

Student Number:

2007
HIGHER SCHOOL CERTIFICATE
Sample Examination Paper

INFORMATION PROCESSES AND TECHNOLOGY

General Instructions

- Reading Time – 5 minutes
- Working Time – 3 hours
- Write using blue or black pen
- Write your student number at the top of this page

Total marks – 100

Section I

20 marks

- Attempt ALL of Questions 1–20
- Allow about 40 minutes for this section

Section II

40 marks

- Attempt ALL of Questions 21–24
- Allow about 1 hour and 10 minutes for this section

Section III

40 marks

- Attempt TWO questions only from Questions 25–28
- Allow about 1 hour and 10 minutes for this section

Directions to school or college

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Section I
20 marks

Allow about 40 minutes for this section

Select the alternative A, B, C, or D that best answers the question. Fill in the response sheet clearly.

1	X			
---	---	--	--	--

If you think you have made a mistake, blank out the incorrect answer and fill in the new answer.

1	X			X
---	---	--	--	---

If you change your mind and have crossed out what you consider to be the correct answer, then indicate the correct answer by writing the word *correct* and drawing an arrow.

1	X			X
---	---	--	--	---

Correct →

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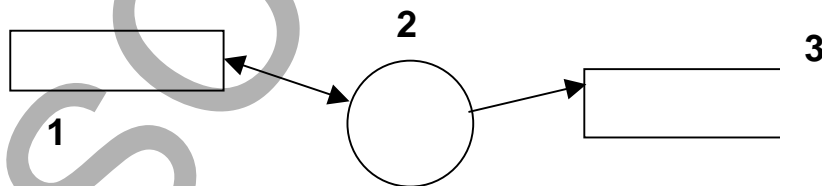
Section I

20 marks

Attempt ALL of Questions 1–20
Allow about 40 minutes for this section

Use the multiple-choice answer sheet
Select the alternative A, B, C or D that best answers each question

- 1 A company, which presently uses memos placed in named 'pigeon-holes' (shelf spaces) for daily communications, proposes a new system based upon email. Which of the following represents a likely social challenge?
- A Staff acquiring the necessary typing skills
 - B Staff acquiring the habit of checking for new mail
 - C Keeping permanent records
 - D Forwarding of replies to memos
- 2 Which of the following would NOT be expected when producing a prototype of a new system?
- A Clarification of participants' understanding of the system
 - B Generation of system screens
 - C Production of final output by the system
 - D Generation of reports to be printed by the system
- 3 Which of the following is a key potential advantage of a web-based tutorial over a CD-ROM based tutorial?
- A Cross-platform compatibility
 - B Opportunity for feedback from tutors
 - C Better quality graphics and animated segments
 - D Cost savings



- 4 Which items are labelled 1, 2 and 3 in the above context diagram?
- A External entity, process and data store
 - B Process, external entity and data store
 - C Data store, process and external entity
 - D External entity, data store and process

Use the following information to answer Questions 5–8.

The Sheriff's Office in NSW is responsible for organising citizens to participate as members of juries for court cases. Courthouses are located in Sydney and regionally throughout NSW. A relational database is used by the Office in Sydney to record names, contact details, previous jury service and the court in which that citizen is a juror. This central data can be accessed by each courthouse in the state via a network.

- 5** An entity forms part of the schema for any relational database. Which of the following are examples of possible entities for this database?
- A The first and second names of jurors
 - B The computer running the database and the file server hosting it
 - C The juror and the court
 - D The link between court case and juror and the link between juror and court number
- 6** Which of the following is an example of a suitable primary key field for the juror table?
- A Jury members' surnames
 - B Jury members' first names combined with their surnames
 - C Jury members' date of birth combined with surnames
 - D An invented numeric code uniquely assigned to each jury member
- 7** Urgent and accurate searches of this database are necessary, often by help desk operators at short notice. Which of the following is a suitable search method?
- A Trained database managers to perform the searches
 - B Query by example (QBE)
 - C Prepared reports
 - D Structured query language (SQL)
- 8** Network communication between the courts and the Sheriff's Office has been established. This network is known as which of the following?
- A An Ethernet network
 - B A WAN
 - C A LAN
 - D An ISDN network
- 9** A mobile phone company is conducting an online survey. As an internal check on data provided by those completing the survey, the date of birth stated on an application form is compared with an age in years stated on the survey. Which of the following describes this check?
- A Data redundancy
 - B Data verification
 - C Data accuracy
 - D Data validation

- 10** Which of the following is the most reliable error detection method?
- A Parity
 - B Cyclic redundancy checking
 - C Checksum
 - D Symbol substitution

Use the following information to answer Questions 11 and 12.

An SQL statement as follows generates a report from a flat file database used as part of a music store's CD catalogue system.

```
SELECT song_code, artist_firstname, artist_surname, release_year,  
FROM song_file  
WHERE release_year=2007 AND genre IS rock  
ORDER BY artist_surname DESC
```

- 11** Which of the following describes the final order of the artists in the report?
- A Artists alphabetically Z to A by surname
 - B Artists alphabetically A to Z by surname
 - C Songs alphabetically Z to A by title
 - D Songs alphabetically A to Z by title
- 12** Which of the following statements is true?
- A Output will be all songs released by each artist in the catalogue
 - B Output will be all rock songs released in 2007 by each artist in the catalogue
 - C Output will be all rock songs released by each artist in the catalogue
 - D Output will be all songs released in 2007 by each rock artist in the catalogue
- 13** Metalanguages are used to organise data as part of hypermedia functions in web pages. Which of the following is an example of a metalanguage?
- A The use of protocols for Internet communication
 - B The inclusion of images in web pages
 - C The use of a URL
 - D The use of HTML tags in web pages
- 14** Which of the following is a major disadvantage of free text Internet searching?
- A Incorrect matches in results returned
 - B Its slowness
 - C The return of irrelevant results
 - D The large numbers of results returned
- 15** Which of the following best describes a data warehouse?
- A The main collection of an organisation's computerised data
 - B A warehouse which stores an organisation's pre-computerised data
 - C A commercial supplier of useful data
 - D A collection of private data usually acquired illegally

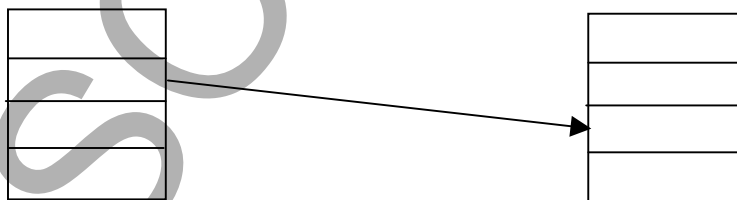
- 16 An arcade game called SNAKEZ has a gameplay design where players moving around a maze collect rewards to gain lives and lose lives when touched by poisonous snakes. The decision table shown below summarises the game’s logic.

