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2014 HSC Information Processes and Technology Marking Guidelines

Section I

Multiple-choice Answer Key

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

Section II

Question 21 (a)

Criteria	Marks
• Identifies relevant hardware and software components for the system	2
• Identifies a relevant hardware OR software component	1

Sample answer:

- Hardware
  - Computer with high-speed processor, camera
- Software
  - Facial recognition software, database management system

Answers could include:

- Any hardware or software relevant to the scenario such as:
  - Large storage capacity RAM/HDD
  - Video cameras
  - Software that captures video feed

Question 21 (b)

Criteria	Marks
• Describes a method for testing the proposed system	3
• Provides some details as to how the proposed system could be tested	2
• Identifies a feature of system testing	1

Sample answer:

The system may be tested under simulated conditions with many different users and participants, and multiple processes occurring simultaneously. In order to test the equipment, procedures and system capacity, the school may arrange for a large number of students to enter the school grounds at multiple locations, use the proposed system to take images of the students and compare these against images in the DBMS to see if attendance details are captured and recorded correctly. Administration should also generate and check the attendance report.

Question 21 (c)

Criteria	Marks
• Provides a clear explanation as to why data accuracy is important in the system	3
• Shows some understanding of data accuracy in relation to the system	2
• Identifies a feature of data accuracy	1

Sample answer:

New students must be added to the database and students leaving the school need to have their data removed to prevent inaccuracies in the reporting of attendance. Images stored in the DBMS must be complete, of sufficient quality and up-to-date. Otherwise, the facial recognition software will not be able to recognise the student or may match the student to a different student in the system.

Question 22 (a)

Criteria	Marks
• Identifies the participants of the system	2
• Identifies a participant of the system	1

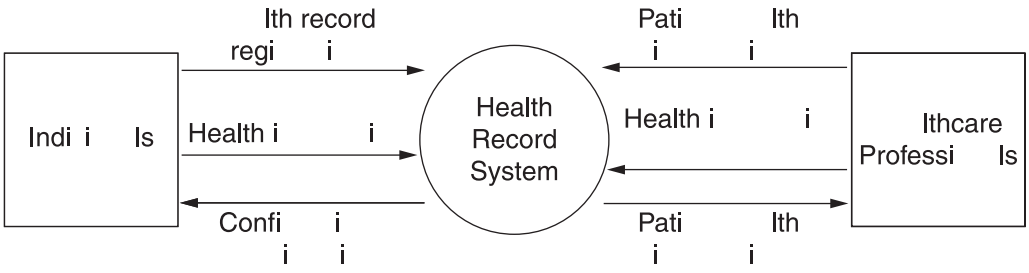
Sample answer:

- Healthcare professionals
- Government employees
- Individuals

Question 22 (b)

Criteria	Marks
• Draws a substantially correct context diagram of the system	3
• Draws a context diagram that reflects some of the features of the system	2
• Identifies a feature of a context diagram OR • Draws a diagram that shows some understanding of the system	1

Sample answer:



Question 22 (c)

Criteria	Marks
• Describes ethical issues relating to the implementation of the system	3
• Outlines ethical issues relating to the implementation of the system OR • Describes one ethical issue relating to the implementation of the system	2
• Identifies an ethical issue	1

Sample answer:

It is difficult to determine the party that should be responsible for the accuracy and security of the data as both the individuals and the healthcare can enter and retrieve data and the health record system stores the data. Does the healthcare professional have the responsibility to check that the data provided by the individual and kept by the record system is up-to-date and accurate? It may impact emergency treatment. Policies and procedures are essential to ensure that this data remains confidential and is only used to inform current and future medical care by the healthcare professionals when treating the individuals.

