



Victorian Certificate of Education 2010

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

STUDENT NUMBER

Figures

Words

Letter

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INFORMATION TECHNOLOGY: IT APPLICATIONS

Written examination

Tuesday 9 November 2010

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	11	11	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 19 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

Each team member playing an online game would need at least

- A. antivirus software, a computer, camera and scanner.
- B. an operating system, scanner, browser and an Internet connection.
- C. an Internet connection, computer, browser and operating system.
- D. an operating system, antivirus software, an Internet connection and camera.

Question 2

When restoring from backup the least complicated backup to restore from is

- A. full.
- B. partial.
- C. differential.
- D. incremental.

Question 3

The best equipment to detect unauthorised access to a password-protected file would be

- A. keyboard swipe.
- B. encryption software.
- C. closed circuit television.
- D. virus protection software.

Question 4

The best conventions for a financial report include

- A. titles, column headings, right-aligned text.
- B. titles, left-aligned text and bold for date.
- C. column headings, left-aligned numeric data and date.
- D. right-aligned numeric data, date and bold for totals.

Question 5

What transmission media gives the fastest speed in a network?

- A. wireless
- B. fibre optic
- C. microwave
- D. unshielded twisted pair (UTP)

The spreadsheet below relates to Questions 6, 7, 8 and 9.

A plant nursery keeps track of its tree sales and discounts using the spreadsheet shown below. Tree sale discount percentages are automatically returned from the Bulk Discount cells.

	A	B	C	D	E	F	G	H	I	J
1	Sale No.	TreeName	Unit Cost \$	Quantity	Total \$	Discount %	Discounted Total \$			
2	00001	Blue Gum	1.50	400	600.00	50	300.00		Bulk Discount	
3	00002	Lemon Scented Gum	2.00	50	100.00	10	90.00		Quantity	Discount %
4	00003	Paper Bark	2.50	10	25.00	0	25.00			
5	00004	Iron Bark	2.00	60	120.00	10	108.00		0	0
6	00005	River Red Gum	2.00	200	400.00	25	300.00		20	10
7	00006	Snow Gum	3.00	20	60.00	10	54.00		100	25
8	00007	Box Gum	2.50	30	75.00	10	67.50		300	50
9										
10										
11										
12										

Question 6

When the Quantity of Iron Bark trees shown in cell D5 changes to 300 the value in cell F5 changes automatically to

- A. 0
- B. 10
- C. 25
- D. 50

Question 7

The plant nursery needs to know the lowest unit cost per tree.

The most appropriate formula to calculate and cell to display this is

- A. =MIN(C1:C8) in cell C2
- B. =MIN(C2:C8) in cell C2
- C. =MIN(C2:C8) in cell C11
- D. =MIN(C2:C12) in cell C11

Question 8

The best formula to return the correct discount % rate in cell F2 which can also be filled down or replicated in cells F3 to F8 is

- A. =VLOOKUP(D2,I\$5:J\$8,1)
- B. =VLOOKUP(D2,\$I\$5:\$J\$8,2)
- C. =HLOOKUP(D2,\$I\$5:\$J\$8,2)
- D. =VLOOKUP(D2,\$I5:\$J8,2) *D2

Question 9

Data to test the formulas in the spreadsheet would be entered in cells

- A. D2:D8
- B. G2:G8
- C. I5:I8
- D. J5:J8

Question 10

The best software solution to protect a file from unauthorised access while being communicated over a wireless network is

- A. firewall.
- B. encryption.
- C. read only attribute.
- D. password on the file.

Question 11

Mark has decided to keep all his picture files in one folder on his computer.

Which list of file formats should be grouped in the picture folder?

- A. gif, pdf, doc, jpg
- B. bmp, xls, gif, tif
- C. jpg, bmp, gif, tif
- D. tif, gif, jpg, pdf

Question 12

The efficiency of the automated matching process of an online dating agency can best be evaluated by checking

- A. accuracy of information returned about clients.
- B. time required to match two clients.
- C. suitability of possible matches.
- D. how long the match lasted.

