

FOR OFFICIAL USE



National
Qualifications
SPECIMEN ONLY

Mark

S816/75/01

Computing Science

Date — Not applicable

Duration — 2 hours



* S 8 1 6 7 5 0 1 *

Fill in these boxes and read what is printed below.

Full name of centre

Town

Forename(s)

Surname

Number of seat

Date of birth

Day

Month

Year

Scottish candidate number

Total marks — 110

SECTION 1 — 25 marks

Attempt ALL questions.

SECTION 2 — 85 marks

Attempt ALL questions.

Write your answers clearly in the spaces provided in this booklet. Additional space for answers is provided at the end of this booklet. If you use this space you must clearly identify the question number you are attempting.

Use **blue** or **black** ink.

Before leaving the examination room you must give this booklet to the Invigilator; if you do not, you may lose all the marks for this paper.



* S 8 1 6 7 5 0 1 0 1 *

SECTION 1 — 25 marks

Attempt ALL questions

1. Convert the following 8-bit binary number into denary.

1

1011 0111

2. Explain why it may be necessary to return to the implementation stage of an iterative development process after the testing stage.

1

3. State two implications of the General Data Protection Regulation for a business that stores the personal details of its staff.

2

Implication 1 _____

Implication 2 _____



4. The code below monitors the speed of a vehicle:

...

Line 5 RECEIVE speed FROM <sensor>

Line 6 WHILE speed <= 70 DO

Line 7 RECEIVE speed FROM <sensor>

Line 8 END WHILE

Line 9 SEND signal TO <alarm>

Describe what happens in lines 6 to 9 above if the sensor detects a value of 83 at line 5.

3

5. The Bank of Aberdeen uses a firewall and encryption to ensure data is kept secure.

(a) Explain the purpose of a firewall.

1

(b) Explain how encryption can keep data secure.

1

6. An ASCII character set contains both control characters and printable characters.

State one example of each.

2

Control character _____

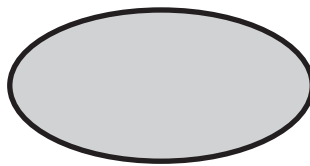
Printable character _____



7. Explain why web designers make use of low-fidelity prototyping.

1

8. A vector graphic file stores objects and their attributes.



(a) State the name of the object shown above.

1

(b) State two attributes of this object.

2

Attribute 1 _____

Attribute 2 _____

9. A pottery shop's database allows users to choose a type of plate, as follows:

Dinner
Tea
Saucer
Dessert

(a) State the type of validation shown above.

1

(b) Describe why the database uses this type of validation.

1



10. Jane is entering an online competition. She edits a recording of herself singing to save and upload to the competition’s website.

Describe one advantage and one disadvantage of saving and uploading an MP3 file format rather than a WAV file format to the website.

2

Advantage of MP3 file format _____

Disadvantage of MP3 file format _____

11. Switching off a computer system when it is not being used reduces energy use. Describe two other methods of reducing the energy use of a computer system.

2

Method 1 _____

Method 2 _____

12. The value 195 would be stored in a computer system using ‘floating-point representation’ as shown below:

$$0.195 \times 10^3$$

Identify the mantissa and exponent in the above floating-point representation.

2

Mantissa _____

Exponent _____

13. A web page can use both internal and external hyperlinks. Explain the difference between an internal and an external hyperlink.

2



SECTION 2 — 85 marks

Attempt ALL questions

14. Mark writes a program to calculate a worker's average weekly wage.

The first part of the program asks the user to log in. They are given three attempts to enter the correct password which is 'Bingo'.

...

Line 6 SET attempts TO 0

Line 7 REPEAT

Line 8 RECEIVE password FROM KEYBOARD

Line 9 SET attempts TO attempts +1

Line 10 UNTIL _____

...

