

2022 HSC Information Processes and Technology Marking Guidelines

Section I

Multiple-choice Answer Key

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

Section II

Question 21 (a)

Criteria	Marks
<ul style="list-style-type: none"> Describes advantages of forming a project team from various departments when reviewing an existing system 	3
<ul style="list-style-type: none"> Outlines some understanding of the advantages of forming a project team from various departments 	2
<ul style="list-style-type: none"> Provides some relevant information 	1

Sample answer:

A team built from members of different areas of a company such as HR, finance, marketing or IT allow for different perspectives, skills and approaches to be used by the team. For example, members of marketing will have a different understanding of the use of the existing system compared to members from finance.

Question 21 (b) (i)

Criteria	Marks
<ul style="list-style-type: none"> Describes the components of an implementation plan related to the scenario 	3
<ul style="list-style-type: none"> Outlines components of an implementation plan related to the scenario 	2
<ul style="list-style-type: none"> Identifies a component of an implementation plan 	1

Sample answer:

Components of an implementation plan that would be necessary are timelines and training. The company would need to produce a timeline for all staff to be trained on the new system. Employees would need access to a handbook/manual that teaches them how to use the new system and any workflow changes that result from this new system. The company would need to organise hands-on small group training sessions for staff so that they were familiar with the new system.

Question 21 (b) (ii)

Criteria	Marks
• Explains social issues arising from the implementation of the solution, using relevant examples	4
• Describes a social issue arising from the implementation of the solution, using a relevant example	3
• Describes a social issue	2
• Provides some relevant information	1

Sample answer:

Social implications of this change might be the changing nature of work and potential increased workload for staff, with the resulting need to learn new workflows for the job. Staff will also have to cope with the workload of learning the new system while maintaining the current system and its requirements. Staff may not have the skills required for the new jobs. This new system may also require changes to health and safety requirements at the company. The cost of implementing the new system might be overwhelming for the company or may not be recouped by job attrition.

Question 22 (a)

Criteria	Marks
• Outlines the function of all the HTML tags on the website	3
• Outlines the function of some HTML tags	2
• Identifies a feature of a HTML tag	1

Sample answer:

<head>	</head>	Sets off the title and other information that isn't displayed.
<title>	</title>	Puts name of the document – 'Hotel Company' in the title bar.
<h1>	</h1>	Applies Heading 1 properties to the text 'Reservation Information'. Typically this is the largest size.
	< /img>	Adds an image. On the website, the image is named 'company logo'.

Question 22 (b)

Criteria	Marks
• Draws a correctly labelled screen layout of the booking page	3
• Draws or labels some elements of the screen layout of the booking page	2
• Provides a feature of screen layout	1

Sample answer:

Heading indicates what page is being displayed

Recognises the customer has logged in

Booking page

Hello Customer name

Book your stay with us!

Select check in date

S	M	T	W	T	F	S
				1	2	3
4	5	6	7	8	9	10
11	12	13	14	15	16	17
18	19	20	21	22	23	24
25	26	27	28	29	30	31

Select check out date

S	M	T	W	T	F	S
1	2	3	4	5	6	7
8	9	10	11	12	13	14
15	16	17	18	19	20	21
22	23	24	25	26	27	28
29	30	31				

Number of adults ▼

Number of children ▼

Number of rooms ▼

Choose a location

Hotel 1
Hotel 2
Hotel 3
Hotel 4

Payment confirmation

Takes the customer to a payment confirmation page

Question 22 (c)

Criteria	Marks
• Explains how a centralised database can be used by the company	4
• Describes features of a centralised database	3
• Outlines a feature of a centralised database	2
• Provides some relevant information	1

