**Victorian Certificate of Education
2013**

SUPERVISOR TO ATTACH PROCESSING LABEL HERE

STUDENT NUMBER

Letter

Figures

Words

INFORMATION TECHNOLOGY: IT APPLICATIONS

Written examination

Monday 4 November 2013

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

Section	Number of questions	Number of questions to be answered	Number of marks
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 20 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

Question 1

When Old Time Gardeners decides to re-landscape a suburban parkland, it sets up a website so that local residents can view each stage of the construction.

This type of online community is best described as

A. social.

B. collaboration.

C. project-based.

D. knowledge-sharing.

Question 2

Evaluating a solution involves

A. determining the evaluation criteria.

B. testing whether the solution does what it was intended to do.

C. reporting on the extent to which the solution meets the requirements of the user.

D. determining what information the solution has to provide and what data is needed to produce it.

Question 3

A local library wants to update its website so that new users can easily access the online catalogue.

The most suitable form of user documentation would be a

A. quick start guide.

B. table of contents.

C. technical manual.

D. Help Desk email contact.

Question 4

A physical device that can help prevent unauthorised access to data and information on a network is

A. a PIN.

B. a swipe card.

C. a thumb print.

D. an encryption key.

Question 5

A solution developer wants to test the efficiency of using the date convention of mm/dd/yyyy for an online sales form to be used in a global market. He tracks the results of 100 users who were required to enter the current date using this convention.

The best measure to indicate the efficiency of using this convention is

A. how quickly each user enters the date.

B. the percentage of users who enter complete dates.

C. the number of users who accurately enter the current date.

D. the number of error messages received by users to indicate incorrect date order.

Question 6

Sunny Tennis Club is updating its website to attract new members. It is making decisions about what information will be available for the general public (open) and what will be for members only (closed).

Which diagram represents the best decision for the club?

A.

Open	Closed
home page	login & password
	members' financial data
	personal data

B.

Open	Closed
home page	members' financial data
login & password	personal data

C.

Open	Closed
home page	login & password
members' financial data	personal data

D.

Open	Closed
home page	login & password
personal data	members' financial data

Question 7

Which one of the following would be a non-technical constraint on the design of a school's new website?

A. It must run on the existing classroom laptops.

B. New and existing file formats must be compatible.

C. Students' examination results and attendance reports must be kept private.

D. The size of video files used by teachers for online class presentations must be limited.

Question 8

The appearance of a website can be enhanced by having

A. consistent font types.

B. important information underlined.

C. navigation buttons of different sizes.

D. minimum contrast between font and background colours.

Use the following information to answer Questions 9–11.

The design for an online form to collect financial data from customers is shown below.

Company logo	Company name		
Last name: [ ]		Mobile phone: [ ]
First name: [ ]		Home phone: [ ]
Delivery street address: [ ]		
Delivery suburb: [ ]		
State/Province: [ ]		
Country: [ ]		
Postcode: [ ]		
Credit card number: [ ]		Purchase limit: [ ]
Expiry date: [ ]		
☐ I have read and accept the conditions of purchase.		

Question 9

What is the best data type for the box labelled 'I have read and accept the conditions of purchase'?

A.   text

B.   image

C.   number

D.   Boolean

Question 10

A security protocol to protect the privacy of individuals entering their data on this form would be

A.   stating a shipping and returns policy.

B.   encrypting all data before it is communicated.

C.   banning users who exceed their purchase limit.

**D.**   accepting orders only from customers who tick the acceptance box.

Question 11

Which one of the following is the best validation technique for the Country field?

A.   a range check

B.   an input mask

C.   a required field

D.   a dropdown box

Use the following information to answer Questions 12 and 13.

