2006 HSC Notes from the Marking Centre Information Processes and Technology

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2006 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 2006 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.

It is essential for this document to be read in conjunction with the relevant syllabus, the 2006 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 2006, approximately 5200 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, indicate the type of response required and the depth of that response.

Section I

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

Question	Correct Response
11	C
12	B
13	B
14	C
15	A
16	B
17	A
18	D
19	B
20	A

Section II

The majority of candidates were able to give responses which reflected their understanding of the question and the 'key words' used. Overall, student responses related well to the stimulus material and were detailed and specific.

Question 21

(a)   Better responses used a correct SQL command structure and clearly identified the required field name 'CountryName', the name of the table 'Countries' and both conditions of the filter, Continent = 'South America' AND Language = 'Spanish' and included the correct use of the AND in the filter.

Mid-range responses often did not identify the correct table from the data dictionary.

Weaker responses left out important parts of the SQL command structure or often included extra fields that were not required.

(b)   Better responses clearly demonstrated a good understanding of the use of field length and number of records to calculate the file size. They also converted bytes to kilobytes correctly. These responses attempted to explain their calculation in more detail, as required.

Mid-range responses did not understand that each character was a byte and treated each character as a bit instead.

Weaker responses confused this calculation with one commonly used in the multimedia option topic to calculate the size of an image file – these responses often included the words 'bit depth' in the calculation for this part. These responses often did not convert bytes into kilobytes.

(c)   Better responses recognised that incorrect data types in the data dictionary needed to be changed and included the additional fields that were required . These responses clearly explained their changes in terms of the data dictionary in the stimulus material and gave consideration to the need to examine existing field names when adding new fields.

Mid-range responses did not address both bullet points of this part with enough detail or often included a calculated field without considering the changes in data type required. They did not recognise that calculations could not be carried out with text data.

Weaker responses often attempted to change the entire database structure rather than just parts of the data dictionary. They also appear to have misunderstood the data dictionary as a flat-file database or attempted to write queries in place of adjusting the data dictionary. Many responses were too vague in their answers, eg changing DeathRate and BirthRate from percentage value, as described in the description column, to number rather than changing the data type from text to number.

Question 22

(a)   Better responses identified the current participants and showed an understanding of possible participants once the scope of the system was extended. These candidates were able to clearly and succinctly describe the purpose of the system.

Poorer responses wrote information directly from the stimulus text, identifying individuals and objects in the scenario not involved as participants in the system. These candidates were unable to describe the purpose of the system in any detail, indicating their inability to process the stimulus material.

(b)   Better responses extracted the required information technology and diagrammatically represented the pet-monitoring system, including labelled hardware components and connections. These candidates were able to show the relationships between the hardware items both inside and outside the veterinarian's practice, including the internet and the veterinarian's home.

Weaker responses drew some labelled components without relationships or connections.

(c)   Better responses explained a range of issues that impacted specifically on the veterinarian's work.

Weaker responses identified issues that were related to the pet owners as read from the stimulus material.

Question 23

The stimulus material provided in this question was readily recognised by the vast majority of candidates.

Candidates need to have a clear understanding of the glossary of terms that are found in the question as they provide the foundation for better responses.

(a)   Better responses identified and clearly explained two different aspects of the email that were considered to be suspicious. Many candidates identified far more than two suspicious things although the question only asked for two!

Mid-range responses identified two suspicious things but their explanation lacked depth and/or clarity.

Weaker responses showed a lack of understanding of the question or were only able to identify one suspicious aspect. Some candidates were able to identify suspicious aspects but were not able to provide an explanation as to why they were suspicious.

(b)   Better responses provided a clear explanation of the risks associated with following the link provided in the stimulus email and provided a comprehensive course of action involving a series of steps.

Mid-range responses identified the risks but explanations were often not very clear. Most candidates were able to provide an alternative course of action to deal with the suspicious email.

Weaker responses did not clearly explain the risks and often did not provide a clear course of action.

Question 24

Responses demonstrated that many candidates had difficulties with the question.

(a)   Many candidates misunderstood this question and discussed the advantages/disadvantages of the new system. The words 'negotiation' and 'strategies' appeared to cause problems.