- (a) Complete line 10 of the code above. 3
- (b) State the data type of the variable `password`. 1

The following section of code calculates the average weekly wage:

Line 11 RECEIVE day1 FROM KEYBOARD

Line 12 RECEIVE day2 FROM KEYBOARD

Line 13 RECEIVE day3 FROM KEYBOARD

Line 14 RECEIVE day4 FROM KEYBOARD

Line 15 RECEIVE day5 FROM KEYBOARD

Line 16 RECEIVE day6 FROM KEYBOARD

Line 17 RECEIVE day7 FROM KEYBOARD

Line 18 SET weeklyAverage TO (day1 + day2 + day3 + day4 + day5 + day6 + day7)/7

Line 19 <display the seven days wages and average>



14. (continued)

- (c) When evaluating this code, it is found to be inefficient.

Using a programming language of your choice, rewrite lines 11 to 18 of the code using more efficient constructs.

5



* S 8 1 6 7 5 0 1 0 7 *

15. Two golfers from a golf club are in the headline article of the ‘Scotland Yesterday’ newspaper.



- (a) The golf club wishes to add a new web page to the club's website, which will include:

- information from the newspaper article
- photographs of the golfers
- a video interview with the golfers.

Using this information, draw a wireframe design for the new page.

3

15. (continued)

- (b) A cascading style sheet (CSS) rule shown below is used to style the large headings in the golf club’s website:

```
h1 { font-size: 20px;
      font-family: "Times New Roman";
      text-align: center;
    }
```

Paragraph text in this website should be displayed on the left, using a Helvetica font that is half the height of the text used in the large headings.

Write a CSS rule that would style the paragraphs.

4

- (c) The golf club’s website is tested by club members. Two members report that the video does not display correctly.

Describe two additional tests that could be performed on the website.

2

Test 1 _____

Test 2 _____

[Turn over



16. Pam is creating an application that will find and display a person's tax rate based on their salary.

Salary	Tax rate
0–12000	0
12001–40000	20
40001 upwards	40

- (a) Analyse the problem and identify the input, the process and the output. **3**

Input _____

Process _____

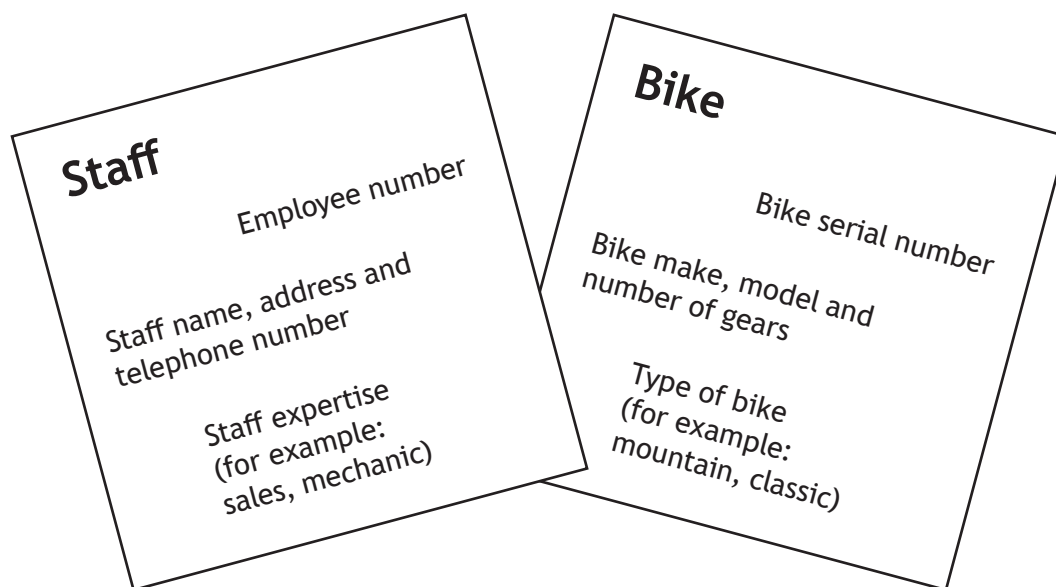
Output _____

- (b) Using a design technique of your choice, design an efficient solution to the problem of finding a person's tax rate. **4**



