

# CHERRYBROOK TECHNOLOGY HIGH SCHOOL



*End of Academic Period 2 Examination, 2009*  
**Information Processes and Technology**  
Preliminary Course

Time allowed - Two hours  
(Plus 5 minutes' reading time)

<i>Markers use only</i>	QUESTIONS 1-20	QUESTION 21	QUESTION 22	QUESTION 23
Out of	20	20	20	20
Mark				

TOTAL	/ 80
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## DIRECTIONS TO CANDIDATES

Calculators may **NOT** be used.

### Section I (20 marks)

- Attempt **ALL** questions
- Mark your answers on the Answer Sheet provided at the end of this exam paper.

### Section II (60 marks)

- Attempt **ALL** questions
- Start each question on a new page
- Write your name on each page that you submit

Name: .....

### Section 1 - Multiple Choice questions

An answer sheet can be found at the end of this examination.

Please put your name on the answer sheet. Place a cross on the answer sheet that corresponds to the best answer for each question.

1. An entry form for a competition legitimately asks for an email address so that winners can be contacted. At a later time all the email addresses are entered into a database and sold to other companies who use them for advertising. This is an example of which type of issue?
  - a. Copyright
  - b. Plagiarism
  - c. Privacy
  - d. Bias
  
2. A database is being designed to maintain customer details. The marketing department intends to create different advertising material for different customer age groups. To enable this to occur, which field(s) should be included in the database?
  - a. Age in years.
  - b. Age groups based on the marketing department's requirements.
  - c. Age in years and date the age was entered.
  - d. Date of birth.
  
3. Which of the following is a reason for making regular data backups?
  - a. To prevent unauthorised access to data.
  - b. To improve data quality.
  - c. To protect against failure of storage devices.
  - d. To improve system performance.
  
4. Which of the following best describes database management software?
  - a. Stored data arranged into tables where each table includes records and each record contains fields.
  - b. An application, often included with the operating system, which is used to manipulate complete files, including viewing, renaming, copy and moving files.
  - c. A client application which processes data within a connected database. This includes adding, editing, deleting and searching data.
  - d. Software that controls the organisation, storage, retrieval, security and integrity of databases. Applications (or users) manipulate data via the database management system.

5. A new CPU is capable of executing a greater number of instructions per second compared to the previous version of the CPU. Which of the following is most likely to be TRUE?
  - a. The new CPU has a higher clock speed.
  - b. The new CPU has a larger bus capacity.
  - c. The new CPU has more cache memory.
  - d. The new CPU utilises faster RAM.
  
6. Spreadsheet data is summarised to create a line graph that shows changes in Temperature over time, as shown in the diagram. Producing this graph is primarily an example of which information process?
  - a. Collecting
  - b. Organising
  - c. Analysing
  - d. Displaying
  
7. Digital audio files are played by computers through analog speakers. Where does the conversion from digital data to analog data typically take place?
  - a. CPU
  - b. Sound Card
  - c. Amplifier
  - d. Speaker
  
8. Which of the following lists best describes social and ethical issues that could arise when information is processed?
  - a. Privacy for individuals, changing nature of work, occupational health and safety
  - b. Changes to the nature of work, new hardware technologies, occupational health and safety
  - c. Privacy for individuals, changing nature of work, new hardware technologies
  - d. Privacy for individuals, occupational health and safety, new hardware technologies
  
9. Documentation of the planning, design and implementation of a system is necessary to:
  - a. Justify the system's development
  - b. Ensure specifications are realized
  - c. Provide information for evaluation and maintenance
  - d. Justify the money spent of the system's development

10. In a spreadsheet, the contents of cell A5 is =sum(A1:A3). This formula is copied into cell C5. The formula that would appear in cell C5 is:

- a. =sum(A1:A3)
- b. =sum(\$A\$1:\$A\$3)
- c. =sum(C1:C3)
- d. =sum(\$C\$1:\$C\$3)

11. Two companies have recently merged. The newly formed company is currently comparing their customers' databases with the aim of combining them into a single database. The information process taking place can be best described as:

- a. a collecting process.
- b. an organising process.
- c. an analysing process.
- d. a retrieval process.