Conditions					
rewards collected > 5	✓	✗	✗	✗	✗
hit by > 3 snakes	✗	✗	✓	✗	✗
lives = 10	✗	✓	✗	✗	✗
lives = 0	✗	✗	✗	✓	✗
round wins = 3	✗	✗	✗	✗	✓
Actions					
announce win round add 1 to rounds	✗	✓	✗	✗	✗
announce end game	✗	✗	✗	✓	✓
win life	✓	✗	✗	✗	✗
lose life	✗	✗	✓	✗	✗
set rewards to zero	✓	✓	✗	✓	✗
set lives to zero	✗	✓	✗	✓	✗
add name to Hall of Fame	✗	✗	✗	✗	✓

How does a player win the game?

- A By collecting five rewards
- B By collecting 10 lives
- C By achieving 10 lives three times in the game
- D By collecting five rewards and winning 10 lives

- 17 The diagram shows the organisation of a database.



What organisation method is being used for this database?

- A Flat-file
- B Relational
- C Hypertext
- D Hypermedia

- 18** Which of the following lists methods of converting digital to analogue signals?
- A Parity, checksum and cyclic redundancy
 - B Modulation and demodulation
 - C Digitisation and demodulation
 - D Amplitude, frequency and phase modulation
- 19** Which of the following is true of email addressing?
- A BCC: field recipients can see all other email addresses specified in the BCC: fields
 - B All recipients can see all email addresses specified in the To: field, CC: field and BCC: field
 - C All recipients can see all email addresses specified in the To: and CC: fields. No recipients can see any other email address in the BCC: field
 - D No recipient listed in the BCC: field can see email addresses specified in the To: and CC: fields.
- 20** A student quotes material obtained from a website for an essay on the Iraq War. Which of the following should be taken into account by the student in the bibliography?
- A The source, date of composition and date of access of the site
 - B The site is likely to be inaccurate and out of date
 - C Quoting the site will involve plagiarism
 - D The content will need to be rewritten by the student in his/her own words

End of Section I

Section II
40 marks

Attempt Questions 21–24

Allow about 1 hour and 10 minutes for this section

Answer the questions in an answer booklet.
Begin each question on a new page.
Diagrams should be clearly labelled.

Marks

Question 21 (10 marks)

When a student heard that Australia’s Wonderland was to close, she conducted a personal survey of the theme parks she has visited in her life and recorded what she believed to be the major rides of each. She decided to arrange the details in two tables called PARKS and FEATURED_RIDE.

Part of the PARKS table is shown below.

Park	Theme	Address	Park Code	Featured_ride	return discount?
MovieWorld	Hollywood	Gold Coast Hwy	1	coaster	Y
Dreamworld	General	Gold Coast Hwy	2	tower	Y
Australia's Wonderland	General	Wallgrove Rd, Eastern Creek	3	coaster	N
Wet 'n Wild	Water	Gold Coast Hwy	4	slide	Y
Seaworld	Marine	Gold coast	5	coaster	Y

Part of the FEATURED_RIDE table is shown below.

Ride	Park code	Type_ride	Features
Lethal Weapon	1	coaster	outer loops, length
Tower of Terror	2	tower	acceleration, free fall
Demon	3	coaster	backwards loop, size & speed
Large slide	4	slide	dark tunnel, speed, water
Corkscrew	5	coaster	loop, triple corkscrew

Marks

- (a) Identify field(s) in the table(s) which would best be stored using a Boolean data type. **1**
- (b) Identify field(s) that could use data validation and describe the validation appropriate for each. **2**
- (c) Using the table, a search is made as follows for all parks located on the Gold Coast. This search yields no results for the section of the table displayed despite four parks existing on the Gold Coast. Give reasons for this and rewrite this SQL specification in order to achieve a correct result. **2**
- ```

SELECT Park
FROM PARKS
WHERE PARKS.Address = 'Gold Coast'

```
- (d) Data redundancy is evident in the two tables. Describe this redundancy and create a join of these tables by designing a suitable schema so the redundancy is eliminated. **3**
- (e) The student intends to leave the file on her home computer but wishes it to remain secure. Describe TWO methods of achieving data security. **2**

Question 22 (10 marks)

**Hi tech T-shirt really rocks**



It's called the WIS – the Wearable Instrument Shirt – and it is tipped to make the air guitar as obsolete as the horse and cart.

Scientists at the CSIRO's Textile and Fibre Technology division in Geelong have woven electronic sensors into a T-shirt so that it can be played liked a real guitar.

Movements by the wearer's arms are mapped and beamed by radio to a computer which interprets them and turns them into musical notes.

The wearer only has to act out playing the instrument to make sounds. "The left arm chooses a note and the right arm plays it," said Richard Helmer, a CSIRO chemical engineer who led the project. The arrangement can be reversed for left-handed musicians. "You can play with your hands above your head," said Dr Helmer. "You can turn around and jump. Whatever you like."

Exactly when the WIS could be on the market is not certain, but the CSIRO has already taken out patents and Dr Helmer has started work on a business plan for its commercialisation.

While Dr Helmer believed the market for the WIS could be enormous, the real objective was to let the public glimpse the future of intelligent clothing being developed by the CSIRO.

People wearing shirts with sensors could operate computers and play computer games without ever having to touch a mouse or a touch pad.

Richard Macey

(extract) *Sydney Morning Herald*, November 13, 2006

- (a) Identify the participants in this system and describe the purpose of the system. 3
- (b) Draw a diagram to show the hardware components in the WIS system, label them, and show how they are connected. 3
- (c) Examine the potential impact of the new system on guitarists. 2
- (d) The author has suggested another possible application of this technology apart from music. Describe TWO further possible applications. 2

Marks

**Question 23** (10 marks)

The term 'viral advertising' refers to a growing commercial concept where interesting, offbeat or 'fun' video clips, images and audio content are shared by people over the Internet but which contain carefully placed promotional content or brand names as part of their content.

The main strength of viral marketing is its ability to reach a large number of interested people at a very low cost.

- |     |                                                                                                                                               |   |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------|---|
| (a) | Identify and describe ways in which such viral content can be made widely available by advertisers at little cost.                            | 2 |
| (b) | Critically analyse the social impact of viral advertising.                                                                                    | 4 |
| (c) | The open nature of the Internet has both positive and negative consequences. Identify and discuss TWO positive and TWO negative consequences. | 4 |

**Question 24** (10 marks)

You are designing a new computer-based system for a friend's landscaping business which at present uses manual systems. The owner presently performs the following tasks manually and you will be recommending computer-based replacement approaches for each.

- manage finances
  - design and print landscape layouts
  - advertise
  - create promotional pamphlets
  - manage customers' details.
- |     |                                                                                                                                                                                                                                                                                        |   |
|-----|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|---|
| (a) | Compare and contrast each of the manual tasks named above with its computer-based equivalent approach.                                                                                                                                                                                 | 4 |
| (b) | Recommend and justify off-the-shelf software that will meet the needs of this business.                                                                                                                                                                                                | 3 |
| (c) | The owner does not wish to cutover to the new system instantly. He has asked that each stage be introduced separately.<br><br>Develop a strategy for the staged adoption of the new system and draw a Gantt chart to illustrate your strategy. Explain the reasons for your decisions. | 3 |

**End of Section II**

### Section III

40 marks

Attempt TWO questions ONLY from Questions 25–28

Allow about 1 hour and 10 minutes for this section

Answer each question in a SEPARATE answer booklet

Diagrams should be clearly labelled.

