Name: _____

Class: _____

PRACTICE EXAM WITH SOLUTIONS

UNIT 2 COMPUTING

Reading time: 10 minutes
Writing time: 80 minutes

QUESTION AND ANSWER BOOKLET

Section	Number of questions	Number of questions to answer	Marks available
A	15	15	15
B	13	13	45
Total			60

This practice examination relates to Chapters 6–8 of the *Computing VCE Units 1 & 2* (Lawson et al, 2016, 6th edition, Cengage Learning Australia) textbook.

Section A

QUESTION 1
Documentation is written in the:

C development stage.

QUESTION 2
Which of the following statements is most true of primary data?

A Primary data can be difficult and expensive to collect.

QUESTION 3
Data with integrity:

D is trustworthy.

QUESTION 4
A database consists of:

B tables that contain records, and the records are made up of fields.

QUESTION 5
What is a database query?

A A way of requesting specific data

QUESTION 6
An unauthorised individual makes changes to some of the data in a database after its creation. In what way is this potentially damaging to the database?

A Authenticity

QUESTION 7
An example of a non-technical (social, legal and useability) constraint is:

D the need to obey certain laws.

QUESTION 8
You are developing an application to burn Blu-ray discs. A requirement of the application that you would consider 'out of scope' would be:

C it has an entertaining interface.

QUESTION 9
What is a 'convention'?

B An accepted method of doing something

QUESTION 10
Which is the most appropriate choice to evaluate the **effectiveness** of a system?

D Interviewing the system's users to ask them whether they think it is easy to use

QUESTION 11
Why are data visualisations valuable tools?

B They make masses of numeric data more meaningful.

QUESTION 12
A programmer uses a compiler to:

C convert source code into executable code.

QUESTION 13
Primary storage includes:

B random access memory (RAM).

QUESTION 14
One characteristic of 'floating point' data type is that it:

D stores numbers with decimal places.

QUESTION 15
An example of a functional requirement is:

D that the system should be able to generate graphs of data.

Section B

QUESTION 1

Identify and explain one advantage of using a custom-designed program, rather than one you can buy off-the-shelf commercially.

Answer: It can completely satisfy a user's needs (1 mark) because it has been tailor-made to target that user's specifications (1 mark).

QUESTION 2

Refer to the following code to answer the question. Note: 'sts' is an abbreviation of 'status'.

```
321
322 function getState(  stsDOC, stsDSC, stsDJS, stsDBS, stsDWS )
345
346 function getStateReason( stsDWS, stsDOC, stsDSC )
347 {
348         var stateReason = '';
349
350         if( typeof stsDWS !== 'string' || stsDWS === '' ||
351             typeof stsDOC !== 'string' || stsDOC === '' ||
352         typeof stsDSC !== 'string' || stsDSC === ''
353         ) {
354                 return '';
355         }
356
357         if (stsDSC !== 'NO' || stsDOC !== 'NO') {
358             stateReason = 'AttentionRequired';
359         } else if (stsDSC === 'NO' && stsDOC === 'NO' && stsDWS === '1900') {
360             stateReason = 'Paused';
361         } else if (stsDSC === 'NO' && stsDOC === 'NO' && stsDWS === 'NO') {
362             stateReason = 'None';
363         } else {
364             stateReason = '';
365         }
366
367         return stateReason;
368 }
369
```

a Using examples from the code, demonstrate how two different naming conventions have been used.

Answer: `getStateReason` shows the use of CamelCase (1 mark). `stateReason` shows Hungarian notation (HN); 'state' indicates the nature of the stored value (1 mark). Alternatively, 'sts*' uses HN to indicate a status variable (1 mark).

b What feature of a function distinguishes it from other procedures in a program?

Answer: A function returns a value to the code that called it.

c Using examples from the code, explain the importance of code indentation.

Answer: Indentation makes it clear which code is controlled by control structures, such as loops and IF tests (1 mark). For example, line 358 is controlled by the IF line in line 357, so it is indented (1 mark).

QUESTION 3

From object-oriented programming, define and list an example of each of the following:

a a property.

Answer: The attributes of an object; for example, width, colour, size, name or visibility.
Example: `listbox1.width=200`

b a method.

