

2006**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 Questions 1–20
- Allow about 40 minutes for this section

Section II
40 marks

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

Section III
40 marks

- Attempt TWO questions 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			
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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 →

Section I

20 marks

Attempt Questions 1–20

Allow about 40 minutes for this section

Use the multiple choice answer sheet

- 1 A student quotes material obtained from the Internet for a history essay on the Vietnam War. Which of the following statements is correct?
- A The source of the material should be researched and referenced.
 - B The material is likely to be out of date.
 - C Quoting the material will involve plagiarism.
 - D The student should not quote directly, but rewrite the material in his/her own words.

- 2 A Gantt chart has been used as a project management tool. It records:
- A anticipated commencement dates only for stages of a project
 - B actual commencement and finish dates only for stages of a project
 - C both anticipated and actual commencement and finish dates for stages of a project
 - D those stages of a project which are behind schedule and by how much

- 3 The following diagram represents the conversion between an existing system and a new system.
Which method of conversion is illustrated here?



- A Direct
 - B Phased
 - C Parallel
 - D Pilot
- 4 Which of the following personnel would be responsible for the overall planning of a new information system?
- A Network manager
 - B Company manager
 - C Programmer
 - D Systems analyst

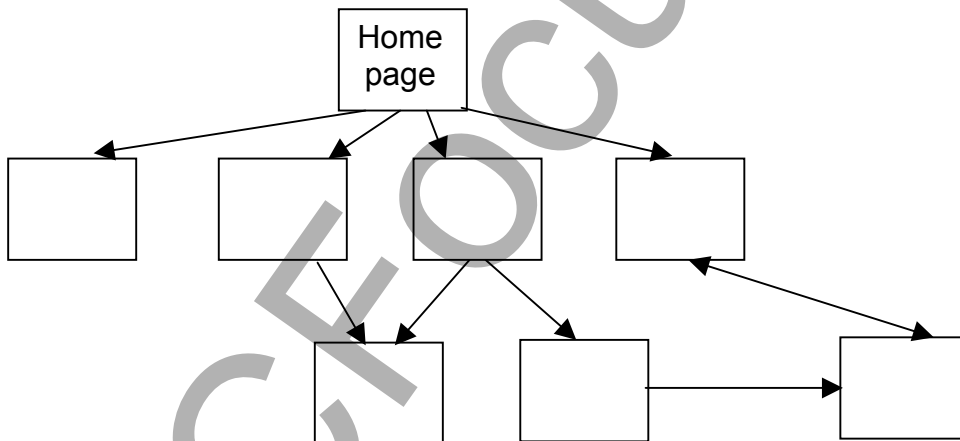
- 5 Consider the following two addresses each of which successfully loads a page with the name “Completed_Tutorials” and displays it in a web browser:

- (1) *file:///HardDrive/DirectorAcademic/Learning/Completed_Tutorials.html*
- (2) *http://www.macromedia.com/software/director//Completed_Tutorials.html*

Which of the following statements is true?

- A Both addresses point to the same copy of the file.
 - B The first address points to a local file and the second to a remote file.
 - C The first address points to a remote file and the second to a local file.
 - D The first address points to a local file and the second to the same copy of the file via a remote server.
- 6 A website has been established for on-line registration of a software product. The company uses a check digit as part of the registration number to ensure it is genuine. This is an example of:
- A data verification
 - B data accuracy
 - C data validation
 - D data redundancy
- 7 An NIC (Network Interface Card) is a hardware component of every computer essential for network communications. Its main function(s):
- A is handshaking
 - B are establishing Ethernet protocols and a unique ID code on the network
 - C is storing often used data
 - D is to allow two computers to be connected
- 8 An information system is designed for:
- A customers
 - B managers
 - C participants
 - D users
- 9 The use of a prototype in information systems development can be beneficial because it can:
- A result in faster development of a final solution
 - B assist in the selection of software applications
 - C clarify understanding of the problem by participants
 - D assist in correcting programmers' coding errors

- 10** The information process which forms the main task of a DBMS is:
- A organising
 - B storing and retrieving
 - C displaying
 - D analysing
- 11** The schema of a database consists of:
- A entities, attributes and relationships
 - B fields, records and relationships
 - C sorting, searching and organising
 - D primary and secondary fields
- 12** Packet-switching as a method of data transmission has advantages over other methods because:
- A packaging data avoids data loss in transmission
 - B recipient addressing is more accurate when using packets of data
 - C packages of data can be sent via less busy network paths
 - D the sender is able to be traced
- 13** The following storyboard represents the navigational plan for a proposed website.



This navigational plan is inadequate because:

- A the end screen should appear on a new row
- B no graphics or buttons are shown
- C some navigation paths are ambiguous
- D there are insufficient navigational paths shown

Use the following information to answer Questions 14 and 15.

Below is a sample of data to be entered in a database called *Cellar* for a winemaker. The column marked *Ageing* indicates the number of years the winemaker recommends keeping the wine so it reaches its best. After this time the wine may deteriorate and before this time it has not acquired its best qualities.

Name_of_wine	Type	Ageing (years)	Year_of_vintage	In_stock (litres)
Woop Woop	Red	1	1999	1000
Oak Creek	Red	4	2003	200
Baysview	White	1	2005	400
Bent Creek	Red	3	2005	1500
Salisbury	White	2	2004	1100

- 14** The winemaker wishes to determine which wines are ready for sale in 2006. Which of the following SQL commands would result in Woop Woop as the only record, presuming *Year_of_vintage* is a number field?