The local cinema holds a monthly mini-festival, where the owner chooses a famous director and screens a selection of their movies. To assist with matching directors and movies, the owner has decided to create a relational database management system (RDBMS) based on the following tables.
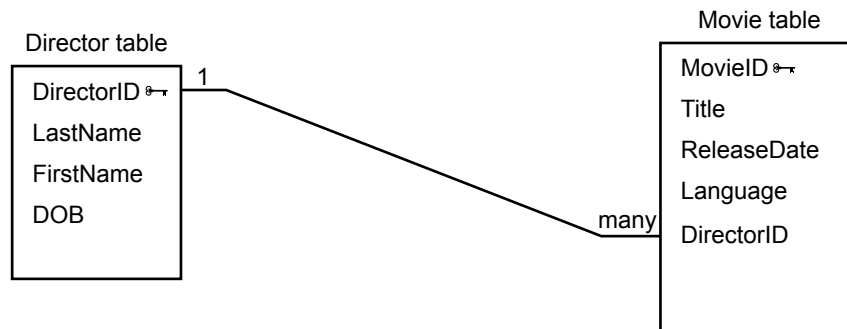
Question 12

The primary key in the Movie table ensures that

A.   a movie has a unique identity.

B.   a director has a unique identity.

C.   two directors cannot have the same LastName.

D.   a director cannot be credited with the wrong movie.

Question 13

The relationship the owner has created between the primary key in the Director table and the foreign key in the Movie table is needed if fans using the website want to

A.   sort the movies in order of release date.

B.   search for all directors born in the 20th century.

C.   sort the directors' last names in alphabetical order.

D.   search for movies in a particular language by a director.

Question 14

Analysing the needs of an online community involves

A.   determining what results are expected from test data.

B.   monitoring users' complaints about the existing system.

C.   observing the results of sample data used to test the new system.

D.   interviewing community members to determine evaluation criteria.

Question 15

New employees use photocopy USER IDENTITIES from 999 to 1999.

Test data to display an 'INVALID USER IDENTITY' message would be

A.   998 and 2000

B.   1000 and 1998

C.   999 and 1999

D.   999 and 1998

Question 16

The primary purpose of a proxy server is to

A.   keep an organisation's network secure.

B.   forward data between computer networks.

C.   connect multiple devices together to act as a single network.

D.   accept requests from clients seeking resources from other servers.

Question 17

A business with more than 100 employees tests its disaster recovery strategy by simulating a fire and power failure.

A criterion to evaluate the effectiveness of the strategy to protect the integrity of customer data would be to ask

A.   can the back-up copies of customer data be quickly accessed?

B.   is the customer data restored within 30 minutes of power returning?

C.   are all back-up copies of customer records up-to-date and complete?

D.   are all appropriate software companies contacted within 60 minutes?
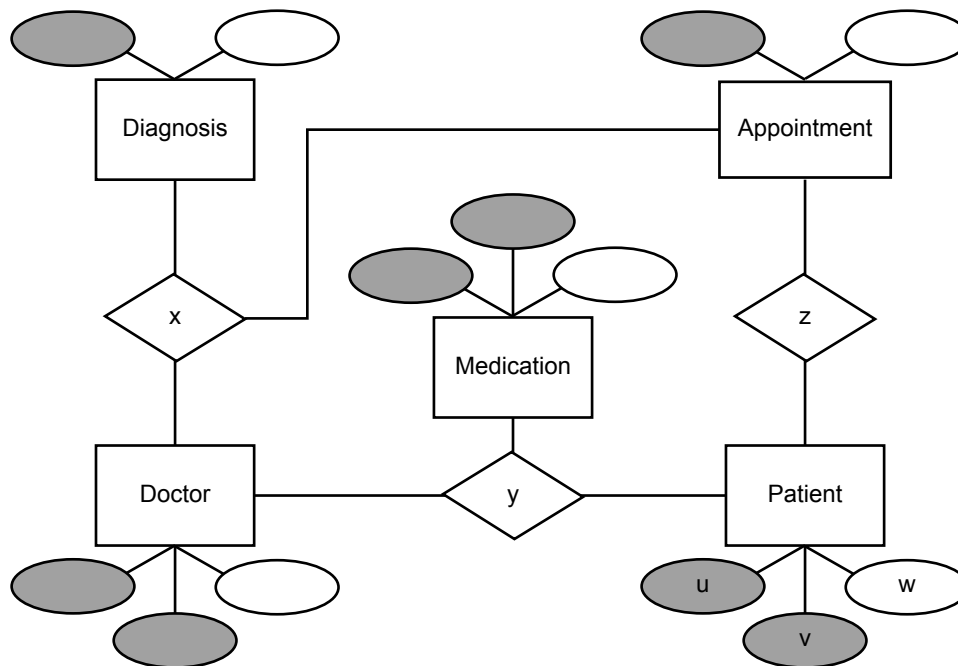

Question 18

When a medical clinic in country Victoria implements its new information system, the managers select and delete all the patient files from the hard disks before donating the old computers to the local primary school.