12. Collecting audio data involves

- a. downloading an MP3 file from the web.
- b. creating a midi file from a .wav file.
- c. digitising sound waves.
- d. video production.

Given the following extract from a database.

Fname	Sname	DoB	Painting	Cost(\$)
Vincent	Van Gogh	22.1.1877	Sunflowers	3000000
Paul	Gaughan	4.4.1894	Water Lilies	1500000
Pablo	Picasso	5.12.1901	Guernica	1700000
Hernonimus	Bosch	2.6.1677	Hell	6000000
Peter	Rubens	4.9.1777	Count Hans	2900000

13. In the above extract, what is 'Painting' an example of?
- A field.
  - A fieldname.
  - A record.
  - Data.
14. Jim works at a paper mill. Due to the introduction of a new technology, his job role has changed. Jim has now been given a number of lower level jobs to do. What is the correct name of this issue?
- Job displacement.
  - De-skilling.
  - Transferable skills.
  - Job redundancy.
15. A query to find all licensed drivers who are 21 years old and under and have had either a speeding fine or a red light camera offence would be:
- License = YES, Age <21, (Offence = Speeding, Offence = Red light).
  - License = YES AND Age <= 21 AND Offence = Speeding OR Red Light.
  - License = YES AND Age <= 21 AND (Offence = Speeding OR Offence = Red light).
  - Age <= 21 AND Offence = Speeding OR Offence = Red light.
16. A Government passes legislation to make ISP's (Internet Service Providers) responsible for the legality of all the data either stored on their servers by users or passing through their system in their users' email. This will involve issues of:
- Privacy and control of data.
  - Security and control of data.
  - Data accuracy and privacy.
  - Data reliability and security.

17. A supplier of children's toys has the following product information stored in their database.

<i>ProductID</i>	<i>Description</i>	<i>InStock</i>	<i>Price</i>
1123	Jumping Castle	Y	\$220.60
1134	Wading Pool	N	\$125.95
2245	Monster Truck Digger	Y	\$69.95
3456	Night Light	Y	\$4.00

Which data type would you expect for each field in the database?

	<i>ProductID</i>	<i>Description</i>	<i>InStock</i>	<i>Price</i>
a.	Text	Text	Text	Text
b.	Number	Memo	Boolean	Number
c.	AutoNumber	Text	Text	Currency
d.	Number	Text	Boolean	Currency

18. Bias during the collection of data is an issue related to:

- a. Accuracy of data/information
- b. Appropriateness of data/information
- c. Data security
- d. Copyright

19. William starts a new job. He has to take over making entries to the company database. He decides that he needs to know the characteristics of the entries he is to make. Which should he refer to?

- a. Data dictionary
- b. Distributed database
- c. Key fields
- d. Relationships Table

20. A tertiary educational institution keeps data on staff in a database table

*tblDept*

STAFFID	STAFF_NAME	FACULTY	GENDER	TEACH_YR
S01	Kerry Speedie	Computing	Female	1975
P01	Ellie Prochow	Arts	Female	1990
C01	Cheryl Chernot	Politics	Female	1981
R01	Di Ropers	Textiles	Female	1991
C02	Irene Conomee	Maths	Female	1985
S02	Carol Suri	PE/Health	Female	2002

The following SQL statement is used to select data.

```
SELECT STAFFID, STAFF_NAME
FROM tblDept
WHERE TEACH_YR>1981 AND TEACH_YR<1991
```

Which one of the following sets of data will be retrieved?

a.

STAFFID	STAFF_NAME
P01	Ellie Prochow

b.

STAFFID	STAFF_NAME	TEACH_YR
P01	Ellie Prochow	1990
C02	Irene Conomee	1985

c.