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|                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | Marks |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| <b>Question 25 – Transaction Processing Systems (20 marks)</b>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |       |
| (a) Transaction processing systems can use either batch or real-time processing. Explain which of these two approaches would be most suitable for each of the following systems and in each case justify your choice.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |       |
| (i) An on-line system for a group booking a climb of the Sydney Harbour Bridge.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   | 2     |
| (ii) Annual summaries of school enrolment data sent to a state education office.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | 2     |
| (b) A multiple-choice computing skills exam is conducted by the Board of Studies for all students in Year 10. Schools are given a choice of two methods of delivery for this test: either pen and paper or on-line. Schools delivering the test on-line must set up and test a small utility application on the school server to assist in the delivery of the test. After each student logs in, test questions are delivered to candidates' computers from a dedicated Board of Studies server. As students confirm each response it is sent to and stored on this server.<br><br>Schools selecting the pen and paper delivery of the test have outside supervisors conduct a formal examination in a school hall or classrooms. |       |
| (i) Identify participants and users in the online system.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 2     |
| (ii) Draw a basic data flow diagram for this system, including both of the methods of test delivery in your diagram.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              | 4     |
| (iii) A designer needs to consider carefully the definition of the boundary of this system. Define the boundary for the system outlined above and state why this is an important decision.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        | 3     |
| (iv) Examine each method of test delivery in terms of its approach to processing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 | 3     |
| (c) Discuss ONE technical, ONE social AND ONE ethical issue which would be relevant to such an online examination system.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         | 4     |

**Question 26 – Decision Support Systems (20 marks)**

The 20Q website was invented by Robin Burgener in 1996 based on work he began in 1988. A player thinks of an object and 20Q asks a series of questions to which the player usually answers ‘Yes’ or ‘No’. Other choices such as ‘Unknown’, ‘Irrelevant’ or ‘Probably’ are also possible.

A Help screen from the website and a typical game are reproduced below.

The 20Q website claims that 20Q guesses the secret object correctly about 80% of the time by asking only 20 questions. It also states that the game uses a neural network and every time one of the 30 000–50 000 daily users plays the game, it continues to ‘learn’.

A subset of data from the 20Q website has been captured in the form of a handheld toy, although this version does not ‘learn’ after each game.

When it guesses the player’s object incorrectly—something that happened frequently in the first months of the game’s use—the player types in the correct answer and that object becomes part of 20Q’s growing neural network. The Artificial Intelligence then looks back over all the questions it just asked and associates the player’s answers with the object it just learned. As more people play, 20Q gets better and better at understanding how each object is characterised.

Part of the 20Q website:

**20Q** the neural.net on the internet

**Play** **Game FAQ**

**Help**

**Play**

**To start...**  
Think of an object, it can be anything as long as it is general. A cat is a good object, but my cat, Pepper, would be a bad object.  
Once you think of an object, 20Q will ask you a series of questions that begin: "Is it Animal, Vegetable, Mineral, or Unknown?" When thinking of your object, keep in mind that Animal, Vegetable, and Mineral each have their own broader meaning. Take into consideration the primary substance of the object of which you're thinking. For example, if you're thinking of a jumper, and it's a wool jumper, you should answer "yes" to the "Is it Animal?" question (not to put too fine a point on it, but wool comes from sheep, and sheep are animals.) Answer "yes" to the Mineral question if you are thinking of a jumper made of polyester, because polyester is made mainly of petroleum products, and that's mineral based. If your jumper is made of cotton, you'd answer "yes" to the Vegetable question, because cotton is a plant.  
A tricky example might be an arrow: you'd answer "yes" to the Mineral question if you were thinking of an arrow made mainly of metal, but the choice is more difficult if you are thinking of an arrow with a wooden shaft, metal arrowhead and a vane made of feathers or plastic - a multiplicity of materials and a conundrum for the player. Make the choice you think is best.  
**Note** This game is "G" rated and is suitable for audiences of all ages.

**Answering a general question**

You should be able to answer "Yes" or "No" to the rest of the questions. However, there are questions where the answer is not that simple. A horse is larger than a breadbox, but, water is not larger than a breadbox, neither is it smaller. Other questions seem silly: "Does a camel have four wheels?" No! And neither does a motorcycle.

**Yes** You are sure about your answer of Yes.  
**No** You are sure about your answer of No.  
**Unknown** You are unsure of how the question relates, or you don't know. The question will not be counted.  
**Irrelevant** The question does not apply to your object.  
**Probably** You are not sure but you think the answer might be Yes.  
**Doubtful** You are not sure but you think the answer might be No.

*"Intriguing, entertaining and downright spooky." The Tech. Museum of Innovation*

This is a printout of a typical 20Q game where the secret object was an egg:

- |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <ol style="list-style-type: none"> <li>1. Is it Animal, Vegetable, Mineral, or Other? Animal.</li> <li>2. Does it have short fur? Irrelevant.</li> <li>3. Does it make a good pet? No.</li> <li>4. Can it scratch? No.</li> <li>5. Does it have ears? No.</li> <li>6. Does it have feelings? No.</li> <li>7. Does it dig holes? No.</li> <li>8. Does it breathe? No.</li> <li>9. Is it a specific color? Yes.</li> <li>10. Does it taste good fried? Yes.</li> <li>11. Do you use it in public? Sometimes.</li> <li>12. Does it roll? Yes.</li> <li>13. Can it be used in a pie? Rarely.</li> <li>14. Can it be dried? No.</li> <li>15. Does it reflect objects? No.</li> <li>16. Is it healthy? Sometimes.</li> <li>17. I am guessing that it is an egg? <b>Right!</b></li> </ol> |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

- |     |                                                                                                                                                                                                                                                                                                                                                                                                     |          |
|-----|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------|
| (a) | Compare structured, semi-structured and unstructured decisions support systems and give an example of each. Decide which type the 20Q site is.                                                                                                                                                                                                                                                      | <b>6</b> |
| (b) | (i) Describe how the 20Q website could use the principles of a neural network to guess that the object in the example above was an egg.                                                                                                                                                                                                                                                             | <b>4</b> |
|     | (ii) Describe how 20Q could acquire new facts about an egg.                                                                                                                                                                                                                                                                                                                                         | <b>4</b> |
| (c) | A General Practitioner in a large medical centre proposes customising the 20Q application for the field of medical diagnosis. The doctor wishes to have patients complete a 20Q session consisting of 20 diagnostic questions about their symptoms while in the waiting room.<br><br>Discuss the technical, social and ethical issues which should be considered before considering implementation. | <b>6</b> |