In doing this, the managers have

A.   done all that is required under the *Health Records Act 2001*.

B.   prevented a threat to confidential data by unauthorised users.

C.   not met their legal obligations under the *Health Records Act 2001*.

D.   followed the correct procedure for the disposal of data under the *Information Privacy Act 2000*.

Use the following information to answer Questions 19 and 20.

A designer setting up an RDBMS for a medical clinic prepares the following entity-relationship (ER) diagram to represent the relationships between a Patient, Doctor, Diagnosis, Medication and Appointment.

Question 19

In which position would PatientID be best represented?

A. u

B. v

C. w

D. z

Question 20

What does position 'y' represent?

A. MedicationID

B. doctor gives patient medication

C. doctor diagnoses patient's condition

D. name of medication given to patient

END OF SECTION A
TURN OVER

SECTION B

Instructions for Section B

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

Question 1 (3 marks)

a. State **one** purpose of the *Spam Act 2003*. 1 mark

_____

_____

b. Give **one** example of an online social protocol. Explain its purpose. 2 marks

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Question 2 (4 marks)

A wedding photographer wants to place the images from each couple's wedding on his website so that the couples can select the images they want for their albums. The photographer wants to ensure that the images cannot be viewed or stolen by unauthorised users, or accidentally deleted by his staff.

In the table below, recommend equipment or a procedure that could be used to address each problem listed. Provide a reason for each recommendation.

Problem	Equipment or procedure	Reason
images stolen by unauthorised users		
images accidentally deleted by authorised users		

Question 3 (5 marks)

The owner of a business that sells flower seeds to plant nurseries has decided to create a website with an online order form, believing it will improve her business.

a.   Explain **two** ways in which the decision could increase sales.   4 marks

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b.   Identify **one** benefit of direct data entry by customers.   1 mark

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_____

Question 4 (2 marks)

A large game development company is creating a multi-player online game to meet the needs of online gamers. The company wants its website to have a members-only section to support its collective identity.

Select two functionality factors from those listed below.

accessibility   navigation   structure   usability

Explain how each would suit the needs of online gamers.

factor 1 _____

explanation _____

_____

factor 2 _____

explanation _____

_____

Question 5 (5 marks)

A travel firm has upgraded to a new, networked, online sales system in each of its three offices. It is considering what type of user documentation is most appropriate. Some staff want an online tutorial, but the manager believes content-sensitive help is the best option.

a. Describe how an online tutorial and content-sensitive help would each assist a staff member with using the new system. 2 marks

- online tutorial _____

_____

_____

_____

- content-sensitive help _____

_____

_____

_____

b. Justify your preferred user documentation on the basis of efficiency. 3 marks

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_____

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_____

Question 6 (5 marks)

The receipt shown below is provided by BestFood supermarket as a transaction record.

```
                    BestFood
                   Always Fresh
              Ballarat West Ph 5346 6735
           Customer Service Manager is Boz
                 ABN 99977788822
                                    $

    Whole hot chicken              12.99
    Berry jam                       4.25
    Dutch carrots                   3.55

    3 SUBTOTAL                    $20.79
    _____
         BESTFOOD INDUSTRIES
         BALLARAT WEST      VIC
         MERCHANT ID: 44433255
         TERMINAL ID:    776633
         PURCHASE         $20.79
    _____
         Tax                  1.18
         Total includes tax
         15/06/13   15:35
    _____
             Receipt rewards
               53 points

      Points must be used within 6 months.
     For store locations and rewards conditions,
             visit www.bestfood.com.au
```

A number of formats have been used to enhance the effectiveness of this receipt.

a. Identify **one** format and explain how it has been used to enhance the receipt's effectiveness.   2 marks

_____

_____

_____

b. State **three** steps the developer could follow to test that the receipt provides accurate information.   3 marks

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_____

Question 7 (6 marks)

Harry manages a business that hires out fishing boats. The business has eight boats. Harry keeps records of the number of hours that each boat is hired. Each boat has a captain who is paid an hourly rate of $20 for a four-person boat and $30 for a six-person boat. A sample of the records and the data table that Harry keeps is shown below.