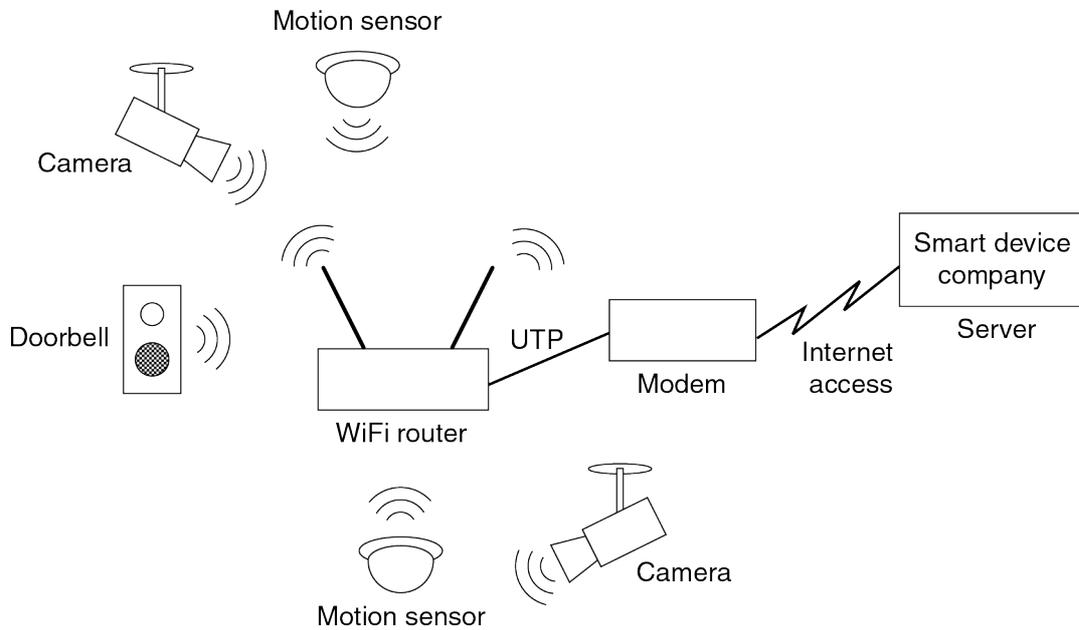
Sample answer:

A centralised database can help the company ensure the integrity of data collected and stored as well as minimising data redundancy. A centralised database can also enable customers to create an account which they can use in any of the hotel's locations. This will help enhance customer experience and may even speed up check in/check out processes as well as payment for their stay, activities and services.

Question 23 (a)

Criteria	Marks
• Designs a labelled network layout identifying the IT requirements for the network	3
• Designs a network layout that shows most IT requirements	2
• Provides some relevant information	1

Sample answer:



Question 23 (b)

Criteria	Marks
• Describes the benefits of using wireless communication in the network	3
• Outlines benefits of wireless communication	2
• Identifies a feature of wireless communication	1

Sample answer:

The benefit of using a wireless communication medium is that it allows for flexible location of the digital devices throughout the home without having to set up and run physical network infrastructure like UTP cabling from every device to a network switch. Another benefit is that it avoids the physical limitation of how many devices can be connected to a wired network by allowing wireless access to a network WiFi router.

Question 23 (c)

Criteria	Marks
• Explains TWO ethical issues arising from the use of the system	4
• Describes TWO ethical issues associated with the use of the system	3
• Outlines an ethical issue	2
• Provides some relevant information	1

Sample answer:

Wireless transmission is a security issue as it can be easily intercepted or monitored in an unsecure home network environment resulting in the risk of people gaining access to video or voice transmissions and using them for unethical purposes, such as identity theft.

The locations of the digital devices throughout the house have to be carefully planned to avoid the risk of invading the privacy of the people who live in the home and their visitors. This avoids the recordings of the video feeds being collected without people's awareness or permission.

Question 24 (a)

Criteria	Marks
• Outlines a feature of an operation manual when implementing a new information system	2
• Provides some relevant information	1

Sample answer:

An operation manual outlines procedures for users to follow when implementing a new system. For example, correct login procedures for user names and passwords.