**Question 27 – Automated Manufacturing Systems (20 marks)**

- (a) (i) Describe the differences between an actuator and a sensor and give an example of an actuator. **3**
- (ii) Identify THREE types of sensors used in Automated Manufacturing Systems and state how each could be used. **3**
- (b) A low voltage garden fountain pump uses three controls. It is solar powered and the low voltage mains supply exists only as backup when the batteries have not been sufficiently charged by solar energy through the day.
- The first control senses water level. This shuts off the pump if the water level drops too low.
- The second control shuts the pump off if the input filter gets too clogged with silt or leaves. This prevents the pump motor burning out.
- The third control turns the mains supply on if the solar batteries are not charged sufficiently.
- (i) Draw a block diagram for this system. **4**
- (ii) Describe with the aid of diagrams the effects of overdamping and underdamping on the system in terms of the first control and identify the most stable situation. **4**
- (c) A major botanic garden has a pond with a waterfall fed by a small creek. Issues of global warming, power consumption and an unreliable water supply have caused the management of the botanic garden to consider adapting the fountain pump described above and its technology for use in the botanic garden.
- Discuss the technical, social and ethical issues which should be considered before implementation of the system. **6**

**Question 28 – Multimedia Systems (20 marks)**

- (a) (i) Compare and contrast CRT and LCD as screens for multimedia displays. **3**
- (ii) Outline the major fields of expertise required in the development of a typical multimedia application. **3**
- (b) Adrian is a student who is a member of a group producing a multimedia project. The group has decided upon a theme of body image and has produced a storyboard upon which all members have agreed.
- The group's concept is to show that people with a wide range of body shapes can perform unique feats and possess unique abilities. The group has acquired film clips of the world's tallest man reaching into a dolphin's throat to retrieve swallowed plastic, a large woman throwing a winning Olympic shot put, a small man as a champion jockey winning a horse race and physically challenged men and women as champion Para-Olympians.
- Media acquired by the group include animations, digital movies, 2D and 3D graphics, music background clips.
- The class teacher has asked each group to present the final product to the class. The group has suggested that the final multimedia presentation should be authored using PowerPoint, a product with which other members of the group are familiar and feel comfortable. Adrian however feels this would limit the potential impact of the final project.
- (i) Critically analyse the strengths and weaknesses of the group's proposal to author the title using PowerPoint. **5**
- (ii) Identify and discuss TWO alternative approaches to authoring the project. **3**
- (c) Discuss the technical, social and ethical issues which should be considered before presentation of the multimedia project to the class. **6**

**End of paper**



**Section I – Multiple choice**

**Answer sheet**

|           | <b>A</b> | <b>B</b> | <b>C</b> | <b>D</b> |
|-----------|----------|----------|----------|----------|
| <b>1</b>  |          |          |          |          |
| <b>2</b>  |          |          |          |          |
| <b>3</b>  |          |          |          |          |
| <b>4</b>  |          |          |          |          |
| <b>5</b>  |          |          |          |          |
| <b>6</b>  |          |          |          |          |
| <b>7</b>  |          |          |          |          |
| <b>8</b>  |          |          |          |          |
| <b>9</b>  |          |          |          |          |
| <b>10</b> |          |          |          |          |
| <b>11</b> |          |          |          |          |
| <b>12</b> |          |          |          |          |
| <b>13</b> |          |          |          |          |
| <b>14</b> |          |          |          |          |
| <b>15</b> |          |          |          |          |
| <b>16</b> |          |          |          |          |
| <b>17</b> |          |          |          |          |
| <b>18</b> |          |          |          |          |
| <b>19</b> |          |          |          |          |
| <b>20</b> |          |          |          |          |

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## Mapping grid

| Question | Mark | Content                                                     | Outcome                            | Band |
|----------|------|-------------------------------------------------------------|------------------------------------|------|
| 1        | 1    | Project Work – designing solutions                          | H5.1, H7.1,<br>H7.2                | 2–3  |
| 2        | 1    | Project Work – understanding the problem                    | H1.1, H1.2,<br>H4.1, H5.1,<br>H5.2 | 3–4  |
| 3        | 1    | Project Work – designing solutions                          | H5.1, H7.1,<br>H7.2                | 2–3  |
| 4        | 1    | Information Systems and Databases –<br>information systems  | H6.1, H6.2                         | 5–6  |
| 5        | 1    | Information Systems and Databases –<br>information systems  | H1.1, H2.1                         | 5–6  |
| 6        | 1    | Information Systems and Databases –<br>information systems  | H1.1, H2.1                         | 5–6  |
| 7        | 1    | Information Systems and Databases –<br>information systems  | H1.1, H2.1,<br>H2.2                | 5–6  |
| 8        | 1    | Communication Systems –<br>transmitting/receiving           | H2.1, H2.2                         | 4–5  |
| 9        | 1    | Information Systems and Databases –<br>information systems  | H2.1, H3.1,<br>H3.2                | 5–6  |
| 10       | 1    | Communication Systems –<br>transmitting/receiving           | H1.1, H2.1                         | 4–5  |
| 11       | 1    | Information Systems and Databases –<br>organisation methods | H1.1, H2.1                         | 4–5  |
| 12       | 1    | Information Systems and Databases –<br>organisation methods | H1.1, H2.1                         | 4–5  |
| 13       | 1    | Communication Systems – organising                          | H1.1                               | 4–5  |
| 14       | 1    | Communication Systems – examples of                         | H2.1, H1.2                         | 5–6  |
| 15       | 1    | Information Systems and Databases –<br>information systems  | H2.1                               | 3–4  |
| 16       | 1    | Project Work – designing solutions                          | H1.1, H6.1,<br>H6.2                | 5–6  |
| 17       | 1    | Information Systems and Databases –<br>organisation methods | H1.1, H2.1                         | 1–2  |
| 18       | 1    | Communication Systems –<br>transmitting/receiving           | H1.1                               | 3–4  |
| 19       | 1    | Communication Systems – issues                              | H1.1, H1.2,<br>H3.2, H5.2          | 4–5  |
| 20       | 1    | Communication Systems – issues                              | H1.1, H1.2,<br>H3.2, H5.2          | 4–5  |
| 21(a)    | 1    | Information Systems and Databases –<br>organisation methods | H1.1                               | 2–3  |
| 21(b)    | 2    | Information Systems and Databases –<br>organisation methods | H1.1, H2.1                         | 2–3  |
| 21(c)    | 3    | Information Systems and Databases –<br>organisation methods | H1.1, H2.1                         | 4–5  |
| 21(d)    | 2    | Information Systems and Databases –<br>organisation methods | H1.1, H2.1                         | 4–5  |