Answers could include:

- Accuracy of data – medical information being entered correctly
- Access to data – level of access to the records contained within the health record system
- Ownership of data

- **Question 22 (d)**

Criteria	Marks
• Provides reasons for the use of a distributed database over a centralised database in this system	3
• Shows some understanding of distributed and/or centralised databases	2
• Identifies a feature of a distributed/centralised database	1

Sample answer:

Using a distributed database for this national system allows data to be stored and accessed locally, reducing accessing time and avoiding data traffic bottleneck. Furthermore, problem in one part of the system will not stop the entire system, whereas if the server crashes on a centralised database, no data can be accessed.

Question 23 (a)

Criteria	Marks
• Identifies advantages of having an online database in the system	3
• Identifies an advantage of having an online database in the system	2
• Identifies a feature of an online database	1

Sample answer:

The data on player performance and injuries is being collected in real-time and can be saved directly onto the online database, eliminating the need for manual data entry by staff after the game. This saves human resources and time and improves accuracy of the data collected. Data may also be made available for retrieval immediately after it has been stored, to users in different locations facilitating effective analysis of player performance or treatment of injuries.

Question 23 (b)

Criteria	Marks
• Describes how a structured query could be used to extract different types of information from the online database	3
• Outlines how a query could be used to extract information from a database	2
• Identifies a feature of a query	1

Sample answer:

A structured query language may be used to extract data matching specific criteria from the database. Different information (eg injury types, age of players) may be reported by varying the fields specified in the ‘select’ command and the information extracted may be refined by specifying criteria (eg data range) in the ‘where’ command. The ‘order by’ command may also be used to indicate how the information should be sorted for presentation and analysis.

Question 23 (c)

Criteria	Marks
• Identifies strategies that could be used to prevent loss and corruption of data when multiple players are transmitting simultaneously, and provides points for and/or against these strategies	4
• Describes strategies to prevent loss and corruption of data during transmission	3
• Outlines a strategy to prevent loss and/or corruption of data during transmission OR • Identifies strategies to prevent loss and/or corruption of data during transmission	2
• Identifies a feature of data transmission OR • Identifies a strategy to prevent loss/corruption of data	1

Sample answer:

In the multi-player environment, it is necessary that each player's transmitter has a unique IP address or that it is linked to the wireless access point via its own dedicated channel. Interference in the wireless frequency band would have to be minimised so that data does not get corrupted and lost.

Increased number of receivers or increased transmission signal strength can decrease the chances of signal loss and subsequent data loss. However, these measures could impact negatively on the health of the player. The tiny device may also be damaged from a serious impact and needs to be securely placed on each player while minimising discomfort to the player.

Question 24 (a)

Criteria	Marks
• Explains why both bridges and gateways are required in the communication system	3
• Shows some understanding of bridges and/or gateways in communication systems	2
• Identifies a feature of a bridge or a gateway	1

Sample answer:

A bridge is required to connect the central office network with the network at the fire stations using the same communication protocols.

A gateway is required to connect the central office with the different types of networks to inform members of the community.

Question 24 (b)

Criteria	Marks
• Makes an informed judgement regarding the suitability of the communication methods used to inform the community	3
• Shows some understanding of the communication methods used to inform the community	2
• Identifies a feature of one of the communication methods used to inform the community	1

Sample answer:

A combination of all of the communication methods in the scenario would be effective in disseminating information and alerts to the wider community. Websites can contain detailed information about alerts/emergencies but they require internet access and a web browser. RSS feeds could also alert the community to changes to information on the website without them having to visit the site regularly. Social media has the benefit of connecting multiple users via shared interests and alerts and are likely to be actively passed from one individual or group to another. Text messaging is effective for communicating with those who have mobile phones (GSM or 3G). Messages can be forwarded but may be limited by network coverage or the availability of service. Mobile phone apps can be utilised by members of the community who have smart phones and a data plan.

