, which outlined them completing various phases. Explicit instructions followed these photographs along with ongoing evaluations. This enabled the markers to identify that the candidates were clearly solving ongoing problems and making relevant decisions.

Better responses showed little use of outsourcing and the outsourcing they had used was well justified. The majority of their product, system or environment was completed by them, demonstrating that they developed many new skills and managed their time management in an effective way.

- *Consideration of the practices in industrial/commercial settings as they relate to the Major Design Project*

Better responses clearly demonstrated an understanding that the ‘practices’ referred to by the guidelines are the practices of both designing and producing. They discussed the whole process from needs identification through to production and compared their own practice with that of practicing designers and producers.

Poorer responses generally named an industrial or commercial setting, and then failed to compare and contrast these processes with their own. In many instances this was a speculative comparison rather than a factual link to industrial/commercial settings. By evaluating the design, management and production techniques in these settings, the candidate is able to demonstrate a sound knowledge of the industrial and commercial practices along with their own.

Component – Project Evaluation

Ongoing evaluation was again much stronger throughout folios. Many projects demonstrated ongoing problem-solving and decision-making processes by drawing conclusions back to how it would impact on their final product, system or environment. Many of these candidates referred back to their criteria to evaluate success as a guide to this development.

Candidates generally need to be more thorough in relating their evaluation, both ongoing and final, to their project proposal work.

Final evaluation in relation to functional and aesthetic criteria was generally strong. Many responses did not include a photo of the final product, system or environment in its environment, for example, showing the successful operation of it or perhaps modelling it. It is important for candidates to include this as it demonstrates to the marker that the project was successful in its end-use. It also demonstrates that there is a significant link between the final product, system or environment and the Project Proposal that was initially set by the candidate. A good evaluation is only possible if the designed solution is put into practice.

The final evaluation of the product, system or environment’s impact on society and the environment continues to provide challenges for candidates. Teachers may like to strengthen the understanding of life cycle assessment/analysis used with candidates and the selection of materials, tools and processes on environmental criteria, in addition to those already used. Social impact of product, system or environment is a major syllabus component, as detailed in outcome H4.3. Candidates should have acquired knowledge of the social impact of design from the preliminary course, ie personal values, cultural beliefs, sustainability, safety and health, community needs, individual needs, and equity, and be able to apply this in their Major Design Project.

Evaluation of impact on society remains an overall, weaker area. Candidates often do not link back to current trends in design. They do not discuss the uses of their product, system or environment, or where it is going. Candidates are advised to consider this throughout the development of the project

and refer to social impact of the whole project as well as the product, system or environment, which is the end-point and reason for the project.

There was a stronger use of professional evaluations, but many responses failed to link such evaluations to how their project impacted on society as a whole. Many tended to include these evaluations without realising their significance or reflecting upon it.

In relation to evaluating environmental considerations, candidates consistently discuss recycling issues without a detailed analysis. They struggled to clearly state what impact their design had on the environment in terms of resource usage. It is essential that candidates realise that they need to analyse the ‘internal’ environment as well.

Assessment Criteria

- *Recording and application of evaluation procedures throughout the design project*
As with other parts of the marking guidelines, many candidates used this as a heading for a section of their folio. This is unnecessary. A more appropriate response is to record evaluative comments and procedures as they occur. Better projects used incidental pages or notes throughout the folio or attached to their models of design development to emphasise their efforts at evaluation. The presentation of developing models and prototypes communicates clearly to markers that ongoing evaluation has occurred.
- *Analysis and evaluation of functional and aesthetic aspects of design*
Better projects commenced this analysis in the early stages of development. They analysed functional and aesthetic criteria while developing their criteria to evaluate success. They then drew upon this in a final evaluation of their solution using functional and aesthetic criteria.
- *Final evaluation with respect to the project proposal and the project’s impact on society and the environment.*
Societal impact still proves to be an area of evaluation that is difficult for many candidates. Some work in the case study about societal impacts of designs, and design and production, may assist candidates in this area. Environmental issues are better addressed, but rarely extend to life-cycle assessments of materials or of environmental impact of processes used. Successful projects related their criteria to evaluate success directly to their final evaluation.
- *Relationship of the final product, system or environment to the project proposal*
This aspect was well done by most, many providing a brief personal reflection relating back to the criteria to evaluate success. However, weaker responses failed to draw a parallel between the product, system or environment and the criteria for success established in the project proposal.

Written Examination

Section I – Multiple Choice

Question Number	Correct Response
1	D
2	C
3	A
4	B
5	C
6	C
7	A
8	D
9	B
10	C

Section II

General Comments

This section was mandatory for all candidates and allowed them to demonstrate their knowledge and understanding of factors that influence innovation and the success of innovation, the role of entrepreneurial activity in design and technological activity, and ethical and environmental issues in relation to innovation.