- A SELECT Name_of_wine
 FROM Cellar
 WHERE (2006 –Year_of_vintage) = Ageing
- B SELECT Name_of_wine
 FROM Cellar
 WHERE (Year_of_vintage + Ageing) > 2006
- C SELECT Name_of_wine
 FROM Cellar
 WHERE (2006 –Year_of_vintage) > Ageing
- D SELECT Name_of_wine
 FROM Cellar
 WHERE (Year_of_vintage + Ageing) < 2006

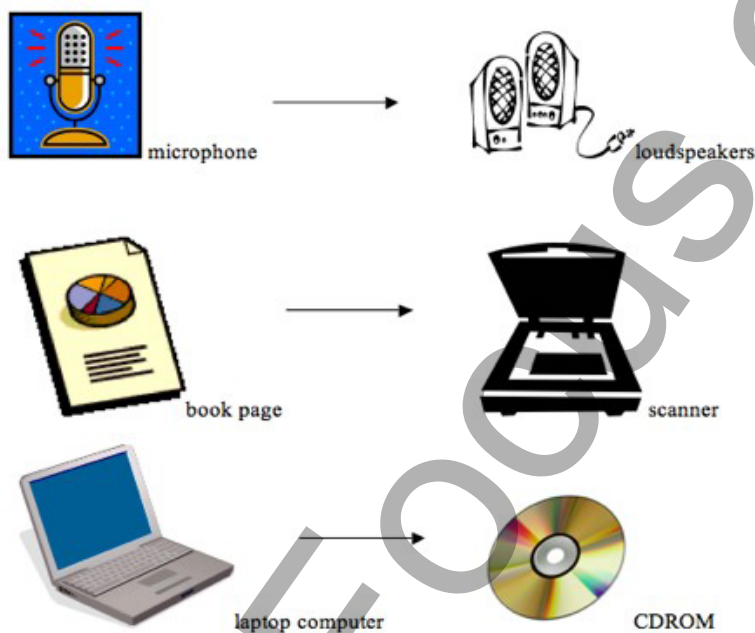
- 15** Which of the following describes a recommended selection of field types for this database?

- A 1 static text, 1 static number, 3 drop-down numeric
- B 2 static text, 3 drop-down numeric
- C 1 static text, 1 static number, 1 drop-down text, 2 drop-down numeric
- D 2 static text, 2 static number, 1 drop-down text

- 16 In checksum error detection, which of the following is sent to the receiver?
- A The data and the checksum
 - B The sum of the data and the checksum
 - C The checksum only
 - D The data only

- 17 In cyclic redundancy checking, what is the CRC?
- A the divisor
 - B the quotient
 - C the dividend
 - D the remainder

18



From top to bottom above the most likely encoding and decoding data conversions illustrated are as follows:

- A analog to analog; analog to digital; analog to digital
 - B analog to analog; analog to digital; digital to digital
 - C analog to digital; analog to digital; analog to digital
 - D analog to digital; analog to analog; digital to digital
- 19 One difference between a context diagram and a data flow diagram is that in a context diagram:
- A the entire system is represented by a single circle
 - B all flow lines are towards processes
 - C there is only one entity
 - D a complex system is shown in modular form

- 20** Which statement best describes the function of a router when compared to a switch or bridge?
- A It has greater control than a switch or bridge.
 - B It responds quicker than a switch.
 - C It responds quicker than a bridge.
 - D It is identical in operation to both a switch and a bridge.

End of Section I

Section II

40 marks

Attempt Questions 21–24

Allow about 1 hour and 10 minutes for this section

Use a SEPARATE writing booklet for each question

Question 21 (10 marks)

Marks

Read the following extract and answer the questions below:

Wharves piled high as Customs computer fails

By Tim Dick and Joseph Kerr

Sydney Morning Herald

October 21, 2005

Backlog ... hundreds of containers await Customs clearance at Port Botany.

The Customs Service's new computerised system could hardly have broken down at a worse time.

Two months before Christmas the week-old system, which is meant to speed up clearance times, has managed to cause importers headaches as their orders sit on wharves, stranded by serious delays in Customs approval.

"Ships are arriving [at Port Botany] for the Christmas peak; there couldn't be a worse time to introduce a new computer system," an official said.

"The entire state relies on this port to function properly, especially at this time of year."

He said port storage was almost full, while the Australian Federation of International Freight Forwarders said even if Customs went back to its old system, it would be difficult to clear the backlog.

What used to take two minutes under the old system is now taking between five and 30 times longer, depending on the complexity of the import.

"This project has had a lead time of 10 years and blew out from \$30 million up to \$250 million, and is still far from matching industry's expectations."

A spokesman for the Minister for Customs, Chris Ellison, said he had talks in Broome with Customs and industry representatives yesterday. He insisted the Government was working hard to have the concerns dealt with, and Customs staff were trying to clear the backlog.

There were obvious important security benefits attached to the new system, he said, and industry wanted to keep it.

- | | | |
|-----|--|---|
| (a) | Identify the likely method of conversion used at Customs in moving from the old to the new system. | 1 |
| (b) | The headline states: 'Customs computer fails'. Discuss the accuracy of this statement. | 2 |
| (c) | Identify aspects of a feasibility study which should have been discussed when planning the new system. | 3 |
| (d) | Suggest two conversion methods which may have overcome the problems outlined in the article and explain the benefits of each of these methods. | 4 |

Question 22 (9 marks)**Marks**

After completing an online multiple-choice quiz the website delivers the following screen to allow individual results to be delivered to the teacher and others.