STAFFID	STAFF_NAME
P01	Ellie Prochow
C02	Irene Conomee

d.

STAFFID	STAFF_NAME
P01	Ellie Prochow
C01	Cheryl Chernot
C02	Irene Conomee
R01	Di Ropers

*End of Section One. Turn the page for section two.*

Question 21 - Information systems in context: Database Development (20 Marks)  
 Start this answer on a new sheet of paper

Jessica and Rebecca have decided to catalogue their book collection to make finding books easier. They discuss before starting their catalogue what information they need to include in their database. A summary of their discussions is reproduced below.

<i>Stuff to include</i>	<i>Reason to include it</i>
Book title and author	Self evident, really!
ISBN	International Standard Book Number, good for finding that edition of a book on the internet or Library.
Location in House	So it is easy to find.
Format	Could be Hardback, Paperback, First Edition, CD Audio Book, MP3 Encoded Audio Book or iTunes Purchased Book
Cover Image	Scanned wherever possible, otherwise sourced from the interweb
Year of Release	
Review URL	From a book review website
Purchase cost	
Personal opinion	From the first person to read that book

From the above list, the girls make their data dictionary.

- a. Jessica notes that the database is asking for a "Primary Key" field and is asking to assign its own key to the database. Rebecca says no and instead chooses one field already in the database to use as the Primary Key. Identify the field that Rebecca would have most likely chosen and justify why it makes an ideal Primary Key field. 3
  
- b. To make their data entry a lot easier, they decide to automate as much of their data entry as possible. Identify two fields that could be automated and describe in detail the automation that could occur. 3
  
- c. Rebecca's laptop is a Tablet PC, with touch screen input. Outline features that the girls can build into their database to make use of this new technology, both in terms of data organisation and display. 3

*Question 21 continues on the next page.*



A section of the data in Jessica and Rebecca’s book table is reproduced below. Use it to answer parts d. and e.

Title	Author	YearRelease	Location	Format	PurchaseCo	ReviewURL	Opinion
It	Stephen King	1986	Bedroom Book	paperback	\$12.95	<a href="http://www.stephenking.com">www.stephenking.com</a>	Scary book!
The Shining	Stephen King	1974	Hall Bookcase	paperback	\$9.05	<a href="http://www.stephenking.com">www.stephenking.com</a>	not bad, weird
The Hobbit	JRR Tolkien	1937	Storage	First Edition Hardcover	\$300.00	<a href="http://en.wikipedia.org">en.wikipedia.org</a>	the original version
Lord of the Rings	JRR Tolkien	2003	storage	paperback	\$22.95	<a href="http://en.wikipedia.org">en.wikipedia.org</a>	Excellent, best
Harry Potter and the Sorcerer's Stone	JR Rowling	1997	main bookcase	First Edition Hardcover	\$1,000.00	<a href="http://www.bloomsbury.com">www.bloomsbury.com</a>	Best series ever
Harry Potter and the Chamber of Secrets	JR Rowling	1999	main bookcase	First Edition Hardcover	\$300.00	<a href="http://www.bloomsbury.com">www.bloomsbury.com</a>	Best series ever
Harry Potter and the Prisoner of Azkaban	JR Rowling	2000	main bookcase	First Edition Hardcover	\$100.00	<a href="http://www.bloomsbury.com">www.bloomsbury.com</a>	Best series ever
Harry Potter and the Goblet of Fire	JR Rowling	2001	main bookcase	First Edition Hardcover	\$25.00	<a href="http://www.bloomsbury.com">www.bloomsbury.com</a>	Best series ever
Harry Potter and the Order of the Phoenix	JR Rowling	2003	main bookcase	First Edition Hardcover	\$25.00	<a href="http://www.bloomsbury.com">www.bloomsbury.com</a>	Best series ever
Harry Potter and the Half-Blood Prince	JR Rowling	2006	main bookcase	First Edition Hardcover	\$25.00	<a href="http://www.bloomsbury.com">www.bloomsbury.com</a>	Best series ever
Harry Potter and the Deathly Hallows	JR Rowling	2008	main bookcase	First Edition Hardcover	\$25.00	<a href="http://www.bloomsbury.com">www.bloomsbury.com</a>	Best series ever
Twilight	Stephenie Meyer	2005	storage	paperback	\$20.00	<a href="http://www.littlebrown.com">www.littlebrown.com</a>	good
New Moon	Stephenie Meyer	2007	storage	paperback	\$16.00	<a href="http://www.littlebrown.com">www.littlebrown.com</a>	okay
Eclipse	Stephenie Meyer	2008	storage	paperback	\$15.00	<a href="http://www.littlebrown.com">www.littlebrown.com</a>	boring
Breaking Dawn	Stephenie Meyer	2009	storage	paperback	\$15.00	<a href="http://www.littlebrown.com">www.littlebrown.com</a>	cool
The Host	Stephenie Meyer	2009	storage	paperback	\$15.00	<a href="http://www.littlebrown.com">www.littlebrown.com</a>	weird