| <b>Question</b> | <b>Mark</b> | <b>Content</b>                                           | <b>Outcome</b>         | <b>Band</b> |
|-----------------|-------------|----------------------------------------------------------|------------------------|-------------|
| 21(e)           | 2           | Information Systems and Databases – organisation methods | H1.1, H2.1             | 4–5         |
| 22(a)           | 3           | Project work – designing solutions                       | H7.1, H7.2, H5.1       | 2–3         |
| 22(b)           | 3           | Project work – designing solutions                       | H7.1, H7.2, H5.1       | 2–3         |
| 22(c)           | 2           | Project work – designing solutions                       | H7.1, H7.2, H5.1       | 3–4         |
| 22(d)           | 2           | Project work – designing solutions                       | H7.1, H7.2, H5.1       | 3–4         |
| 23(a)           | 2           | Communication Systems – issues                           | H1.1, H1.2, H3.2, H5.2 | 3–4         |
| 23(b)           | 4           | Communication Systems – issues                           | H1.1, H1.2, H3.2, H5.2 | 4–5         |
| 23(c)           | 4           | Communication Systems – issues                           | H1.1, H1.2, H3.2, H5.2 | 4–5         |
| 24(a)           | 4           | Project work – designing solutions                       | H7.1, H7.2, H5.1       | 2–3         |
| 24(b)           | 3           | Project work – designing solutions                       | H7.1, H7.2, H5.1       | 2–3         |
| 24(c)           | 3           | Project work – designing solutions                       | H7.1, H7.2, H5.1       | 3–4         |
| 25(a)           | 4           | Transaction Processing Systems                           | H1.1, H1.2             | 2–3         |
| 25(b)           | 12          | Transaction Processing Systems                           | H2.1, H2.2             | 3–4         |
| 25(c)           | 4           | Transaction Processing Systems                           | H4.1, H6.1             | 5–6         |
| 26(a)           | 6           | Decision Support Systems                                 | H1.1, H1.2             | 2–3         |
| 26(b)           | 8           | Decision Support Systems                                 | H2.1, H2.2             | 3–4         |
| 26(c)           | 6           | Decision Support Systems                                 | H4.1, H6.1             | 5–6         |
| 27(a)           | 6           | Automated Manufacturing Systems                          | H1.1, H1.2             | 2–3         |
| 27(b)           | 8           | Automated Manufacturing Systems                          | H2.1, H2.2             | 3–4         |
| 27(c)           | 6           | Automated Manufacturing Systems                          | H4.1, H6.1             | 5–6         |
| 28(a)           | 6           | Multimedia Systems                                       | H1.1, H1.2             | 2–3         |
| 28(b)           | 8           | Multimedia Systems                                       | H2.1, H2.2             | 3–4         |
| 28(c)           | 6           | Multimedia Systems                                       | H4.1, H6.1             | 5–6         |

## Marking guidelines

### Section I

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

### Question 21(a)

#### Suggested answers:

PARKS table, return\_discount field

#### Marking guidelines

| Criteria                                                                     | Marks |
|------------------------------------------------------------------------------|-------|
| <ul style="list-style-type: none"> <li>• Correct field identified</li> </ul> | 1     |
| <ul style="list-style-type: none"> <li>• Other responses</li> </ul>          | 0     |

### Question 21(b)

#### Suggested answers:

- Dropdown/popup field validations for Park, Theme, Featured\_ride, Type\_ride
- Auto serial for ParkCode
- Disallow certain fields as empty

#### Marking guidelines

| Criteria                                                                                                                                          | Marks |
|---------------------------------------------------------------------------------------------------------------------------------------------------|-------|
| <ul style="list-style-type: none"> <li>• Student must name at least TWO fields and provide a description of the validation method used</li> </ul> | 2     |
| <ul style="list-style-type: none"> <li>• Student names ONE field with a description of the validation method used</li> </ul>                      | 1     |

**Question 21(c)**

**Suggested answers:**

- No entries in the Address field are 'Gold Coast' with the first letter of both words capitalised.
- The street number and name should be specified in the address field.

```

SELECT Park
FROM PARKS
WHERE PARKS.Address contains 'Gold'

```

**Marking guidelines**

| Criteria                                                                                    | Marks |
|---------------------------------------------------------------------------------------------|-------|
| <ul style="list-style-type: none"> <li>• Correct reason and SQL</li> </ul>                  | 2     |
| <ul style="list-style-type: none"> <li>• Reason only OR SQL only OR single error</li> </ul> | 1     |

**Question 21(d)**

**Suggested answers:**

- Type\_ride and Featured\_ride are poorly defined fields. The latter should state the name of the ride (such as Lethal Weapon) and in this case, rides should be identified uniquely as two rides may have the same name.
- Add a primary key to both tables which uniquely identifies each ride and use this to create a join on the tables, replacing the Featured\_ride field.

**Marking guidelines**

| Criteria                                                                                              | Marks |
|-------------------------------------------------------------------------------------------------------|-------|
| <ul style="list-style-type: none"> <li>• Correct join AND identifies redundancy correctly</li> </ul>  | 3     |
| <ul style="list-style-type: none"> <li>• Error in join AND identifies redundancy correctly</li> </ul> | 2     |
| <ul style="list-style-type: none"> <li>• Identifies redundancy only</li> </ul>                        | 1     |

**Question 21(e)**

**Suggested answers:**

- Physical security such as a lock on the computer
- Password for operation
- Regular backups

**Marking guidelines**

| Criteria                                                                                                                       | Marks |
|--------------------------------------------------------------------------------------------------------------------------------|-------|
| <ul style="list-style-type: none"> <li>• TWO methods correctly described</li> </ul>                                            | 2     |
| <ul style="list-style-type: none"> <li>• Fails to address backups as part of data security OR names ONE method only</li> </ul> | 1     |

**Question 22(a)**

**Suggested answers:**

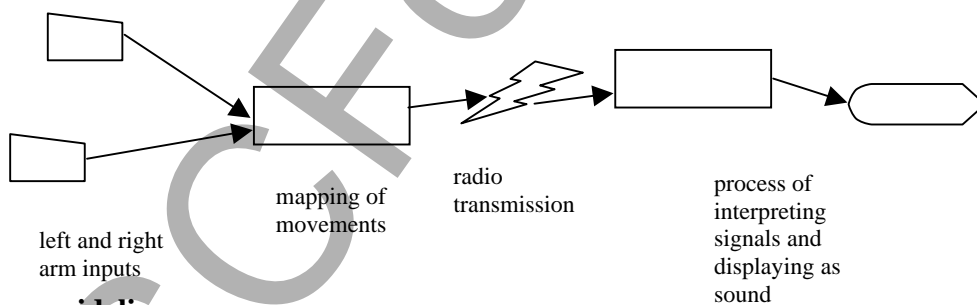
- Participants: software engineers, those programming the interface
- While Dr Helmer believed the market for the WIS could be enormous, the real and stated objective was to let the public appreciate the future of intelligent clothing being developed by the CSIRO.

