



Victorian Certificate of Education

2007

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

STUDENT NUMBER

Letter

Figures

Words

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INFORMATION TECHNOLOGY:

IT APPLICATIONS

Written examination

Tuesday 13 November 2007

Reading time: 3.00 pm to 3.15 pm (15 minutes)

Writing time: 3.15 pm to 5.15 pm (2 hours)

QUESTION AND ANSWER BOOK

Structure of book

<i>Section</i>	<i>Number of questions</i>	<i>Number of questions to be answered</i>	<i>Number of marks</i>
A	20	20	20
B	12	12	70
			Total 90

- Students are permitted to bring into the examination room: pens, pencils, highlighters, erasers, sharpeners and rulers.
- Students are NOT permitted to bring into the examination room: blank sheets of paper and/or white out liquid/tape.
- No calculator is allowed in this examination.

Materials supplied

- Question and answer book of 21 pages.
- Answer sheet for multiple-choice questions.

Instructions

- Write your **student number** in the space provided above on this page.
- Check that your **name** and **student number** as printed on your answer sheet for multiple-choice questions are correct, **and** sign your name in the space provided to verify this.
- All written responses must be in English.

At the end of the examination

- Place the answer sheet for multiple-choice questions inside the front cover of this book.

Students are NOT permitted to bring mobile phones and/or any other unauthorised electronic devices into the examination room.

SECTION A – Multiple-choice questions**Instructions for Section A**

Answer **all** questions in pencil on the answer sheet provided for multiple-choice questions.

Choose the response that is **correct** or that **best answers** the question.

A correct answer scores 1, an incorrect answer scores 0.

Marks will **not** be deducted for incorrect answers.

No marks will be given if more than one answer is completed for any question.

Question 1

A sudden loss of power caused by a falling tree destroyed some data on a hard drive.

This data loss is classified as

- A. accidental.
- B. deliberate.
- C. technical failure of the hard disk casing.
- D. procedural failure of login software.

Question 2

A bank teller uses a swipe card and a login with password to access clients' bank accounts.

This security is an example of

- A. physical and biometric.
- B. electronic and physical.
- C. biometric and biometric.
- D. electronic and electronic.

Question 3

To protect emails sent via the Internet, users should

- A. backup the emails.
- B. encrypt the emails.
- C. carbon copy the emails.
- D. blind carbon copy the emails.

Question 4

The primary key field of a database must always

- A. be sorted.
- B. use an autonumber data type.
- C. have an entry for each record.
- D. contain entries that are a combination of text and numbers.

Question 5

Separate campuses of a secondary school are two kilometres apart.

The best transmission media to securely connect all campuses to the school intranet is

- A. wireless.
- B. fibre optic.
- C. USB (Universal Serial Bus).
- D. UTP (Unshielded Twisted Pair).

Use the following information to answer Questions 6 and 7.

A shop owner uses the spreadsheet below to monitor monthly coat sales.

	A	B	C	D
1	Coat Sales			
2			Jul-07	
3	Coats (Colour)	Quantity Sold		
4	Black	146		
5	Blue	105		
6	Brown	67		
7	Cream	117		
8	Green	54		
9	Red	110		
10	White	46		
11				
12	Total	645		
13	Count			
14				
15				

Question 6

What is the most efficient formula the owner can enter to calculate the correct **Total** in cell **B12**?

- A. =(B4:B10)
- B. =SUM(B4:B10)
- C. =SUM(B4+B10)
- D. =(B4+B5+B6+B7+B8+B9+B10)

Question 7

The formula =COUNT(B4:B11) in cell **B13** will return

- A. 7
- B. 8
- C. #####
- D. an error message

Question 8

A new layout for a timetable must be produced from an existing spreadsheet and multiple copies printed on a company's black and white laser printer, rather than the new colour printer.

The constraints on this solution are best described as

- A. economic and operational.
- B. operational and social.
- C. social and technical.
- D. technical and economic.