Question 24 (c)

Criteria	Marks
• Identifies suitable wired and wireless transmission media for the communication between the central office, fire stations and firefighters • Justifies these choices showing thorough understanding of the scenario and the features of the transmission media	5
• Identifies suitable wired and wireless transmission media for the communication between the central office, fire stations and firefighters • Justifies these choices showing good understanding of the scenario and/or the features of the transmission media	4
• Identifies suitable wired and wireless transmission media • Shows a sound understanding of the scenario and/or the features of the transmission media	3
• Identifies suitable wired and/or wireless transmission media showing some understanding of the scenario	2
• Identifies a feature of wired/wireless transmission media OR • Identifies a suitable transmission medium OR • Shows some understanding of the scenario	1

Sample answer:

A suitable wired transmission media between the central office and the fire stations would be fibre optical cable because this transmission media is capable of high speed and high volume data transmission. Fibre optical cable is not susceptible to electrical or magnetic interference and distance does not significantly degrade the signal strength or its quality.

Wireless transmission between the fire stations and fire fighters could be achieved with 3G mobile technologies. Although limited by coverage of existing 3G mobile networks, these technologies would allow voice and text messaging to communicate emergency information to fire fighters in the field and require little if any specialist training to be used effectively for this purpose.

Answers could include:

Any transmission media with a correct justification relevant to the scenario including:

- fibre optical cabling
- microwave
- satellite

Section III

Question 25 (a) (i)

Criteria	Marks
• Provides TWO examples	2
• Provides ONE example	1

Sample answer:

One example may be using a dropdown list without an 'other' option to capture reasons from respondents (eg reasons for cancelling a subscription), forcing them to choose one of the listed reasons.

Placing a survey of general community opinions on a certain subject only within websites popular with a certain age group may also lead to bias in the data collected.

Question 25 (a) (ii)

Criteria	Marks
• Clearly explains why data integrity is important in a transaction processing system	3
• Identifies data integrity issues OR • Identifies the essential qualities of data integrity	2
• Identifies a feature of data integrity	1

Sample answer:

Data integrity is essential for the proper functioning of a transaction processing system and the accuracy of the information generated. If data at the point of collection is not validated, it can lead to incorrect information on the associated processes. If data is not periodically verified (audits of stored data), there can be a similar effect. For example, inventory data is used to determine stock ordered. If this data is not kept up-to-date, incorrect orders may be generated.

Question 25 (b) (i)

Criteria	Marks
• Clearly distinguishes between batch and real-time processing using an example	3
• Identifies features of batch and/or real-time processing	2
• Identifies a feature of batch or real-time processing	1

Sample answer:

Batch processing stores the data collected and processes the data in groups but not as the transaction occurs. Real-time processing is where data is immediately updated to reflect the transaction. Therefore, it is completed as soon as the transaction has been completed. An example may be an ATM transaction where the bank account balance is updated immediately (real-time) but the paper bank statement will only be generated for posting monthly or when a certain number of transactions is reached (batch processing).

Question 25 (b) (ii)

Criteria	Marks
• Shows a thorough understanding of how mirroring and rollback procedures can be used in a transaction processing system	4
• Shows a sound understanding of both mirroring and rollback procedures	3
• Identifies features of mirroring and/or rollback procedures	2
• Identifies a feature of mirroring or rollback procedures	1

Sample answer:

Mirroring and rollback procedures deal with data backup and recovery in a transaction processing system.

Mirroring allows data to be copied from one location to another in real-time or for data to be written to duplicate disks simultaneously. It allows critical data to be recovered quickly or for the system to instantaneously switch to another disk without loss of data or service.

Rollback returns the database to a state in which it was previously saved. This is important because it means the database can be restored after it has been damaged eg power failure. By rolling back any active transaction at the time of the crash, incomplete or erroneous transactions can be avoided.

Question 25 (c) (i)

Criteria	Marks
• Clearly describes how data mining can be used in this scenario	3
• Shows some understanding of data mining	2
• Identifies a feature of data mining	1

Sample answer:

The data captured via the RFID technology when pets use services can be stored in a data warehouse. Data mining can be used to identify trends and patterns to determine if additional services can be offered or existing services streamlined. For example, if a certain service is particularly popular at a certain time, more staff may be allocated or discount rates be offered at other times. Knowing the breeds that use the services may help future promotion or initiate research into how to attract other breeds.