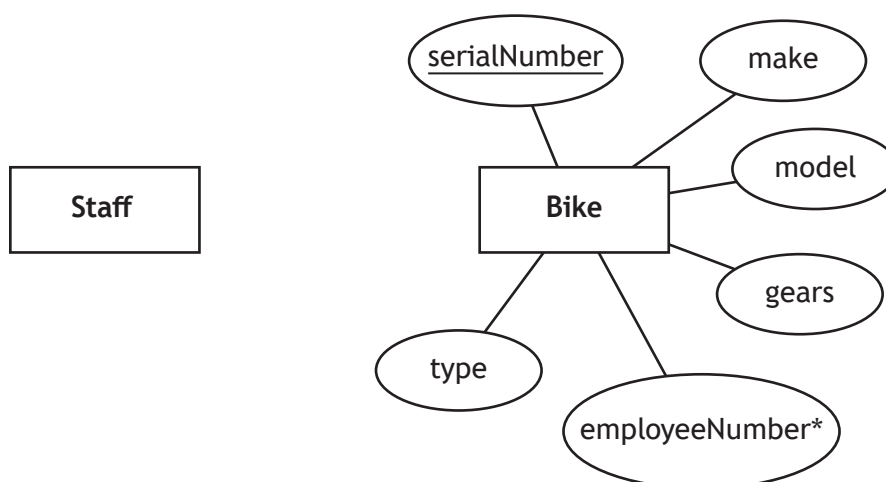
17. Angela works in a cycle shop. She decides to create a database to store information on staff and bikes. This would make it easier to record which staff member prepared each bike for sale.

Angela starts by analysing the problem. She looks at what information the store currently holds on paper and makes notes as follows:



- (a) Complete the entity-relationship diagram below.

4



[Turn over

17. (continued)

(b) Following implementation of the database, the 'Bike' table below contains 11 records.

serialNumber	make	model	type	gears	employeeNumber
20X5346F	Boardman	CX Team 14	Road	20	11
RAL09787	Raleigh	Cameo	Classic	7	9
RAL026356	Raleigh	Cuckoo	Classic	3	9
863345467	Carrera	Kraken	Mountain	27	10
20X62983	Boardman	MB Comp	Mountain	20	7
V0973647	Voodoo	Malice	BMX	1	7
30X6253J	Boardman	Team	Hybrid	21	9
V02377643	Voodoo	Malice	BMX	1	7
RAL97436	Raleigh	Cameo	Classic	7	12
RAL09944	Raleigh	Sprint	Road	21	11
30X76543	Boardman	CX Team 14	Road	20	11

Angela notices data entry errors. The two Raleigh Cameo bikes have 8 gears and not 7 as entered in the database.

She writes the following SQL statement to correct these errors.

```
UPDATE Bike
SET gears = 7
WHERE make = "Raleigh";
```

(i) Explain why Angela's SQL statement **would not** correct these errors. 1

(ii) Explain why Angela's SQL statement would create additional errors in the database. 1



17. (continued)

- (c) Angela wishes to remove the following bike from the database.

Serial Number: 30X76543

Make: Boardman

Model: CX Team 14

Type: Road

Gears: 20

- (i) Evaluate the effect of running the SQL statement below:

2

```
DELETE FROM Bike
```

```
WHERE make = "Boardman" AND model = "CX Team 14";
```

- (ii) Describe a better solution Angela could use to remove the bike from the database.