Question 9

Validation is used to

- A. check the accuracy of calculations.
- B. detect software errors and alert the manager.
- C. test functions and alert programmers to errors.
- D. prevent inaccurate data from entering the system.

Question 10

A virtual team of medical specialists located all over the world uses a virtual private network (VPN) to discuss their research in real-time.

This is an example of

- A. email using a LAN.
- B. email using a WAN.
- C. web conferencing using a LAN.
- D. web conferencing using a WAN.

Question 11

The main purpose of the *Copyright Act 1968* for web designers collecting images for a website is to ensure

- A. confidential records are secure.
- B. encrypted files are not hacked into.
- C. all artists receive payment for their work.
- D. intellectual property is not used without permission.

Question 12

A database is used by a virtual team of scientists to record and process temperature readings taken around volcanoes.

The IPO (Input–Process–Output) chart best representing the design of the database is

A.

I	P	O
report	calculations	temperature

B.

I	P	O
temperature	report	calculations

C.

I	P	O
temperature	calculations	report

D.

I	P	O
calculations	temperature	report

Question 13

The most appropriate way to evaluate the effectiveness of a website offering online football ticket sales is to

- A. interview all customers about the clarity of instructions.
- B. survey customers online about the clarity of instructions.
- C. interview all customers about the speed of response to mouse clicks.
- D. survey customers online about the speed of response to mouse clicks.

Question 14

A Network Operating System (NOS) is

- A. software that controls the operations of a network.
- B. hardware that controls the operations of a network.
- C. hardware that provides secure connections between components in a network.
- D. software that enables users to create multimedia network information products.

Question 15

The most appropriate data type for the field in a database storing **Phone Numbers** such as (03) 8999 7777 is

- A. text.
- B. integer.
- C. number.
- D. autonumber.

Question 16

The database table below is used to record a personal movie collection.

ID	Movie_Title	Category	Time (minutes)	Media
1	<i>Laughing</i>	Comedy	120	DVD
2	<i>Escape in Time</i>	Thriller	90	VCR
3	<i>Fun and Games</i>	Comedy	85	VCR
4	<i>Never More</i>	Thriller	85	DVD
5	<i>Happy Holidays</i>	Comedy	90	DVD

Which movie ID(s) would be returned if the query below was entered?

Category <> Thriller **and** *Time* < 90

- A. 3
- B. 4
- C. 2, 3
- D. 3, 4

Question 17

The fruit and vegetable manager of a supermarket wants to increase sales by 2% over the next six months. This is an example of

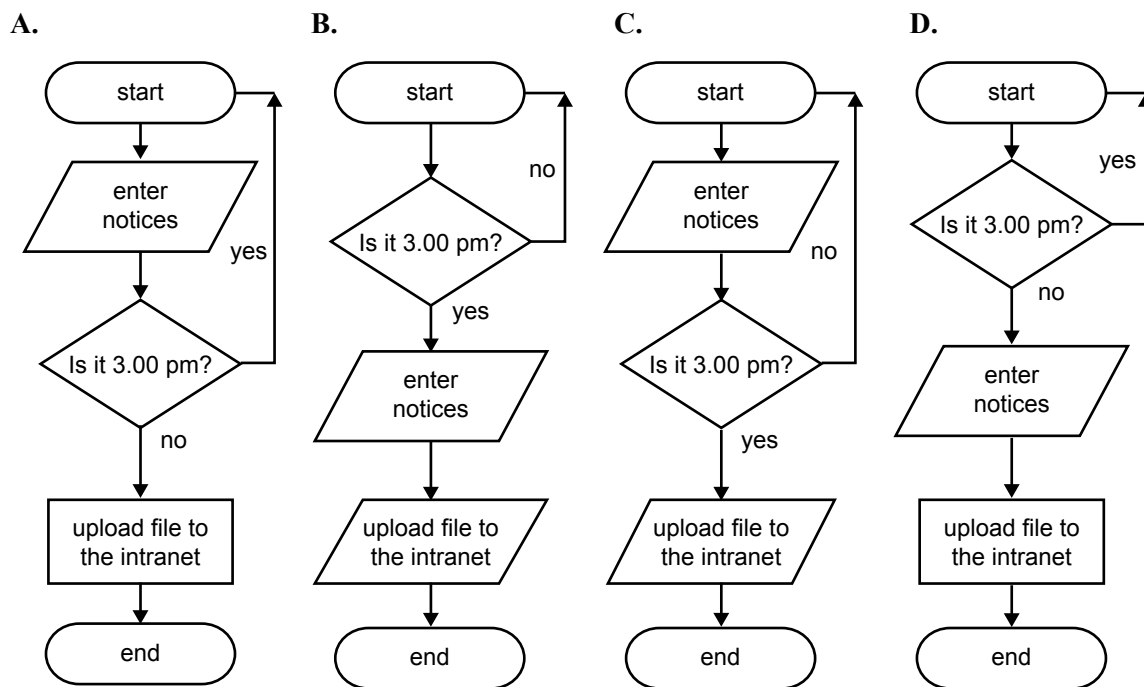
- A. an organisational goal at the tactical level of decision making.
- B. an organisational goal at the strategic level of decision making.
- C. an organisational objective at the tactical level of decision making.
- D. an organisational objective at the strategic level of decision making.