Question 25 (c) (ii)

Criteria	Marks
• Suggests an alternative use showing a thorough understanding of the type of transaction processing system • Identifies issues in the alternative use and provides points for and/or against	5
• Provides some discussion of an alternative use showing a good understanding of the type of transaction processing system	4
• Describes an alternative use showing a sound understanding of the type of transaction processing system	3
• Outlines an alternative use showing some understanding of the type of transaction processing system	2
• Identifies a feature of the type of transaction processing system	1

Sample answer:

The TPS could be used for tracking baggage at an airport. The baggage could be fitted with an RFID tag which is encoded with the owner's details at the check-in desk. Scanning the tag at regular intervals or at key points in the journey can assist with locating items that have been mishandled during the journey. The system would minimise the need for name tags as each RFID is linked by its unique identifier to a particular passenger. This data gathered could be stored in a data warehouse making it possible for airlines to identify trends and make adjustments in the various services provided to its customers. Bags can be easily sorted so that fewer delays occur in collecting the bags at the destination. Security of bags could also be one of the benefits of using this type of system as passengers can be asked to present their boarding pass so that the linked details can be confirmed before leaving the baggage claim area.

Answers could include:

Any scenario where the RFID tag can be used to assist in the collection of data in a transaction processing system:

- tracking of items that are being moved, posted or shipped
- tracking of items in a shop, warehouse or factory.

Question 26 (a) (i)

Criteria	Marks
• Identifies advantages of linking multiple sheets in a spreadsheet	2
• Identifies an advantage of linking multiple sheets in a spreadsheet	1

Sample answer:

Linking multiple sheets allow data to be shared reducing data entry time and error. This is particularly useful when a lot of data is involved.

It also helps to maintain the consistency or integrity of the data. When data is changed in one place, if it is 'linked' data, the change can be automatically reflected in other sheets.

Question 26 (a) (ii)

Criteria	Marks
• Clearly describes benefits of group decision support systems	3
• Identifies benefits of group decision support systems OR • Describes a benefit of group decision support systems	2
• Identifies a feature of group decision support systems	1

Sample answer:

Group decision support systems can expedite meetings by allowing previously prepared material and new ideas to be shared during the meeting on a central screen or on individual workstations. Participants can enter and share comments anonymously and simultaneously through their workstations. They can also vote on topics and the results can be reported instantaneously. GDSS may also help rank or prioritise issues based on preferences entered by participants.

Question 26 (b) (i)

Criteria	Marks
• Clearly describes an advantage and a disadvantage of using a macro in a spreadsheet	3
• Describes an advantage OR a disadvantage of using a macro OR • Identifies an advantage AND a disadvantage of using a macro	2
• Identifies a feature of macros	1

Sample answer:

Participants can use a single command, keystroke, or keyboard shortcut to run a predefined series of commands. This saves time and reduces the need for participants to master complex operations. However, if any step in a macro is incorrect, the error may not be noticed and it can also be difficult for the source of the error within the macro to be identified.

Question 26 (b) (ii)

Criteria	Marks
• Provides formulae for D7, E5 and F3 that are essentially correct	4
• Provides TWO essentially correct formulae OR • Shows a sound understanding of the development of formulae involving multiple operators, the use of LOOKUP and the use of IF	3
• Provides ONE essentially correct formula OR • Shows some understanding of the development of formulae involving multiple operators and/or use of LOOKUP and/or the use of IF	2
• Recognises a feature of a formula	1

Sample answer:

D7 =VLOOKUP (C7, B12 : C16, 2)

E5 =IF (B5>5, 10%, 0)

F3 =B3 * D3 * (100% – E3) OR =(B3 * D3) – (B3 * D3 * E3)

Question 26 (c) (i)

Criteria	Marks
• Clearly justifies the type of classification identified with reference to the scenario	3
• Shows some understanding of the features of structured or semistructured or unstructured decision support systems	2
• Identifies a feature of structured, semistructured or unstructured decision support systems	1

Sample answer:

This is a semi-structured decision support system, as there is a method to be followed in order to make a decision. An effort has been made to retain some level of human judgement in the decision-making process. In this system, the customer can adjust the choices to see what effect it has on the insurance cover before committing to a final decision. They may choose not to include the youngest driver in the coverage for a particular vehicle or they may nominate a vehicle for commercial use. Each of these is allowing for human judgement in the final decision.