**Marking guidelines**

| Criteria                                                                                                                                    | Marks |
|---------------------------------------------------------------------------------------------------------------------------------------------|-------|
| <ul style="list-style-type: none"> <li>• Participants in system identified and the purpose of the system correctly described</li> </ul>     | 3     |
| <ul style="list-style-type: none"> <li>• Describes purpose only OR partially describes or names musician/players as participants</li> </ul> | 2     |
| <ul style="list-style-type: none"> <li>• Incorrect purpose, no participants identified</li> </ul>                                           | 1     |

**Question 22(b)**

**Suggested answers:**



**Marking guidelines**

| Criteria                                                                               | Marks |
|----------------------------------------------------------------------------------------|-------|
| <ul style="list-style-type: none"> <li>• Correct diagram</li> </ul>                    | 3     |
| <ul style="list-style-type: none"> <li>• Accurate diagram but no labelling</li> </ul>  | 2     |
| <ul style="list-style-type: none"> <li>• Inaccurate diagram OR no labelling</li> </ul> | 1     |

**Question 22(c)**

**Suggested answers:**

Innovative performances, new skills to be learned, change in type of music, adapting to new playing techniques, change in physicality of performance, need for greater technical skill, expense of special clothing.

**Marking guidelines**

| Criteria                               | Marks |
|----------------------------------------|-------|
| • Thoroughly examines potential impact | 2     |
| • Less complete response               | 1     |

**Question 22(d)**

**Suggested answers:**

- Intelligent clothing could assist patients to learn to walk again after injuries.
- Specialist doctors in another city or country could examine patients without have to physically be present.
- Electronic clothing could be used to teach people to play golf or tennis.

**Marking guidelines**

| Criteria                                                    | Marks |
|-------------------------------------------------------------|-------|
| • TWO applications completely described                     | 2     |
| • ONE application only OR TWO applications poorly described | 1     |

**Question 23(a)**

**Suggested answers:**

- Unusual or humorous clips with product placement on YouTube, as comment in popular podcasts, as blog entries or entered as chat group comment
- In the form of spam

**Marking guidelines**

| Criteria                               | Marks |
|----------------------------------------|-------|
| • TWO ways identified and described    | 2     |
| • ONE technique only OR no description | 1     |



**Question 23(b)****Suggested answers:**

- Lack of clarity of source of comment leads to distrust of any public forums and devaluing of the open nature of the Internet and diminution of its use
- Increase in quantity of spam
- Annoyance in use of forums and blogs
- Advertising reaches target demographic efficiently and quickly
- Consumers made aware of products
- Brand awareness increased and profits rise

**Marking guidelines**

| Criteria                                                          | Marks |
|-------------------------------------------------------------------|-------|
| • Thoroughly outlined critical analysis with at least FOUR points | 3–4   |
| • Fewer than FOUR points made OR FOUR inadequately described      | 1–2   |

**Question 23(c)****Suggested answers:**

Negative:

- Unwanted communications (spam)
- Ready availability of potentially damaging content (immature users: drugs, pornography, violent content)
- Potential for authors of negative websites to evade detection

Positive:

- Information previously difficult to find now readily available
- Ease of contact between like minded people
- Social networks established (clubs, interest groups, hobbies)
- Political networks established (protests, campaigns, etc.)
- Products and services located easily

**Marking guidelines**

| Criteria                                                     | Marks |
|--------------------------------------------------------------|-------|
| • TWO positive AND TWO negatives described                   | 3–4   |
| • Discussion of fewer aspects OR poorly developed discussion | 1–2   |

**Question 24(a)**

**Suggested answers:**

| Manual                                    | Computer          | Comparison                                                                                                                       |
|-------------------------------------------|-------------------|----------------------------------------------------------------------------------------------------------------------------------|
| Manual bookkeeping                        | spreadsheet       | Save on accountant cost<br>Greater awareness of financial situation<br>Greater control of business<br>Ease of record maintenance |
| Paper plans drawn                         | draw applications | Need for computer skills or help                                                                                                 |
| Professional ads in newspapers, radio, TV | web design        | Need for computer skills or help                                                                                                 |
| Printing company and designer             | DTP               | Need for computer skills or help<br>Ease of design changes                                                                       |
| System cards                              | MYOB or Access    | Basic knowledge of database needed<br>Designed by another                                                                        |

**Marking guidelines**

| Criteria                                   | Marks |
|--------------------------------------------|-------|
| • FIVE tasks compared and contrasted       | 3–4   |
| • TWO or more tasks not adequately treated | 1–2   |

**Question 24(b)**

**Suggested answers:**

- Spreadsheet for finances (e.g. Excel)
- Draw applications for landscape plans (e.g. Freehand, Illustrator, AutoCAD, specialist landscape design applications)
- Web design applications for websites (e.g. Dreamweaver)
- DTP applications for pamphlets and posters (e.g. InDesign, FrontPage)
- Database or business accountancy applications for customer details (e.g. Access, FileMaker Pro or MYOB, Quicken)

**Marking guidelines**

| Criteria                                              | Marks |
|-------------------------------------------------------|-------|
| • FOUR or more items justified                        | 3     |
| • Failure to justify OR fewer than FOUR items treated | 1–2   |

**Question 24(c)****Suggested answers:**

| Month             | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |
|-------------------|---|---|---|---|---|---|---|---|
| spreadsheet       |   |   |   |   |   |   |   |   |
| draw applications |   |   |   |   |   |   |   |   |
| web design        |   |   |   |   |   |   |   |   |
| DTP               |   |   |   |   |   |   |   |   |
| MYOB or Access    |   |   |   |   |   |   |   |   |

(Each column represents one month)

Response must justify the Gantt chart:

- (Above) staggered introduction recommended so adjustment possible to new system OR
- Parallel introduction so old system is used as backup
- Easier skills adopted first

**Marking guidelines**

| Criteria                                                                       | Marks |
|--------------------------------------------------------------------------------|-------|
| • Complete strategy with suitable Gantt chart and thorough justification given | 3     |
| • Inadequate justification OR poor strategy                                    | 1–2   |

**Question 25(a)(i)****Suggested answers:**

Real-time as the system would be handling low volume and high urgency transactions

**Marking guidelines**

| Criteria                              | Marks |
|---------------------------------------|-------|
| • Correct response with justification | 2     |
| • No justification given              | 1     |

**Question 25(a)(ii)****Suggested answers:**

Batch processing as the system would be handling high volume and low urgency data

**Marking guidelines**

| Criteria                              | Marks |
|---------------------------------------|-------|
| • Correct response with justification | 2     |
| • No justification given              | 1     |

