

**2005 HSC Notes from
the Marking Centre
Information Processes and Technology**

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2005 HSC NOTES FROM THE MARKING CENTRE INFORMATION PROCESSES AND TECHNOLOGY

Introduction

This document has been produced for the teachers and candidates of the Stage 6 course in Information Processes 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 to be read along with the relevant syllabus, the 2005 Higher School Certificate examination, the marking guidelines and other support documents which have been developed by the Board of Studies to assist in the teaching and learning of Information Processes and Technology.

The HSC Examination

In 2005, approximately 5800 candidates presented for the Information Processes and Technology Higher School Certificate examination.

Candidates are reminded that the mark value allocated for each question part, along with the ‘key words’ used in each question part, indicates the type of response required and the depth of that response.

Section I

Question	Correct Response
1	B
2	C
3	A
4	D
5	B
6	A
7	D
8	C
9	B
10	D
11	B
12	C
13	D
14	A
15	B
16	A
17	C
18	D
19	C
20	C

Section II

Candidates were required to answer all four questions in this section.

The majority of candidates were able to give responses which reflected their understanding of the question and the ‘key words’ used. Overall, responses related to the stimulus material and were less general in nature than in previous years.

Question 21

The question integrated all three sections of the core in a familiar scenario. In general, candidate responses reflected an understanding of the scenario and of the relevant concepts. Most candidates were able to gain marks for their responses.

- (a) Weaker responses gave a very general description of a communication protocol and often were not able to give an example. Rather than identify, describe and apply a specified communication protocol, some candidates confused communication in the technical sense with communication strategies necessary to be able to ‘communicate/talk’ to a person, such as ‘language’.

Better responses were able to give an explanation of their example such as ‘http’ as ‘hypertext transfer protocol’ or include specific qualities such as ‘speed of transmission’.

- (b) Some responses referred to the search engine at the Board of Studies site without understanding that the question was asking them to refine a search in a search engine on the WWW to find the Board of Studies website, refining the search to eliminate unwanted matches.

Weaker responses repeated the same strategy, for example, using a variety of keywords or simply listed examples without sketching distinctive strategies.

Better responses clearly indicated by sketching in general terms three distinctive search refinement strategies and provided an appropriate/specific example for each.

- (c) Some candidates failed to understand that the search engine would be used exclusively by the university for their website.

Weaker responses failed to understand methods of testing, and where a method was given, candidates failed to justify their responses. Some candidates did not know the methods of implementation and where they were able to respond, gave a textbook definition rather than apply their knowledge to the scenario.

Better responses clearly understood that the testing was for a university search engine and justified both methods, clearly linking the implementation to the scenario.

Question 22

- (a) Better responses demonstrated a clear knowledge of what data redundancy is and clearly identified examples of redundant data within the database provided. These responses fully

described the problems associated with data redundancy in flat-file structures and were often able to describe other problems with the actual database provided.

Mid-range responses could often provide a problem with flat-file database structures but could not clearly identify the data redundancy within the database in the question.

Weaker responses were often very superficial, could not identify the data redundancy and attempted to describe problems with the way the database table in the question was drawn up rather than problems with the structure. Many weaker responses identified an entire field as being redundant rather than identifying particular data within the table.

- (b) The best responses demonstrated a clear understanding of the process of normalising and could draw a schematic diagram with all fields in the correct tables, with primary and foreign keys clearly labelled and relationships indicated with the appropriate symbols.

Mid-range responses showed a lack of understanding of normalising as being for reduction of data redundancy and had three tables that resulted in more data redundancy being created rather than less. Many of these responses also indicated a poor knowledge of foreign keys.

Weaker responses did not indicate an understanding of schematic diagrams and used the actual data provided to construct their tables rather than just the field names. Weak responses also did not indicate any relationships and did not label primary or foreign keys.

- (c) Better responses gave clear, completely annotated diagrams of the report layout as produced from a database, with all of the necessary parts required by the question. These responses clearly labelled the actual design features of the layout. They also demonstrated an understanding of how a report is generated by a database.