Question 26 (c) (ii)

Criteria	Marks
• Suggests an alternative use showing a thorough understanding of the type of decision support system • Identifies issues in the alternative use and provides points for and/or against	5
• Provides some discussion of an alternative use showing a good understanding of the type of decision support system	4
• Describes an alternative use showing a sound understanding of the type of decision support system	3
• Outlines an alternative use showing some understanding of the type of decision support system	2
• Identifies a feature of the type of decision support system	1

Sample answer:

This decision support system could be used to aid triage in a hospital emergency room setting. When a person first arrives, the nurse or other participant can ask a short series of closed questions while entering the answers provided into the appropriate fields on the screen. Once the answers are submitted the casualty can be assigned a priority level in the queue of people awaiting emergency care. Priority of treatment is determined by the medical staff informed by their own assessment and the advice generated by the decision support system. A user interface could be designed to allow for patient self-assessment should the person be able to do so or the job could be assigned to a triage nurse or support staff. The data collected over time could be warehoused and data mining could reveal trends that can be used to inform the allocation of staff and resources to the emergency department of the hospital particularly when there is a regular pattern of increased demand on the service.

Answers could include:

Any scenario where the decision support system can be used to assist in the determination of eligibility including:

- job applications
- overseas travel planning.

Question 27 (a) (i)

Criteria	Marks
• Identifies advantages of automation in mail sorting	2
• Identifies an advantage of automation in mail sorting	1

Sample answer:

Barcode readers or OCR software can be used to read postcodes automatically allowing more accurate and more efficient sorting of letters and parcels into delivery areas.

Repetitive tasks and heavy lifting are reduced for humans who may focus on monitoring the system and handling badly addressed items.

Question 27 (a) (ii)

Criteria	Marks
• Clearly describes suitable techniques for reducing noise in relation to signals in an automated manufacturing system	3
• Describes a suitable technique OR • Identifies suitable techniques	2
• Identifies a suitable technique OR • Identifies a feature of noise in relation to signals in an automated manufacturing system	1

Sample answer:

High-frequency pulses should be eliminated, for example, moving electrical devices away from the area. Filters may also be used to remove unwanted frequencies outside the expected range. Cables should be shielded to prevent both random (white) noise and periodic (coloured) noise. Alternatively, use only shielded cabling (eg coaxial) to reduce interference.

Question 27 (b) (i)

Criteria	Marks
• Clearly describes how a sensor in an automated manufacturing system converts analog data to digital data	3
• Shows some understanding of how a sensor converts data OR • Shows some understanding of analog to digital conversion	2
• Identifies a feature of a sensor or analog data or digital data	1

Sample answer:

A sensor is an analog collection device that collects continuous data (physical quantities such as heat, pressure and light) from the environment. Temperature data would be collected in milli volts. The analog data is sent to the controller/microprocessor for conversion into digital data. This is necessary as the controller/microprocessor cannot work with analog data.

The conversion of analog to digital is done using an ADC (analog to digital converter) through a process known as Pulse Code Modulation (PCM). This involves taking samples of the continuous analog data at regular intervals. The ADC then assigns a discrete value which best represents the measurement it has taken. This discrete value is then encoded into a binary form that can be understood by the controller and allows the system to appropriately respond to changes in the AMS.

Question 27 (b)(ii)

Criteria	Marks
• Clearly shows how discrete and continuous processing are different using examples	4
• Shows a sound understanding of both discrete and continuous processing	3
• Shows some understanding of discrete and/or continuous processing	2
• Identifies a feature of discrete or continuous processing	1

Sample answer:

Continuous processing is a form of production that has no definite starting or ending points and has the ability to perform processing 24/7. It is used for systems which manufacture low value, high demand products, examples of continuous processing include oil refinery, electricity generation, smelting iron and some food items.