Question 18

Vera starts entering data for the electronic school bulletin at 3.00 pm. All notices must be sent to Vera by 3.00 pm. She uses a template and uploads the bulletin to the school’s intranet.

Vera is changing jobs and has to provide a flow chart of the process for the new person who will complete the bulletins.

Which chart best represents the process described?



Question 19

Criteria to evaluate the effectiveness of an organisation’s data management strategy would measure

- A. cost and reliability.
- B. cost and recovery time.
- C. integrity of data and currency of files.
- D. currency of files and speed of retrieval.

Question 20

A school library keeps track of book loans using a relational database which has tables called Books, Borrowers and Loans. Parts of these tables are shown below.

Books

⌘ Book_ID	Book_Title	Author
Win007	Cloud Street	Tim Winton
Win008	Cloud Street	Tim Winton
Gri001	Grimm's Fairytales	Brothers Grimm

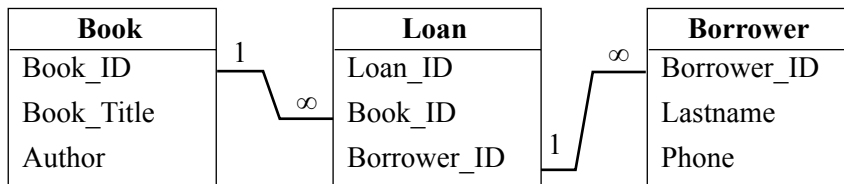
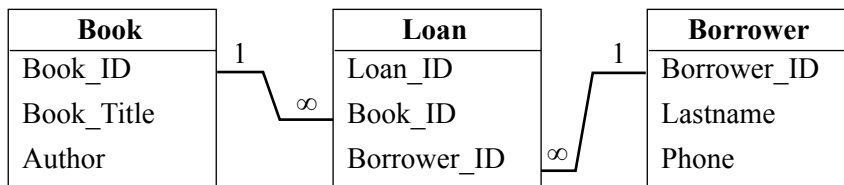
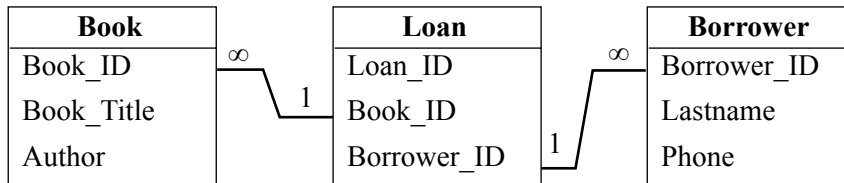
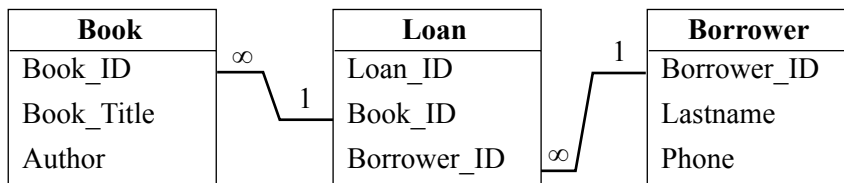
Borrowers