Mid-range responses provided a wide variety of diagrams, many of which were missing some of the parts required by the question. Some of these responses did not show an understanding of database report generation by providing diagrams or tables that could be generated as queries or forms from a database. Many of the mid-range responses did show an understanding of what a good report should look like by their diagram but had no annotations or labels of the features of the layout.

Weaker responses showed a lack of understanding of database report generation. Many of these responses did not demonstrate that the report would be generated from the database. These responses had written 'text-type reports' rather than showing the layout of a database report.

Question 23

- (a) Better responses were able to name technologies from hardware, software and communications areas. Although attracting full marks for identifying, some responses provided unnecessarily detailed descriptions of technologies and their uses.

Weaker responses did not identify technologies from the areas of hardware, software and communications, with many not identifying technologies from the software area. There

seemed to be a limited understanding of the role software plays in communications systems.

Better responses used a systematic approach to identifying the three areas (hardware, software and communications) and listing technologies under each clearly and concisely.

- (b) This part was generally well answered, although some responses addressed the advantages and disadvantages for employees rather than employers. Candidates seemed better able to identify disadvantages for employers than to identify advantages.

Candidates who used headings for advantages and disadvantages, some in a table, were able to clearly and concisely demonstrate their understanding.

- (c) The majority of candidates were able to provide some response to this question. Candidates were able to provide descriptions of strategies that could be used to enhance communication between team members based in different locations, including in some cases providing descriptions of the technologies to support communication. Some responses also included descriptions of strategies to support team-building and strategies to overcome problems that may arise between team members. Responses included descriptions of negotiations skills, conflict management, time management, and task allocation. Better responses included descriptions of the use of distributed databases and methods for file sharing. In order to attract full marks for this question, responses were required to relate the descriptions of strategies to the question scenario.

Weaker responses only identified technologies to enhance communication, or gave rote descriptions of strategies without showing an understanding of the strategies in the context.

Question 24

Candidates in this question were given the opportunity to describe and discuss a wide range of strengths, weaknesses and technical issues related to the stimulus material.

- (a) Better responses demonstrated a clear knowledge and understanding of the structure and purpose of a distributed database. These candidates were able to clearly relate their response to the scenario. Better responses also included descriptions of the wireless LAN and its interaction with the distributed databases, and included discussions on response times from separate databases, slow response times over wireless, extra maintenance required on more databases, data traffic spread over the entire network, and the effect of only one database going down.

Weaker responses demonstrated a meagre understanding of distributed databases. These responses were too brief and lacking any or some description of the points raised. These responses frequently listed a series of points without discussion.

- (b) The aim of this part was to elicit in a more technical nature, discussion on wireless communication within the hospital. The scenario in the stimulus material provided adequate direction for candidates to do this. Weaker responses investigated distributed databases, demonstrating limited knowledge or understanding of wireless communication, or listed and did not discuss relevant technical issues.

Better responses included discussion on slow data rates, battery considerations of PDAs, hospital equipment interference of the wireless data stream and the reverse effects, limited range of wireless communication, effect of poor reception and placement of wireless access points, and security considerations of wireless data transmissions.

Section III

Candidates were required to answer TWO questions only from this section. Eight percent (8%) of the total candidature attempted more than two questions, which is more than last year. Candidates should be discouraged from attempting more than two questions, as the time they waste on the extra question/s could be better spent fully answering the questions required.

Question 25 — Transaction Processing Systems

64% of candidates attempted this question.

The question required candidates to have an understanding of transaction processing systems and apply this knowledge to a given scenario. Better responses were from candidates who had demonstrated a link between factual knowledge and the consequences of its application in a transaction processing system.

- (a) (i) Better responses gave both the meaning and the qualities of batch processing and gave an appropriate example.

Weaker responses did not have an understanding of batch processing, giving only a weak example.

- (ii) Better responses provided both the definition of MICR and provided a relevant example. A significant number of candidates were unable to provide a definition of MICR.

- (b) (i) Better responses provided screen design elements that were not listed in the question and justifications were given.