Question 13

The best procedure to prevent data loss when files are edited in an online application such as a wiki is

- A. autosave.
- B. a swipe card.
- C. biometric login.
- D. magnetic storage.

Question 14

A company expects its new website to increase its market share by 20% over the next six years.

This is an example of an organisational

- A. goal at a tactical level.
- B. goal at a strategic level.
- C. objective at a tactical level.
- D. objective at a strategic level.

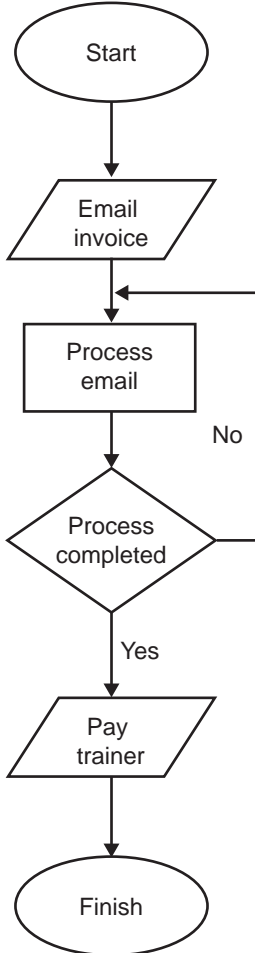
Question 15

IT trainers are paid by Wendy. They email their invoices for payment to Wendy and they are paid after Wendy has completed the administrative process.

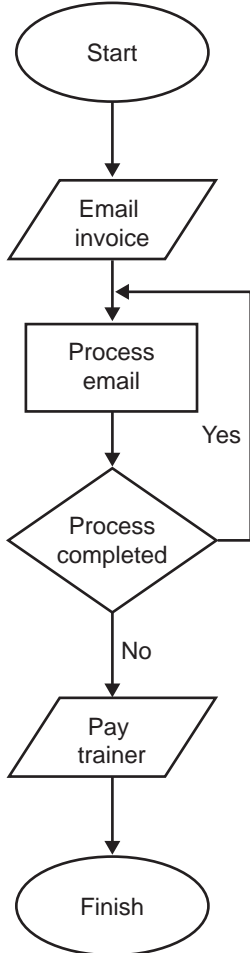
Wendy is taking leave and she needs to provide a flowchart of the process for her replacement.

Which flowchart best represents the process?

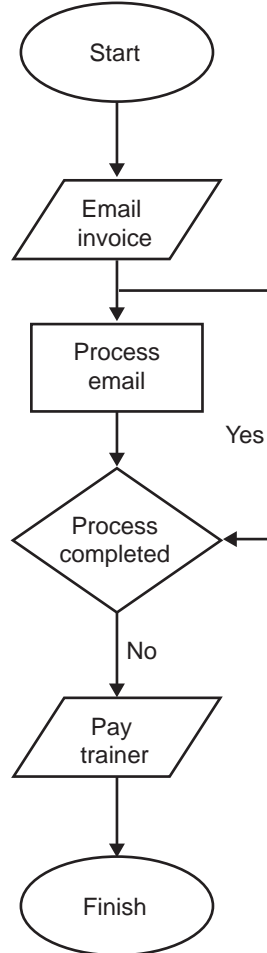
A.



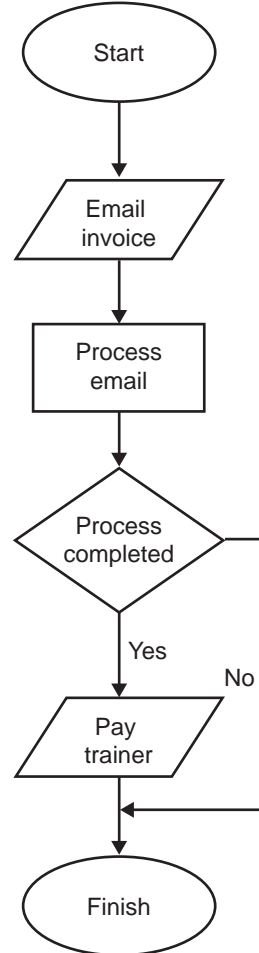
B.