Question 24 (b)

Criteria	Marks
• Draws a substantially correct decision table showing all conditions, rules and actions	3
• Draws a decision table showing understanding of some conditions, rules and actions	2
• Provides some relevant information	1

Sample answer:

Conditions	Rules						
3 shifts	Y	Y	Y	Y	N	N	N
>= 5 shifts	N	N	N	N	Y	Y	Y
>= 4 stars	Y	N	Y	N	Y	N	Y
> 10 calls	Y	N	N	Y	N	Y	Y
Actions							
\$5 voucher	Y	N	Y	N	N	N	Y
\$10 voucher	Y	N	N	Y	Y	Y	Y
Additional \$10 voucher	N	N	N	N	Y	Y	Y

Question 24 (c)

Criteria	Marks
• Discusses social and ethical issues arising from using the public wifi in the local library	5
• Describes social and ethical issues arising from using the public wifi in the local library	4
• Outlines a social and/or an ethical issue and provides some description	3
• Outlines some features of a social or an ethical issue	2
• Provides some relevant information	1

Sample answer:

A positive social issue that arises from using the public wifi in the local library to access messaging systems is that people of all ages have free internet access. A limitation of this can be slow internet access speeds or data upload and download limits.

An ethical concern about using public wifi to access messaging systems is that it may allow underage people to use messaging systems which they may not otherwise have access to, due to parent or school restrictions.

Another issue can be the access to digital resources. There can be differences between digital resources available in a home environment, where little or no restriction is applied, and access restrictions that can be applied to the public wifi to ensure that no inappropriate sites are accessed.

Another ethical issue arising from using the public wifi in the local library is the use of software such as VPNs to bypass restrictions applied by the public wifi. This may allow users to access inappropriate material in a public place or to download and install malicious software.

Section III

Question 25 (a)

Criteria	Marks
<ul style="list-style-type: none"> Distinguishes between a request and an acknowledgement in a transaction using an example 	3
<ul style="list-style-type: none"> Outlines features of a request or an acknowledgement 	2
<ul style="list-style-type: none"> Identifies a feature of a transaction 	1

Sample answer:

In a banking system, a request is where a question or trigger is initiated eg swiping an ATM card to start a transaction. An acknowledgement is then sent to the user from the transaction system, for example, input a PIN.

Question 25 (b) (i)

Criteria	Marks
<ul style="list-style-type: none"> Describes ways that data collected by management could be used 	3
<ul style="list-style-type: none"> Outlines a way that data collected by management could be used 	2
<ul style="list-style-type: none"> Provides some relevant information 	1