Mid-range responses had an adequate understanding of the listed screen design elements with little or no justification.

Weaker responses provided limited elements of the screen design.

- (ii) Better responses demonstrated a sound understanding of the sequence in which the real-time processing occurred in this scenario and were able to elaborate on information technology required for each stage.

Mid-range responses elaborated on the sequence in which real-time processing occurred but only focused on either software or hardware for information technology.

Weaker responses demonstrated a limited understanding of the sequence required in real-time processing.

Many candidates regarded the online processing as beginning with the submission of details and instantly receiving their ticket. Such responses did not discuss the real-time processing at the cinema nor the financial institution.

- (c) Better responses were able to identify and discuss the advantages and disadvantages of each system. The better responses tended to list several unique advantages and disadvantages of at least two of the systems.

Mid-range responses identified advantages and disadvantages of at least two systems. The responses were usually in a table and in point form.

Weaker responses were only able to demonstrate a limited understanding by listing an advantage and/or disadvantage of just one system.

Question 26 — Decision Support Systems

34% of candidates attempted this question.

- (a) (i) Candidates were able to access a full range of marks on this question.

Better responses were able to clearly describe how graphs or charts assist in decision-making by referring to data trends and the visual aspect of graphs.

Weaker responses only gave an example or a weak description of how graphs or charts assist in decision-making.

- (ii) Better responses included a detailed definition with an appropriate example of an intelligent agent.

Weaker responses were able to give an example of an intelligent agent without a definition.

Some candidates were unaware that an intelligent agent was software-related, and made reference to human intelligence agents as employed by ASIO.

- (b) (i) Generally candidates were able to draw a decision tree from the data in the table.

The layout of the decision tree was often poor and many candidates failed to check the logic of the decision tree. Weaker responses included system flowcharts and decision tables.

- (ii) Better responses included a rule that would appear in the knowledge base with the correct syntax.

Weaker responses contained a few features of the rule with little structure.

- (c) Better responses were able to compare how neural networks and expert systems would be used to identify whales in relation to processing methods, user interfaces and data formats.

Many candidates listed the processing methods of neural networks and expert systems with little discussion of user interfaces and data formats.

Weaker responses only discussed one of the data support systems required or merely gave an example of a data support system.

A significant number of candidates did not attempt this part.

Question 27 — Automated Manufacturing Systems

19% of the total candidature attempted this question.

Candidates' responses reflected a reasonable understanding of theoretical concepts and how they could be applied to an automated manufacturing system.

Better candidates attempted to tie their answers to the automated manufacturing system situation described in the stimulus material. Candidates are reminded that they should relate their answers to the stimulus material in the question and to avoid over-generalised responses.

- (a) (i) Many candidates described a barcode or the operation of a barcode reader.

Better responses described a clear understanding of characteristics and features of a barcode and the operation of a barcode reader. Candidates found it useful to draw a diagram of a barcode as a series of vertical lines of various thicknesses to illustrate their answers.

Weaker responses described only the characteristics and features of a barcode or a barcode reader, for example describing a barcode reader as a device which reads barcodes.

- (ii) Better responses described a situation in an automated manufacturing system where it is necessary to convert a digital signal to an analogue signal. The use of a good example in an automated manufacturing system situation added to their response. Better responses also explained the use of sensors and actuators in their response.

Mid-range responses provided characteristics or features of an automated manufacturing system situation where it is necessary to convert a digital signal to an analogue signal.

Weaker responses did not relate their answers to the scenario given, for example describing a situation where it is necessary to convert a digital signal from a temperature sensor to a motor.

- (b) (i) Many candidates could draw a block diagram which included the three tasks.

Better responses included a block diagram that addressed the three tasks mentioned in the question. They also addressed what aspects were human centred and computer controlled and clearly indicated inputs and outputs.

Mid-range responses drew a block diagram that only addressed the three tasks mentioned in the question.

Weaker responses drew a simple block diagram that addressed one task mentioned in the question.

- (ii) Many candidates were able to identify the processing and attempted to provide an argument as to its appropriateness.