E-mail Your Results		
My name is (first last):		
E-mail my results to:		
	E-mail address:	Send as:
☐ Me:		Text v
☐ Instructor:		Text v
☐ TA:		Text v
☐ Other:		Text v
Help		E-Mail Results

The following instructions accompany this screen in the form of online help:

To specify recipients of and e-mail formats for your results In the dropdown box next to each name you selected, click one option to specify a way to send results to each recipient: A: As plain text in the body of an e-mail message B: As HTML in the body of an e-mail message C: As a text attachment to an e-mail message D: As an HTML attachment to an e-mail message
--

- | | |
|--|----------|
| (a) Choices for the ways in which the results can be sent are made using dropdown boxes. Justify this approach when compared with other methods. | 1 |
| (b) Identify software applications which could be used to display the attachments described for <i>each</i> of choices C and D. | 3 |
| (c) Compare and contrast choice A, sending the results “using plain text” with that of choice B, “using HTML in the body of an e-mail”. | 3 |
| (d) Suggest two improvements to the interface “E-mail your results” shown above. | 2 |

Question 23 (12 marks)**Marks**

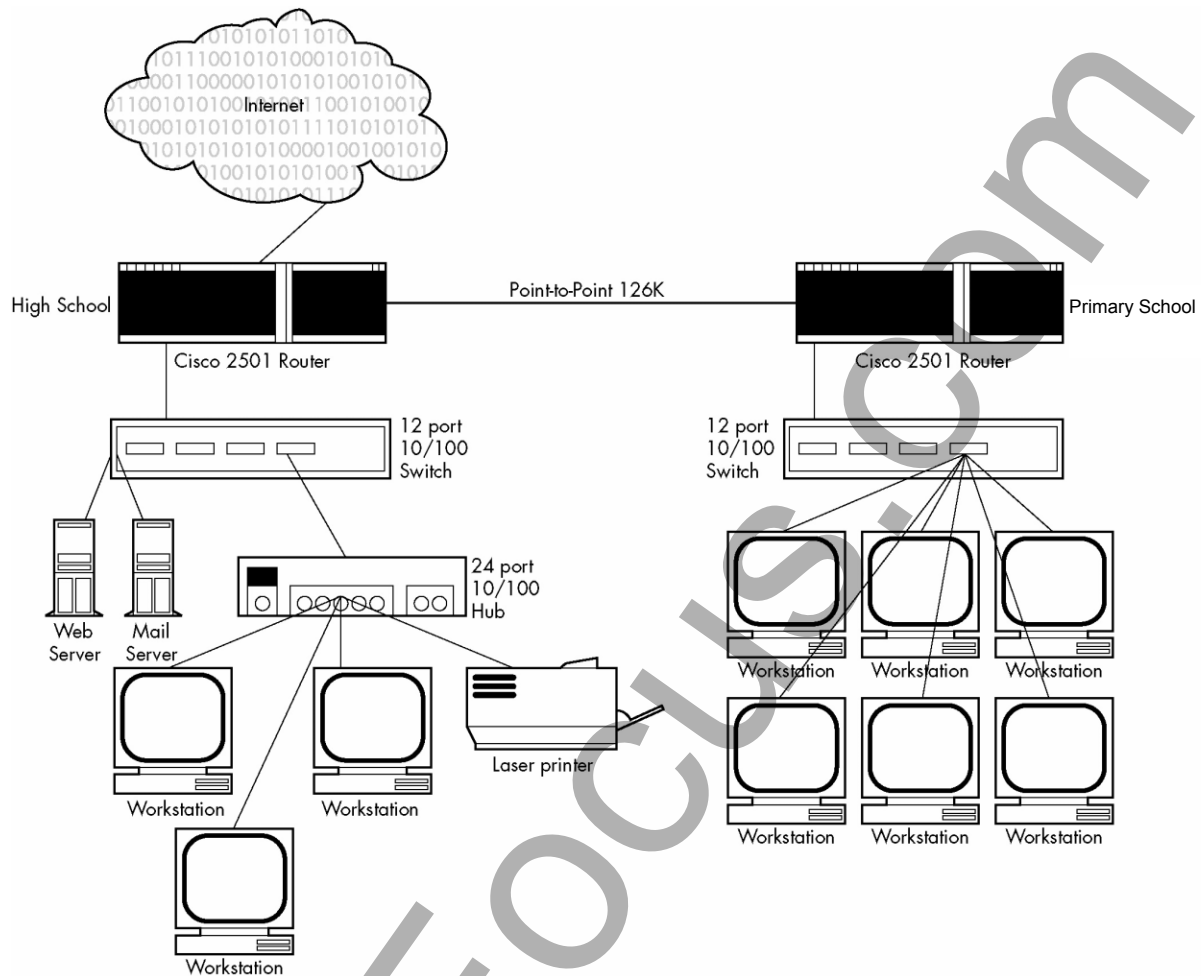
The following data extract has been exported from a school's database of enrolled students and when opened in a spreadsheet application appears as follows:

ID	Surname	Given names	Gender	Address	Year at school	DOB	Home phone	Father's work	Mother's work
1000234	Greville	Paula	F	12 Sensis Av	7	14.12.93	7891111	7895613	7893489
1000151	Edene	Sam	F	3 Lone Pine Cr	7	15.11.93	7891234	7898354	7899756
1000897	Jenkins	Jeremy	M	14 Sensis Av	7	30.9.93	7892222	7894598	7896579
1000564	Romano	George	M	114 Pacific Hwy	8	21.4.92	5612345	7893356	5223466
1000367	Park	Jason	M	76 High St	8	12.1.92	5212367	5234599	7894523
1000111	Ng	Elaine	F	34 Gratula Rd	9	17.12.91	6624172	5341423	5346342
1000199	Kim	James	M	27 Frieda St	10	15.10.91	7899085	7895433	7893333
1000908	Edene	Mariala	F	3 Lone Pine Cr	11	15.10.90	5615628	5612399	5612355
1000556	Kim	Honey	F	27 Frieda St	12	25.12.88	4425632	4423544	4426667

- (a) The field for Suburb has not been included in the extracted data shown above. Explain why Suburb should be a separate field rather than being included with the Address field. **1**
- (b) An ID (Identification number) has been included for each student. Justify the existence of this field. **1**
- (c) The data above was exported from a database and opened in a spreadsheet application. What issues should be considered in checking the data in the spreadsheet file? **3**
- (d) The data appears to have been sorted in the database prior to export. Identify three ways in which this sort could have been performed. **3**
- (e) Normalise this flat-file data into two separate database files by listing fields in each and identify any relationships, primary and secondary fields. If necessary create and describe additional field(s). Do not reproduce any data. **4**

Question 24 (9 marks)**Marks**

The following diagram shows the network for two school LANs and their connection to the Internet.



- (a) The diagram illustrates the positioning of various items of hardware. Compare and contrast the functions of a switch, hub and router. 3
- (b) Analyse the point-to-point connection between the High school and Primary school, referring to both the likely media and issues of speed. 2
- (c) Discuss the various ways possible for connecting the network to the Internet, and refer to downloading and uploading speeds. 2
- (d) The laser printer shown is connected to a print server controlled by the Web server shown. Outline the functions of a print server. 2

End of Section II

Section III

40 marks

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

Answer each question on a SEPARATE page/booklet.

If you include diagrams in your answer, ensure that they are correctly labelled.

Question 25 – Transaction Processing Systems (20 marks)			Marks
(a)	(i)	Define the term <i>data warehousing</i> and give an example.	3
	(ii)	Define the term <i>differential backup</i> and give an example.	3

Use the following information to answer parts (b) and (c).

AnimationWorld is a company selling animation tutorials which exists only in the form of a website. Customers may select a product (one of a series of tutorials in the form of downloadable QuickTime movies) and pay online via credit card.

AnimationWorld uses a second company, *PayEasy*, which specialises in online credit card transactions to receive the payment and issue a uniquely addressed link to allow the download of the tutorial files. This address expires after 48 hours and is limited to two downloads.

From: order@payeasy.com
 Subject: Order Info | Animation_Tutorials
 Date: 21 April 2005 12:12:20 PM
 To: wdisney@oze-mail.com.au
 Reply-To: AnimationWorld@lonelyplanet.com

Thanks!!!!
 Your AnimationWorld download links are below.

 USER LICENSE...
 By downloading these files you agree they are licensed on a single-user basis. You also agree that reassembling, redistributing, or reselling these tutorials or flash files in any way is strictly forbidden.

Here's your Download URL. This is your personal download spot, so SAVE THIS LINK....

IMPORTANT: The Downlinks below will expire in 48 hours and is limited to a maximum of 2 downloads. You will need to request additional downloads after that time period. Please keep this e-mail for your reference.

Product: Animation_Tutorials
Download Link: http://payeasy.com/d1?txn_id=8R3421876TM456342

Transaction ID: 8R3421876TM456342
 You can view the details of this transaction at:
http://payeasy.com/buy/my?txn_id=8R3421876TM456342

- (b) (i) Design a web-based data entry screen for users to choose a selected tutorial and provide credit card details. Clearly indicate the position and nature of all screen elements and justify your choices. 4
- (ii) Explain the reasons for limited downloads and the time expiration requirements. Discuss which company, *PayEasy* or *AnimationWorld*, is likely to have imposed such requirements? 3
- (iii) Outline the processing of a single transaction. 2
- (c) Identify this system as real-time or batch processing and compare and contrast this transaction system to a mail order system in which CDs are mailed to users in response to either phone, mail or online enquiries. 5

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

- (a) (i) Describe and provide an example of the characteristics of an *artificial neural network*. 3
- (ii) Define an *inference engine* and provide a practical example to illustrate its role in a specific expert system. 3

Use the following information to answer parts (b) and (c).

The following decision table has been constructed to assist help-desk employees to answer computer printer problems. The company wishes to convert this known data into a more convenient expert system tool for these employees.

		A	B	C	D	E	F	G	H
Conditions	Printer does not print	Y	Y	Y	Y	N	N	N	N
	Red light flashing	Y	Y	N	N	Y	Y	N	N
	Printer unrecognised	Y	N	Y	N	Y	N	Y	N
Actions	Check power cable			✓					
	Check printer-computer cable	✓		✓					
	Ensure software installed	✓		✓		✓		✓	
	Check/replace ink	✓	✓			✓	✓		
	Check paper jam		✓		✓				

- (b) (i) You have been asked to construct the rules to create a knowledge base for use by the expert system. Write rules for each of the columns **E** and **H**. 2
- (ii) Construct a decision tree to represent all data in the table. 4
- (iii) Describe two main characteristics of an interface suitable for this system. 2
- (c) Over time, help-desk employees realise that some of the conditions above are far more likely to affect the outcome than others and far more likely to occur. Explain how a neural network decision support system could be created to include this knowledge and discuss how this expert system and a neural network could effectively work together. 6

Question 27 – Automated Manufacturing Systems (20 marks)

Marks

- (a) (i) Define the terms *CAD* and *CAM* and provide an example of the application of CAM in automated manufacturing systems. **3**
- (ii) Describe the function of a *microprocessor* as a component in automated manufacturing systems and provide another common term used to describe this component. **3**

Use the following information to answer parts (b) and (c).

