

2000 HSC Notes from the Examination Centre Design and Technology

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Design & Technology

2/3 Unit (Common)

Major Design Project

Marker's Comment:

The Project Proposal is an essential component of the MDP. It should be documented in the folio and should include:

- identification of the needs leading to the development of the project
- areas to be investigated
- criteria established to evaluate success

The Marker's use the Project Proposal to determine the intent of the project and to judge the success of the project in relation to this intent.

Candidates showed a good understanding of the Design and Technology syllabus, which was evident through the processes used by candidates to research, manage, develop and evaluate their projects.

Research:

Candidates used a range of appropriate methodologies in their project development. The use of the Internet is an appropriate and valuable resource for the development of the MDP, however it is important to keep sourced information relevant and minimise inclusion of excessive material. Candidates must indicate how the results of the research is utilised in the project, rather than just include all the research material gathered.

Folio Presentation:

The organisation and development of the MDP design folio for the better candidates displayed effective communication skills, with information which was succinct, descriptive and appropriately organised. Poor documentation often took the form of a diary written in hindsight, with very little design development displayed.

Written Paper

Section I - (10 Marks)

Question	Correct Response	Percentage Correct
1	B	63.17
2	D	68.90
3	A	77.56
4	B	36.60
5	C	70.60
6	B	63.71
7	C	86.15
8	A	77.74
9	D	89.94
10	C	52.02

General Comments:

Multiple-choice questions require careful reading and reflection before an answer is given. Candidates are reminded that they are to select the alternative A, B, C, or D that best answers the question.

Section II - (15 marks)

The question in this Section is COMPULSORY

Question 11

Name TWO organisations with contrasting structures. State the products and/or services that each organisation provides.

- (a) *For EACH organisation, draw a flow diagram to show the sequence of processes and technologies used in that organisation, from the input of materials and/or information through to the final product or service.*
- (b) *Analyse the two flow diagrams you have drawn. Compare how the two organisations manage:*
 - (i) *quality outcomes of the product and/or services:*
 - (ii) *approaches to marketing and customer service:*
- (c) *For ONE organisation, identify TWO different regulations, and explain their impact on the organisation.*
- (d) *For ONE organisation, assess how it uses or could use alternative energy sources.*
- (e) *For ONE organisation, identify and describe how a design-based innovation has changed the nature of the product and/or service it provides.*
- (f) *For ONE organisation, evaluate its impacts.*
 - (i) *Its economic impact on the local community*
 - (ii) *Its social impact on the local community*
 - (iii) *Its environmental impact on the local area.*

Marker's Comment:

The question allowed candidates opportunities to demonstrate knowledge and understanding of their chosen industries. The flow diagram in part (a) was generally well answered. Some candidates, however, overlooked the need to indicate technological tools as well as processes in their answer. Some candidates provided a management structure rather than a sequence of processes and use of technologies. Most candidates were able to identify regulations, many identifying locally applied regulations such as customer service protocol or a working procedure. Better responses explained the impact such regulations have on the organisation.

While most candidates could identify alternative energy sources in part (d), fewer candidates could suggest how such sources are or could be used within the organisation. In part (e), candidates were able to identify and describe design-based innovation within the organisations nominated. Fewer candidates were able to describe the change in nature of the product and/or service brought about by the innovation. Economic, social and environmental impacts were well identified in part (e), but many candidates did not evaluate the impact of each on the organisation.

Section III - (15 marks)

Attempt ONE question.

Question 12

It is the year 2020, and Galactic Pty Ltd has purchased an old service station. It proposes to redesign the service station to meet consumer demands and modes of transport.

- (a) Predict FOUR changes in consumer activity that could be reflected in the redesign of the service station.*
- (b) What market research could you undertake to test your predictions ?*
- (c) Design and draw a logo that reflects your concept of the Galactic Pty Ltd service station.*
- (d) Where and how would you use the logo to communicate the company image in the Galactic Pty Ltd service station ?*
- (e) Describe the criteria used to evaluate the impact of your Major Design Project on society and the environment. How could these criteria be applied to the Galactic Pty Ltd service station.*

Marker's Comment:

Better responses projected into the year 2020 and address relevant issues, such as consumer needs, lifestyle changes and modes of transport. They predicted possible changes in consumer activity and identified market research, which could be carried out to test those predictions. Many candidates answered this question by listing the renovations that appeared to be needed to modernise the petrol station, and overlooked the issue of 2020 and its futuristic perspective. The logo design was generally well done with the better responses containing simple designs, which were unique and reflective of the company image. They were able to nominate a number of places where a logo could be used and articulate how their logo could communicate the company image. Some candidates were able to describe criteria used to evaluate the impact of the MDP on society and the environment, however they had difficulty applying the broader concepts of evaluation processes to the Galactica design.