Answer: The actions an object can carry out; for example, `move`, `refresh`, `setfocus` and `hide`.
Example: `mainwindow.refresh`

c an event.

Answer: An action that an object can detect and respond to; for example, a mouse click, key press or a timer going off. Each event usually has its own procedure saying what will happen when the event occurs. Example: `txtFamilyName.keypress` responds to a user's typing into the `FamilyName` textbox object.

QUESTION 4

a What is the relationship between a bit and a byte?

Answer: A byte is made up of 8 binary bits (1 or 0).

b Sandeep wants to send a 1 gigabyte (1GB) file to her friend Xing. Her ADSL connection has a maximum upload speed of 1 Megabit per second (1 Mbps) and a download speed of 10 Mbps. In seconds, approximately how long will it take for Xing to receive her file?

Answer: 8000 or 9192 seconds, depending on whether you interpret 1 GB as either 1000 or 1024 MB.

QUESTION 5

Nigel creates the following pseudocode.

```
BEGIN
  Create an integer array called intNum with 12 slots numbered 1 to 12.
  Display "Starting"
  N ← 5
  FOR i ← 1 to 6
    intNum(i) = i * i
  NEXT i
  Display intNum(N)
END
```

Identify the output of the code.

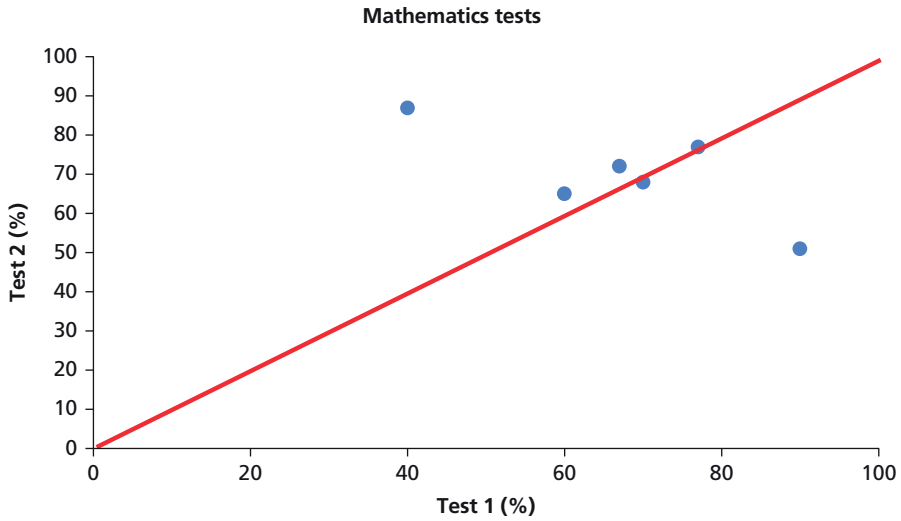
Answer:

Starting

25

QUESTION 6

Refer to the following data visualisation to answer the question. Each dot represents the performance of a student in two tests.



What is one conclusion could you draw from this visualisation about the students or the tests?

Answer: Usually the students perform similarly on both tests, with two outliers (1 mark). A minority of the students perform better on one test than the other (1 mark).

QUESTION 7

You need to find out the opinion of students at your school about the curriculum.

a Would you be more likely to use primary or secondary data?

Answer: Primary

b Justify your choice.

Answer: It is unlikely that there would be any relevant secondary data available outside of the school.

c You need to gather the opinions of at least 300 students.

i Identify the data-gathering method and technique you would choose.

Answer: Surveys – online questionnaires (1 mark). Responses will vary, but students should identify a method, such as a survey or questionnaire, as well as a technique, such as online or face-to-face.

ii Justify your choice.

Answer: Collecting such a lot of data via interviews would take too long (1 mark), and using online questionnaire software would help to find patterns in the results (1 mark).

d You find online that similar research has been conducted in 1985 by a school in Mississippi, USA. The researchers reported some very interesting findings that could save you from collecting more data. Would you use the US data? Explain why or why not.