⌘ Borrower_ID	Lastname	Phone
Adam0098	Adamson	9567 9999
Albe0076	Alberti	9567 1234
Asto0034	Aston	9568 4567

Loans

⌘ Loan_ID	Book_ID	Borrower_ID
00000123	Win007	Albe0076
00000124	Gri001	Albe0076
00000125	Win008	Adam0098

Which diagram best represents the relationship between these tables?

A.**B.****C.****D.**

SECTION B – Short answer questions**Instructions for Section B**

Answer **all** questions in the spaces provided.

Question 1

The site map of the Gum Leaf State Primary School’s website is shown below. There are eight blank positions (A, B, C, D, E, F, G, H) for new links to be added.

Home	-Vision
	-News Flash
	-A
Events	-Sports Day
	-Grade 5 Maths Challenge
	-B
Contacts	-Principal
	-Receptionist
	-Coordinators
	- Weekly Newsletter
News	-News Editor
	-C
	-D
Students’ Work	-Grade 3 Art
	-Grade 6 Writing
	-E
Bicycle Safety	-Bike Safety Australia
	-F
Competitions	-Maths Competition
	-G
Parents	-Raffle Winners
	-H

There are complaints that the **Weekly Newsletter** for parents is not easy to find.

- a. Indicate in which position (A–H) you would place the **Weekly Newsletter** link. Justify your choice.

Position _____

Justification _____

2 marks

The principal has decided to make student reports available online.

- b.** Discuss this decision and describe one security feature the principal should add to the parents' page.

Discussion

Security feature

2 marks

Question 2

The local council has a large library of movies, video clips and articles. Library members access video clips and articles via the council website. New articles and video clips are added to the library every day.

The technician has chosen a portable (external) hard disk as a backup media.

- a.** Identify two features of the portable hard disk and explain how each is an advantage as a backup media.

Feature 1 _____

Advantage _____

Feature 2 _____

Advantage _____

2 marks

The technician must recommend and justify a backup strategy.

- b.** Recommend a storage location and a backup schedule for the backup media.

	Recommendation	Justification
storage location		
backup schedule		

4 marks

Question 3

Employees have received the following email and the network manager has been asked to send out a warning to all staff.



- a. List two features of this email that the network manager would identify as suspicious and likely to give illegal access to confidential data. Explain why each is suspicious.

Email feature 1 _____

Explanation _____

Email feature 2 _____

Explanation _____

4 marks

- b. What advice should the network manager give to staff to deal with this email?