A Riverina bottling company, JUICY, is owned by an orchardists' co-operative and provides a bottling service to regional orange growers. The oranges are delivered to the cannery, washed, juiced and sugar is added. The plastic bottles are washed, filled, sealed and tested for leakage and incorrect filling. Finally, they are labelled and packed in boxes.

- (b) (i) Represent these automated processes as three separate systems using three separate block diagrams. **3**
- (ii) Draw two diagrams representing two different methods of organising the three separate systems into a single system. **2**
- (iii) Underdamping is observed to be a regular problem. Explain the nature of underdamping and discuss how this issue of incorrect filling could be corrected. **3**

- (c) Local orchardists have decided to ask JUICY to distribute and dispatch orders of juice to retailers throughout Australia.

JUICY proposes integrating production with an automated inventory tracking system where the manager can find out at any time:

- the number of items in stock
- the number of items ordered
- the movement of items from storage to delivery dock
- the movement of items from delivery dock to the customer.

Critically analyse the JUICY system in terms of the information processes of collecting and displaying, with particular emphasis on the process of collecting.

6

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

- (a) (i) Define *video compression* and outline one method for achieving it. **3**
- (ii) Define *sound notes* and provide an example of their use. **3**

Use the following information to answer parts (b) and (c).

Sarah has selected contemporary youth culture as her topic for an interactive multimedia project. She has decided the purpose of her project will be to allow users to examine the three themes: “Body brainwash”, “Fashion victim” and “Friends and fun”, allowing users to explore at their own pace. The screenshot below shows the menu for her project created using authoring software.

There are two other windows shown superimposed on Sarah’s project stage: a Cast window and the Score window.



- (b) (i) Identify three possible media types in the Cast and state which of these multimedia types appear as part of the menu page shown. **3**
- (ii) Identify the type of multimedia storyboard layout Sarah should select for her project and state the reasons for your answer. **2**
- (iii) Discuss ways in which Sarah could effectively use navigation and hypermedia in her project to explore her three chosen themes. **3**
- (c) Critically examine three social and/or ethical issues Sarah should consider in her project if she plans to display it on her personal website. **6**

End of paper

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Section I – Multiple choice**Answer sheet**

Place an **✕** in the response box for the alternative A, B, C or D that best answers the question.

	A	B	C	D
1				
2				
3				
4				
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17				
18				
19				
20				

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Mapping grid

For each item in the examination, the grid shows the marks allocated, the syllabus content and syllabus outcomes to which it relates. The bands on the performance scale it is targeting are shown in the suggested responses which follow. The range on the bands shows the performance candidates may be expected to demonstrate in their responses. That is, if an item is shown as targeting Bands 3–5, candidates who demonstrate performance equivalent to Band 3 descriptions should be able to score some of the marks on the item, while those who perform at Band 5 or above could be expected to gain high marks. In the case of one-mark items, candidates who demonstrate performance at or above the bands shown generally could be expected to answer the item correctly.

Question	Mark	Content	Outcome	Band
1	1	Project Work – designing solutions	H3.1, H5.1	2–3
2	1	Project Work – designing solutions	H5.1, H7.1, H7.2	2–3
3	1	Project Work – designing solutions	H6.1, H6.2	2–3
4	1	Project Work – designing solutions	H1.1, H6.1, H6.2	2–3
5	1	Communication Systems – transmitting/receiving	H1.1	3–4
6	1	Information Systems and Databases – information systems	H1.1, H1.2, H2.1	3–4
7	1	Communication Systems – transmitting/receiving	H1.1	3–4
8	1	Project Work – understanding the problem	H1.1, H1.2, H2.2	2–3
9	1	Project Work – understanding the problem	H1.1, H1.2, H4.1, H5.1, H5.2	3–4
10	1	Information Systems and Databases – information systems	H2.1	4–5
11	1	Information Systems and Databases – information systems	H5.1	3–4
12	1	Communication Systems – transmitting/receiving	H1.1	3–4
13	1	Project Work – understanding the problem	H5.1, H6.1	4–5
14	1	Information Systems and Databases – information systems	H1.1, H2.1	5–6
15	1	Information Systems and Databases – information systems	H6.1, H6.2	5–6
16	1	Communication Systems – transmitting/receiving	H2.1, H2.2	4–5
17	1	Communication Systems – examples of	H2.1, H1.2	4–5