Discrete processing is a discontinuous form of production where the entire manufacturing system is focused on making one product at a time, usually to the customer's exact specifications. Products manufactured using discrete processing are unique, one-off products that are of high value. Examples of these products include passenger jets, space satellites and oil rigs.

Continuous processing also has the least amount of human involvement and often utilises less skilled human labour while discrete system has a high level of human involvement and uses highly skilled workers. Another difference is rate of production; continuous processing can efficiently produce large quantities of a particular product, making it the most suitable for

mass production while discrete processing only manufactures one very high value product at a time, making production much slower than continuous processing .

Answers could include:

The differences between discrete and continuous processing are:

Discrete	Continuous
• Single task at a specific time • Creates a specific item • More skilled labour needed • Creating custom or modified components for a machine, medical protestics and other specialty items	• Continuously functioning • Maintenance at set times • Mass production • Often used in chemical, food, and metal production

Question 27 (c) (i)

Criteria	Marks
• Clearly describes the relationship between CAD and CAM in the system	3
• Shows some understanding of CAD and/or CAM	2
• Identifies a feature of CAD or CAM	1

Sample answer:

CAD (Computer Aided Design)and CAM (Computer Aided Manufacture) are connected to the same database but are involved in different parts of the manufacturing process. CAD populates the database with the specifications and measurements used in creating the design to be manufactured. CAM converts this design into data that can be directly entered into the manufacturing system, so that CNC (Computing Numeric Control) can use these data to control the movements of the actuators of the printing rig and other components.

Question 27 (c) (ii)

Criteria	Marks
• Suggests an alternative use showing a thorough understanding of the type of automated manufacturing system • Identifies issues in the alternative use and provides points for and/or against	5
• Provides some discussion of an alternative use showing a good understanding of the type of automated manufacturing system	4
• Describes an alternative use showing a sound understanding of the type of automated manufacturing system	3
• Outlines an alternative use showing some understanding of the type of automated manufacturing system	2
• Identifies a feature of the type of automated manufacturing system	1

Sample answer:

An alternative use could be car manufacturing.

It would be limited by what material is required and how it is created. The basic structure of the car could be printed with internal wiring to be done on completion. The system would need to be able to generate different colours for the car produced so customers could order particular colours and these would be programmed into the automated system. It would reduce the need for continuous processing. Custom designs can be easily manufactured on demand without the need for re-tooling the assembly line.

Answers could include:

Any scenario where the automated manufacturing system can be used to assist in the manufacturing process.

Question 28 (a) (i)

Criteria	Marks
• Identifies an advantage and a disadvantage of compressing video	2
• Identifies an advantage OR a disadvantage of compressing video	1

Sample answer:

Advantage:

Reducing the size of the file for storage purposes because it decreases the space required to save it.

Disadvantage:

It can reduce the quality of the video.

Question 28 (a) (ii)

Criteria	Marks
• Clearly describes how online games can be used in education and training	3
• Shows some understanding of how online games can be used in education and training	2
• Identifies a feature of games suitable for use in education and training	1

Sample answer:

Online games enable users (in either education or training) to simulate the activity. It allows the user to practise doing the activity in a safe environment. An example is a typing tutor where the interaction could be skill-based but also entertaining to maintain the interest of the user. It also allows for a variety of media types to be used.

Question 28 (b) (i)

Criteria	Marks
• Clearly distinguishes between authoring software and HTML editors for creating multimedia	3
• Identifies features of authoring software and/or HTML editors	2
• Identifies a feature of authoring software or HTML editors	1

Sample answer:

Authoring software provides a tool set for the design, creation and editing of multimedia or individual elements of multimedia. Authoring software allows the user to export the work into suitable file types or to package the work into an easy to use format.