Better responses demonstrated a comprehensive understanding of the need for two-way communication in the negotiation process and discussed the use of active listening, conflict resolution and strategies such as meetings, surveys and questionnaires in relation to the scenario.

(b)   Better responses demonstrated a detailed understanding of the tasks that need to be undertaken to develop the proposed new system. Candidates were able to identify a number of tasks and describe what was involved in the implementation of an email renewal system.

Poorer responses focused only on the collection of email addresses while the better responses mentioned the hardware and software needed and were able to describe a range of steps that included: data collection, data entry, and the creation of a database; queries; the development of a form letter; automation; and mail merge.

(c)   Better responses used the correct symbols to represent: the external entities of Builders and Build Safe; at least one data store for builders' information; and processes for email generation, registration, verification, online testing and the issuing of the certificate.

Poorer responses confused the symbols for external entity and process, and did not include a data store.

Many candidates were unable to construct a logical dataflow diagram and a significant number of candidates did not distinguish between dataflow diagrams, system flowcharts, flowcharts and context diagrams. Often data flow lines were not labelled or incorrectly labelled with the names of processes.

Candidates need to be aware of the Software and Course Specifications document associated with the syllabus.

Section III

Candidates were required to answer TWO questions only from this section. A number of candidates attempted more than two questions. 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

This question was attempted by 64% of candidates.

Better responses demonstrated an understanding of the complexities of a transaction processing system and related these to the specific scenario.

(a) (i)   Better responses clearly defined the term *transaction* and provided appropriate examples in a library system.

Weaker responses demonstrated a poor understanding of the term *transaction* by only providing limited examples.

(ii)   Better responses identified and described features of online forms specific to data collection.

Many candidates did not read and interpret the question correctly; hence, they remained unclear of the term 'features' and provided only examples of online forms.

(b) (i)   Candidates were able to identify the sequence that occurred in the EVACS system and relate this to both batch and real-time processing. They were also able to identify many security measures that could be utilised in the system.

Better responses demonstrated a clear understanding of the terms 'real-time' and 'batch processing' in relation to the scenario provided. They also indicated the sequence of where each occurred and provided thorough discussion of the processes.

Weaker responses identified some of the processes involved in the scenario but did not clarify the correct sequencing.

(ii)   Better responses demonstrated a sound understanding of the types of security measures that could be used in the storage and retrieval of data in the scenario by providing a clear description of each.

Weaker responses identified some security methods but did not clearly describe them in relation to the scenario.

(c)   The majority of candidates showed a good understanding of the use of mobile phones and adapted this knowledge to the issues related to the scenario.

Better responses clearly explained the issues that could arise in the scenario provided by discussing a variety of aspects and forming a prediction.

Mid-range responses demonstrated an adequate understanding of the scenario but only provided limited explanations of some of the issues related to the use of mobile phones in the voting process.

Weaker responses only demonstrated a limited understanding of the use of mobile phones in the scenario by identifying a small number of issues without explanation.

Question 26 – Decision Support Systems

This question was attempted by 33% of candidates.

(a) (i)   Better responses clearly defined *data mining* and provided an example.

Weaker responses only gave an example or a limited description of *data mining* as used in decision making.

(ii)   Better responses classified the structure of the *what-if analysis* and included a detailed description with an appropriate example of *what-if analysis*.

Weaker responses confused *what-if analysis* with if-then-else structures or gave an example of *what-if analysis* without a description.

(b) (i)   Better responses determined the structure used in the SleepCam Decision Support System and justified their choice.

Weaker responses named the Decision Support System structure or gave limited responses for justification of their chosen structure.

(ii)   Better responses identified the type of Decision Support System used by SleepCam and explained how their choice would analyse the data.

Poorer responses only named the type of Decision Support System used or gave a poor explanation of how the system would analyse the data.

(c)   A significant number of the candidates were unable to relate to the type of technology presented in the scenario.

Better responses discussed the implications of using the SleepCam technology from both the company's and drivers' perspectives with reference to the aspects listed in the question.

Poorer responses only discussed implications of using the SleepCam technology from the company's or drivers' perspective. Some responses rewrote the stimulus material.

Question 27 – Automated Manufacturing Systems

This question was attempted by 17% of candidates.

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)   Better responses provided both a clear meaning of an actuator and an example.