Question	Mark	Content	Outcome	Band
18	1	Information Systems and Databases – information systems	H2.1	3–4
19	1	Project Work – designing solutions	H7.1, H7.2, H5.1	2–3
20	1	Communication Systems – transmitting/receiving	H1.1	3–4
21	10	Project Work – understanding the problem	H1.1, H1.2, H4.1, H5.1, H5.2	3–4
22	9	Communication Systems – issues	H1.1, H1.2, H3.2, H5.2	4–5
23	12	Information Systems and Databases – organisation methods	H1.1, H2.1	4–5
24	9	Communication Systems – transmitting and receiving	H1.1, H1.2, H4.1, H5.1, H5.2	3–4
25	20	Transaction Processing Systems	H1.1, H1.2, H2.1, H2.2, H4.1, H6.1	(a) 2–3 (b) 3–4 (c) 5–6
26	20	Decision Support Systems	H1.1, H1.2, H2.1, H2.2, H4.1, H6.1	(a) 2–3 (b) 3–4 (c) 5–6
27	20	Automated Manufacturing Systems	H1.1, H1.2, H2.1, H2.2, H4.1, H6.1	(a) 2–3 (b) 3–4 (c) 5–6
28	20	Multimedia Systems	H1.1, H1.2, H2.1, H2.2, H4.1, H6.1	(a) 2–3 (b) 3–4 (c) 5–6

Answers

Section I

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

Marking Guidelines

Section II

Question 21(a)

Marking guidelines

Criteria	Marks
• Direct changeover/conversion	1

Question 21(b)

Marking guidelines

Criteria	Marks
• The computer system is not described in the body of the article as 'failing' but as taking longer for operators unfamiliar with the new system and apparently untrained in it to process data. There is no evidence that hardware or software has broken down or is inadequate.	2
• Less comprehensive	1

Question 21(c)

Marking guidelines

Criteria	Marks
• Organisational (e.g. training of staff), technical, scheduling	3
• One aspect only	1–2

Question 21(d)

Marking guidelines

Criteria	Marks
• Benefit of <i>pilot</i> is that problems can be identified and eliminated in a non-intrusive way using a sub-sample of the system without affecting the whole. Benefit of <i>parallel</i> is primarily that the old system can be reverted to if the new one proves problematic. Benefit of <i>phased</i> is that problems can be addressed in a gradual way and solved individually as only parts of the system are replaced one at a time.	4
• One poorly explained or only one given but well explained	3
• Poorly explained or methods stated only	1–2

Question 22(a)

Marking guidelines

Criteria	Marks
• The screen is not as cluttered as it would be if all choices were displayed via radio buttons or similar.	1

Question 22(b)

Marking guidelines

Criteria	Marks
• C: <i>any</i> word processing application	3
• D: <i>any</i> web browser	
• 1 mark for only one correctly identified or 2 marks for stating as branded applications rather than generalised types	1–2

Question 22(c)**Marking guidelines**

Criteria	Marks
Plain text does not allow data to be displayed as tables or include any graphical content, fonts or styles and paragraphs are often lost and the result may be difficult to read. If HTML is used in the e-mail body then most e-mail applications will correctly display the data with all formatting intact. The result will be easier to read and more clearly laid out.	3
Explains both with attempt to compare	2
Explains both with no benefits stated	1

Question 22(d)**Marking guidelines**

Criteria	Marks
<u>My name is (first last)</u> is confusing (ambiguous whether first name <i>then</i> last OR first name <i>placed</i> last?). Re-express as “surname followed by given name” <u>E-mail my results to:</u> looks like the e-mail address is to be written in the space provided to the right, but this is not the case. Change wording to “e-mail my results to the following addresses (check boxes)”.	2
No suggested improvements, merely identifies two faults	1
Identifies one fault in interface	0

Question 23(a)**Marking guidelines**

Criteria	Marks
To allow students to be sorted by suburb AND to allow pre-sorting of mail by suburb resulting in cheaper rates.	1

Question 23(b)**Marking guidelines**

Criteria	Marks
A unique identifier is required for each student as students may have identical names.	1

Question 23(c)**Marking guidelines**

Criteria	Marks
- Check DB fields become the columns of the SS and the separate DB records become the rows of the SS. - Check data types were retained. - Check unwanted headings do not appear. - Check empty rows are not present (from blank records). - The database would be first saved as a delimited file (tab or comma delimited) then the spreadsheet application started. From this File> Open chosen and the delimited file opened).	3
One or two steps omitted	2
More than two steps omitted	1

Question 23(d)**Marking guidelines**

Criteria	Marks
Sorted on either reverse chronological ‘Date of birth (DOB)’ OR ‘Year at school’ when expressed as a number OR both	3
States two OR three but not as a reverse sort	2
States one only	1

Question 23(e)**Marking guidelines**

Criteria	Marks
- TABLE 1: ID (Primary); Surname; Given names; Gender; Year at school; DOB - TABLE 2: (New Family ID-Primary); Address; Home phone; Father's phone; Mother's phone; ID of children (links to table 1) - Two or one errors OR fails to identify primary keys OR fails to identify link relationship - More than two errors	4 2–3 1–2

Question 24(a)**Marking guidelines**

Criteria	Marks
- switch: identifies the destination and sends data to the correct route - hub: merely a centralised connection point for cabling - router: identifies the destination and fastest route with least congestion, links destinations with variant protocols 1 mark off for each error	3 1–2

Question 24(b)**Marking guidelines**

Criteria	Marks
- This connection would preferably be fibre at up to 1 Gbps and large bandwidth, but could be twisted pair Ethernet cable (10BASE-T or 100BASE-T) at 10 or 100 Mbps or microwave/wireless. - Incomplete or inadequate answer	2 1