An HTML editor is used to create or edit webpages using hypertext markup language. Webpages can be viewed using a web browser and can display the elements of multimedia including text, hypertext, images, animation, video and audio.

Question 28 (b) (ii)

Criteria	Marks
• Clearly explains the effects of bit-depth and the representation of colour data on hardware in a multimedia system	4
• Shows a sound understanding of bit-depth and/or the representation of colour data • Provides some link between these and the demands on hardware	3
• Shows some understanding of bit-depth and/or the representation of colour data and/or hardware requirements in a multimedia system	2
• Identifies a feature of bit-depth or the representation of colour data OR • Identifies a feature of hardware used in a multimedia system	1

Sample answer:

A multimedia system usually requires high quality images and a high bit depth is needed to achieve this. Bit depth is the number of bits that describes each pixel in an image. The higher the bit depth, the more colours it can represent. For example, a bit depth of 16 can produce 2^{16} (65536) different colours or tones. However, the bit depth also affects the size of the image as more color information has to be stored for each pixel in the image. This could mean a great deal more storage is required for the images in a multimedia system resulting in significant demand on the hardware eg more RAM and higher capacity disk for storage, graphics adapter that is compatible with the bit depth and more powerful CPU for processing and manipulating the images.

Question 28 (c) (i)

Criteria	Marks
• Identifies suitable file formats for storing images and audio data in this system and clearly justifies these choices	3
• Identifies suitable image file format(s) and/or suitable audio file format(s) and/or storage requirement(s) of the system	2
• Identifies an image or audio file format OR • Identifies a storage requirement	1

Sample answer:

An mp3 is a suitable audio file format while jpeg is a suitable image file format in this INIC system when accessing the internet or listening to the digital radio.

Mp3 files and jpeg files are suitable for this system as they have small storage space requirements, and can be loaded quickly when accessed by the driver.

Question 28 (c) (ii)

Criteria	Marks
• Suggests an alternative use showing a thorough understanding of the type of multimedia system • Identifies issues in the alternative use and provides points for and/or against	5
• Provides some discussion of an alternative use showing a good understanding of the type of multimedia system	4
• Describes an alternative use showing a sound understanding of the type of multimedia system	3
• Outlines an alternative use showing some understanding of the type of multimedia system	2
• Identifies a feature of the type of multimedia system	1

Sample answer:

An alternative use of this system could be for telecommuting/working from home. The integration of the INIC into a home office could allow many different jobs to be done from home allowing for more flexible working arrangements.

Phone calls using speech recognition would allow the caller to multitask more effectively because the system allows ‘hands-free’ operation of the telephone. Calls could be made or taken while you have your hands full or you are on the move.

The connection to the internet, social media and digital radio has multiple application in this alternative-use scenario. Internet allows access to the company network or data stored on the cloud. Skype or other VOIP applications can be used if telephone services are not suitable. Social media can be leveraged for getting information out to the public and gather feedback about company services or products. Digital radio can provide entertainment but can also be used to gather news and information in an asynchronous manner (independent of time zones or geographic location).

The navigational components are not as useful in a fixed location but they could be used to inform decisions made by dispatchers or operators monitoring the progress of deliveries or staff in the field. For example; tracking overseas shipments while working from home.

Answers could include:

A variety of scenarios including virtual reality, virtual worlds, education and training.

Information Processes and Technology

2014 HSC Examination Mapping Grid

Section I

Question	Marks	Content	Syllabus outcomes
1	1	9.1 Project Management	H5.1
2	1	9.3 Communication Systems	H1.2
3	1	9.3 Communication Systems	H1.1
4	1	9.2 Information Systems and Databases	H1.1
5	1	9.2 Information Systems and Databases	H1.1
6	1	9.1 Project Management	H5.1, H7.1
7	1	9.3 Communication Systems	H1.1
8	1	9.3 Communication Systems	H1.1, H1.2
9	1	9.3 Communication Systems	H1.1
10	1	9.1 Project Management	H6.2
11	1	9.3 Communication Systems	H1.1
12	1	9.1 Project Management	H6.2
13	1	9.3 Communication Systems	H1.1
14	1	9.1 Project Management	H6.2, H7.2
15	1	9.1 Project Management	H1.1
16	1	9.3 Communication Systems	H1.1
17	1	9.1 Project Management	H6.2
18	1	9.1 Project Management	H6.2, H7.1
19	1	9.3 Communication Systems	H1.1
20	1	9.2 Information Systems and Databases	H1.1, H2.1