Better responses clearly identified the processing used and provided a good argument as to its appropriateness. Such responses mentioned the ability to produce similar items but then change to produce a set of different items.

Mid-range responses selected a type of processing and provided a weak argument as to its appropriateness.

Weaker candidate responses simply selected a type of processing, without discussion of appropriateness.

- (c) All candidates made an attempt at discussing issues over introducing mass customisation at CMN in reference to the nature of work or information technologies.

Better responses provided a clear understanding of these issues, many making reference to safety issues, inventory control and variety of work.

Mid-range responses discussed these issues in a general way.

Question 28 — Multimedia Systems

91% of candidates attempted this question.

In general, candidates responded well to this question with many candidates achieving high marks.

- (a) (i) Most candidates were able to provide a clear meaning of *morphing* and identify an unambiguous example of its use. However, some responses confused morphing with other graphical techniques such as warping and distorting.

Good responses identified essential qualities, which included the gradual transition between two distinctly different graphics, and provided examples that could not be confused with other techniques.

- (ii) Some candidates were able to clearly define *sampling rate* and describe how it is used to represent audio data. Better responses included essential qualities such as the different sampling rates for different purposes, the relationship between sampling rate and sound quality and the representation of audio data in binary form.

A number of candidates confused slices per second with bits per second in defining sampling rate.

- (b) (i) The majority of candidates were able to identify and clearly describe four of the multimedia elements, or links to them, shown on the ABC Online website. Good responses included the elements of text, images, audio, video and hyperlinks with specific reference to the website. However, some candidates incorrectly identified non-multimedia elements on the website such as the search feature.
 - (ii) Most candidates were able to identify at least two types of software used to design and create a website such as ABC Online. Better responses were able to identify a range of software and provide supporting arguments for their selection. The types of software identified by candidates included web-authoring software, wordprocessing software and image, video and audio-editing software. However, some candidates limited their response to web-authoring software or identified particular application software packages by brand name. Supporting justifications included relevant features such as cropping images, compressing media and layout of the web page.
- (c) Better responses provided a broad range of hardware and telecommunication developments. Candidates were also required to discuss the issues and implications associated with the developments. Many responses were limited to identifying issues such as copyright and privacy. Better responses discussed issues with reference to recent developments, such as the ability to access streamed audio and video and the common practice of illegally downloading associated media using peer-to-peer networks. High quality responses also made reference to implications such as the changing nature of work, upgrading technology and social interaction.

Information Processes and Technology

2005 HSC Examination Mapping Grid

Question	Marks	Content	Syllabus outcomes
Section I			
1	1	Project work	H1.1, H5.1
2	1	Information Systems and Databases	H1.2
3	1	Project Work	H5.1
4	1	Communication Systems	H1.1
5	1	Communication Systems	H1.1
6	1	Information Systems and Databases	H1.2
7	1	Communication systems	H1.1
8	1	Information Systems and Databases	H1.1
9	1	Communication Systems	H1.1
10	1	Communication Systems	H1.1
11	1	Communication Systems	H1.1
12	1	Project Work	H5.1
13	1	Information Systems and Databases	H1.1
14	1	Information Systems and Databases	H1.1
15	1	Project Work	H1.2
16	1	Project Work	H1.2
17	1	Information Systems and Databases	H1.1
18	1	Project Work	H5.1
19	1	Communication Systems	H1.1
20	1	Project Work	H5.1
Section II			
21 (a)	3	Communication Systems	H1.1, H1.2
21 (b)	3	Communication Systems	H1.1
21 (c)	4	Project Work	H6.2
22 (a)	3	Information Systems and Databases	H1.1, H1.2, H6.1, H6.2
22 (b)	3	Information Systems and Databases	H1.1, H4.1, H6.1, H6.2
22 (c)	3	Information Systems and Databases	H1.1, H2.2, H6.1, H6.2
23 (a)	3	Communication Systems	H1.1
23 (b)	4	Project Work	H3.1, H3.2
23 (c)	5	Project Work	H7.1
24 (a)	4	Information Systems and Databases	H3.1, H4.1
24 (b)	5	Communication Systems	H1.1