Question 11

- (a) (i) Most candidates were able to competently identify a method of protecting intellectual property, including patents, copyright, design registration, registered trademarks, circuit layouts, plant breeds and trade secrets. Better responses took this further by clearly outlining a process of implementation for the identified method and demonstrated depth of knowledge into why it is important to protect design ideas.

Weaker responses were only able to identify a method of protecting intellectual property.

- (ii) The majority of candidates selected two factors and provided general information relating to their impact upon innovation. Better responses clearly linked the factors to their impact upon successful innovation.

Weaker responses did not clearly articulate how the factors impacted upon successful innovation and demonstrated limited understanding of the relationship between the two.

- (b) (i) Most candidates identified valid entrepreneurial activities. The better responses expressed these as influences upon designers in the needs identification stage of designing, or outlined the relationship between the entrepreneur and the designer in the early needs stage of the design process.

- (ii) Most candidates adequately described the roles of each but a lesser number was able to draw out the relationships and show the similarities or differences between them. Better responses developed a table of comparison that identified the roles of each through the development and realisation of successful innovation. These responses compared the roles through brief development, research, ideation, realisation and final solution stages of a design process.

Weaker responses gave a description of entrepreneurs and/or designers, then struggled to demonstrate comparisons between the two.

- (c) This part required candidates to discuss ethical and sustainability issues in the development and impact of an innovation that had been studied. The majority of candidates were able to discuss either an ethical development issue, an ethical impact upon innovation and one sustainability issue or vice versa.

The better responses showed the interrelationship of all aspects in such a way that it clearly demonstrated an understanding of ethical and sustainability issues in design from the study of innovation.

Weaker responses neglected to relate their discussion to an innovation and merely talked in general terms. Many did not discuss the issues in relation to both the development and impact of the innovation. Candidates who chose to discuss environmental innovations often found it difficult to differentiate between ethical and sustainability issues.

Section III

General Comments

In this section candidates were required to select ONE of either Question 12, 13 or 14.

Question 12

This question was attempted by a relatively small proportion of the candidature. Those candidates who did select this question were able to use the stimulus material provided to adequately predict the impact of a new technology that they described.

- (a) The majority of candidates utilised the stimulus material to assist in answering the question. They managed a good description of their new product and presented a clear impact on future innovations. They were also able to use the stimulus material and/or other examples in their response. Better responses were able to make further in-depth reasoned predictions and displayed an understanding of the impact a new technology has on future innovations.

Weaker responses were only able to name a product and were unable to give any impact of the technology on future innovations.

- (b) Most candidates were able to identify at least one user group, often naming several. Better responses were able to analyse the impact of their new product and explain in depth the impact that this product would have on a range of issues, economic, social, legal or ethical. These responses were well planned and demonstrated a depth of knowledge and understanding of the issues selected and often used examples to support their analysis.

Weaker responses provided answers that briefly mentioned the user group and outlined how the proposed product impacted on society in very general terms. Some only identified the user group or outlined the impact of the product but not both. These responses repeated elements of the stimulus material without relating it to the question.

Question 13

The majority of candidates were able to interpret the question successfully. Many of the candidates utilised the stimulus material, together with examples of their own, as the basis to their answers for both parts of the question. Some candidates endeavoured to structure their response solely around the stimulus material.

The responses generally indicated a good understanding of technological change and the needs of the ageing population.

- (a) Most candidates were able to identify technological developments within the workplace; however, better responses demonstrated clear understanding of technological change by citing a range of examples and articulating the effect they had on work practice and extension of working life. These responses were able to draw on a variety of work situations that have been beneficially modified by specific technological changes, showing how these changes created a healthier, safer and more worker-friendly workplace that contributed directly to a longer working life.

Mid-range responses tended to cite examples, giving only a brief explanation, based solely on the direct effect the technology had on workplace change. These responses demonstrated difficulty in relating a cause and effect scenario between the technological changes and the nature of work. This difficulty was therefore based around the understanding of the ‘nature of work’. They were able to respond beyond the examples given in the stimulus material, indicating a broader understanding of the course content.

Weaker responses listed examples predominantly supplied by the stimulus material with little or no explanation of the operation of cause and effect on work practice. These responses often made weak links to the nature of work.

- (b) The majority of candidates outlined, some described in depth, a wide range of products and services that meet the needs of the ageing population. Many candidates made reference to the examples presented in the stimulus material but had difficulty in linking them to how global and technological issues influenced their development.

Better responses were generated through a clear outline of a range of products and/or services, indicating the main features of each, together with a clearly articulated discussion based around the influence that technological change and global issues have on the development of these products and/or services. Examples included wheel chairs, hearing aids and services such as ‘Meals on Wheels’.

Mid-range responses relied on utilising examples of products and/or services that meet the needs of the aged, with limited discussion about how technological change or global issues have influenced these developments.