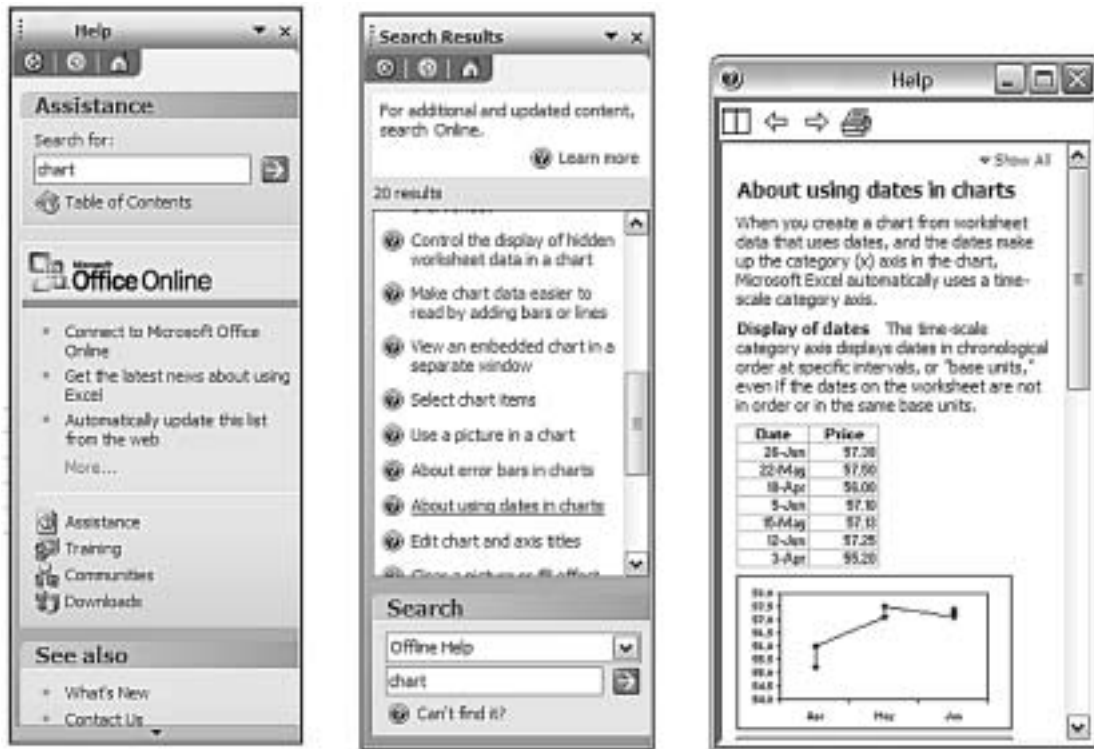
1 mark

- c. Describe how this advice should be communicated to staff.

1 mark

Question 4

The onscreen user documentation for a spreadsheet program is shown below.



a. Identify two navigation features of this onscreen user documentation.

1. _____

2. _____

2 marks

b. i. Identify what you could measure to evaluate the efficiency of the onscreen user documentation.

ii. Describe how you would measure it.

1 + 1 = 2 marks

Question 5

The tasks below are part of a Gantt chart used to monitor the creation of a new database to sell sports equipment online.

No.	Tasks	Duration (days)	Predecessors
1			
2			
24	Check other sports equipment websites	0.5	
25	Database design complete	0	23
26	Prepare test data for customer forms	2	15
27	Enter customer’s test data in form	0.5	26
28	Record actual results	0.5	27
29			

a. Identify a task in the list above which is a **milestone**.

1 mark

b. i. Define predecessor.

ii. Task 24 does not have a **predecessor** listed.
Explain what this means for the person coordinating these tasks.

1 + 1 = 2 marks

Question 6

The Clean Water Research Group has a virtual private network (VPN) for a group of scientists to share their research findings.

Clean Water Research Group

Home Maps Data Entry Wiki Chat

The Clean Water Research Group monitors water quality across Victoria

Geoff's discussion question: "Does water quality affect the price of bottled water?"

Average price of bottled water (L)

Year	Average price (L)
2003	0.80
2004	1.20
2005	1.30
2006	1.70
2007	2.10

Network administrator samw@cwrg.org.au

- a. Identify one reason the scientists need a virtual private network.

1 mark

- b. Describe one design element used to present the scientists' information and explain how this design element helps to achieve the purpose of the website.

Design element _____

Explanation _____

2 marks

You have to present your plans for a colour upgrade to the website.

- c. Recommend a design tool to represent the new colour choices you will make. Explain why you would use this design tool.

Design tool _____

Explanation _____

2 marks

Question 7

Conferences-R-Us is a small business which organises conferences for other organisations.

At present, people wishing to attend a conference must select and download the application form from the Conferences-R-Us website, complete the form by hand and return it by mail with payment for the conference.

Payment can be made by sending a cheque or completing the credit card details on the application form.

Susan must record the data from each form so that accurate records of all applications and payment methods are available. She can use either spreadsheet or database software.

- a. Select one of these software types and describe an advantage it has over the other.

1 mark

- b. Explain how this software will help Susan organise this data.