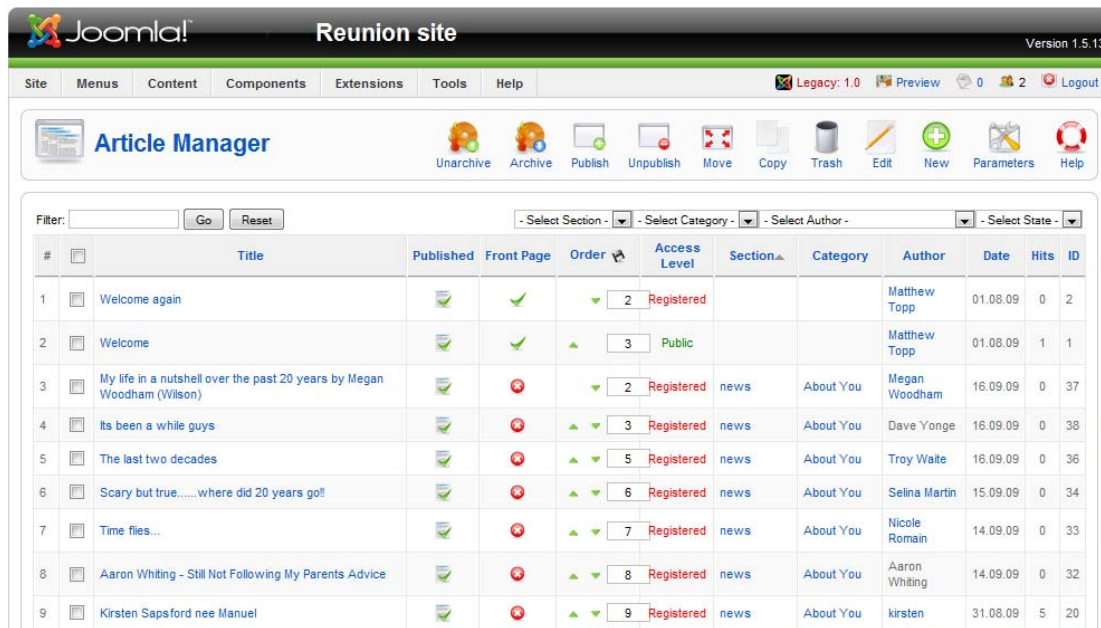
- d. Jessica and Rebecca rarely use this table layout to view their data. Discuss three reasons why they choose not to do so. 3
  
- e. Using this view as a guide, construct a query that will locate all paperbacks in storage whose price is less than \$20. 4
  
- f. Once it is finished, Jessica gives a copy of the database to a friend. Her friend has never used a database application before. Evaluate means by which Jessica and Rebecca could ensure people who use their database do not need to continually ask them for assistance. 4

End of Question 21.  
Turn the page for Question 22.