Weaker responses only provided a list of products or services that meet the needs of the aged and were able to identify some technological or global issues. The issues/changes identified were not directly related to the development of the products or services listed in the response.

Question 14

This was the most popular question of Section III.

- (a) The majority of candidates referred to the example of products provided by the stimulus material. Most candidates chose two or more products to discuss in their response.

Better responses explained the concept of both durability and reliability in relation to the examples of products provided and drew relevant conclusions on the effect of the product's quality. Better responses were specific in explaining the cause and effect of factors such as material choice in regard to the strength and resistance, operating mechanisms and portability of the product.

Weaker responses often referred to two products, but they provided very weak links to the concept of durability and/or reliability. Answers were in general terms, using words from the question, rather than providing specific examples in relation to the products durability or reliability. These responses did not identify the effect the designer has in relation to the development of the product's quality.

- (b) Better responses had a very good understanding of the term 'obsolescence' and provided relevant implications for changing technology and fashion. Appropriate examples were used to support their analysis of technology and fashion change in regard to obsolescence. These responses discussed change of fashion in terms of change in style or trend of a product, and often provided strong links to changes in technology. They were also strongly supported with descriptions of advantages and disadvantages for the consumer.

Weaker responses linked the term 'fashionable' only to clothing, rather than to the change of style or trend of a product. Most candidates gave basic advantages and disadvantages for consumers in products becoming obsolete, but weaker responses only identified examples rather than described them. Some candidates discussed advantages and disadvantages in terms of producers rather than consumers.

Design and Technology

2005 HSC Examination Mapping Grid

Question	Marks	Content	Syllabus outcomes
Section I			
1	1	Initial design ideas	H4.1
2	1	Ethical design	H2.2
3	1	Innovation	H3.2
4	1	Market research	H4.1
5	1	Life cycle analysis	H1.1, H4.2
6	1	Designing reuse of water	H1.2, H3.2
7	1	Material Selection	H4.2
8	1	Project Evaluation	H1.2, H4.1
9	1	Technological change	H2.1
10	1	Social impact emerging technology	H3.1
Section II			
11 (a) (i)	2	Protection of intellectual property	H2.2
11 (a) (ii)	3	Factors impacting on innovation	H3.1
11 (b) (i)	2	Entrepreneurial activity	H3.1
11 (b) (ii)	3	Entrepreneurial activity in design	H3.1
11 (c)	5	Ethical and sustainable issues in innovation	H2.2
Section III			
12 (a)	6	Emerging technologies, criteria for evaluation and factors affecting their developing	H6.2
12 (b)	9	Emerging technologies, criteria for evaluation and factors affecting their developing	H6.2
13 (a)	6	Issues of trends on designing – global issues changing nature of work, technological change, cultural development	H2.1
13 (b)	9	Issues of trends on designing – global issues changing nature of work, technological change, cultural development	H2.1
14 (a)	6	Factors affecting design, quality, durability obsolescence	H1.1
14 (b)	9	Factors affecting design, quality, durability obsolescence	H1.1

2005 HSC Design and Technology Marking Guidelines

Section II

Question 11 (a) (i)

Outcomes assessed: H2.2

MARKING GUIDELINES

Criteria	Marks
<ul style="list-style-type: none"> Names and gives the general features of a method to protect intellectual property 	2
<ul style="list-style-type: none"> Names a method for the protection of intellectual property 	1

Question 11 (a) (ii)

Outcomes assessed: H3.1

MARKING GUIDELINES

Criteria	Marks
<ul style="list-style-type: none"> Selects two of the following factors, cultural, research, timing or ideas and for each one, indicates the main features of their impact upon innovation success 	3
<ul style="list-style-type: none"> Selects one of the following factors, cultural, research, timing or ideas then indicates the main features of its impact on innovation success <p>OR</p> <ul style="list-style-type: none"> Selects two of the following factors, cultural, research, timing or ideas then recognises and names their impact upon innovation 	2
<ul style="list-style-type: none"> Names an impact upon the success of innovation 	1

Question 11 (b) (i)*Outcomes assessed: H3.1***MARKING GUIDELINES**

Criteria	Marks
• Outlines the influence an entrepreneur has upon a designer when identifying the need for a new product, system or environment	2
• Lists entrepreneurial influences upon a designer	1

Question 11 (b) (ii)*Outcomes assessed: H3.1***MARKING GUIDELINES**

Criteria	Marks
• Shows how the role of entrepreneurs and designers in the development or realisation of a successful innovation are similar or different	3
• Describes the role of entrepreneurs and designers in the development or realisation of a successful innovation	2
• Outlines the role of entrepreneurs or designers in the development or realisation of a successful innovation	1