C.

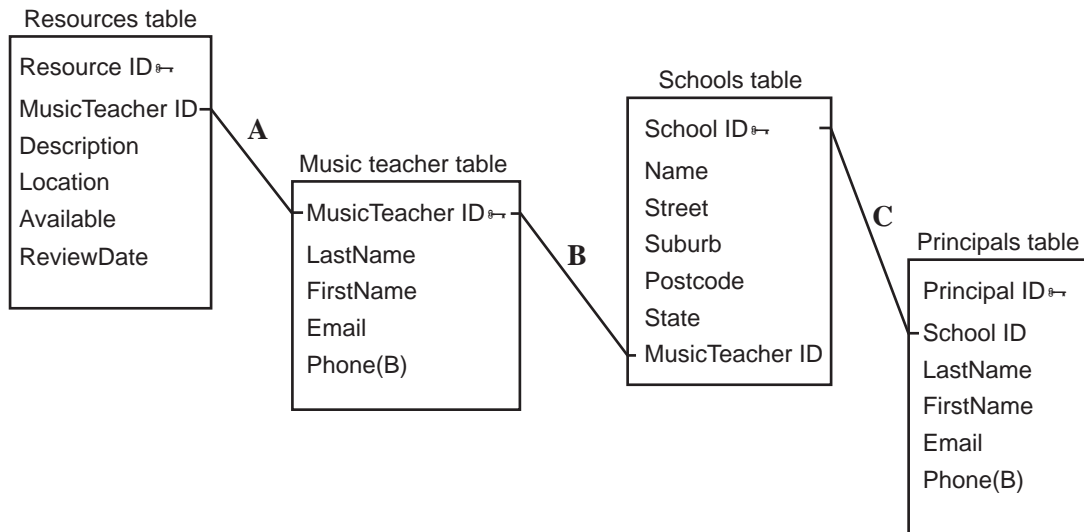


D.



The solution design below relates to Questions 16 and 17.

The solution design below shows the relationships between four tables in a relational database created for a group of music teachers who work in different schools.



Question 16

The relationships A, B and C all create links between

- A. primary keys in different tables.
- B. common fields in different tables.
- C. calculated fields in different tables.
- D. archived records in different tables.

Question 17

If each music teacher can be in more than one school then relationship B is

- A. one-to-one.
- B. one-to-many.
- C. many-to-one.
- D. many-to-many.

Question 18

When evaluating the effectiveness of a timeline in monitoring the development of a solution, you should consider

- A. time and effort needed to complete the Gantt chart.
- B. cost and effort needed to test the solution.
- C. clarity of the layout diagrams of the solution.
- D. accuracy of the estimated time needed to develop the solution.

Question 19

The best preventative strategy to minimise loss of data during electrical storms is

- A. updating printer software.
- B. replacing network cables.
- C. listening to weather reports.
- D. testing the Uninterrupted Power Supply (UPS).

Question 20

Security staff must pass every test in a training course with a score of 50% or more. The course has three tests: Safety, Rules and Crowd Control. Test scores are kept on the spreadsheet shown below.

	A	B	C	D	E	F	
1	Training Tests						
2	StaffID	Safety %	Rules %	Crowd Control %	Average %	P or N	
3	235ALK	40	50	60	50	N	
4	116DFE	80	30	70	60	N	
5	209BRT	50	50	40	47	N	
6	453YHT	50	50	50	50	P	
7							

Which formula entered in F3 and filled down or replicated in column F would most efficiently indicate a correct P (Pass) or N (Fail) result?

- A. =AVERAGE(B3:D3,"P","N")
- B. =AVERAGE(B3:E3,"P","N")
- C. =IF(B3>=50,IF(C3>=50,IF(D3>=50,"P","N"),"N"),"N")
- D. =IF(B3>=50,IF(C3>=50,IF(D3>=50,"P","N"),"P"),"P")

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

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

Question 1

For the directory path **HardDrive C:\Staff\Reports2009\Absences.doc**, describe the relationship between **Reports2009** and **Absences.doc**

1 mark

Question 2

David is the manager at Iceland Golf Club. He is creating a database of all members, their contact details and membership cost and is preparing a data structure table as part of his design.