Question	Marks	Content	Syllabus outcomes
Section III			
25 (a) (i)	3	Transaction Processing Systems	H1.1, H1.2
25 (a) (ii)	3	Transaction Processing Systems	H1.1, H1.2
25 (b) (i)	4	Transaction Processing Systems	H2.1, H6.2
25 (b) (ii)	4	Transaction Processing Systems	H2.2
25 (c)	6	Transaction Processing Systems	H1.1, H2.2, H3.1, H4.1
26 (a) (i)	3	Decision Support Systems	H1.1, H1.2
26 (a) (ii)	3	Decision Support Systems	H1.1, H1.2
26 (b) (i)	5	Decision Support Systems	H2.2, H6.2
26 (b) (ii)	3	Decision Support Systems	H2.2, H6.2
26 (c)	6	Decision Support Systems	H1.1, H2.1, H4.1
27 (a) (i)	3	Automated Manufacturing Systems	H1.1, H1.2
27 (a) (ii)	3	Automated Manufacturing Systems	H1.1, H1.2
27 (b) (i)	4	Automated Manufacturing Systems	H1.2, H2.1, H6.2
27 (b) (ii)	4	Automated Manufacturing Systems	H1.1, H1.2
27 (c)	6	Automated Manufacturing Systems	H2.1, H3.1, H4.1
28 (a) (i)	3	Multimedia Systems	H1.1
28 (a) (ii)	3	Multimedia Systems	H1.1, H1.2
28 (b) (i)	3	Multimedia Systems	H1.1, H2.1
28 (b) (ii)	5	Multimedia Systems	H1.1, H5.1
28 (c)	6	Multimedia Systems	H3.1, H4.1

2005 HSC Information Processes and Technology Marking Guidelines

Section II

Question 21 (a)

Outcomes assessed: H1.1, H1.2

MARKING GUIDELINES

Criteria	Marks
<ul style="list-style-type: none"> States a clear meaning by identifying essential qualities of a communication protocol and/or provides a clear example. Better answers will provide both a clear meaning and clear example 	2–3
<ul style="list-style-type: none"> A definition that gives a general description of the purpose of protocols and/or gives an example of a protocol 	1

Question 21 (b)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
<ul style="list-style-type: none"> Sketches in general terms THREE distinct, correct ways of refining the search, with appropriate examples 	3
<ul style="list-style-type: none"> Sketches in general terms with at least TWO distinct, correct ways of refining the search with at least ONE appropriate example 	2
<ul style="list-style-type: none"> Sketches in general terms ONE or more correct ways of refining the search, or provides an appropriate example 	1

Question 21 (c)*Outcomes assessed: H6.2***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">Provides a proposal for the selection of testing and implementation methodsBetter answers will provide justification for both	3–4
<ul style="list-style-type: none">Provides a proposal for the selection of a testing method and/or implementation methodBetter answers will provide justification for either	1–2

Question 22 (a)*Outcomes assessed: H1.1, H1.2, H6.1, H6.2***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">Identifies one instance of data redundancy and provides clear characteristics and features of two issues of a flat-file structure	3
<ul style="list-style-type: none">Identifies one instance of data redundancy and provides clear characteristics and features of one issue of a flat-file structure	2
<ul style="list-style-type: none">Identifies one instance of data redundancy or provides characteristics and features of at least one issue of a flat-file structure	1

Question 22 (b)*Outcomes assessed: H1.1, H4.1, H6.1, H6.2***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">Shows a thorough understanding of the normalising of the flat-file database into three tables and indicates all relationships and labels, primary and foreign keys	3
<ul style="list-style-type: none">Normalises the flat-file database in some meaningful way and/or indicates relationships and/or some keys	1–2

Question 22 (c)*Outcomes assessed: H1.1, H2.2, H6.1, H6.2***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">A clear comprehensive sketch of the report with good layout features and some labelled	3
<ul style="list-style-type: none">A partial sketch of the report with some essential features	1–2