Mid-range responses stated a meaning of an actuator or identified essential qualities of an actuator.

Weaker responses only provided an example of an actuator.

(ii)   Better responses clearly distinguished between 'batch' and 'continuous' with examples of each.

Mid-range responses noted the difference between 'batch' and 'continuous' with one correct example of 'continuous' or 'batch'.

Weaker responses only identified an example of either 'batch' or 'continuous'.

(b) (i)   Better responses described the technology in the Tag and in transferring the data to the server.

Mid-range responses described the technology in the Tag or in transferring the data to the server.

Weaker responses only identified or described some of the technology required to get the temperature information from the pallets to the server.

(ii)   Better responses proposed technological improvements that clearly addressed problems raised in the scenario.

Mid-range responses identified and discussed problems and suggested a technological improvement.

Poorer responses simply identified a problem or suggested a technological improvement.

(c)   Better responses provided a clear understanding of the similarities and differences between Trace Tag and barcode technologies and addressed a number of the suggested aspects such as quality control and data management.

Mid-range responses generally discussed similarities or differences between Trace Tag and barcode technologies and addressed an aspect such as quality control.

Poorer responses only provided similarities or differences between Trace Tag and barcode technologies.

Question 28 – Multimedia Systems

This question was attempted by 90% of candidates.

The stimulus material provided for parts (b) and (c) provoked high-quality responses from candidates and allowed them to display some deep knowledge on the subject.

(a) (i)   Most candidates were able to describe virtual reality as the creation of an artificial world and better candidates provided a clear example, such as an advanced interactive game that uses movement as an input to the system, or described the use of head-up displays and sensors to interact with the multimedia system.

   Weaker responses lacked the essential qualities of virtual reality, including an immersed environment and interactivity, or provided examples, such as 3D movies or computer games, which showed that they did not understand virtual reality.

(ii)   Most candidates provided an example that clearly described how simulations were used in an educational context.

   Better responses included unambiguous examples which included multimedia aspects.

   Weaker responses gave non-computer based simulations as examples. In other instances, candidates relied on their example from part (a)(i) which did not clearly provide a simulation context. Candidates should be reminded that they must answer each part separately and distinctly.

(b) (i)   Most candidates were able to identify hardware components used in displaying information, including LCD screen and speakers.

   Better responses included the software required to display information such as SmartStreet 3D Mapping software for displaying maps and Microsoft Outlook for displaying emails. Better responses discussed the size of the screen and low power requirements of an LCD, suitable for a battery operated device. Weaker responses did not adequately justify the inclusion of these technologies, providing trivial reasons for their inclusion, such as LCD screen to see the maps.

(ii)   Most candidates attempted to describe in general terms how data is compressed. Many candidates lacked the technical knowledge to answer this question well.

Better responses clearly differentiated between the compression of image data and audio data. Most candidates understood the need for compression in such a small device with such a large number of images.

Weaker responses gave vague references to reducing file sizes with no real technical precision.

(c)   Most candidates were able to provide some similarities and differences between printed maps and a digital device such as Navmap. However, candidates were asked to compare and contrast with reference to navigation and many candidates overlooked this aspect of the question.

Better responses outlined similarities and differences with reference to finding a route between two places. This could include automation of navigation using Navmap, as opposed to needing two people to navigate manually or having to stop to read a map. These responses clearly indicated the fact that there were similarities between both methods of navigation, such as finding a location and routes on the maps. Responses written in tabular form or using the aspects provided in the question as headings were generally clearer.

Mid-range responses listed a number of differences between printed maps and the Navmap device but failed to relate these aspects to navigation, or did not expand their points to clarify their meaning.

Weaker responses gave limited differences between the two methods and rarely discussed aspects of navigation.