Answer: No, you would not use it. This research is irrelevant because of the distant location/culture (1 mark), and the age of the data (1 mark).

e You write a question that asks respondents about their gender (male, female or intersex). You want to store this data so that it will take up as little space as possible. Identify the data type you would choose, and give examples of other stored data.

Answer: Preferably character type, but accept text (string) (1 mark). Data should be coded as M, F or I.

QUESTION 8

There are many advantages to using electronic database management systems. However, what is one major disadvantage of using them to store all of your data?

Answer: Responses will vary. Any one of the following is acceptable and is worth 2 marks each.

- If a database is damaged, all of the data in it is potentially destroyed
- Putting all data in one place makes it easier for hackers to access everything
- Databases are complex to design and build

QUESTION 9

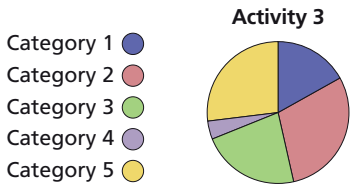
Your digital music collection contains both data and metadata. Explain the relationship between data and metadata.

Answer: Metadata gives information about the data (1 mark); for example, artist, genre, track or album cover (1 mark).

QUESTION 10

You collect data from a large number of people about how many hours they spend on five different activities during their day. You are unsure how to present the data graphically. You consider these options:

a



Identify the format you would choose, and justify your reason for choosing it.

Answer: You would choose **a** the pie chart (1 mark), because pie charts are designed to show the constituent parts of a whole (2 marks).

QUESTION 11

Using correct database terminology, fill in the missing words in the labels below.

Answer:

'BookTitle' is a *field*.

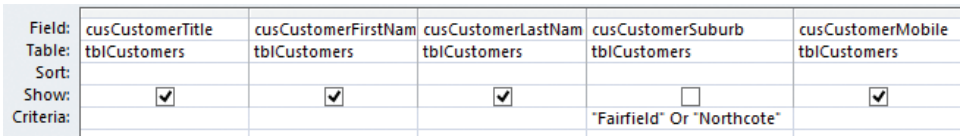
tblFavouriteBooks

ID	ISBN	BookTitle	FamilyName	GivenName	Genre
1	9781920769703	Shadowboxing	Birch	Tony	Short stories
2	9781865080574	Birds of Passage	Castro	Brian	Literature
3	9780199210770	Words Words Words	Crystal	David	Non-fiction
4	9780747590668	Rebecca	du Maurier	Daphne	Literature
5	9780743455961	On Writing	King	Stephen	Non-fiction
6	9780143009610	The Boat	Le	Nam	Short stories

This row is a *record*.

QUESTION 12

Samantha manages her family's business records. One day she creates this in her database.



Field:	cusCustomerTitle	cusCustomerFirstNam	cusCustomerLastNam	cusCustomerSuburb	cusCustomerMobile
Table:	tblCustomers	tblCustomers	tblCustomers	tblCustomers	tblCustomers
Sort:					
Show:	☑	☑	☑	☐	☑
Criteria:				"Fairfield" Or "Northcote"	

a Identify the database component pictured above.

Answer: A query

b Outline what type of data it would select and display.

Answer: This query selects customers living in Fairfield or Northcote and shows displays their title, first name, last name and mobile number. Note: It does not show their suburb!

c Samantha sometimes uses macros in her database. Using an example, describe how macros can be useful in databases.

Answer:

Macros can be useful for:

- selecting certain records; for example, just those customers who owe money (1 mark)
- carrying out rarely used functions; for example, end-of-year bookkeeping procedures (1 mark)
- doing work for unskilled users; for example, such as selecting, formatting and printing data (1 mark).

QUESTION 13

Simon has a great deal of sensitive data about his small but forward-thinking business on his computer and he is concerned that his competitors might discover it, or that it could be stolen. He is beginning to think that keeping it all on his hard disk drive is unwise, so he is considering saving his business data to a cloud storage host. Discuss the main arguments for and against Simon using a cloud storage service.

Answer: At least three of the following are required.

For	Against
Possible security having data stored offsite and backed up professionally	Lack of surety about how/where data is stored and used
Saves having to use expensive and complex local hardware and software	Host may suddenly collapse or cancel your account, leaving your data inaccessible