2 marks

When Conferences-R-Us have received payment, information about the conference and a receipt are emailed out 10 days before the conference.

- c. List four data items that would be included on the receipt to be emailed.

1. _____

2. _____

3. _____

4. _____

2 marks

The Conferences-R-Us website collects personal information and must comply with the *Privacy Act 1988*.

- d. Name one principle of this legislation.

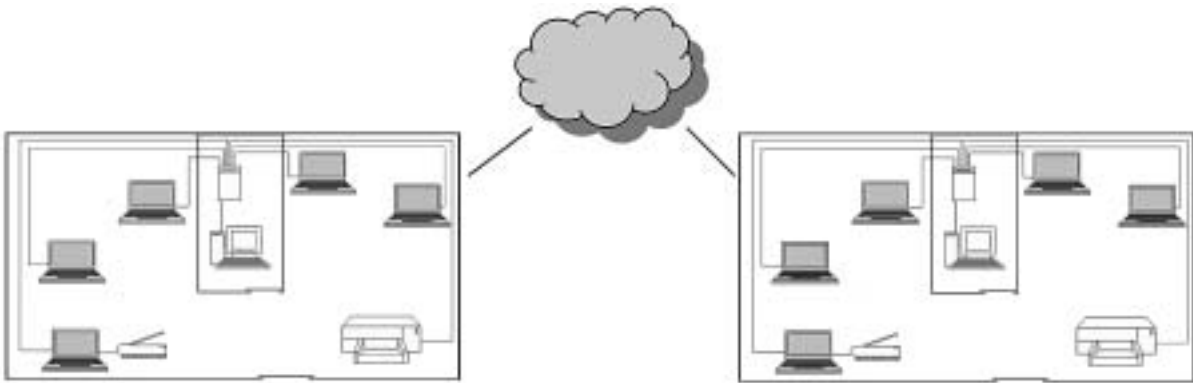
1 mark

- e. Explain what Conferences-R-Us must do to comply with this law.

2 marks

Question 8

Art-Logo is a business that creates logos for customers starting a new business. Their studios in Melbourne and Sydney have networks connected via the Internet.



- a. Describe one way the Art-Logo network helps the artists working in the studios.

1 mark

Art-Logo's network is a client-server type.

- b. Describe an advantage this has for the network manager.

1 mark

The owner of Art-Logo has a disaster recovery plan which includes Uninterruptible Power Supplies (UPS).

- c. Explain one benefit of an Uninterruptible Power Supply for the artists working in the studios.

1 mark

Question 9

Adam has designed a database of club records and used the Lastname field as the primary key.

Field name	Data type	Description
↔ Lastname	Text	Member’s family name
Firstname	Text	Member’s first name
Street	Text	Member’s street number
Suburb	Text	Member’s suburb including postcode
Fees-Paid?	Boolean	Indicates if member has paid this year’s fees or not

a. Explain why this design will cause problems. Give an example to support your answer.

2 marks

b. Adam has used a Boolean data type in the **Fees-Paid** field.

i. Describe the function of a Boolean data type.

ii. Explain why Adam has used this data type for this field.

1 + 1 = 2 marks

Adam would like to use electronic validation to check that the postcodes are between 3000 and 3999.

c. List the changes Adam needs to make to the database design.

3 marks

Question 10

Karen is the manager of a Melbourne medical clinic with 500 patients. She has checked the appointments for the past 12 months and decided to archive the electronic record files of 100 patients.

- a. Identify one reason why a patient’s record file would be selected for archiving.

1 mark

- b. Describe one benefit for the clinic of archiving records.

1 mark

Karen has been asked to send the archived patient records to a medical research project.

- c. Discuss one legal obligation and one ethical conflict for Karen.

Legal obligation _____

Ethical conflict _____

4 marks

Question 11

The spreadsheet below is used to create mobile phone accounts for a customer.