Boat and Captain data table

BoatName	Boat Location	Captain Name	Captain MobilePhone	Boat Rate	Boat Hours	Captain Pay
Fortitude	Portsea	Pat Schmid	0411 123 789	30.00	3	90.00
Modesty	Sorrento	Tobi Ozman	0429 567 123	30.00	4	120.00
Prudence	Rye	Alice Tan	0431 123 456	20.00	4	80.00

Harry has normalised the data so that each field cannot be divided any further. This is shown below.

Boat and Captain data table revised

BoatName	Boat Location	Captain LastName	Captain FirstName	Captain MobilePhone	Boat Rate	Boat Hours	Captain Pay
Fortitude	Portsea	Schmid	Pat	0411 123 789	30.00	3	90.00
Modesty	Sorrento	Ozman	Tobi	0429 567 123	30.00	4	120.00
Prudence	Rye	Tan	Alice	0431 123 456	20.00	4	80.00

a. Normalise this data into two tables so that each non-key field is fully dependent on a key field (2NF). 4 marks

b. Explain why this process would be important to Harry's boat-hire business. 2 marks

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_____

Question 8 (6 marks)

Nancy is the administrator at Melbourne City Secondary College, a government school. She has been asked to sell archived students' details to a marketing company. If Nancy does sell these details, she intends to use the money to buy sports equipment for the school.

