

**CHAPTER TEST ANSWERS****Chapter 6 Programming****Section A****Multiple-choice questions**

- 1 System software includes:
  - B** an operating system.
- 2 Prototype software:
  - C** looks and feels like a finished program, but is incomplete.
- 3 A main difference between a high-level language and a low-level language is that:
  - A** a high level language lacks direct access to underlying hardware.
- 4 A compiler:
  - D** converts source code into executable code.
- 5 A platform is:
  - B** a combination of CPU and operating system.
- 6 Debugging:
  - B** finds and corrects programming errors.
- 7 The difference between data and information is that:
  - A** data is processed to create information.
- 8 RAM:
  - D** loses its data when the power is turned off.
- 9 Solid state disks (SSD) are so-called because:
  - C** they have no moving parts.
- 10 Roughly, how many kilobytes are in a gigabyte?
  - B** 1 000 000
- 11 A variable:
  - D** stores a value in RAM.
- 12 A floating point value:
  - A** can store decimal places.
- 13 The Boolean data type is used to store:
  - D** true/false values.

14 When storing graphic, video or audio data, it is common to reduce its storage requirement and transmission time using:

**B** compression.

15 Non-functional requirements describe:

**C** qualities the software should have.

## Section B

### Short-answer questions

1 Complete the missing information in the following data dictionary.

*Answer:*

Name	Data type	Example	Description
<i>DateOfBirth</i>	Date	28 May 2000	Date of birth
<i>boolMarried</i>	Boolean	<i>true (or false)</i>	Is person married?
<i>txtPhone</i>	<i>Text (not number)</i>	(03) 1234 5678	Phone number
<i>Salary</i>	<i>Currency or floating point</i>	\$400.34	Weekly salary

For both of the names, expect to see the use of Hungarian notation and CamelCase (1 mark for each missing field).

2 a A company needs to store thousands of invoice documents on disk. They want them to sorted easily by customer name and then the date of the invoice. For example, all the invoices for Beth Adams should come before those of Ajani Zhara. Beth's 2013 invoices should appear before her 2015 transactions. Give an example of a file-naming scheme that would best accomplish this goal.

*Answer: Adams-Beth-2015-12-25.ext*

Give 1 mark for the name pattern and 1 for the data format. Give 1 for having no spaces, and 1 for no illegal punctuation characters. The filename extension can be any value. Award the final mark for using a short file name structure.

b Explain one important benefit of using either Hungarian notation or CamelCase when naming objects in a program.

*Answer: Hungarian notation constantly reminds the programmer of the type of object being used so it is not accidentally treated incorrectly; for example, trying to set a property that does not exist for that type of object (1 mark).*

CamelCase avoids using spaces in names, and makes names easier to read by highlighting the beginning of each word in a multi-word name (1 mark).

3 a Fill in the missing information in the following IPO chart.

*Answer:* Award 1 mark for the completion of each missing field.

Input (data)	Processing (algorithm)	Output (information)
<ul style="list-style-type: none"> <li>• DOB</li> <li>• Current Date</li> </ul>	$(Current\ Date - DOB) / 365$	Age in years
<ul style="list-style-type: none"> <li>• Quantity</li> <li>• CostPerItem</li> </ul>	Quantity * Cost Per Item	Subtotal
<ul style="list-style-type: none"> <li>• Is Tax payable?</li> <li>• Tax rate %</li> </ul>	Subtotal + (If tax is payable, Subtotal * Tax Rate %)	Total with tax

b Name one property and one method of a textbox in a program.

*Answer:* Responses will vary. Some possible responses are provided below.

Potential properties may include width, height, name and visible (1 mark each)

Potential methods may include move, refresh, setfocus or hide (1 mark each)

4 a What output would the following pseudocode produce?

*Answer:* 14

b What output would the following pseudocode produce?

*Answer:* END

c Identify two reasons why programmers use pseudocode rather than immediately writing a program in a real programming language.

*Answer:*

- So they can concentrate on algorithms without having to worry about the details of syntax (1 mark)
- Because the language to be used may not even be known yet, and pseudocode can be converted into any language's syntax (1 mark)

d Define 'algorithm.'

*Answer:* It is the strategy behind a calculation.

5 a How is validation different from testing?

*Answer:* Validation checks input data for reasonableness (1 mark). Testing checks the accuracy of output (1 mark).

b Explain why internal documentation is used in source code.

*Answer:* It explains the purpose and operation of the code to programmers (not the program's end-user).

c Using an example, explain the importance of code indentation.

*Answer:* Code indentation makes it visually clear where lines of code are controlled by structures such as loops and IF constructs. For example, if one line is controlled by the IF line in an earlier line, it is indented (1 mark).