Complete the three entries in the Data Type column of the data structure table below.

Field Name	Data Type	Description
Member ID	Text	First three letters of last name and a four digit integer
Last name	Text	Last name of member
First name	Text	First name of member
Home phone		(03) <u>9</u> <u>4</u> <u>1</u> <u>6</u> <u>8</u> <u>5</u> <u>1</u> <u>2</u>
Date of birth	Date	Date of birth of member
Membership cost		Membership cost Adult \$500, Junior \$150
Is membership paid?		Financial status of member Paid or Not Paid

3 marks

Question 3

The owner of a company with its head office in Melbourne and five other offices in country towns wants to upgrade the network operating system (NOS) and the application software used on the company's network.

- a. State one function of a network operating system in this company.

1 mark

At each office the technicians want both an instruction manual and online content sensitive help for the new software.

- b. Explain why the technicians would want staff to have both types of user documentation.

2 marks

- c. Explain how online content sensitive help works. Give an example to support your answer.

2 marks

The owner decides to compare the efficiency of the instruction manual and online content sensitive help.

- d. Recommend a strategy the owner could use to test the two options.

3 marks

Question 4

City Secondary College’s school concert is being held on Thursday, Friday and Saturday nights at the school hall which holds 300 people. Families can book up to eight tickets for any **one** night at a time. All tickets cost \$10. A section of the online booking form design is shown below.

Booking Details

<i>Night</i>	
<i>No. of Tickets</i>	
<i>Total Cost \$</i>	

Order

Booking for one night must be completed before booking for another.

- a. Recommend an electronic technique for the **Night** field to enhance the likelihood of inputting accurate data. Justify your choice.

2 marks

- b. State two types of tests for checking the online booking form.

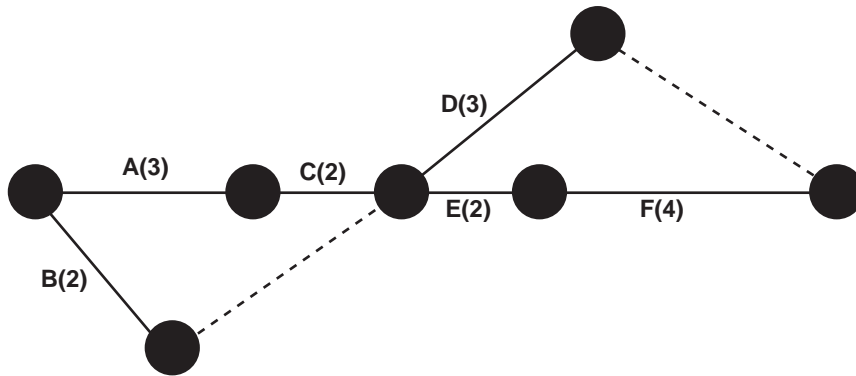
2 marks

- c. If the **No. of Tickets** field is set as a Text data type, explain how this error could cause a problem when the first booking is entered. Give an example to support your answer.

2 marks

Question 5

A section of a PERT chart used to monitor a project is shown below.



- a. List the tasks on the critical path.

Tasks _____

1 mark

- b. Use the PERT chart shown above to complete the Gantt chart below.

Note: work takes place seven days a week.

Task	Duration (Days)	Predecessor	WEEK 1							WEEK 2						
			M	T	W	Th	F	Sat	Sun	M	T	W	Th	F	Sat	Sun

4 marks

Question 6

Small Creek Fisheries raises fish in ponds. A database manages the information for the feeding of fish and the ordering of fish food. Part of the database is shown in the table below.