Information Processes and Technology

2006 HSC Examination Mapping Grid

Question	Marks	Content	Syllabus outcomes
Section I			
1	1	Communication Systems	H1.1
2	1	Information Systems and Data Bases	H1.1
3	1	Information Systems and Data Bases	H1.1
4	1	Information Systems and Data Bases	H1.1
5	1	Project work	H1.1
6	1	Information Systems and Data Bases	H3.1
7	1	Communication Systems	H2.1
8	1	Project Work	H5.1
9	1	Communication Systems	H1.1
10	1	Project Work	H6.2
11	1	Information Systems and Data Bases	H1.1
12	1	Communication Systems	H3.1
13	1	Communication Systems	H1.1
14	1	Communication Systems	H1.1
15	1	Project Work	H5.1, H6.2
16	1	Information Systems and Data Bases	H1.1
17	1	Information Systems and Data Bases	H2.1, H5.1, H6.2
18	1	Project Work	H2.1, H5.1, H6.2
19	1	Communication Systems	H1.1
20	1	Project Work	H1.1, H5.1, H6.1, H6.2

Question	Marks	Content	Syllabus outcomes
Section II			
21 (a)	3	Project Work, Information Systems and Data Bases	H1.1, H6.1, H6.2
21 (b)	3	Project Work, Information Systems and Data Bases	H1.1, H6.1, H6.2
21 (c)	3	Project Work, Information Systems and Data Bases	H1.1, H6.1, H6.2, H7.2
22 (a)	3	Communication Systems, Project Work	H1.1, H1.2, H2.1, H6.1
22 (b)	3	Communication Systems, Project Work	H1.1, H2.1, H6.1
22 (c)	5	Communication Systems, Project Work	H1.2, H3.1, H3.2, H4.1, H5.2
23 (a)	4	Communication Systems	H1.2, H3.1, H5.2
23 (b)	4	Communication Systems	H1.1, H3.1, H5.2
24 (a)	3	Project Work	H6.1, H6.2, H7.1
24 (b)	4	Project Work	H5.1, H6.1, H6.2, H7.1, H7.2
24 (c)	5	Project Work	H2.1, H6.1, H6.2, H7.2
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	H1.1, H1.2, H2.1
25 (b) (ii)	4	Transaction Processing Systems	H1.1, H1.2, H2.1
25 (c)	6	Transaction Processing Systems	H3.1, H4.1
26 (a) (i)	3	Decision Support Systems	H1.1, H1.2
26 (a) (ii)	3	Decision Support Systems	H2.1
26 (b) (i)	3	Decision Support Systems	H1.2, H2.1
26 (b) (ii)	5	Decision Support Systems	H1.2, H2.1
26 (c)	6	Decision Support Systems	H4.1, H5.1
27 (a) (i)	3	Automated Manufacturing Systems	H1.1
27 (a) (ii)	3	Automated Manufacturing Systems	H1.1, H1.2
27 (b) (i)	4	Automated Manufacturing Systems	H1.1, H1.2, H2.1

Question	Marks	Content	Syllabus outcomes
27 (b) (ii)	4	Automated Manufacturing Systems	H1.1, H1.2, H2.1, H2.2, H3.1
27 (c)	6	Automated Manufacturing Systems	H1.1, H1.2, H4.1
28 (a) (i)	3	Multimedia Systems	H1.1
28 (a) (ii)	3	Multimedia Systems	H1.1, H1.2
28 (b) (i)	4	Multimedia Systems	H1.1, H1.2, H2.1
28 (b) (ii)	4	Multimedia Systems	H1.2, H2.1, H3.1
28 (c)	6	Multimedia Systems	H1.2, H3.1, H4.1, H5.2

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2006 HSC Information Processes and Technology Marking Guidelines

Section II

Question 21 (a)

Outcomes assessed: H1.1, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
• The SQL command is essentially correct, showing correct logic	3
• Some errors exist in the SQL that would result in an incorrect display of country names or a syntax error	2
• Response includes some key factors of an SQL command relevant to this problem	1

Question 21 (b)

Outcomes assessed: H1.1, H6.1, H6.2

MARKING GUIDELINES

Criteria	Marks
• Response demonstrates an understanding of calculating file sizes by providing an answer that would result in a correct calculation of file size and numbers in the calculation are explained	3
• Some errors exist in the calculation AND/OR not all numbers in the calculation are explained	2
• Only one aspect of the calculation is correct	1

Question 21 (c)

Outcomes assessed: H1.1, H6.1, H6.2, H7.2

MARKING GUIDELINES

Criteria	Marks
• Response demonstrates a good understanding of the changes necessary to accommodate the user's needs • Better answers will include all the necessary changes and will relate the reason for the change	2–3
• Response demonstrates some understanding of the changes necessary to accommodate the user's needs, but suggests only one change to the data dictionary	1