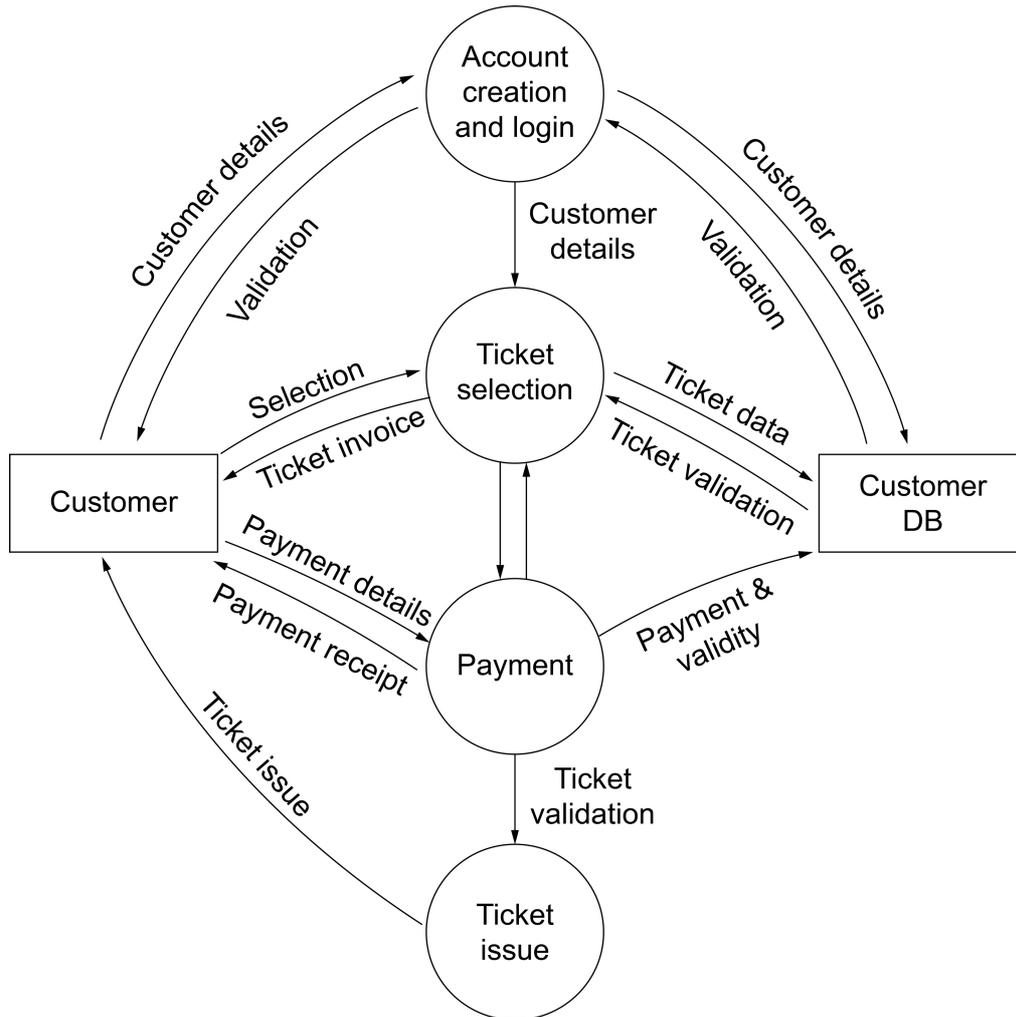
Sample answer:

Data collected when creating an account can be used to create mailing lists for future events; to identify customers who regularly attend concerts to offer future discounts or incentives; or to sell to other companies for third party advertising.

Question 25 (b) (ii)

Criteria	Marks
• Draws a substantially correct data flow diagram related to the scenario	4
• Draws a partially correct data flow diagram with some relevance to the scenario	3
• Attempts to draw a data flow diagram with some relevance to the scenario	2
• Identifies some features of a data flow diagram	1

Sample answer:



Question 25 (c)

Criteria	Marks
<ul style="list-style-type: none"> Justifies the batch and real time processing that would occur, with reference to the scenario 	4
<ul style="list-style-type: none"> Describes the batch and real time processing that would occur, with reference to the scenario 	3
<ul style="list-style-type: none"> Outlines a process that is either real time or batch 	2
<ul style="list-style-type: none"> Identifies some relevant information 	1

Sample answer:

A login password not working would be considered as real time processing as this needs immediate attention in order for a user to access the system.

Requesting software to be installed would be justified as batch, since this is not a request that needs to be actioned immediately.

Ordering paper could be either real time or batch processing, depending on the urgency of the request based on available stock levels.

Question 25 (d)

Criteria	Marks
<ul style="list-style-type: none"> Explains thoroughly mirroring and rollback in relation to data security and data integrity 	6
<ul style="list-style-type: none"> Explains soundly mirroring and rollback with some relation to data security and data integrity 	5
<ul style="list-style-type: none"> Describes mirroring and rollback with some relation to data security and/or data integrity 	4
<ul style="list-style-type: none"> Outlines features of mirroring and rollback 	3
<ul style="list-style-type: none"> Outlines a feature of mirroring or rollback 	2
<ul style="list-style-type: none"> Provides some relevant information 	1

Sample answer:

Mirroring is the automated process of writing data to two drives simultaneously. It provides for faster recovery. If one drive fails, the redundant drive will continue to store the data and provide access to it. In the case of system destruction or catastrophic malfunction, mirroring can be employed to recover the system and return it to a pre-malfunctioned state, preserving data security.