Question 23 (a)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
<ul style="list-style-type: none"> Identifies at least THREE different technologies from at least TWO different areas (hardware/software/communications). Better answers will cover THREE different areas 	2–3
<ul style="list-style-type: none"> Identifies ONE relevant technology 	1

Question 23 (b)

Outcomes assessed: H3.1, H3.2

MARKING GUIDELINES

Criteria	Marks
<ul style="list-style-type: none"> Response identifies at least TWO advantages and at least TWO disadvantages for employers of locating staff in regional areas 	4
<ul style="list-style-type: none"> Response identifies advantage(s) and/or disadvantage(s) for employers of locating staff in regional areas. Better answers will include both advantage(s) and disadvantage(s) 	2–3
Response identifies <ul style="list-style-type: none"> ONE advantage for employers of locating staff in regional areas OR <ul style="list-style-type: none"> ONE disadvantage for employers of locating staff in regional areas OR <ul style="list-style-type: none"> Some understanding of advantages or disadvantages of working in virtual organisations 	1

Question 23 (c)

Outcomes assessed: H7.1

MARKING GUIDELINES

Criteria	Marks
<ul style="list-style-type: none"> Response clearly describes at least TWO project management strategies to assist a project team based in multiple locations Better answers will relate clearly to the scenario 	4–5
<ul style="list-style-type: none"> An adequate description of at least TWO project management strategies to assist a project team based in multiple locations OR <ul style="list-style-type: none"> ONE clear description 	3
<ul style="list-style-type: none"> An adequate description of a project management strategy to assist a project team based in multiple locations OR <ul style="list-style-type: none"> ONE or TWO strategies identified 	1–2

Question 24 (a)*Outcomes assessed: H3.1, H4.1***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">Response shows a good understanding of the strengths and weaknesses of the distributed database in the hospital by identifying at least TWO strengths/weaknesses and provides some elaboration. Better answers will include strengths and weaknesses and relate the answer to the scenario	3–4
<ul style="list-style-type: none">Response identifies at least ONE strength/weakness. Better responses will provide some elaboration, and/or more than ONE strength/weakness. Answers may not include a reference to the scenario	1–2

Question 24 (b)*Outcomes assessed: H1.1***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">Response shows a good understanding of the technical issues surrounding the use of wireless communications in a hospital by identifying and discussing at least TWO of the issues. Better answers may identify more than two, but must discuss at least TWO issues	4–5
<ul style="list-style-type: none">Response shows a limited understanding of the technical issues surrounding the use of wireless communications by identifying and/or discussing at least TWO of the issues. For two marks the response should provide ONE issues with a good discussion, or identify at least TWO issues	2–3
<ul style="list-style-type: none">Response identifies at least ONE technical issue surrounding the use of wireless communications in a hospital	1

Section III

Question 25 (a) (i)

Outcomes assessed: H1.1, H1.2

MARKING GUIDELINES

Criteria	Marks
<ul style="list-style-type: none">States a clear meaning of batch processing by identifying essential qualities and/or provides a clear example. Better answers will provide both a clear meaning and a clear example.	2–3
<ul style="list-style-type: none">A definition that gives a general description of batch processing and/or gives an example	1

Question 25 (b) (i)

Outcomes assessed: H2.1, H6.2

MARKING GUIDELINES

Criteria	Marks
<ul style="list-style-type: none">Response demonstrates a clear understanding of the design of the web-based data entry screen by including a range of screen-design elements and providing justification(s) for their inclusion	3–4
<ul style="list-style-type: none">Response identifies at least one screen-design element. Better responses will provide a justification of at least one screen-design element or provide another element not listed as an example in the question	1–2

Question 25 (b) (ii)

Outcomes assessed: H2.2

MARKING GUIDELINES

Criteria	Marks
<ul style="list-style-type: none">Response demonstrates a clear understanding of real-time processing in the context of the question by describing the sequence of events that need to occur and identifies the main information technology at each stage. Better answers will provide greater detail in the stages required	3–4
<ul style="list-style-type: none">Response identifies a limited number of stages and/or technologies required for real-time processing	1–2