Question 22 (a)

Outcomes assessed: H1.1, H1.2, H2.1, H6.1

MARKING GUIDELINES

Criteria	Marks
• Identifies at least two relevant participants • Response describes the main purpose of the system	2–3
• Identifies ONE relevant participant OR • An adequate description of the purpose of the system is provided	1

Question 22 (b)

Outcomes assessed: H1.1, H2.1, H6.1

MARKING GUIDELINES

Criteria	Marks
• Diagram identifies labelled hardware components and how they are connected • Better answers should include correct connections between most components	2–3
• Diagram identifies at least two distinct labelled hardware components	1

Question 22 (c)

Outcomes assessed: H1.2, H3.1, H3.2, H4.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• Demonstrates a clear understanding of a range of impacts and relates why and how these affect the veterinarian's work • Better answers will relate cause and effect	4–5
• Identifies at least two impacts and provides some reasons for why AND/OR how this affects the veterinarian's work	2–3
• Identifies one issue related to the veterinarian's work	1

Question 23 (a)

Outcomes assessed: H1.2, H3.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• Demonstrates an understanding of aspects of the email that are suspicious by identifying at least two different things • Provides reasons for them being suspicious • Better answers will clearly explain TWO of the suspicious things about the email	3–4
• Demonstrates a limited understanding of the suspicious aspects of the email by providing limited or unclear reasons for suspiciousness • Poorer answers may not provide any reasons, but only identify	1–2

Question 23 (b)

Outcomes assessed: H1.1, H3.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• Response demonstrates a clear understanding of the risks associated with linking to the website and providing an appropriate course of action • Better answers will also provide a comprehensive appropriate course of action and an elaboration of the risks	3–4
• Response demonstrates a limited understanding of the risks associated with linking to the website by inferring only one risk AND/OR providing an appropriate course of action to deal with the email • Poorer responses will do so with little detail	1–2

Question 24 (a)

Outcomes assessed: H6.1, H6.2, H7.1

MARKING GUIDELINES

Criteria	Marks
• Response demonstrates a good understanding of negotiation/communication strategies between builders, employees of Build Safe and the project manager • Better answers will provide characteristics and features of TWO strategies appropriate for the scenario	2–3
• Response identifies at least ONE strategy that could be used for negotiation/communication	1

Question 24 (b)

Outcomes assessed: H5.1, H6.1, H6.2, H7.1, H7.2

MARKING GUIDELINES

Criteria	Marks
• Identifies tasks and describes what is involved so that renewal reminders can be sent by email • Better answers will include a comprehensive set of tasks with descriptions	3–4
• Identifies some tasks with a description • Poorer answers will only identify and describe one task OR • Identify task(s) without description	1–2

Question 24 (c)

Outcomes assessed: H2.1, H6.1, H6.2, H7.2

MARKING GUIDELINES

Criteria	Marks
• Shows a good understanding of a data flow diagram including in the data flow diagram all or most of – builders as an external entity – data store for certified builders – process for the renewal reminder generation – data store for received applications – process for builder registration – process for verification of application – process for online testing – process for issuing certificate – flow-lines with explanation of data flow *** Note** better answers will include appropriate uses of all four nominated symbols (external entity, processes, data store and flow lines)	4–5
• Shows an understanding of a data flow diagram by including up to four of the above points	3
• A response that shows limited understanding of data flow diagrams and/or scenario • Better responses must indicate the correct use of at least two distinct data flow diagrams symbols	1–2

Question 25 (a) (i)

Outcomes assessed: H1.1, H1.2

MARKING GUIDELINES

Criteria	Marks
• Response demonstrates a good understanding of the term transaction, supported by an example • Better answers will provide a clear description of the term and two correct examples	2–3
• Response demonstrates a limited understanding by providing some description OR examples only	1

Question 25 (a) (ii)

Outcomes assessed: H1.1, H1.2

MARKING GUIDELINES

Criteria	Marks
• Response identifies two elements suitable for online data entry and describes each • Better answers will provide two clear descriptions	2–3
• Response identifies at least one element for online data collection	1

Question 25 (b) (i)