Rollback returns the database to a consistent state eg after a crash any transaction which was active at the time of the crash can be rolled back. In the case of a database being hacked or the drive controller of a system failing, rollback restores the system to a state of data integrity, which assures the ACID properties of a transaction.

Question 26 (a)

Criteria	Marks
<ul style="list-style-type: none"> Distinguishes between absolute and relative referencing Provides a correct example of each 	3
<ul style="list-style-type: none"> Outlines absolute and relative referencing Attempts an example of referencing 	2
<ul style="list-style-type: none"> Identifies a feature of referencing 	1

Sample answer:

An absolute reference will always refer only to the cell addresses specified in the spreadsheet formula. An example would be \$A\$4.

A relative reference will change when the formula is moved to another cell. An example would be A4.

Question 26 (b)

Criteria	Marks
<ul style="list-style-type: none"> Describes the role of a database of facts in an expert system 	3
<ul style="list-style-type: none"> Outlines the role of a database of facts in an expert system 	2
<ul style="list-style-type: none"> Provides some relevant information 	1

Sample answer:

A database of facts represents the facts about the reality of an enterprise. It contains no historical data. An expert system simulates the behaviour of a human to diagnose and solve problems. The role of the database of facts is to maintain and authenticate the known facts of that expert system and incorporate new facts to increase its knowledge for the expert system.

Question 26 (c)

Criteria	Marks
<ul style="list-style-type: none"> Explains the use of pattern matching in a neural network with clear reference to the scenario 	4
<ul style="list-style-type: none"> Describes the use of pattern matching in a neural network with clear reference to the scenario 	3
<ul style="list-style-type: none"> Outlines the use of pattern matching in a neural network 	2
<ul style="list-style-type: none"> Identifies a feature of pattern matching or a neural network 	1

Sample answer:

Pattern matching is the process of finding similarities in data and linking those similarities to grow the neural network. For example, a customised watch list of movies is created, based on the viewer's selection of actors, directors and language. The neural network incorporates new patterns into its existing body of knowledge to form new watch lists.

Question 26 (d)

Criteria	Marks
<ul style="list-style-type: none"> Explains how structured and unstructured decision-making are used with an appropriate example of each 	4
<ul style="list-style-type: none"> Describes how structured and unstructured decision-making are used with an example of each 	3
<ul style="list-style-type: none"> Outlines structured and/or unstructured decision-making 	2
<ul style="list-style-type: none"> Provides some relevant information 	1

Sample answer:

Structured decision-making is where decisions are automated and where support systems are not required. The grade allocation feature in a markbook would be an example of a structured decision-making process. Each grade has a set mark range, resulting in the markbook being able to allocate a grade automatically.

Unstructured decision-making is where there is no method to reach the decision, judgements are required and insights are required to solve the problem. A situation in which an unstructured decision-making process would be used is in predicting stock market prices. As stock market prices continually change there are no definitive values to use for decision-making. Decisions are based on each individual stock price's trends over time.

Question 26 (e)

Criteria	Marks
• Explains thoroughly the effects of the decision-making process for the users and participants of the system	6
• Explains soundly the effects of the decision-making process with some reference to users and participants of the system	5
• Explains the effects of the decision-making process with some reference to users or participants of the system	4
• Describes the effects of the decision-making process	3
• Outlines an effect of the decision-making process	2
• Provides some relevant information	1

Sample answer:

In this system, the sports players are participants, as the data collected by their wearable devices is used by the sports club managers and coaches, as users, to make decisions about team selections.

As the club itself collects more data, it is then able to manipulate the data thresholds, so that only its most successful players are able to represent the club. The sports club managers and coaches will receive live readings of a player's fitness and performance statistics which better aid in devising coaching strategies for improvement. In turn the club is then able to manipulate the competition to its advantage. Players who don't improve are then relegated to lesser teams or not to play.