Question 24(c)**Marking guidelines**

Criteria	Marks
- Network could be connected via modem, ISDN, satellite. Usually uploading speeds are significantly less than downloading as the latter is more often the service required. Modem is 56K and slowest option, unlikely to be of use to the number of users here. Two 64K ISDN lines would be tolerable but fast fibre broadband is more likely. - Incomplete or inadequate answer	2 1

Question 24(d)**Marking guidelines**

Criteria	Marks
- A print server queues jobs and identifies them. It can limit printing to quotas set for users or for printers. It keeps a record logbook of all jobs. - Incomplete or inadequate answer	2 1

Section III**Question 25(a)(i)****Marking guidelines**

Criteria	Marks
- data warehousing: consolidates all data held into single store, read-only; stores historical snapshots of data - Poor example/poor definition - Specifies some relevant information	3 2 1

Question 25 (a)(ii)**Marking guidelines**

Criteria	Marks
- differential backup: only stores files altered since last full backup - Poor example/poor definition - Specifies some relevant information	3 2 1

Question 25(b)(i)

AnimationWorld

Select your tutorial:

- ☐ Tute1 \$9.95
- ☐ Tute2 \$9.95
- ☐ Tute3 \$9.95

Secure Transaction

Billing Information

Your payment information is secure and never shared. [Learn more.](#)

Card type:

Select Card

Credit Card Number:

Expiration Date:

01

2006

First Name: (as it appears on card)

Last Name: (as it appears on card)

Country:

United States

Select Country

Billing Address 1:

Billing Address 2: (optional)

City:

State:

ZIP code: (5 or 8 digits)

e-mail address: (You will be e-mailed a receipt for this transaction)

Home Telephone: (Your phone number will not be shared. Click the privacy link for details. [Privacy](#))

Security Measure: Type the letters and numbers displayed in the box. Characters are not case sensitive. [Help](#)

B

M

4

4

H

Features:

- all entry boxes aligned, shadowed to show on background, correct sizes
- name of company, price and order are all clear
- card info before address
- convenience of drop-downs for consistent descriptions
- security feature built in

Marking guidelines

Criteria	Marks
• 3 features with reasons	4
• 2 features with reasons	3
• 1 feature with reasons	2
• 1 feature without reasons	1

Question 25(b)(ii)

Marking guidelines

Criteria	Marks
• To prevent unlimited downloads to distribute among friends and to prevent the site address being shared among friends.	3
• AnimationWorld is likely to impose these restrictions as they would suffer most from lost sales.	
• One issue only or no answer to second bullet point	1–2

Question 25(b)(iii)

Marking guidelines

Criteria	Marks
• – Tutorial selected – Card details completed – PayEasy deducts money from account, takes commission and sends remainder of payment to AnimationWorld – AnimationWorld sends transaction e-mail to customer – Customer downloads within time or fails to and requests extension	2
• Incomplete responses	1

Question 25(c)**Marking guidelines**

Criteria	Marks
- This system is likely to be real-time as customers should not be kept waiting and sales may be erratic and seasonal. - CDs may be lost in the mail or damaged but ftp downloading can be repeated at the user's convenience. Costs may be reduced as no stocks need to be manufactured or kept in storage. - Downloads may be too large for dial-up and so alternative CD may need to be offered. Users may prefer to have a physical object for their money. - Credit card payments may restrict some users who may not own a card. - Users may not have the software or technical confidence to use the online system for transactions.	5
Failure to identify system OR insufficient detail in second part	3–4
Failure to identify system AND insufficient detail in second part	1–2

Question 26(a)(i)**Marking guidelines**

Criteria	Marks
Information is stored implicitly in the distribution of weights in a matrix rather than explicitly as rules. An example of the system would be the game of “20 questions” which checks different responses to questions against weightings allocated for various final correct guesses in the quest to identify an unknown object.	3
Poor example/poor definition	2
No example/incorrect definition	1

Question 26(a)(ii)**Marking guidelines**

Criteria	Marks
The control structure or rule interpreter of an expert system. It makes inferences based on the information in an AI database. An example is the inference engine of Mycin which assists doctors in identifying bacterial infections.	3
Poor example/poor definition	2
No example/incorrect definition	1

Question 26(b)(i)**Marking guidelines**

Criteria	Marks
- IF the printer prints AND the red light flashes AND the printer is not recognised THEN ensure software installed AND check the ink. - IF the printer prints AND the red light does not flash AND the printer is recognised THEN do nothing.	2
1 mark off for each error	1

Question 26(b)(ii)**Marking guidelines**

Criteria	Marks
<pre> graph TD A[Printer prints] -- True --> B[Printer not recognised] A -- False --> C[Red light flashes] B -- True --> D[Check data cables, software, ink] B -- False --> E[Check ink, jam] C -- True --> F[Check, power cable, data cable, software] C -- False --> G[Check jam] G -- True --> H[Check software, ink] G -- False --> I[Check nothing] </pre>	4
1 mark off for each error	1–3

Question 26(b)(iii)

Marking guidelines

Criteria	Marks
- Each frame should include questions relating to one aspect only. - Each answer should use two radio buttons for yes/no responses.	2
One aspect only	1

Question 26(c)

Marking guidelines

Criteria	Marks
Statistical data describing the frequency of each problem should be used to develop relative weightings for each. These weightings should be used in place of absolute yes/no responses to suggest the next most likely response. In this way the matrix of questions required to be answered can be reduced considerably and a <i>most likely</i> diagnosis made to reduce help-desk wait times.	5–6
Explanation OR discussion only	3–4
Poor responses	1–2