Question 13

You have been commissioned to modify the design of one of the products below to enhance its function OR to develop it as an improved product for a new target market.

- (a) Name the product you have been commissioned to modify. Identify whether its modification is to enhance its function OR to develop it as an improved product for a new target market.*
- (b) Identify and justify FOUR criteria to be considered in the modification identified in part(a).*
- (c) Develop, sketch and label TWO alternative design modifications for the product selected in part (a)*
- (d) How would you determine which alternative design modification should be developed ?*
- (e) Select ONE alternative design modification you have developed in part (c), and suggest materials that could be used in its production.*
- (f) Name and briefly describe your Major Design Project, and determine the aspects that could be modified to enhance its function or purpose OR that could be developed for a new target market.*

Marker's Comment:

With the majority of candidates being familiar with the identified stimulus material, this question was well answered. The majority of candidates were able to identify and justify four criteria but with most being generic to the initial product with little consideration to identified modification. The better responses related their criteria and gave ample justification for the product they chose to enhance. A good understanding of design was shown in the modifications, which were evident in their sketches. Sketches ranged greatly from simple line drawings through to rendered detailed sketches with more than the required two modifications. Testing and research generally justified the selection of the better design modification. The testing and research mainly involved recommending suitable materials with their relevant properties. Most candidates were able to identify one or two market research strategies with better responses giving a full explanation of the market research process. Identification of materials was generally well attempted with better responses naming appropriate or desirable materials and justifying these in terms of the modification to be made. There was no advantage or disadvantage to the candidate who chose either 'enhance' or 'develop', with the majority of candidates choosing to enhance the product's function rather than develop an improved product for a new target market. Most candidates had a good understanding of design and the design process, and were able to relate aspects of design modification to their Major Design Project. The majority of candidates understood the question with most attempting all sections with varying degrees of competence.

Question 14

A local council has decided to rejuvenate the main street by creating a more people friendly area to encourage shopping and provide a more relaxing environment.

The new scheme will require a range of new street items, including furniture, litter bins, drinking fountains, planter boxes, trees and lighting.

- (a) Identify FOUR criteria that you consider important when designing for this environment.*
- (b) Using the key provided, identify on the plan where the proposal items should be placed. Justify the placement of the items, using the criteria you identified in part (a), by annotating your plan.*

- (c) *Select ONE of the five manufactured items from the key and sketch a proposed design. Label the main features of the design, indicating why they are appropriate for this area.*
- (d) *Which stakeholders would you consult to obtain feedback on the design of your manufactured item ?*
- (e) *When designing and developing your Major Design Project, which people/stakeholders did you consult, and how did the consultation influence its design ?*

Marker's Comment:

The majority of candidates were able to explore design ideas as the 'shopping centre' is a well-known environment. The use of a key and the application of design criteria chosen by the candidate proved quite challenging but responses showed a good understanding of the 'need' and a desire to meet the requirements of the council brief. Candidates were able to clearly show a 'theme' in their designs and consistently focus on their chosen criteria. Components of the question allowed candidates to use a variety of communication methods such as sketching, annotating and listing information. Annotating was clearly laid out and the representation of items in position indicated a sound appreciation of the brief. In part (b), candidates were able to clearly justify where required, and provide 'personal/different' design ideas. Responses indicated that some had difficulty with terms including; rejuvenate, annotating and stakeholder. However, most candidates were able to identify key design features and justify their ideas in terms of the question. From the point of view of the stakeholders, candidates could explain why they were appropriate for the area. The opportunity for candidates to design a product for a specific purpose identified a broad range of ideas that in general were well focused on the needs of the question. Most candidates included a range of design features that were appropriate for a public area, such as movement space, durable materials, secure fastenings, rounded corners or curved surfaces. A number of candidates experienced difficulty identifying people/stakeholders that influenced their Major Design Project (MDP). In addition, explaining how such consultation influenced the development of their MDP proved difficult for some proportion of the candidature. Candidates accessed a broad range of research methodologies and were able to use the information effectively to improve the outcome of their MDP.

3 Unit (Additional)

Specialised Study

General Comments:

The overall standard of the Specialised Study was generally better than past years. The above average candidate approached the study in a professional manner in both quality of research and presentation. Their methodologies were appropriate and diverse with an analysis of each carried out. Candidates of lesser ability tended to simply give descriptions under category headings and draw unsupported conclusions. Some candidates had difficulty in managing their time between presentation of work, graphics, statistics, desktop publishing etc. and the actual content related to the task.

Written Paper

Section I - (12 marks)

The question is COMPULSORY

Question 1

It seems that as soon as a product is developed, it is superseded by a newer, seemingly better version with more features.