Some of the possible effects are that team members who want to play may try to play through an injury in order to keep their statistics high or may just absent themselves when they are not feeling well in order to keep positive statistics only. The club may choose to release the data of the players onto their website so that spectators know who is making a positive or negative impact on the club.

Recommended measures might include the club making its data thresholds publicly available so all team members know where and how data is being collected and used. If the club posts the data on players, then the data needs to be anonymised so that players are not identified by the data.

Question 27 (a)

Criteria	Marks
<ul style="list-style-type: none"> Describes how a microprocessor is used in an automated manufacturing system using an example 	3
<ul style="list-style-type: none"> Outlines a feature of a microprocessor in an automated manufacturing system 	2
<ul style="list-style-type: none"> Identifies a feature of a microprocessor 	1

Sample answer:

Microprocessors are used as controllers in AMS's as they use data collected by sensors to establish the operations and functions to be performed by actuators. An example of this could be that the microprocessor uses received data from a light sensor to track a robot's location.

Question 27 (b) (i)

Criteria	Marks
<ul style="list-style-type: none"> Describes how analog and digital data are used in the operation of this system 	3
<ul style="list-style-type: none"> Outlines a feature of analog and digital data in the operation of this system 	2
<ul style="list-style-type: none"> Provides some relevant information 	1

Sample answer:

Analog data is collected by sensors from the environment and passed through an analog to digital converter to the controller. An example of this could be the weight of the pizza base or the location of a cooked pizza. This would allow the controller to use this data in digital form to check values and make decisions on the actions that the actuators should perform such as cutting a pizza.

Question 27 (b) (ii)

Criteria	Marks
<ul style="list-style-type: none"> Explains the advantages and disadvantages of the use of semi-automation in the production of pizzas 	4
<ul style="list-style-type: none"> Describes advantages and disadvantages of the use of semi-automation in the production of pizzas 	3
<ul style="list-style-type: none"> Outlines advantages and disadvantages 	2
<ul style="list-style-type: none"> Identifies an advantage or a disadvantage 	1

Sample answer:

Semi-automating the pizza-making system will have the advantage of human oversight on quality control and adjustment. This human oversight will allow for issues with cooking to be identified, such as spilt or overflowing toppings in the oven, which can be rectified quickly before further issues arise. If fully automated, these quality check practices would not occur.

A disadvantage of the semi-automated system is that it would perform slower than a fully automated pizza production system. This is because of the extra time it takes for a human to perform physical tasks.

Question 27 (c)

Criteria	Marks
<ul style="list-style-type: none"> Explains the roles of a direct user and a participant in a mail sorting system 	4
<ul style="list-style-type: none"> Describes the roles of a direct user and a participant in a mail sorting system 	3
<ul style="list-style-type: none"> Outlines a feature of a direct user or a participant 	2
<ul style="list-style-type: none"> Provides some relevant information 	1

Sample answer:

In a mail sorting system the supervisor is a direct user as they are responsible for the successful operation of the system resulting in the effective sorting of the mail. This is different from an employee who is responsible for feeding the supply of unsorted mail into the system. They are not involved in the control or output of the system which makes them a participant.

Question 27 (d)

Criteria	Marks
• Explains thoroughly the function of each component of the bottling system	6
• Explains soundly the function of each component of the bottling system	5
• Explains the function of most components of the bottling system	4
• Describes the components of the bottling system	3
• Identifies some components of the bottling system OR	2
• Outlines a component of the bottling system	
• Provides some relevant information	1

Sample answer:

The pressure sensor in the system would be used to detect when a bottle is in the required filling location, as well as to identify when the bottle is full by tracking its weight. The flow sensor would be used to control the amount of water that is pumped into the bottles to fill them. This data is collected in analog form and is sent to the controller via the analog to digital converter (ADC). The control unit will use the data from the sensors to instruct the actuators.