Question 25 (c)*Outcomes assessed: H1.1, H2.2, H3.1, H4.1***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">• Response identifies, and demonstrates a good understanding of, the advantages and disadvantages of the mobile phone, web-browser and conventional systems. Better answers will address the majority of all aspects of the question and will identify unique advantages/disadvantages of each system	5–6
<ul style="list-style-type: none">• Response demonstrates an adequate understanding by identifying and discussing advantages and/or disadvantages of more than one system	3–4
<ul style="list-style-type: none">• Response demonstrates a limited understanding by identifying at least two advantages/disadvantages of a system from the question, with better responses providing some discussion	1–2

Question 26 (a) (i)

Outcomes assessed: H1.1, H1.2

MARKING GUIDELINES

Criteria	Marks
<ul style="list-style-type: none"> Response identifies and provides characteristics and features of graphs/charts that assist decision making. Better answers will describe how the feature(s) assist decision-making 	2–3
<ul style="list-style-type: none"> At least one feature of graphs/charts are identified OR a limited description of how graphs/charts assist decision making 	1

Question 26 (a) (ii)

Outcomes assessed: H1.1, H1.2

MARKING GUIDELINES

Criteria	Marks
<ul style="list-style-type: none"> States a clear meaning of an intelligent agent by identifying essential qualities and/or provides a clear example of its use. Better answers will provide both a clear meaning and a clear example of its use 	2–3
<ul style="list-style-type: none"> A definition that gives a general description of an intelligent agent and/or gives an example of its use 	1

Question 26 (b) (i)

Outcomes assessed: H2.2, H6.2

MARKING GUIDELINES

Criteria	Marks
<ul style="list-style-type: none"> Shows a thorough understanding of a decision tree in this situation by including in the decision tree all or most of: <ul style="list-style-type: none"> Decision points/questions Labelled decision point options (yes, no, large, medium, etc) Labelled conclusions (blue whale, bowhead whale, etc) Correct logic A complete tree with all five decision points 	4–5
<ul style="list-style-type: none"> Shows a good understanding of a decision tree in this situation by including 2 to 3 of the above points 	2–3
<ul style="list-style-type: none"> Shows a limited understanding of a decision tree in this situation by having a minimalist or incorrect decision tree 	1

Question 26 (b) (ii)*Outcomes assessed: H2.2, H6.2***MARKING GUIDELINES**

Criteria	Marks
• Production rule is substantially complete and correct expressing the correct logic to identify a Gray whale	3
• Production rule is able to express at least half the correct logic to identify a Gray whale	2
• Response is identifiable as a production rule but largely incomplete and incorrect	1

Question 26 (c)*Outcomes assessed: H1.1, H2.1, H4.1***MARKING GUIDELINES**

Criteria	Marks
• Response clearly describes the ways that expert systems and neural networks work in terms of the processing methods, data formats and user interfaces. Some attempt is made to show how expert systems and neural networks are similar or different	5–6
• Response provides an adequate description of the ways that expert systems and/or neural networks work in terms of the processing methods, data formats and user interfaces. Response may not be complete, in that not all of the three areas may be addressed, an attempt to show how the systems are the same or different may not be included, or only one system addressed	3–4
• Response provides a poor description of the processing methods, data formats and user interfaces of expert systems and/or neural networks. Response may provide basic information for one system, or only one of the three areas to be addressed. No attempt is made show how expert systems and neural networks are similar or different	1–2

Question 27 (a) (i)*Outcomes assessed: H1.1, H1.2***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">Provides characteristics and features of a barcode and/or describes the operation of a barcode reader	2–3
<ul style="list-style-type: none">Provides characteristics and features of a barcode or describes the operation of a barcode reader	1

Question 27 (a) (ii)*Outcomes assessed: H1.1, H1.2***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">Provides characteristics and features of a situation in an automated manufacturing system where it is necessary to convert a digital signal into an analogue signal	2–3
<ul style="list-style-type: none">Provides characteristics and features of a situation where it is necessary to convert a signal	1