a. Identify key legislation that must be considered before Nancy decides whether or not to pass on the students' details. 1 mark

_____

_____

b. Explain Nancy's ethical responsibilities to the students and Melbourne City Secondary College. 2 marks

_____

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c. Recommend a strategy to help Nancy resolve the ethical dilemma. 3 marks

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Question 9 (8 marks)

Pine Industries, a timber company, is considering two different designs for its new website. The home page must contain the title, a logo, links to five major sections, a copyright statement and options for a range of other languages. Pine Industries hopes to raise community awareness of its environmental projects. The two designs have been prepared and are shown below.

design 1
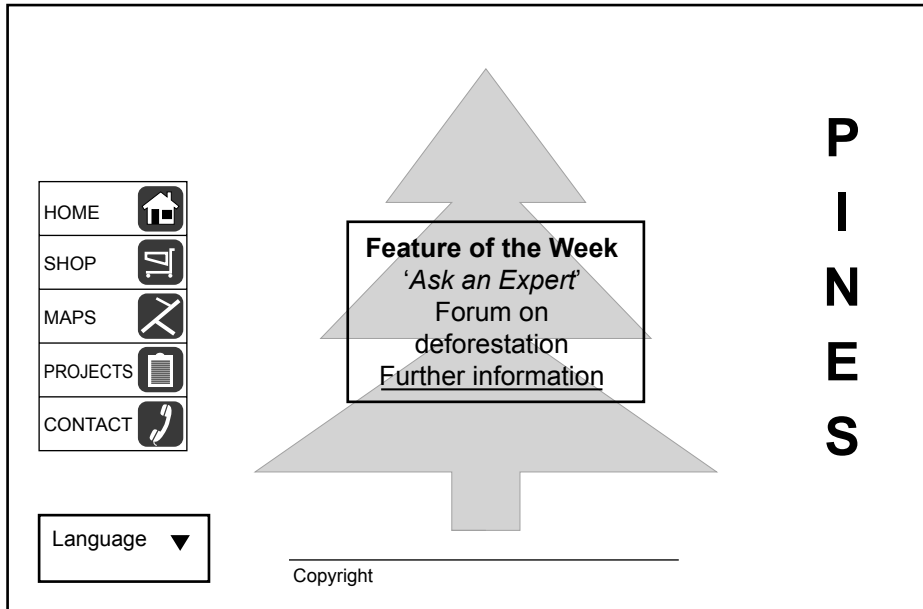
design 2
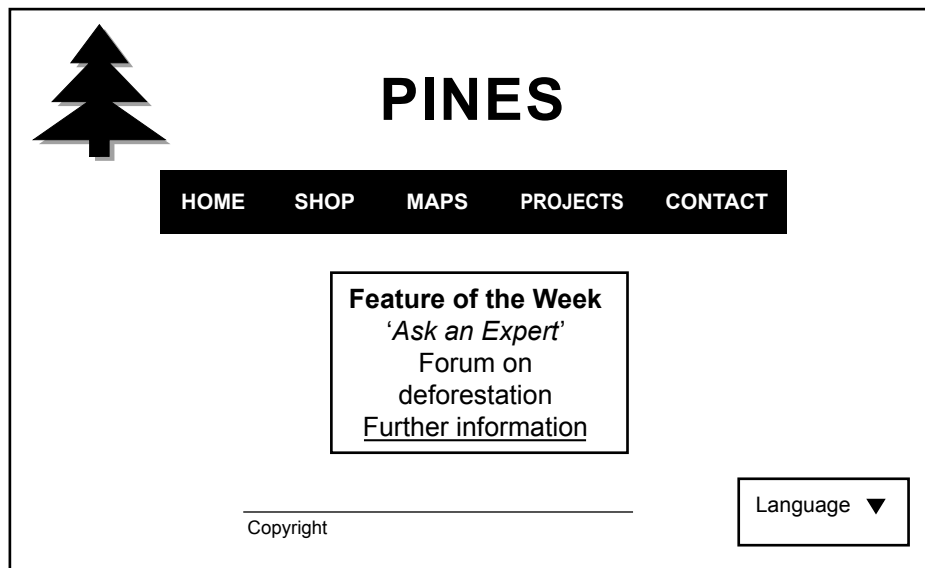
a. Select one design element related to appearance from those listed below.