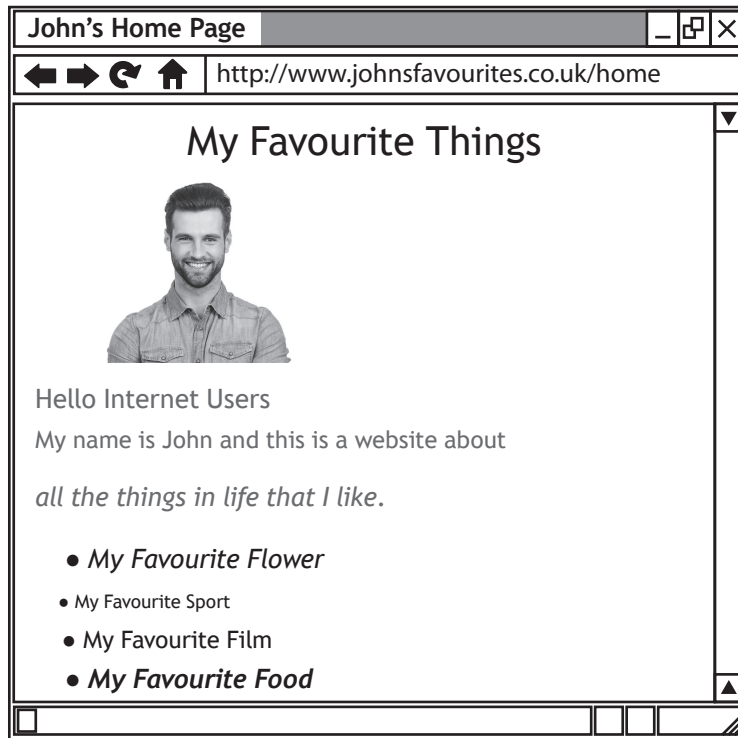
1

[Turn over



* S 8 1 6 7 5 0 1 1 3 *

18. John has created a website listing his favourite things. The home page of his website is shown below.



(a) John tests his website using a browser and notices a lack of consistency. Explain why John's home page lacks consistency.

2

18. (continued)

- (b) John wishes to show his favourite sports as a bullet point list on his 'favourite sports' page. His list of favourite sports will be implemented using `` and `` tags.

Add HTML `` and `` opening and closing tags to the list below.

3

Golf

Cricket

Ten Pin Bowling

[Turn over



* S 8 1 6 7 5 0 1 1 5 *

18. (continued)

DO NOT
WRITE IN
THIS
MARGIN

One of John's linked pages shows his favourite flower. When the HTML document below is displayed in a browser, it generates the web page shown.

HTML document

```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
<style>
h1 {font-size:20px;font-style:bold;text-align:center}
p {font-size:12px;color:DarkGreen;text-align:left}
#latin {font-size:10px;font-style:italic;color:LightGreen}
img {width:304px;height:300px;align-left}
</style>
</head>

<body>
<h1>My Favourite Flower</h1>

<p>My favourite flower is called a Magnolia. They are ancient flowers thought
to be around 20 million years old. A picture of a Magnolia in full flower is
shown below.<br>


</p>


<p ID="latin">Magnolioideae</p>

</body>
</html>
```

Web page

My Favourite Flower

My favourite flower is called a Magnolia. They are ancient flowers thought to be around 20 million years old. A picture of a Magnolia in full flower is shown below.



Magnolioideae



18. (continued)

MARKS

DO NOT
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THIS
MARGIN

(c) The tag contains some additional code used to create dynamic content.

(i) State the language used to create dynamic content in web pages.

1

(ii) The graphic changes when the mouse pointer is placed over it. Identify the event in the code that causes the graphic to change.

1

(d) The text in the web page uses internal style rules positioned in the <head>.

(i) State the type of CSS selector shown by the # symbol at the beginning of the CSS rule below.

1

```
#latin {font-size:10px;font-style:italic;color:LightGreen;}
```

(ii) The CSS rules below contain three styles each.

```
p {font-size:12px; color:DarkGreen; text-align:left}
#latin {font-size:10px; font-style:italic; color:LightGreen;}
```

Both of these rules have been applied to the text below the graphic.

```
p ID="latin">Magnolioideae</p>
```

Describe how the text below the graphic will look when it is viewed in a browser.