Question 27(a)(i)

Marking guidelines

Criteria	Marks
CAD – Computer Assisted Drawing; CAM – Computer Assisted Manufacturing – using a pre-drawn 3D image to sculpt from material an actual shape using lasers.	3
Poor example/poor definition	2
No example/incorrect definition	1

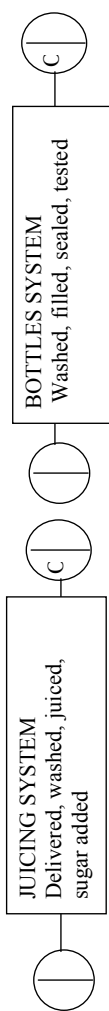
Question 27(a)(ii)

Marking guidelines

Criteria	Marks
Controls the hardware performing the manufacturing process. This is an integrated circuit which performs arithmetic, logical and control functions required. Alternative term: Controller	3
Poor example/poor definition	2
No example/incorrect definition	1

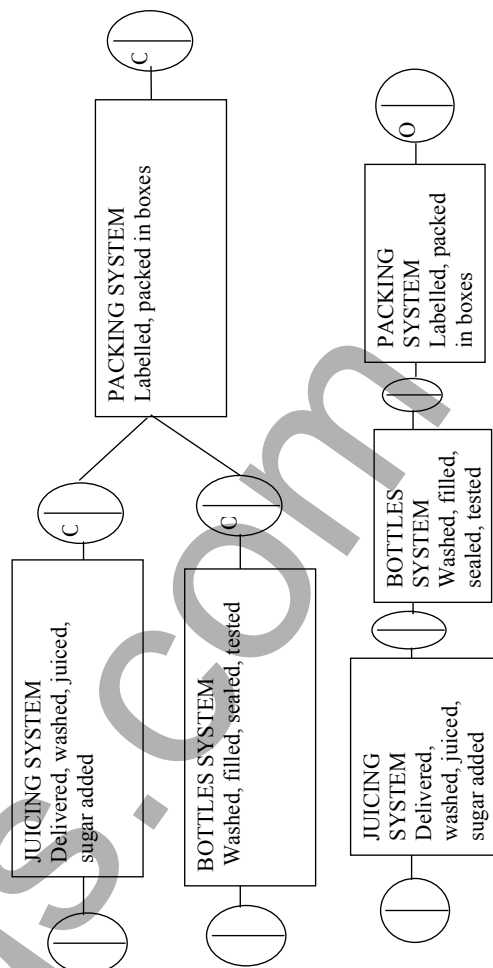
Question 27(b)(i)

3 marks



Question 27(b)(ii)

2 marks (1 mark each)



Question 27(b)(iii)**Marking guidelines**

Criteria	Marks
Underdamping occurs when a change is too fast and the actuator overshoots the desired level. This leads to rapid fluctuations before stability is reached. The speed of filling must be optimised by slowing it so critical damping is achieved.	3
Some points above covered only	1–2

Question 27(c)**Marking guidelines**

Criteria	Marks
- Students should cover and critically analyse <i>collecting</i> issues such as: –means of counting items in stock, such as automated inventory –automated ordering for customers –integration of the ordering system with current stock numbers –numbers of items in transit to dock and on the way to the customer Participants should have access to accurate current figures which can be <i>displayed</i> from any terminal. Reports need to be able to be printed in various formats for different participants (manager, clerks, sales, truck drivers).	6
Failure to analyse	4–5
Failure to cover central issues	1–3

Question 28(a)(i)**Marking guidelines**

Criteria	Marks
A means of reducing the file size of a video file. One method is to record only those changes in pixels between frames rather than refresh the entire frame (e.g. QuickTime format).	3
Poor example/poor definition	2
No example/incorrect definition	1

Question 28(a)(ii)**Marking guidelines**

Criteria	Marks
An audio file attached to a written note in a wordprocessor (<i>Teacher remark: Audio notes are mentioned in the syllabus p. 58!</i>) Audio recordings are directly linked to the typed notes taken when recording. For example, if the subject of the notes typed while recording is known the audio note can be located.	3
Poor example/poor definition	2
No example/incorrect definition	1

Question 28(b)(i)**Marking guidelines**

Criteria	Marks
Animation, sound, movie, text and graphic. Scripts are also included in this Cast window. Only graphics appear in the frame of the menu page.	3
1 mark off for each error. Failure to identify those that appear.	1–2

Question 28(b)(ii)**Marking guidelines**

Criteria	Marks
Hierarchical / non-linear – since the project uses a central home menu and three submenus.	2
Other responses: linear, hybrid	1

Question 28(b)(iii)**Marking guidelines**

Sarah can have users explore aspects of each topic at their own pace and include video clips as optional extras. Using hypermedia she can create interesting 'hotspots' which are secreted on a page to add interest to the project. Users could choose music tracks to listen to while watching.	3
Only one mentioned	1–2

Question 28(c)

Marking guidelines

Criteria	Marks
- Social: some material may be unsuitable for some adolescent ages (drug use/sex issues, etc.); school friends may make use of her personal information in negative ways; issues dealt with are very personal and she may unintentionally betray a confidence; permission from those photographed to use their image on a web page - Ethical: legal issues with copyright for music, images; need to have permission granted before material from magazines is used; clearance from school with parents for photos to be used of friends	5–6
Two issues only OR weak examination of three	3–4
One issue only OR very weak examination of three OR weak examination of two	1–2