The solenoid is an actuator that will be used to activate a pump to fill the bottles with water. It will receive instructional data that was sent by the controller through a digital to analog converter (DAC) in analog form. The motor is the other actuator that would be used. This would move the bottles through the filling system by creating the movement of the conveyor belt holding bottles.

Question 28 (a)

Criteria	Marks
• Describes the purpose of video and audio media types in a multimedia system	3
• Outlines the purpose of video or audio media types in a multimedia system	2
• Identifies a feature of a media type	1

Sample answer:

Both video and audio media types are used in multimedia systems such as websites to create alternative methods of engaging the user in a multimedia product and can help make it interactive. Short video clips and a recording of spoken text can be helpful to explain content rather than reading multiple pages of text.

Question 28 (b)

Criteria	Marks
• Describes the process of digital conversion of text from a paper-based survey	3
• Outlines the process of paper-based to digital conversion	2
• Identifies a feature of paper-based and/or digital data	1

Sample answer:

Once all the paper-based surveys are collected, they can be scanned using a scanner. Text can be scanned from a hard copy (paper-based) analog source. Once digitised, it can be saved as a graphic or it can be processed by OCR into editable text.

Question 28 (c)

Criteria	Marks
• Explains how the glasses can work as a head-up display for the exhibit	4
• Describes how the glasses can work as a head-up display for the exhibit	3
• Outlines a feature of a head-up display	2
• Identifies some relevant information	1

Sample answer:

Using a head-up display in the form of a pair of glasses, visitors can determine which aspects of the display they want to know more about. The head-up display works by matching what a person is focusing on to a display of additional information such as a small video or statistical information about the exhibit.

The head-up display would use bluetooth to connect to an app used to control elements of the display.

Question 28 (d)

Criteria	Marks
• Justifies the display hardware required for the outdoor movie event	4
• Describes the display hardware required for the outdoor movie event	3
• Outlines an example of display hardware	2
• Provides some relevant information	1

Sample answer:

As this is an outdoor event and the distance between the people and the screen may be larger than in a traditional cinema, a large projection device with a high resolution will be needed. This is needed ensure that no matter how far away people are from the screen, they will be able to see the film with clarity.

Stereo sound speakers will also need to be used to develop clear sound. Having them positioned around the perimeter of the park will ensure the sound quality is high and heard by all regardless of where they are sitting.

Question 28 (e)

Criteria	Marks
• Explains thoroughly how the requirements of different animation approaches affect the way the clips are processed, displayed and retrieved	6
• Explains soundly how the requirements of different animation approaches affect the way the clips are processed, displayed and retrieved	5
• Describes how the requirements of different animation approaches affect the way the clips are processed, displayed or retrieved	4
• Outlines how animation approaches impact the way the clips are processed and/or displayed or retrieved	3
• Identifies some components of animation approaches, processing or displaying or retrieving	2
• Shows some relevant information	1

Sample answer:

Animated video clips can be created using either cell-based or path-based techniques. Cell-based animations are created frame by frame with elements on each frame animated individually. Path-based animations usually contain a fixed background with the object being animated in the foreground. This requires the animator to create the first and last frame of the animation sequence and the computer fills in the rest of the frames.

The frame rate used in these animation approaches directly affects the file size of the final product. Transitions in animations that appear smooth when viewed typically have a higher frame rate which in turn creates larger file sizes. For example, a video clip created using a path-based technique with basic or limited animation may have a frame rate of 24fps, compared to an animation with many moving components in the foreground and background created using a cell-based approach which may require a frame rate of 30fps. These large file sizes will affect how the video clips are processed, time taken to display them on the website when it is loaded and the time taken to retrieve them from the website. Compression of these files will need to occur in order to retrieve and display the clips on the website.