consistency   orientation   contrast

Explain how this design element has been used in each design to enhance the appearance of
the Pine Industries website.   4 marks

selected design element _____

use in design 1

_____

_____

_____

_____

use in design 2

_____

_____

_____

_____

b. Recommend and justify your preferred home page design based only on functionality. Your
response must make reference to **two** design elements that are related to functionality.   4 marks

_____

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_____

_____

_____

_____

_____

_____

Question 10 (10 marks)

Fruit First wants to take orders online and manage its sales effectively. Examples of Worksheet and Data table designs that the manager can use are shown below.

Worksheet

	A	B	C	D
1	**FruitName**	**QuantitySoldPerKg**	**PricePerKg**	**Total**
2	*Apple*			
3	*Cherry*			
4	*Peach*			
5	*Raspberry*			

Data table

FruitName	**QuantitySoldPerKg**	**PricePerKg**	**Total**
Apple			
Cherry			
Peach			
Raspberry			

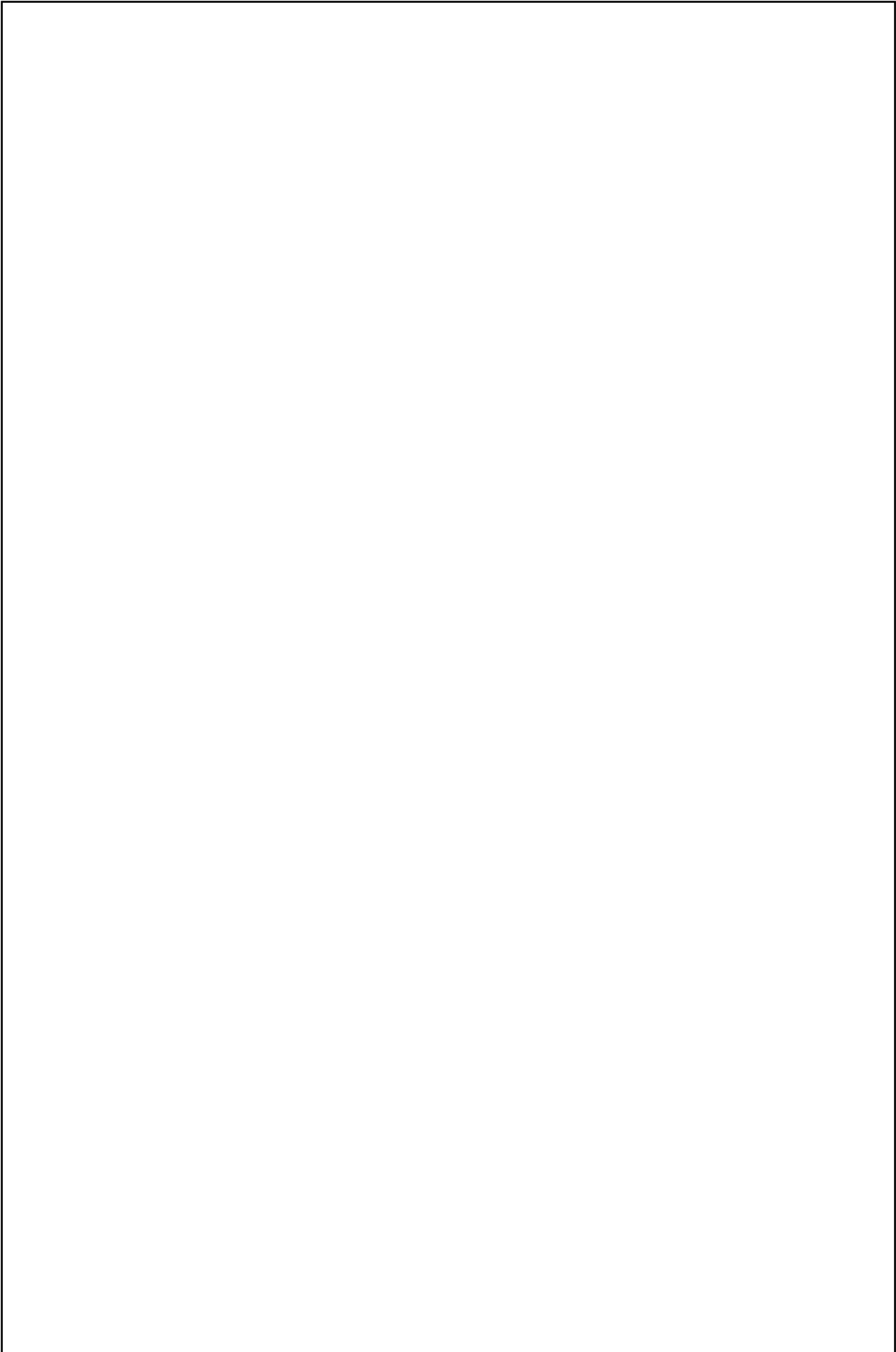Indicate with a tick (✓) one software type that your answers will refer to.

spreadsheet (SS) ☐   relational database management system (RDBMS) ☐

a. Explain how the manager could
   - report on sales trends for each fruit
   - identify the fruits that have had more than 500 kg in sales
   - test that the solution operates as intended.   6 marks

b. Using the software that you selected in **part a.**, answer the following questions.