Outcomes assessed: H1.1, H1.2, H2.1

MARKING GUIDELINES

Criteria	Marks
• Demonstrates a clear understanding of the real-time and batch processing that occurs in the EVACS system by outlining the occurrences of each and indicating the sequence in which they occur • Better answers will include a thorough understanding of all the processes	3–4
• Demonstrates a limited understanding of the real-time and batch processing that occurs in the EVACS system by identifying and sequencing an incomplete set of processes • Poorer answers may identify only one process or have incomplete process in a sequence	1–2

Question 25 (b) (ii)

Outcomes assessed: H1.1, H1.2, H2.1

MARKING GUIDELINES

Criteria	Marks
• Demonstrates a clear understanding of security measures by identifying and clearly describing more than one security measure related to storage and retrieval • Better answers will also relate to the scenario	3–4
• Demonstrate an adequate understanding of security measures by identifying and clearly describing only one measure OR • Providing a limited description of these measures • Poorer answers may only identify measures, providing no description	1–2

Question 25 (c)

Outcomes assessed: H3.1, H4.1

MARKING GUIDELINES

Criteria	Marks
• Response demonstrates a clear understanding of the issues that might occur from using mobile phones for voting in future parliamentary elections by identifying issues from a number of different aspects required in the question and providing clear explanations • Better responses will have clear links to voting scenarios	5–6
• Response demonstrates an adequate understanding of the issues that might occur from using mobile phones by identifying different issues and providing limited explanations • Better answers will address a range of aspects required in the question	3–4
• Response demonstrates a limited understanding of the issues that might occur from using mobile phones for voting by identifying a small number of issues with no explanation • Poorer answers may only identify one issue	1–2

Question 26 (a) (i)

Outcomes assessed: H1.1, H1.2

MARKING GUIDELINES

Criteria	Marks
• The response provides a clear meaning of data mining and/or provides example • Better answers will provide both a clear meaning and an example	2–3
• A definition gives a limited description of data mining or gives an unclear example of its use	1

Question 26 (a) (ii)

Outcomes assessed: H2.1

MARKING GUIDELINES

Criteria	Marks
• The response provides a clear understanding of 'what if' analysis through an appropriate example • Better answers will have a clear description and appropriate example	2–3
• The response demonstrates a limited understanding of how a 'what if' analysis operates by providing either a limited description or an unclear example	1

Question 26 (b) (i)

Outcomes assessed: H1.2, H2.1

MARKING GUIDELINES

Criteria	Marks
• A determination is made and justification is given for an unstructured or semi-structured • Identifies semi-structured with limited description • Better responses will clearly relate to the SleepCam system	2–3
• Identifies unstructured situation without justification OR • Identifies semi-structured without justification	1

Question 26 (b) (ii)

Outcomes assessed: H1.2, H2.1

MARKING GUIDELINES

Criteria	Marks
• Response demonstrates a clear understanding of a recognised Decision Support System to implement the SleepCam system by identifying an appropriate Decision Support System and clearly explaining how that Decision Support System analyses data • Better answers will clearly relate the explanation to the scenario	4–5
• Response recognises a valid Decision Support System supported by some detail about how the Decision Support System analyses data	3
• Response recognizes a plausible Decision Support System and provides some additional correct detail about that Decision Support System • Poorer answers will only name a Decision Support System	1–2

Question 26 (c)

Outcomes assessed: H4.1, H5.1

MARKING GUIDELINES

Criteria	Marks
• Provides multiple arguments FOR and/or AGAINST the use of SleepCam to monitor fatigue in long-distance truck drivers by addressing aspects such as those identified in the question from the perspective of the COMPANY and the DRIVER • Better responses will connect arguments to the SleepCam Decision Support System	5–6
• Provides arguments for AND/OR against the use of SleepCam Decision Support System by addressing a limited number of aspects such as those identified in the question from the perspective of the company AND/OR the driver	3–4
• Provides an argument(s) for or against the use of SleepCam	1–2

Question 27 (a) (i)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• The response provides a clear meaning of an actuator and/or provides example • Better answers will provide both a clear meaning and an example	2–3
• States meaning or identifies essential qualities of an actuator OR • Provides an example	1

Question 27 (a) (ii)

Outcomes assessed: H1.1, H1.2

MARKING GUIDELINES

Criteria	Marks
• Notes the difference between batch and continuous processing, with an example • Better answers will clearly distinguish between batch and continuous processing, with examples of each	2–3
• Identifies an example of either batch or continuous processing	1