3

[Turn over



* S 8 1 6 7 5 0 1 1 7 *

18. (continued)

- (e) The favourite flower page includes an image tag linked to a bit-mapped graphic.



```
src="magnolia.jpg"
```

- (i) Describe how a bit-mapped graphic is represented in a computer system's memory. 2
- _____
- _____
- (ii) State why the file type of the bit-mapped graphic is suitable for use on a web page. 2
- _____
- _____
- (f) John is advised to use an external cascading style sheet.
Describe what is meant by an external cascading style sheet. 2
- _____
- _____
- _____
- (g) John used a search engine to find a suitable graphic to use on each of his pages.
State one way John could ensure he does not breach the Copyright, Designs and Patents Act 1988. 1
- _____



19. Read the following design for a solution to a problem.

Algorithm

- 1 Ask the user to enter their name
- 2 Ask the user to enter their flight details
- 3 Generate the holiday booking reference
- 4 Display the holiday booking reference

Refinements

- 1.1 Ask user to enter surname only
- 2.1 Ask user to enter first three letters of departure airport (for example: Edi for Edinburgh)
- 2.2 Ask user to enter first three letters of arrival airport
- 3.1 Store the booking reference as: arrival airport string + surname + departure airport string

(a) State which design technique has been used for the above solution. 1

(b) State the output expected if the design is tested by Kate Bryant who is flying from Glasgow to Barcelona. 3

(c) Refinement 3.1 stores the holiday booking reference.
State two programming constructs that would be required to implement this refinement. 2

Construct 1 _____

Construct 2 _____

(d) When implementing the above solution, describe one advantage of using an interpreter and one advantage of using a compiler to translate the program code into binary. 2

Interpreter _____

Compiler _____



19. (continued)

- (e) Using a design technique of your choice, add input validation to refinement 2.1 to ensure that the user only enters a 3 character string. An error message should inform the user when their input is not valid.

4



* S 8 1 6 7 5 0 1 2 0 *

20. Scot Cars (a second-hand car company) has branches located in five different Scottish towns and cities. They maintain a database of all cars they have in stock. Some of the records from the relational database are shown below.

Table name: Branch				
branchNumber	street	town	postcode	dateFounded
18536423	10 Glasgow Road	Hamilton	HA9 8FR	14/07/1962
29736453	13 Pretty Drive	Inverness	IN2 13GW	11/12/1970
99108663	194 Collinton Avenue	Edinburgh	EH28 1PK	28/02/1965
36352363	125 Milk Way	Glasgow	G2 3HJ	17/01/2010
28635491	243 Bents Road	Dundee	DN14 7CD	01/10/1997

Table name: Car							
make	model	colour	registration	mileage	electricWindows	alloyWheels	branchNumber
Ford	Ka	White	SL23 GTD	37970	Yes	No	99108663
Volkswagen	Golf	Black	ST99 FDT	33200	Yes	Yes	18536423
Ford	Escort	Silver	X364 TNK	120665	No	No	28635491
Vauxhall	Corsa	Yellow	BH20 SWZ	4009	Yes	Yes	28635491
Nissan	Qashqai	Black	SH88 NNG	67118	Yes	Yes	18536423
BMW	3 Series	Blue	SH34 BNM	33200	Yes	Yes	29736453
Ford	Ka	Green	SL85 HDF	40029	No	No	29736453

(a) Scot Car's relational database contains primary and foreign keys.

(i) State the purpose of a foreign key in a relational database.

MARKS

DO NOT
WRITE IN
THIS
MARGIN

1

[Turn over



* S 8 1 6 7 5 0 1 2 1 *

20. (a) (continued)

(ii) Complete the table below to identify the keys that were created when this relational database was implemented.

3

	Table	Field
Primary key		
Primary key		
Foreign key		

(iii) State the relationship that exists between the two implemented tables.

1

(b) State the output from the following SQL statement.

3

```
SELECT make, model, registration
FROM Car
WHERE colour="Black"
ORDER BY make ASC;
```

20. (continued)

- (c) Customers often visit Scot Cars looking for a particular make and model of car.

Design a search that would provide customers with an ordered list of cars, as shown below.