Pond ID	Fish type	Number in pond	Food	Food supplier	Feeds per week	Food per fish per feed (kg)	Weekly food per pond (kg)
1	Trout	1 000	Fish pellets	ACME	7	1	7 000
2	Murray cod	500	Young fish	TOP	1	2	1 000
3	Carp	500	Vegetable pellets	BEST	5	2	5 000
4	Salmon	2 000	Fish pellets	ACME	7	1	14 000
5	Barramundi	500	Young fish	TOP	7	2	7 000
6	Yellowbelly	3 000	Fish pellets	ACME	3	1	9 000
7	Redfin	4 000	Fish pellets	ACME	4	1	16 000

a. If the following query was designed

Food supplier = “TOP” OR Feeds per week = 7

list the records that would be selected.

1 mark

b. Explain how you could modify the database to keep track of food costs.


3 marks

Question 7

A team of young chefs works with students to develop healthy cooking habits as part of the Remote Education Program. The chefs complete progress reports about student skills after each visit to a school. This data is collected and forwarded on to program officials. The young chefs have a Virtual Private Network (VPN) which is accessed through the Remote Education Program website.

Remote Education Program

Home
Case Studies
Publications
Team Portal
Contact



The Remote Education Program assists remote schools in improving educational outcomes for their students through focusing on their physical and social wellbeing.

This website provides material to support teachers, parents and students of remote schools.

There are case studies and publications to assist schools.

- a. Identify one feature on the website that the young chefs could use to collaborate on important issues. Describe how it would be used.

Feature _____

Description _____

2 marks

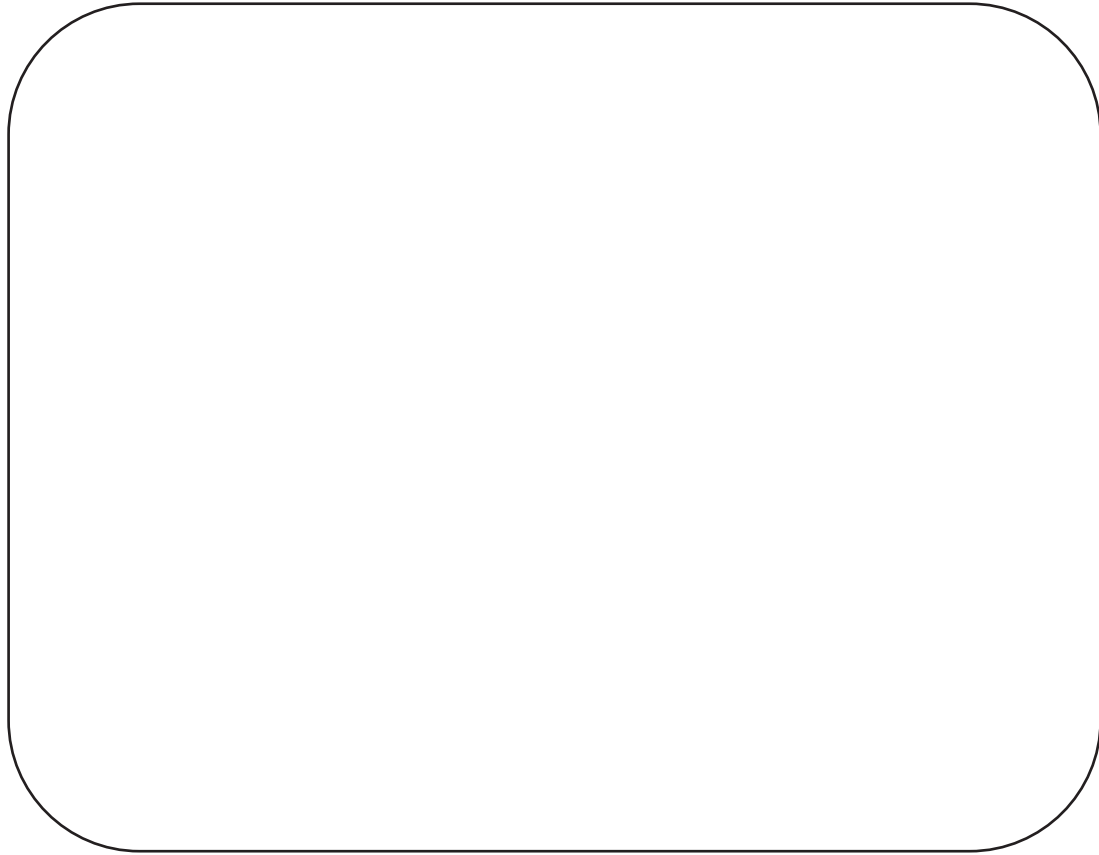
- b. State one design element and explain how it has been applied to improve the effectiveness of the website.