Section II

Question	Marks	Content	Syllabus outcomes
21 (a)	2	9.1 Project Management	H1.1
21 (b)	3	9.1 Project Management	H6.1, H6.2
21 (c)	3	9.2 Information Systems and Databases	H3.1, H3.2
22 (a)	2	9.1 Project Management	H1.2
22 (b)	3	9.1 Project Management	H6.2
22 (c)	3	9.2 Information Systems and Databases	H3.1, H3.2
22 (d)	3	9.2 Information Systems and Databases	H1.1, H6.1
23 (a)	3	9.2 Information Systems and Databases	H2.1, H5.1
23 (b)	3	9.2 Information Systems and Databases	H1.1, H2.1
23 (c)	4	9.3 Communication Systems	H1.1, H2.1, H6.1
24 (a)	3	9.3 Communication Systems	H1.1, H2.1
24 (b)	3	9.3 Communication Systems	H1.1, H2.2, H3.1, H4.1
24 (c)	5	9.3 Communication Systems	H1.1, H3.1, H3.2, H4.1

Section III

Question	Marks	Content	Syllabus outcomes
25 (a) (i)	2	9.4.1 Transaction Processing Systems	H1.2
25 (a) (ii)	3	9.4.1 Transaction Processing Systems	H1.2, H3.1
25 (b) (i)	3	9.4.1 Transaction Processing Systems	H1.1, H1.2, H2.1
25 (b) (ii)	4	9.4.1 Transaction Processing Systems	H1.1, H2.1
25 (c) (i)	3	9.4.1 Transaction Processing Systems	H1.2, H2.1, H4.1
25 (c) (ii)	5	9.4.1 Transaction Processing Systems	H4.1, H5.2, H6.1
26 (a) (i)	2	9.4.2 Decision Support Systems	H1.1
26 (a) (ii)	3	9.4.2 Decision Support Systems	H1.1, H3.1
26 (b) (i)	3	9.4.2 Decision Support Systems	H1.1
26 (b) (ii)	4	9.4.2 Decision Support Systems	H1.1, H6.1
26 (c) (i)	3	9.4.2 Decision Support Systems	H1.1, H2.1
26 (c) (ii)	5	9.4.2 Decision Support Systems	H4.1, H5.2, H6.1
27 (a) (i)	2	9.4.3 Automated Manufacturing Systems	H.1. H.3.1
27 (a) (ii)	3	9.4.3 Automated Manufacturing Systems	H1.1, H2.1
27 (b) (i)	3	9.4.3 Automated Manufacturing Systems	H1.1, H1.2
27 (b) (ii)	4	9.4.3 Automated Manufacturing Systems	H1.2, H2.1
27 (c) (i)	3	9.4.3 Automated Manufacturing Systems	H1.1, H1.2, H2.1
27 (c) (ii)	5	9.4.3 Automated Manufacturing Systems	H4.1, H5.2, H6.1
28 (a) (i)	2	9.4.4 Multimedia Systems	H1.1
28 (a) (ii)	3	9.4.4 Multimedia Systems	H3.1, H3.2, H4.1
28 (b) (i)	3	9.4.4 Multimedia Systems	H1.1, H1.2
28 (b)(ii)	4	9.4.4 Multimedia Systems	H1.1, H1.2, H2.1
28 (c) (i)	3	9.4.4 Multimedia Systems	H1.1, H2.1, H5.1
28 (c) (ii)	5	9.4.4 Multimedia Systems	H4.1, H5.2, H6.1