4

Model	Colour	Town	Mileage
Ka	White	Edinburgh	37970
Ka	Silver	Glasgow	38002
Ka	Green	Inverness	40029
Ka	Black	Dundee	43099
Ka	Green	Hamilton	50103
Ka	White	Edinburgh	52086
Ka	Brown	Edinburgh	78192

Field(s)	
Table(s)	
Search criteria	
Sort order	

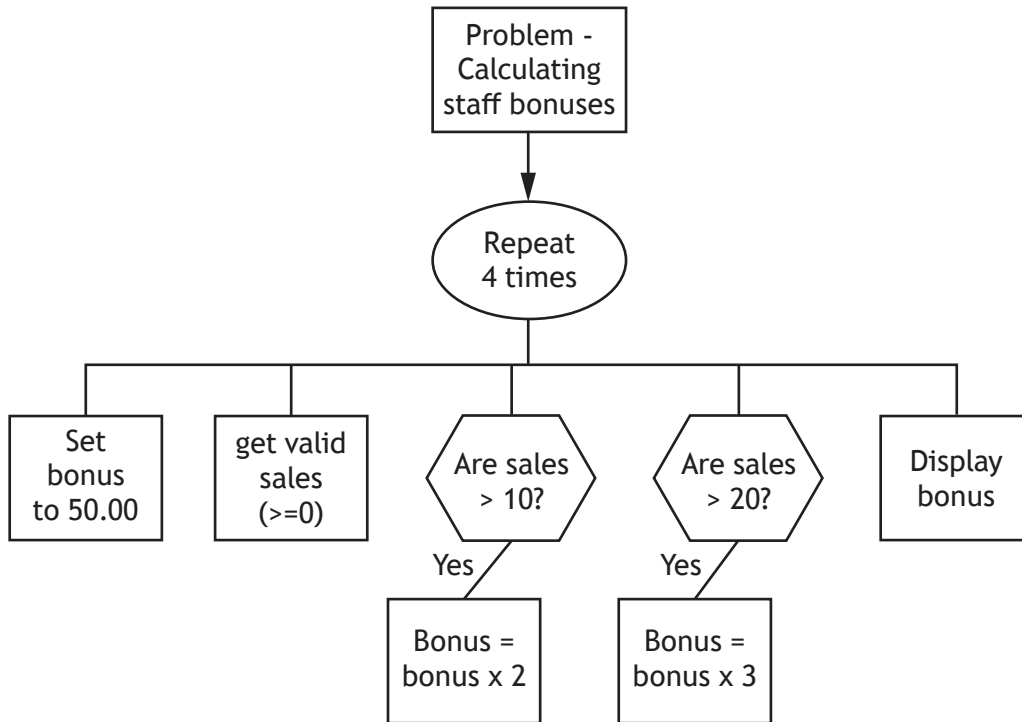
[Turn over



* S 8 1 6 7 5 0 1 2 3 *

21. Arthur’s Antiques sells old furniture. All staff receive a monthly bonus of £50, which is increased if they sell over 10 items of furniture. The bonus is increased further if they sell over 20 items of furniture.

A design for the program used to calculate the bonus payment for each of the four members of staff is shown below.



- (a) List the variables and data types that would be required to implement the design.

The first one has been completed for you.

2

Variable name	Data type
loop	integer

- (b) The program is implemented to match the design.

State examples of exceptional and extreme test data that could be used when inputting staff sales.

2

Exceptional _____

Extreme _____



* S 8 1 6 7 5 0 1 2 4 *

21. (continued)

- (c) The program is further tested with normal test data. The results are shown below.

	Sales input	Expected output	Actual output
Staff 1	6	Bonus is 50	Bonus is 50
Staff 2	10	Bonus is 50	Bonus is 50
Staff 3	15	Bonus is 100	Bonus is 100
Staff 4	22	Bonus is 150	Bonus is 300

The test data for Staff 4 shows there is an error in the design.

- (i) State the type of error.

1

- (ii) Describe how this design error could be corrected. You may wish to write a description or re-draw part of the design.

2



21. (continued)

(d) When the program is running it carries out the following tasks:

- stores the original bonus value of 50
- checks if sales > 10

(i) State the part of the processor that would temporarily store the value 50.

1

(ii) State the part of the processor that would compare the sales value to the value 10.