Question 11 (c)*Outcomes assessed: H2.2***MARKING GUIDELINES**

Criteria	Marks
• Identifies issues and provides points for and/or against both ethical and sustainability issues in the development and impact of the innovation	5
• Identifies issues and provides points for and/or against ethical or sustainability issues in the development and impact of the innovation OR • Identifies issues and provides points for and/or against ethical and sustainability issues in the development or impact of the innovation	3–4
• Outlines the impact of ethical or sustainability issues of innovation	2
• Identifies ethical or sustainability issues of innovation	1

Section III

Question 12 (a)

Outcomes assessed: H6.2

MARKING GUIDELINES

Criteria	Marks
<ul style="list-style-type: none">Provides the characteristics and features of a new product and gives reasoned predictions, shows an understanding of the impact the new technology has on future innovations.	5–6
<ul style="list-style-type: none">Outlines the characteristics and features of a new product and predicts an impact of this technology on future innovations.	3–4
<ul style="list-style-type: none">Outlines a product that could use odour sensor technology and lists two features of the product	2
<ul style="list-style-type: none">Outlines a product that could use the odour sensor technology <p>OR</p> <ul style="list-style-type: none">Lists features that a product using odour technology would need to have	1

Question 12 (b)

Outcomes assessed: H6.2

MARKING GUIDELINES

Criteria	Marks
<ul style="list-style-type: none">Identifies a user group and provides an in-depth analysis of the impact that the product would have on society by considering issues	7–9
<ul style="list-style-type: none">Identifies a user group and describes in detail the impact that the product would have on society by considering issues	5–6
<ul style="list-style-type: none">Identifies a user group and outlines how the proposed product impacts on society	3–4
<ul style="list-style-type: none">Identifies a user group and identifies how the proposed product impacts on society	2
<ul style="list-style-type: none">Identifies a user group and/or an impact on an individual by the product	1

Question 13 (a)
Outcomes assessed: H2.1
MARKING GUIDELINES

Criteria	Marks
<ul style="list-style-type: none"> Clearly explains technological changes using examples and relates the cause and effect of these changes on the nature of work that will enable people to have a longer working life 	5–6
<ul style="list-style-type: none"> Explains technological changes with links to some aspects of the nature of work that will enable people to have a longer working life 	3–4
<ul style="list-style-type: none"> Lists more than one technological change and identifies more than one aspect of work that enables people to have a longer working life OR <ul style="list-style-type: none"> Identifies one technological change and makes a link to the way people work to enable them to have a longer working life 	2
<ul style="list-style-type: none"> Lists one technological change that will enable people to have a longer working life OR <ul style="list-style-type: none"> Lists one aspect of work that will enable people to have a longer working life 	1

Question 13 (b)
Outcomes assessed: H2.1
MARKING GUIDELINES

Criteria	Marks
<ul style="list-style-type: none"> Clearly outlines (indicates main features of) a range of products and/or services to meet the needs of the aged. Discusses both technological change AND global issues with a clear understanding of how they have influenced development of these products or services 	7–9
<ul style="list-style-type: none"> Outlines products or services to meet the needs of the aged Discusses how technological change and/or global issues have influenced the development of these products or services 	5–6
<ul style="list-style-type: none"> Lists a product or service and identifies one technological or one global issue that has influenced the development of this product or service 	3–4
<ul style="list-style-type: none"> Lists products or services to meet the needs of the aged OR <ul style="list-style-type: none"> Identifies a global issue or technological change 	1–2

Question 14 (a)

Outcomes assessed: HI.1

MARKING GUIDELINES

Criteria	Marks
<ul style="list-style-type: none"> • Demonstrates the why, and/or how in the relationship between a designer’s decisions regarding quality and durability and reliability, with specific links to examples 	5–6
<ul style="list-style-type: none"> • Provide characteristics and features in the relationship between a designer’s decisions regarding quality and durability and reliability, with specific links to examples 	3–4
<ul style="list-style-type: none"> • Provide characteristics and features in the relationship between a designer’s decisions regarding quality and durability or reliability, with reference to at least one example 	2
<ul style="list-style-type: none"> • Identifies one influence of durability or reliability upon the decision of designers 	1

Question 14 (b)

Outcomes assessed: HI.1

MARKING GUIDELINES

Criteria	Marks
<ul style="list-style-type: none"> • Draws out implications of changing fashion and changing technology to obsolescence • Describes advantages and disadvantages for consumers 	7–9
<ul style="list-style-type: none"> • Describes the reasons of changing fashion and changing technology to obsolescence • Identifies advantages and disadvantages for consumers 	5–6
<ul style="list-style-type: none"> • Identifies a link between fashion OR technological change and obsolescence. Provides examples of advantages and disadvantages for consumers 	3–4
<ul style="list-style-type: none"> • Identifies a link between fashion or technological change and obsolescence <p>OR</p> <ul style="list-style-type: none"> • Provides examples of advantages or disadvantages for consumers 	1–2