Question 27 (b) (i)

Outcomes assessed: H1.1, H1.2, H2.1

MARKING GUIDELINES

Criteria	Marks
• Identifies the technologies required to get temperature information to the server AND provides characteristics and features of these technologies related to the transfer of temperature information • Better answers will describe technologies in the tag and at the server	3–4
• Response identifies some technologies required with a limited description of how they operate • Poorer responses may only identify or only describe	1–2

Question 27 (b) (ii)

Outcomes assessed: H1.1, H1.2, H2.1, H2.2, H3.1

MARKING GUIDELINES

Criteria	Marks
• Response identifies problems arising from the system, discusses these problems and suggests a technological improvement • Better answers will propose technological improvements that clearly address problems raised in the scenario	3–4
• Response identifies a problem and recommends a technological improvement without a discussion OR • Response identifies problem(s) and discusses points for and/or against the issue without a solution • Poorer responses may only identify a problem OR propose a technological improvement	1–2

Question 27 (c)

Outcomes assessed: H1.1, H1.2, H4.1

MARKING GUIDELINES

Criteria	Marks
• Response demonstrates a clear understanding of similarities and/or differences between Trace Tag and barcode technologies by addressing a range of aspects such as those identified in the question and providing clear explanations to show how they are the same or different • Better responses must include similarities AND differences	5–6
• Response demonstrates an adequate understanding of the similarities and/or differences between Trace Tag and barcodes technologies by addressing different aspects such as those in the question and providing some explanations	3–4
• Response demonstrates a limited understanding of the similarities and/or differences between Trace Tag and barcode technologies by addressing and/or explaining a small number of aspects • Poorer responses may only address one aspect with no explanation	1–2

Question 28 (a) (i)

Outcomes assessed: H1.1

MARKING GUIDELINES

Criteria	Marks
• States a clear meaning of virtual reality by identifying essential qualities • Provides a clear example • Better answers will state clear meaning and provide clear example	2–3
• States a general description of virtual reality AND/OR • Gives an example	1

Question 28 (a) (ii)

Outcomes assessed: H1.1, H1.2

MARKING GUIDELINES

Criteria	Marks
• Provides a clear example of an appropriate use of simulation in education and training • Clearly describes how it is used in education and training • Better answers will provide a clear example and a clear description	2–3
• Gives an example OR • Provides a limited description of simulation	1

Question 28 (b) (i)

Outcomes assessed: H1.1, H1.2, H2.1

MARKING GUIDELINES

Criteria	Marks
• Demonstrates a clear understanding of the technologies used for displaying in Navmap by identifying relevant technologies and providing clear arguments for their inclusion in Navmap • Better responses will include justification of a range of technologies	3–4
• Demonstrates a limited understanding of the technologies used for displaying in Navmap by identifying some technologies and reasons for inclusions • Poorer answers may only identify technologies or provide weak arguments	1–2

Question 28 (b) (ii)

Outcomes assessed: H1.2, H2.1, H3.1

MARKING GUIDELINES

Criteria	Marks
• Response provides characteristics and features of image and/or audio compression AND/OR • Describes relative importance for the system • Better answers will both identify characteristics and features of both image and audio compression and describe the relative importance	3–4
• Response identifies how an image AND/OR audio file is compressed OR • Response provides a limited description of the importance of compression for this system	1–2

Question 28 (c)

Outcomes assessed: H1.2, H3.1, H4.1, H5.2

MARKING GUIDELINES

Criteria	Marks
• Response demonstrates a clear understanding of a range of similarities and/or differences between printed maps and manual navigation with NavMap, by addressing a range of different aspects such as those identified in the question and providing clear explanations to show how they are the same or different • Better responses must include both similarities and differences related to the scenario	5–6
• Response demonstrates an adequate understanding of the similarities and/or differences between printed maps and manual navigation with NavMap, by addressing different aspects such as those identified in the question and providing some explanations • Better responses will address several aspects	3–4
• Response demonstrates a limited understanding of the similarities and/or differences between printed maps and manual navigation with NavMap, by addressing and/or explaining a small number of aspects • Poorer responses may only address one aspect with no explanation	1–2