For example, the models are often reduced in size. Choose one of the products illustrated, or an innovation you have studied, and:

- (a) Explain THREE technological factors that have influenced the design of the product or innovation.*
- (b) Discuss how each of the following factors impacts on the chosen product or innovation:
 - (i) economic climate;*
 - (ii) cultural needs and wants;*
 - (iii) environmental issues.**
- (c) Describe the likely role of entrepreneurial activity in the development and promotion of your chosen product or innovation.*
- (d) Critically evaluate the statement that today's product designs are more 'consumer led' than technologically based. Use the product or innovation chosen as an example to support your opinion.*

Marker's Comment:

In part (a), many candidates were able to explain how three different technological factors influenced the design of the product or innovation. Some candidates only listed three factors and did not explain how they influenced the design of the innovation or stated factors that were considered technological. Some candidates in part (b) were able to state each factor and give a full explanation incorporating the product or innovation. A few candidates interpreted the question by discussing how their innovation impacted on parts (i), (ii) and (iii), rather than how economic climate, cultural needs and wants or environmental issues had impacted on their innovation. Better responses in part (c) discussed issues relating to how strategic planning, flexibility, change orientation, risk taking, communication, networking and agencies assisting had been involved in the development of their innovation. Many candidates mentioned the

relationship between risk and management, but did not elaborate or support their discussion with their chosen innovation as an example. Some candidates did not express a clear understanding of what entrepreneurial activity was involved and a few did not attempt this part of the question. In part (d) the majority of candidates were able to identify that they needed to discuss two sides of the argument, i.e. consumer led and technologically based. Some candidates did not support their argument by using their chosen product or innovation as an example to support their opinion. Better responses discussed the chosen innovation/product throughout, using it in relevant examples to elaborate upon or support their arguments and discussions.

Section II

Attempt ONE question.

Each question is worth 8 marks.

Question 2

Choose an example from the article (included in examination paper), or a similar innovation that combines a number of technologies, and:

- (a) Outline the advantages that may result from the use of the innovation.*
- (b) Discuss TWO ethical issues arising from the use of the innovation.*
- (c) Critically analyse the changes in lifestyle that may result from the use of the innovation.*
- (d) Discuss ways in which the chosen innovation can be protected from potential competitors.*

Marker's Comment:

For all parts of this question, the better response stated the issues, related them to the use of the chosen innovation and then further elaborated upon the answer. In part (a), many candidates used point form but still needed elaboration to gain full marks. Many candidates were able to answer this question. In part (b), candidates needed to discuss two ethical issues but many discussed only one. In part (c), candidates needed to analyse the use of each innovation as either a positive or negative change in life style. Most candidates were able to answer this question, with many needing to elaborate upon the answer to gain full marks. In part (d), the majority of candidates chose only one protection strategy, often being either a patent or copyright. The better responses developed two protection strategies.

Question 3

Choose examples from the stimulus material (included in examination paper), or similar examples, and:

- (a) Describe a range of ways in which design can add value to products.*
- (b) Explain the range of factors that can be used to evaluate the success or failure of an innovation in design.*
- (c) Justify how design can be used to create market opportunity and demand.*
- (d) Critically evaluate TWO ethical issues you would consider in promoting a redesigned product.*

Marker's Comment:

In part (a), poorer responses only listed a range of ways in which design can add value to products and did not describe these. Better responses supported their description with examples. In part (b), again some candidates only listed a range of factors that can be used to evaluate the success/failure of an innovation and did not explain these factors. Some candidates

misinterpreted the question and stated factors that could not be used to evaluate if the innovation was a success/failure, but rather stated factors that needed to be in place for the innovation to succeed. Poorer responses in part (d), mentioned two ethical issues, however the ethical issues stated did not relate to the promotion of a redesigned product. Better responses critically evaluated two ethical issues that needed to be considered when promoting a redesigned product and gave examples to support their analysis.

Question 4

Read the stimulus material (included in examination paper).

- (a) Explain the nature of entrepreneurial activity.*
- (b) Choose an entrepreneurial activity you have studied, and suggest how it has managed to develop and implement the innovation.*
- (c) Explain the role that government agencies may have in supporting entrepreneurial activity.*
- (d) Critically analyse possible ethical issues raised by introduction of eCommerce or other entrepreneurial activities.*

Marker's Comment:

- (a) Better responses explained in detail the nature of entrepreneurial activity and the likely tasks that would be undertaken eg strategic planning. Poorer responses simply listed these tasks and showed limited understanding of the concept of entrepreneurial activity.
- (b) The majority of candidates were able to identify an entrepreneurial activity and then suggest how it was managed. Better responses discussed both the development and implementation stages of the activity, whereas poorer responses were only able to identify a limited number of areas.
- (c) Better responses named specific government agencies and then explained their role in entrepreneurial activity. Poorer responses spoke of 'the government' generally and did not clearly explain its role.
- (d) Most candidates were able to identify at least one negative ethical issue related to an entrepreneurial activity or eCommerce. Better responses however, analysed both positive and negative issues.