2022 HSC Information Processes and Technology Mapping Grid

Section I

Question	Marks	Content	Syllabus outcomes
1	1	9.1 Requirements report	H7.1
2	1	9.2 Characteristics of an information system	H1.1
3	1	9.2 Data dictionary	H2.2
4	1	9.2 Characteristics of an information system	H1.1
5	1	9.2 Data security	H1.1
6	1	9.1 Pilot conversion	H1.1
7	1	9.2 Normalisation	H2.2
8	1	9.2 Relational databases	H2.2
9	1	9.2 SQL	H2.2
10	1	9.2 Foreign key relationships	H2.2
11	1	9.1 Interview techniques	H6.2
12	1	9.3 Function of hardware components in a communications system	H1.1
13	1	9.3 Wired transmission media	H1.1
14	1	9.3 Examples of communication systems – VOIP	H1.1
15	1	9.3 Network topologies	H1.1
16	1	9.3 Network security	H6.2
17	1	9.3 Protocols – TCP	H2.1
18	1	9.2 Components of a schema	H2.1
19	1	9.2 Freedom of information	H5.2
20	1	9.1 Feasibility and Testing	H6.1

Section II

Question	Marks	Content	Syllabus outcomes
21 (a)	3	9.1 Advantages of working in groups	H1.1, H1.2
21 (b) (i)	3	9.1 Implementation plan	H1.1, H1.2
21 (b) (ii)	4	9.1 Social issues in relation to job loss	H3.1
22 (a)	3	9.2 HTML tags	H2.2
22 (b)	3	9.2 Tools for organising hypermedia	H1.1, H2.2
22 (c)	4	9.2 Centralised database	H1.1, H1.2
23 (a)	3	9.3 Network diagram	H1.1, H2.2
23 (b)	3	9.3 Advantages of wireless communication	H1.1, H1.2
23 (c)	4	9.3 Ethical issues	H3.2
24 (a)	2	9.1 Operation manual	H7.1
24 (b)	3	9.1 Decision table	H7.2
24 (c)	5	9.3 Social and ethical issues – control of access and changing nature of work	H3.1, H3.2

Section III

Question	Marks	Content	Syllabus outcomes
25 (a)	3	9.4.1 Features of a transaction	H1.1, H1.2
25 (b) (i)	3	9.4.1 Data collection for data mining	H1.1, H4.1
25 (b) (ii)	4	9.4.1 Data flow diagram	H5.1, H6.2
25 (c)	4	9.4.1 Real time and batch processing	H1.1, H1.2
25 (d)	6	9.4.1 Data backup and recovery procedures and ethical issues	H3.1, H3.2
26 (a)	3	9.4.2 Absolute and relative referencing	H1.1, H1.2
26 (b)	3	9.4.2 Role of a database of facts in an expert system	H1.1, H1.2
26 (c)	4	9.4.2 Neural network and pattern matching	H1.1, H1.2, H4.1
26 (d)	4	9.4.2 Structured and unstructured decision making	H1.1, H1.2
26 (e)	6	9.4.2 Impacts of a DSS for users and participants	H1.1, H1.2
27 (a)	3	9.4.3 Uses of microcontroller	H1.1, H1.2
27 (b) (i)	3	9.4.3 Analog and digital data in AMS	H1.1, H1.2
27 (b) (ii)	4	9.4.3 Advantages and disadvantages of semi-automation and full automation	H3.1
27 (c)	4	9.4.3 Direct user and participant	H1.1, H1.2
27 (d)	6	9.4.3 Sensor, controller and actuator function	H1.1, H1.2
28 (a)	3	9.4.4 Video and audio media types	H1.1, H1.2
28 (b)	3	9.4.4 Analog to digital conversion	H1.1, H1.2
28 (c)	4	9.4.4 Head-up display	H1.1, H1.2
28 (d)	4	9.4.4 Hardware for displaying	H1.1, H3.1, H3.2
28 (e)	6	9.4.4 Effects of different animation approaches on requirements for processing, displaying and retrieval	H1.1, H1.2, H7.2