**Question 22 - Information Systems in context: Project development. (20 Marks)**  
**Start this answer on a new sheet of paper.**

After 20 years Ruby decides to get in contact with her old school friends and organise her high school reunion. She starts by creating a group on a popular social networking website and inviting the friends from school she is still in contact with.

Soon after, Ruby develops a website using a popular Open Source management tool. After a short time, more than 100 of her school friends are registered on one or both sites. To ensure that her school friends are kept up to date with the reunion and each other, she develops a section of the website for registered member to provide an update on themselves and provides an ongoing blog of updates about the reunion’s organisation.

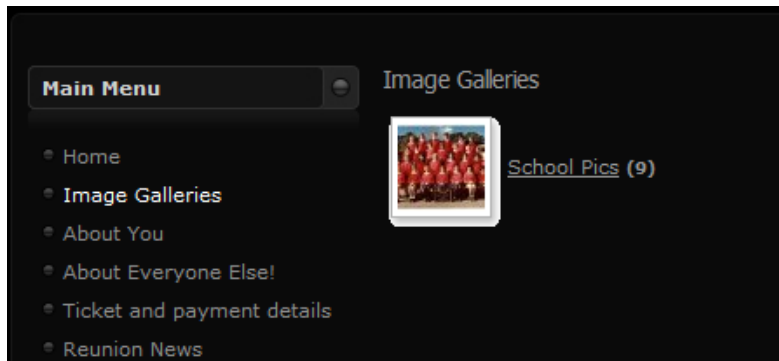


*A screenshot of the Article Manager in the website.*

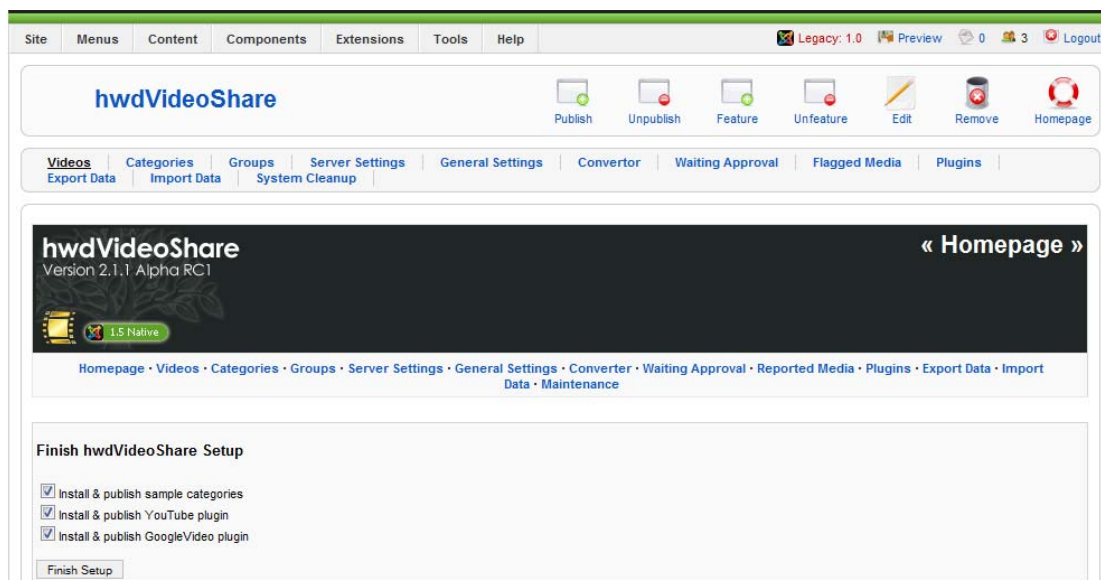
Ruby has created and printed tickets, sending them to her former school friends who have paid for the reunion by transferring money into the bank account that she has set up. She has asked her former school friends for photos and music suggestions from their time at school to prepare a playlist and presentation to show. The big event is scheduled for September 19<sup>th</sup>. Ruby intends to take lots of photos and video of the night to post on her website for her school friends to enjoy after the event.