	A	B	C	D	E	F	G
1		Total Cost \$				Carrier	\$ per second
2	This bill:	32.90				Carrier1	0.05
3	Last bill:	80.20				Carrier2	0.06
4						Carrier3	0.07
5							
6	Carrier	Numbers called	Duration of Call (seconds)	Cost of Call \$			
7	Carrier1	0516 123458	20	1.00			
8	Carrier1	0516 123459	50	2.50			
9	Carrier1	0516 123456	40	2.00			
10	Carrier2	0517 123456	30	1.80			
11	Carrier3	0518 123459	20	1.40			
12	Carrier2	0517 123458	20	1.20			
13	Carrier1	0516 123457	10	0.50			
14	Carrier2	0517 123458	70	4.20			
15	Carrier2	0517 123459	60	3.60			
16	Carrier1	0516 123456	210	10.50			
17	Carrier3	0518 123457	20	1.40			
18	Carrier3	0518 123458	40	2.80			
19							

a. Provide the formula for cell **B2**.

1 mark

The formula =**LOOKUP(A7,\$F\$2:\$G\$4,2)*C7** has been used to calculate the result in **D7**.

b. Explain why the \$ signs are included in this formula.

1 mark

The mobile phone company would like to add a graph (chart) to this account.

c. Recommend a graph and explain how it would improve communication of the information.

Graph _____

Explanation _____

2 marks

You have been asked to group the calls from each carrier as shown below.

	A	B	C	D	E	F	G
1		Total Cost \$				Carrier	\$ per second
2	This bill:	32.90				Carrier1	0.05
3	Last bill:	80.20				Carrier2	0.06
4						Carrier3	0.07
5							
6	Carrier	Numbers called	Duration of Call (seconds)	Cost of Call \$			
7	Carrier1	0516 123458	20	1.00			
8	Carrier1	0516 123459	50	2.50			
9	Carrier1	0516 123456	40	2.00			
10	Carrier1	0516 123457	10	0.50			
11	Carrier1	0516 123456	210	10.50			
12	Carrier2	0517 123456	30	1.80			
13	Carrier2	0517 123458	20	1.20			
14	Carrier2	0517 123458	70	4.20			
15	Carrier2	0517 123459	60	3.60			
16	Carrier3	0518 123459	20	1.40			
17	Carrier3	0518 123457	20	1.40			
18	Carrier3	0518 123458	40	2.80			
19							

- d. List the instructions used to group the calls from each carrier.

2 marks

Managers have suggested the formula =If(B2>(B3+100),“ALERT”,“ ”) be placed in cell C5 to alert customers when their new bill is \$100 more than their previous bill.

- e. Recommend appropriate data to test the formula for C5 and show expected results.

Test	Data	Expected result
1		
2		

4 marks

Question 12

A map-making and surveying company wants to improve electronic communications between the crews working in the city, the country and head office. The laptops combined with smart phones will allow crews to upload maps and photographs onto the company website for staff comment.



<p>Laptop features</p> <ul style="list-style-type: none"> • 1.7 GHz • 512 MB RAM • 60 GB hard disk • Wireless networking • Modem • DVD-RW and CD-RW • Weight 2.4 kg • Touchpad • Photoshop 	<p>Smart phone features</p> <ul style="list-style-type: none"> • Windows Mobile 5.0 • MS Office • Outlook Mobile email • Media Player • Internet Explorer Mobile • Internet access • Wireless broadband for the laptop • Camera pictures and video • Full keyboard
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- a. Select one laptop feature and one smart phone feature and describe how each will help input or process useful data for crews working in the country.

Laptop feature _____

Description _____

Smart phone feature _____

Description _____

2 marks

- b. Identify one hardware component required for the laptops to provide communication between crews in the country and head office. Explain the function of the component.

Hardware _____

Explanation _____

2 marks

- c. Identify two features of the smart phone that will assist video conferencing between crews and head office.

Feature 1 _____

Feature 2 _____

2 marks

- d. Recommend one security feature the smart phones need to protect map-making and survey data when being communicated to head office. Justify your choice.

Recommendation _____

Justification _____

2 marks