**Question 25(b)(i)**

**Suggested answers:**

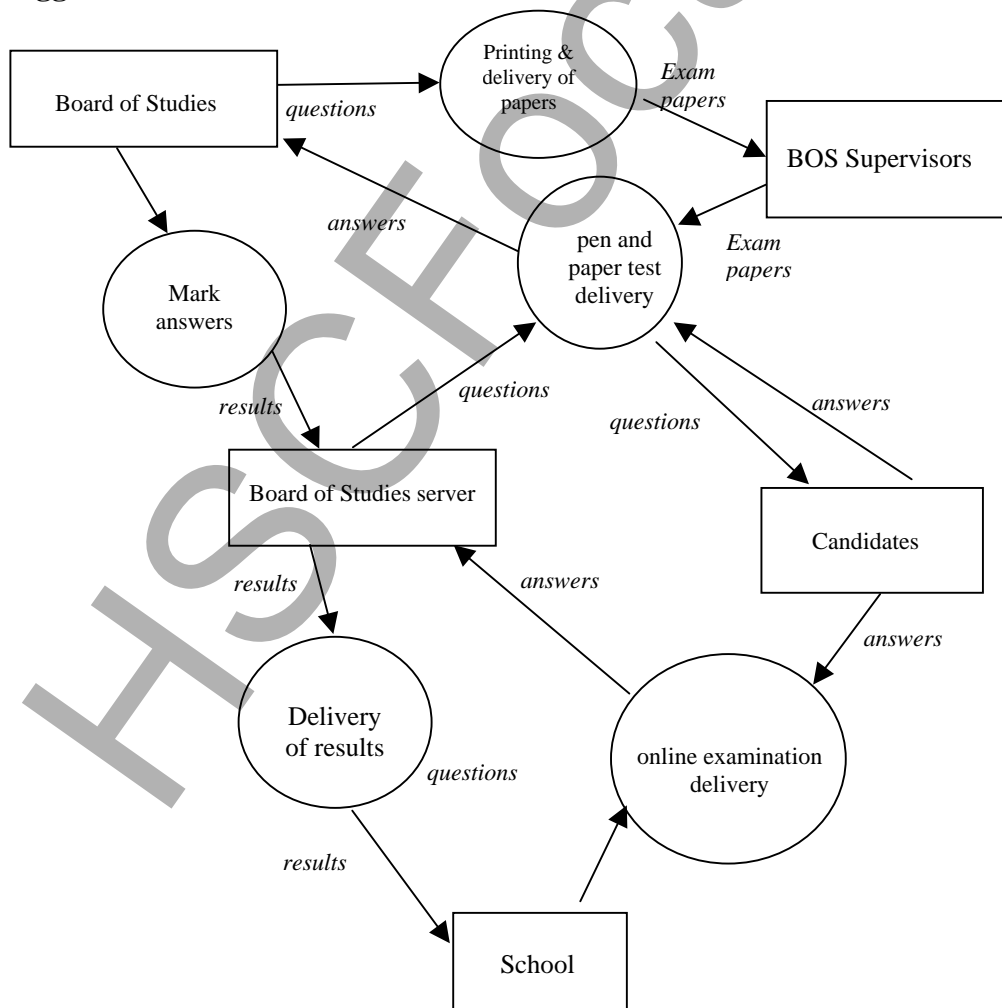
- Participants: BOS officers, test application programmers, test authors, examiners, teachers and school IT staff
- Users: students

**Marking guidelines**

| Criteria                                           | Marks |
|----------------------------------------------------|-------|
| • Both participants and users correctly identified | 2     |
| • Only ONE identified                              | 1     |

**Question 25(b)(ii)**

**Suggested answers:**



**Marking guidelines**

| Criteria                                                                       | Marks |
|--------------------------------------------------------------------------------|-------|
| • Take one mark off for each error in flow line, data store, entity or process | 4     |

**Question 25(b)(iii)****Suggested answers:**

The security of the test questions and answers is vital in this system. The boundary of the online test must be the desktop computer on which the candidate has securely logged in. The boundary must be strictly managed.

**Marking guidelines**

| Criteria                          | Marks |
|-----------------------------------|-------|
| • Correctly described with reason | 3     |
| • Insufficient explanation        | 1–2   |

**Question 25(b)(iv)****Suggested answers:**

- Online test is real-time processed: large volume, efficiency of bulk processing and marking, supervising outsourced to school, etc.
- Pen and paper test is batch processed: efficient marking at the same time by specialised application or human markers

**Marking guidelines**

| Criteria                                             | Marks |
|------------------------------------------------------|-------|
| • Each test method examined                          | 3     |
| • ONE correct test method with correct explanation   | 2     |
| • ONE correct test method with incorrect explanation | 1     |

**Question 25(c)****Suggested answers:**

- Ethical security issues: second secondary storage, offsite storage, multiple levels of backup, hard copies retained, system reproduced in another geographic location, copyright of questions, security of questions, equity among candidates sitting test at different times, randomness of questions to prevent copying
- Social: workstation breakdowns, Internet breakdown, equity among schools with computer room availability and efficiencies, degree of familiarity/comfort of candidates with answering via computer
- Technical: school-based management issues, ability of school to set up local server, connect to Internet, speed of access

**Marking guidelines**

| Criteria                     | Marks |
|------------------------------|-------|
| • Each aspect addressed      | 4     |
| • Only TWO aspects discussed | 3     |
| • Only ONE aspect discussed  | 1–2   |

**Question 26(a)****Suggested answers:**

- In structured DSS the inputs are all known and outputs calculated exactly. Solution process can be automated. Example: Can I do this course if I also wish to choose a programming IT course?
- Semi-structured: some inputs are known and the solution process known. These use a DSS. Example: Should this student pass the course?
- Unstructured: not all inputs known, process unclear, human insight required. Example: Will I be able to improve my results by studying more?
- 20Q best described as semi-structured.

**Marking guidelines**

| Criteria                                                                                                  | Marks |
|-----------------------------------------------------------------------------------------------------------|-------|
| • Two marks for each DSS discussed with 20Q correctly identified                                          | 6     |
| • One mark off each of three cases if no example<br>• One mark off each of three cases if poorly compared | 1–5   |

**Question 26(b)(i)****Suggested answers:**

System ‘learns’ by delivering questions for which prior responses are known. Players do not always answer the same way but the system weights responses based on the statistical record of previous responses for each object. As millions of people have previously responded a certain way to these questions, the current player’s responses to the 20 questions will isolate an egg from other possibilities for which the sum of all nodes is less. This is an example of an artificial neural network.

**Marking guidelines**

| Criteria                                                                             | Marks |
|--------------------------------------------------------------------------------------|-------|
| • Thorough and accurate description of neural network with relation to this scenario | 4     |
| • Failure to relate to this scenario                                                 | 3     |
| • Inadequate or incomplete response                                                  | 1–2   |

**Question 26(b)(ii)****Suggested answers:**

It generates random questions to gather responses to these for the egg.