    i. Describe how the manager can identify and display on a web page the cheapest fruit available.   2 marks
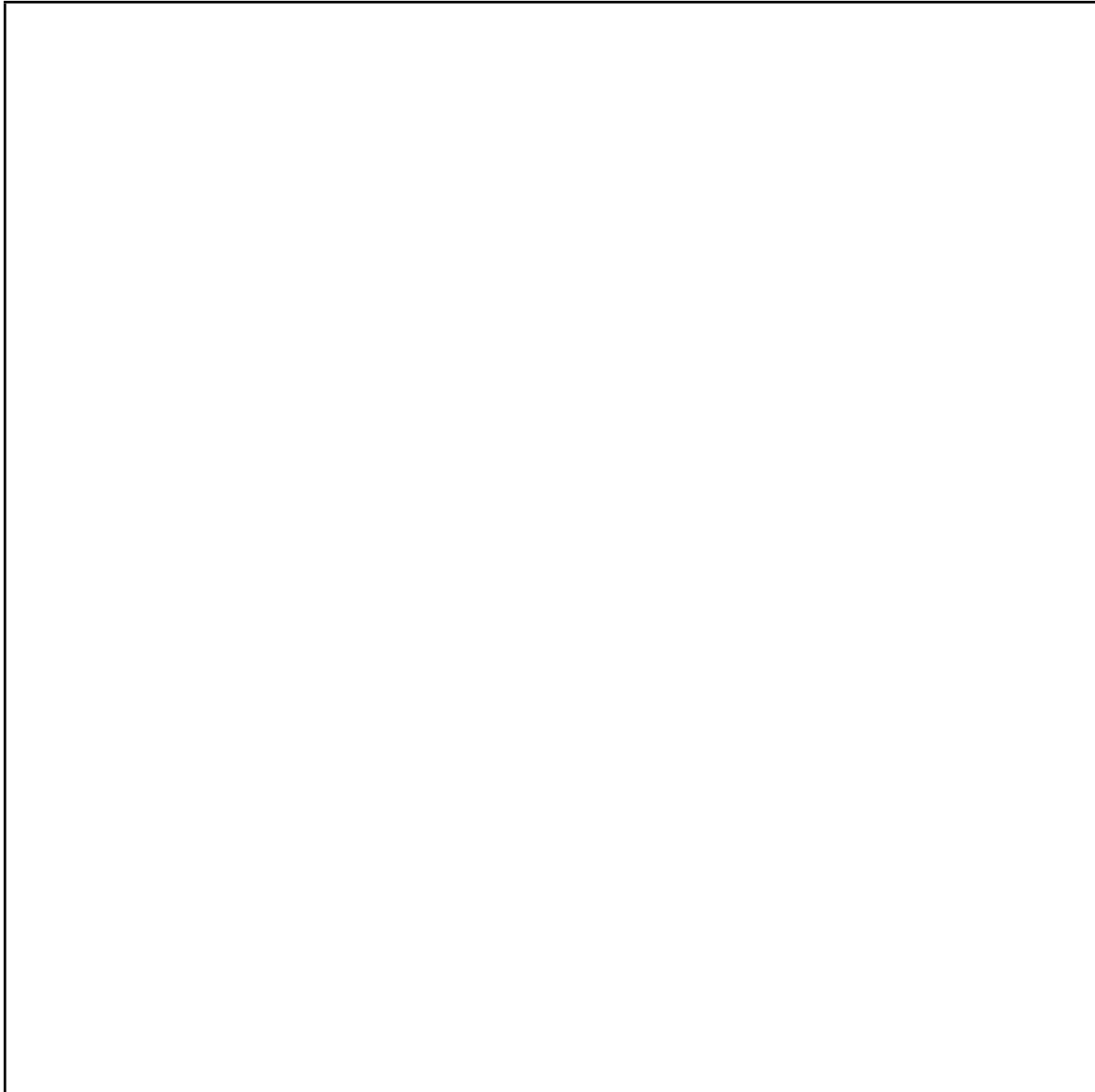
_____

_____

_____

_____

_____

    ii. Recommend a format or convention that the manager could apply when displaying the cheapest fruit to the user.   2 marks

_____

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_____

_____

_____

Question 11 (9 marks)

Healthy Cooking is an online community where users can share information about cooking for a healthy lifestyle.

a. Design a screen mock-up for a new forum page that meets Healthy Cooking's need to

- provide an identity for the site
- offer recipe books for sale under food categories and allow users to proceed to a secure check-out
- allow users to communicate safely. 6 marks

b. Annotate your design with explanations to show how it has met these three user needs. 3 marks

Question 12 (7 marks)

Kelly is a writer who keeps a data table of the images that she uses in each of the 12 chapters of her new book. The table has the following field names.

FileName, Chapter, FileFormat, Description, FileSize

When she sorts the Chapter field of her data table, she gets the following result.

Chapter1
Chapter10
Chapter11
Chapter12
Chapter2
Chapter3
Chapter4
Chapter5
Chapter6
Chapter7
Chapter8
Chapter9

a. Explain why this happens. 2 marks

b. Recommend a procedure that Kelly could follow to ensure chapters are displayed in the correct numerical order. Explain how she could test the procedure. 3 marks

c. Kelly wants to list all of the GIF-formatted images (.gif) that are less than 50 KB.
Explain how she could efficiently create this list. 2 marks

END OF QUESTION AND ANSWER BOOK