Design element _____

Explanation _____

2 marks

- c. Design a screen that should appear when the Team Portal link is clicked.



2 marks

- d. Explain **one** disadvantage for team members using the VPN to communicate.

2 marks

The team members want to collaborate on the development of a team report.

- e. State two rules the team members should follow when developing their report if no moderator is appointed.

2 marks

Some members believe the VPN should have a moderator to check that the rules agreed to by members are followed.

- f. Do you agree? Give an example to support your answer.

2 marks

Question 8

BandicootPhones sells applications (apps) for a small mobile computer which includes a mobile phone that provides voice, text messages and the Internet.

BandicootPhones keeps details of the staff, the phones and personal information about customers. The apps are sold online and a database is used by BandicootPhones to organise the online sales.

- a. Would you expect BandicootPhones to use a flat file database or a relational database?

Give an example to justify your answer.

2 marks

BandicootPhones' sales have increased quickly and it is updating its backup strategy. It has to decide whether to have

- removable hard drives or online backup (**media**)
 - incremental or full backup (**schedule**)
 - close or remote location of backup files (**location**).
- b. Recommend and justify an appropriate media, schedule and location for its backup strategy.

6 marks

Question 9

A company sells fashion items online to customers who sign up and login to its website with a **FashionUserID**. As part of the sign-up process customers complete an online form that includes their email address, mailing address, favourite colours and annual salary.

Cheryl manages the database of customer details and the web pages where the images and prices of fashion items are displayed.

Cheryl’s boss has asked her to create a second set of web pages so that customers who earn more than \$50 000 a year see web pages with prices 20% higher than normal.

- a. Describe how Cheryl can use the database to decide what web page should be shown to each customer.

2 marks

- b. What question would you ask Cheryl about the ethics of creating a second set of web pages for customers who earn more than \$50 000 per year?

1 mark

- c. What question would you ask Cheryl’s boss about the ethics of asking Cheryl to create the second set of web pages?

2 marks

- d. Recommend a strategy IT staff could follow when they are not sure if their work is ethical.

2 marks

Question 10

SmallMart is evaluating the security of its information system.

Jack has to test the hard disk that stores backup data and the procedure to shut down hardware.

- a. Describe a procedure Jack could use to test that the hard disk effectively completes a weekly full backup.

2 marks

- b. Describe how Jack could test the procedure to shut down hardware without risking the transaction data. Give an example to support your answer.

2 marks

In the previous year there were 25 illegal logins to the company's information system. A new procedure, where the 300 staff have to change their passwords every three months, has been introduced.

- c. Recommend a criterion Jack could use to evaluate the effectiveness of this procedure for the security of the company's data. Justify your recommendation.

Criterion _____

Justification _____

2 marks

The company owner asks Jack if regularly updating the firewall software is worth the cost.

- d. Suggest an answer Jack could give to the owner. Justify your suggestion.

Suggestion _____

Justification _____

2 marks

Question 11

Frank uses a small spreadsheet to record findings for his school science project. He is recording the heights of six different bean plants.

On school days Frank records the height of each bean plant. The project will last for eight weeks.

	A	B	C	D	E	F	G	H
1	Frank's Bean Project							
2	Week Starts	13-Sep10						
3								
4								
5	Bean Plants	Last Friday's Height (mm)	Mon Height (mm)	Tues Height (mm)	Wed Height (mm)	Thur Height (mm)	Fri Height (mm)	Week's Growth (mm)
6	A	5	11	13	16	18	20	15
7	B	4	10	14	18	22	24	20
8	C	5	12	15	21	24	25	20
9	D	6	12	13	16	20	23	17
10	E	7	13	16	17	20	23	16
11	F	8	13	17	19	22	24	16
12								
13								
14								
15								
⏪ ⏩ ⏴ ⏵ \ 6Sep10 \ 13Sep10 \ 20Sep10 /								

- a. Write a formula to accurately return the **Week's Growth** to cell H6.