- a. Identify and describe the roles played by one user and one participant in any part of this reunion system. 3
- b. Displaying is an important information process in this system. Describe in detail the process of displaying throughout the reunion information system. 3
- c. Construct a Gantt chart that Ruby could use to ensure she completes all tasks efficiently. Assume that Ruby has been planning the reunion for six months prior to the actual date. 4

- d. After the reunion, Ruby plans to upload all the photos and videos she has collected from the night to her website using a photo gallery tool and video streaming tool. Using the two screen shots on the next page to aid you in your response, discuss how the information process of Transmitting and Receiving is dependent on Information Technology.



The Menu with the front of the image gallery tool, which is available to registered members only.



The video sharing tool, again available to registered users only.

- e. At the end of the reunion after all the photos and videos have been uploaded and enjoyed, Ruby tries to decide if her efforts have been successful. Critically analyse how Ruby may evaluate the success or failure of her website created for her old school friends.

End of Question 22.  
Turn the page for Question 23.

Question 23 - Issues arising for the use of information systems. (20 Marks)  
Start this answer on a new sheet of paper.

Read the following extract from a recent article in the Sydney Morning Herald and answer the questions that follow.

**Google Maps offers live traffic updates for Australia**  
September 15, 2009



The creators of Google Maps have taken the technology further down the information superhighway to launch a feature that allows Australian commuters to view up-to-date traffic flow information. The feature, which is displayed in the Google Maps format, is available in the capital cities of Sydney, Melbourne and Brisbane, as well as Wollongong, the NSW Central Coast, Geelong, the Sunshine Coast and the Gold Coast.

Traffic information about motorways, as well as major and minor arterial routes, are displayed in the feature. Colours overlaid on the Google Maps roads correspond to the speed of traffic, with green meaning "free sailing", yellow "medium congestion", red "heavy congestion" and black refers to "a parking lot". Also available on mobile phones, passengers can check it out while commuting to suggest real time route changes based on the data.

Google product manager Andrew Foster says the information will be updated every few minutes. "We know Google Maps is already an essential tool for Australians as they plan trips and the mobile version is being used more and more to help people when they're out and about," Mr Foster said. "The new traffic information on Google Maps will help drivers make smarter decisions as they plan their routes, leading to faster trips for them and reducing overall load on congested areas."

The traffic information on Google Maps comes from data provider Intelematics Australia and is sourced from data from other motorists. This means motorists provide information on current traffic conditions by setting their mobile phone up to share anonymous data. But it's actually less time consuming than it sounds. All motorists have to do is set their mobile devices to have Google Maps for mobile running, GPS enabled and the "My Location" feature turned on. This will then send anonymous bits of information back to Google about how fast the device is moving on that particular road. When combined with the data from other similarly-enabled devices, this helps Google Maps create a graph on how traffic conditions are in that area.

*Sourced from: <http://www.smh.com.au/digital-life/digital-life-news/google-maps-offers-live-traffic-updates-for-australia-20090915-foro.html> retrieved on 16/09/2009.*

- a. Identify the purpose of Google's information system and the need it meets for its uses. **2**
- b. Describe how data is collected by Google Maps for this traffic information system. **2**
- c. Distinguish between hardware and software in this information system. **3**
- d. Contrast primary and secondary storage requirements by computer servers and GPS devices in Google's system. **3**
- e. Outline one environmental factor that could affect the traffic reporting system. **4**
- f. Critically analyse social and ethical issues that arise from the use of this information system by motorists. Consider in your response any issues that you see as relevant and how each applies to information processes, Information Technology or the environment of the information system as you see necessary. **6**

**End of examination.**

**Be sure that you have put your name on every sheet you hand in.**

Name: .....

*Section I. Multiple Choice Answer Sheet*

Place a cross in the box that corresponds to the best answer.

Question	A	B	C	D
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