**Marking guidelines**

| Criteria                             | Marks |
|--------------------------------------|-------|
| • Correct description                | 4     |
| • Failure to relate to this scenario | 3     |
| • Inadequate or incomplete response  | 1–2   |

**Question 26(c)****Suggested answers:**

- Ethical: legal implications in case of incorrect diagnosis and possibility that patients with unsatisfactory final outcomes will blame the lack of direct human intervention; slowness to diagnose compared to doctor using intuition and prior experience to circumvent chain of reasoning; incorrect conclusions or difficulty of interpretation of machine diagnosis; copyright on 20Q game needs permission
- Social: patients' resistance to filling in forms; patients unwilling to trust a DSS; patients too willing to trust a DSS; doctors too ready to trust diagnosis by DSS
- Technical: breakdown of network, server, workstation; medicine too broad to facilitate application

**Marking guidelines**

| Criteria                                           | Marks |
|----------------------------------------------------|-------|
| • THREE aspects described                          | 6     |
| • Failure to treat each of the three aspects above | 3–5   |
| • Inadequate or incomplete response                | 1–2   |

**Question 27(a)(i)****Suggested answers:**

- Actuator: mechanism which acts on the robot's/machine's environment
- Examples include solenoids and motors
- Sensor: mechanism which receives data from the robot's/machine's environment
- Examples include thermometer, ph tester

**Marking guidelines**

| Criteria                                        | Marks |
|-------------------------------------------------|-------|
| • Correctly describes differences with examples | 3     |
| • No example/incorrect definition               | 1–2   |

**Question 27(a)(ii)****Suggested answers:**

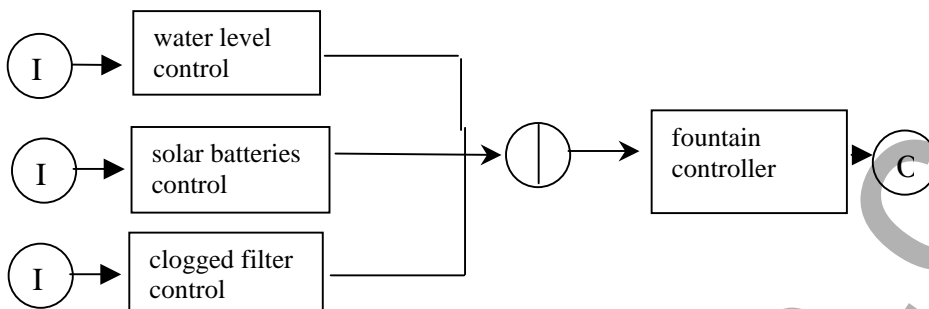
- Light sensor to count manufactured objects on conveyor belt
- Temperature sensor to read heat of drill to avoid damage
- Depth sensor to determine correct length of blade cut

**Marking guidelines**

| Criteria                                           | Marks |
|----------------------------------------------------|-------|
| • THREE types of sensors identified                | 3     |
| • ONE or TWO examples or no example of use of each | 1-2   |

**Question 27(b)(i)**

**Suggested answers:**



**Marking guidelines**

| Criteria                                | Marks |
|-----------------------------------------|-------|
| • Diagram drawn correctly and logically | 4     |
| • One mark off for each inaccuracy      | 1-3   |

**Question 27(b)(ii)**

**Suggested answers:**

Damping is the process of adjusting the stability of an automated system through the appropriate use of feedback.

- Overdamping: reacts slowly to change such as clouds, clogging or water level and may allow these to continue to drop too low or too high
- Underdamping: unpredictable due to rapid fluctuations in the three controls of clouds, clogging or water level
- Most stable: critical damping achieves stability rapidly and the reaction of the systems is efficient

**Marking guidelines**

| Criteria                                               | Marks |
|--------------------------------------------------------|-------|
| • Student must have THREE correct diagrams             | 4     |
| • Lack of accurate diagrams<br>• Incorrect definitions | 1-3   |

**Question 27(c)**

**Suggested answers:**

- Technical: volume of water required much greater, industrial scale pump will result in issues not considered for home pump: rubbish in pond? vandalism? repairs will be more costly if pump is large and so access must be considered.



- Social: visibility of pump and aesthetics, nature of work changes for those tradespeople tending to new equipment: conditions? training? cost diverts funds from other projects.
- Ethical: OH&S?, local council noise statutes

### Marking guidelines

| Criteria                                                | Marks |
|---------------------------------------------------------|-------|
| • All THREE aspects thoroughly discussed                | 6     |
| • One mark off for naming issue only without discussion | 1-5   |

### Question 28(a)(i)

#### Suggested answers:

CRT: uses three focused electron beams, high power, low cost, strong illumination, analogue display, fast refresh, heavy, heat, more space

LCD: low power, high cost, can be used in laptop computers, little space, may be slow to refresh, digital display, viewing angle can be an issue

### Marking guidelines

| Criteria                                                 | Marks |
|----------------------------------------------------------|-------|
| • CRT and LCD compared physically as well as technically | 3     |
| • Fails to describe technical content                    | 2     |
| • Insufficient detail                                    | 1     |

### Question 28(a)(ii)

#### Suggested answers:

Variety of fields of expertise required in the development of multimedia applications, including:

- content providers
- multimedia programmers
- system designers and project managers
- those skilled in the collection and editing of each of the media types
- those skilled in design and layout
- those with technical skills with the information technology being used

### Marking guidelines

| Criteria                           | Marks |
|------------------------------------|-------|
| • More than THREE fields described | 3     |
| • Fewer than FOUR fields mentioned | 2     |
| • Fails to provide detail          | 1     |

**Question 28(b)(i)**

**Suggested answers:**

- Strengths: widely available, better known by group, eliminate need to learn another package, single application is packaged to run everything.
- Weaknesses: limited effects, limited media types can be included, linear presentation is dominant paradigm, difficult to make this look distinctly different from other PowerPoint shows, other specialised authoring software offers more interactivity, greater control, animation and 3D modules, greater control over sound, movies are subset of a slide and if played externally require other applications.

**Marking guidelines**

| Criteria                                              | Marks |
|-------------------------------------------------------|-------|
| • Lists at least THREE strengths and THREE weaknesses | 5     |
| • Fails to cover sufficient points from above         | 3–4   |
| • Weak critical analysis                              | 1–2   |

**Question 28(b)(ii)**

**Suggested answers:**

- Director: a stage play paradigm is used as actors/cast enter a stage controlled by a score, media is controlled with a built-in scripting language (Lingo)
- Flash: animation package with extensive programming features allows many media types to be included (built-in ActionScript).
- Both these authoring tools offer more flexibility and variety than tools in PowerPoint

**Marking guidelines**

| Criteria                                                           | Marks |
|--------------------------------------------------------------------|-------|
| • TWO alternative approaches to authoring identified and described | 3     |
| • Fails to discuss or treats only ONE alternative approach         | 1–2   |

**Question 28(c)**

**Suggested answers:**

- Technical: knowledge of software; available hardware; speed of DVD/CD-ROM and CPU on which project is shown; audience interactivity is difficult; file formats; distribution and delivery of final product
- Social: impact on audience of what may be confronting content for some
- Ethical: care with content to avoid offence, copyright of clips/music, etc.

**Marking guidelines**

| Criteria                                                                                          | Marks |
|---------------------------------------------------------------------------------------------------|-------|
| • All THREE areas discussed thoroughly                                                            | 6     |
| • TWO areas treated or treated in less detail or failure to provide sufficient depth of treatment | 3-5   |
| • Insufficient or poor response                                                                   | 1-2   |

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