Question 27 (b) (i)*Outcomes assessed: H1.2, H2.1, H6.2***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">Response demonstrates a clear understanding of the processes of manufacturing a car by providing a block diagram that addresses the aspects of: human-centred and computer-controlled tasks; inputs and outputs; and, addresses the three tasks mentioned in the question (fitting and adjusting engines, welding body, spray painting). Better answers will address all, or the majority of, these aspects	3–4
<ul style="list-style-type: none">Response demonstrates a limited understanding of the processes of manufacturing a car with a block diagram by identifying a limited number of aspects described above. Any response that can be recognised with characteristics of block diagram, with some link to the context of the question, will attract one mark	1–2

Question 27 (b) (ii)*Outcomes assessed: H1.1, H1.2***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">• Demonstrates a clear understanding of the type of processing used at CMN by selecting the best option (batch processing) and providing a good argument as to its appropriateness. Students may also identify and discuss other types of processing if their arguments are appropriate	3–4
<ul style="list-style-type: none">• Demonstrates a limited understanding of the type of processing used at CMN by selecting any of the types of processing and providing a weak argument as to its appropriateness. Identifying ‘batch’ with no justification attracts one mark	1–2

Question 27 (c)*Outcomes assessed: H2.1, H3.1, H4.1***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">• Response demonstrates a clear understanding of the issues and implications by providing points for and/or against the introduction of mass customisation at CMN. Responses should address nature of work and information technologies. Better answers will address all, or the majority of, these aspects	5–6
<ul style="list-style-type: none">• Response demonstrates an adequate understanding of the issues and implications by providing points for and/or against the introduction of mass customisation at CMN. Responses should address nature of work and/or information technologies	3–4
<ul style="list-style-type: none">• Response demonstrates a poor understanding of the issues and implications by providing points for and/or against the introduction of mass customisation at CMN. Responses may address nature of work or information technologies	1–2

Question 28 (a) (i)*Outcomes assessed: H1.1***MARKING GUIDELINES**

Criteria	Marks
• States a clear meaning of morphing by identifying essential qualities AND/OR provides a clear example. Better answers will do both	2–3
• States a general description of morphing AND/OR gives an example	1

Question 28 (a) (ii)*Outcomes assessed: H1.1, H1.2***MARKING GUIDELINES**

Criteria	Marks
• States a clear meaning of sampling rate by identifying essential qualities AND/OR provides clear characteristics and features of its representation of audio data. Better answers will do both	2–3
• States a limited meaning of sampling rate AND/OR provides limited characteristics and features of its representation of audio data	1

Question 28 (b) (i)*Outcomes assessed: H1.1, H2.1***MARKING GUIDELINES**

Criteria	Marks
• Demonstrates a clear understanding of the multimedia elements by correctly identifying and describing four different elements	3
• Demonstrates a limited understanding of the multimedia elements by identifying only two elements, and/or providing limited description(s)	1–2

Question 28 (b) (ii)*Outcomes assessed: H1.1, H5.1***MARKING GUIDELINES**

Criteria	Marks
• Identifies and provides a clear justification of the different types of software used for designing and creating a website with elements of ABC online	4–5
• Identifies and provides adequate justification of two different types of software used for designing and creating websites	3
• Identifies one type of software used for designing and creating websites AND/OR provides a limited justification	1–2

Question 28 (c)*Outcomes assessed: H3.1, H4.1***MARKING GUIDELINES**

Criteria	Marks
<ul style="list-style-type: none">• Response demonstrates a clear understanding of the developments that have occurred in a range of hardware and telecommunications that facilitate this integration AND a clear understanding of the issues and implications of these developments for multimedia use	5–6
<ul style="list-style-type: none">• Response demonstrates an adequate understanding of the developments that have occurred in some hardware and/or telecommunications that facilitate this integration AND/OR an adequate understanding of the issues and/or implications for multimedia use	3–4
<ul style="list-style-type: none">• Response demonstrates a limited understanding of the developments that have occurred in hardware and/or telecommunications that facilitate this integration AND/OR a limited understanding of the issues and/or implications for multimedia use	1–2