_____ 1 mark

- b. List the cells which Frank should **not** protect. Justify your choices.

Cells _____

Justification _____

2 marks

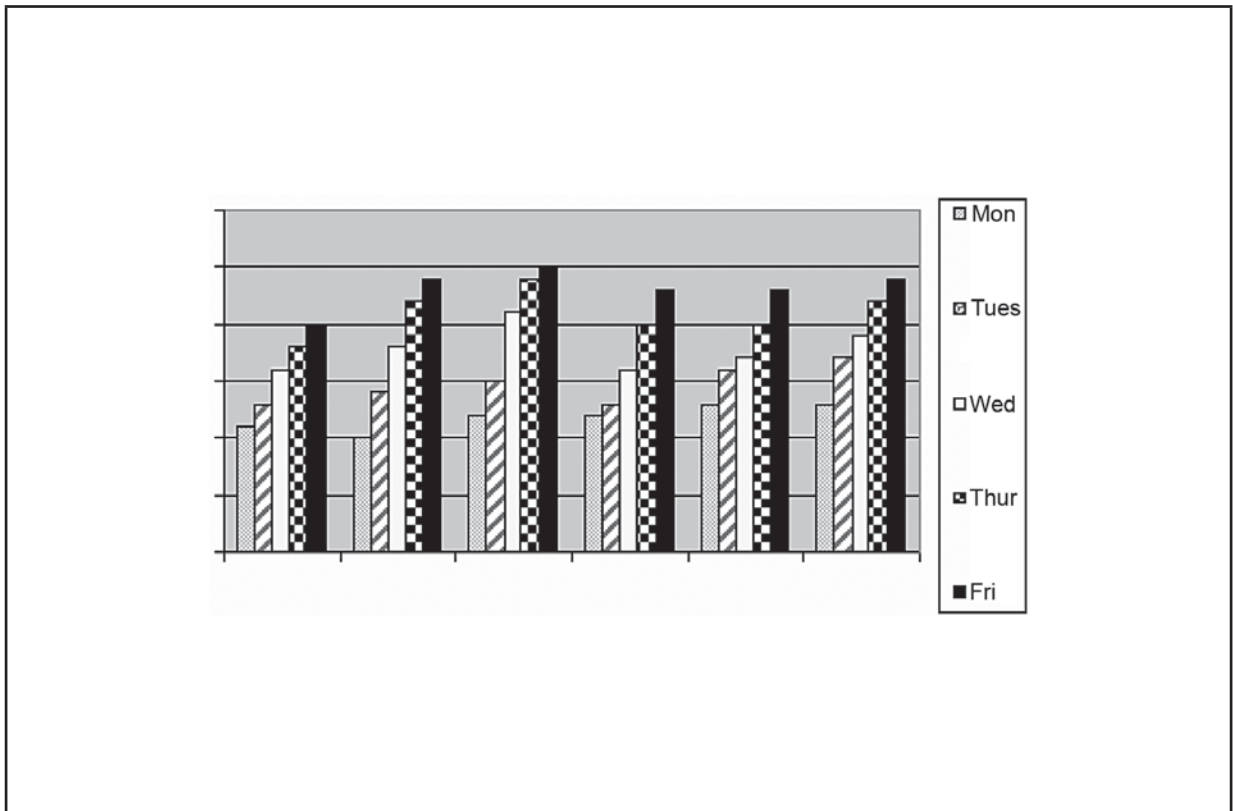
- c. Identify a convention Frank has used in his spreadsheet. Explain how using this convention helps to communicate the information to other users.

Convention _____

Explanation _____

1 + 1 = 2 marks

- d. Frank has presented his findings from the spreadsheet for the week **13Sep10** in the graph shown. Add three features to complete the graph and enhance its effectiveness.



3 marks