1

[END OF SPECIMEN QUESTION PAPER]



* S 8 1 6 7 5 0 1 2 6 *

MARKS

DO NOT
WRITE IN
THIS
MARGIN

ADDITIONAL SPACE FOR ANSWERS AND ROUGH WORK



* S 8 1 6 7 5 0 1 2 7 *

MARKS

DO NOT
WRITE IN
THIS
MARGIN

ADDITIONAL SPACE FOR ANSWERS AND ROUGH WORK

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* S 8 1 6 7 5 0 1 2 8 *



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Computing Science

Marking Instructions

These marking instructions have been provided to show how SQA would mark this specimen question paper.

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General marking principles for National 5 Computing Science

This information is provided to help you understand the general principles you must apply when marking candidate responses to questions in this paper. These principles must be read in conjunction with the detailed marking instructions, which identify the key features required in candidate responses.

- (a) Marks for each candidate response must **always** be assigned in line with these general marking principles and the detailed marking instructions for this assessment.
- (b) Marking should always be positive. This means that, for each candidate response, marks are accumulated for the demonstration of relevant skills, knowledge and understanding: they are not deducted from a maximum on the basis of errors or omissions.

Marking instructions for each question

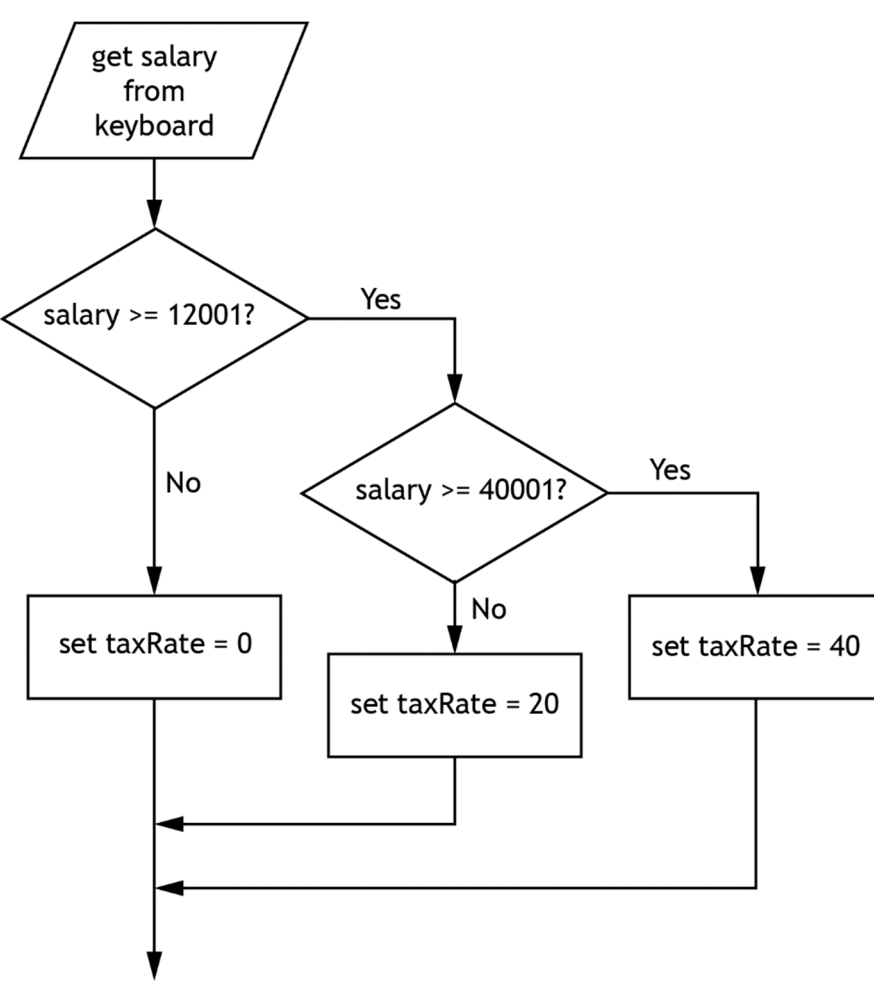
SECTION 1

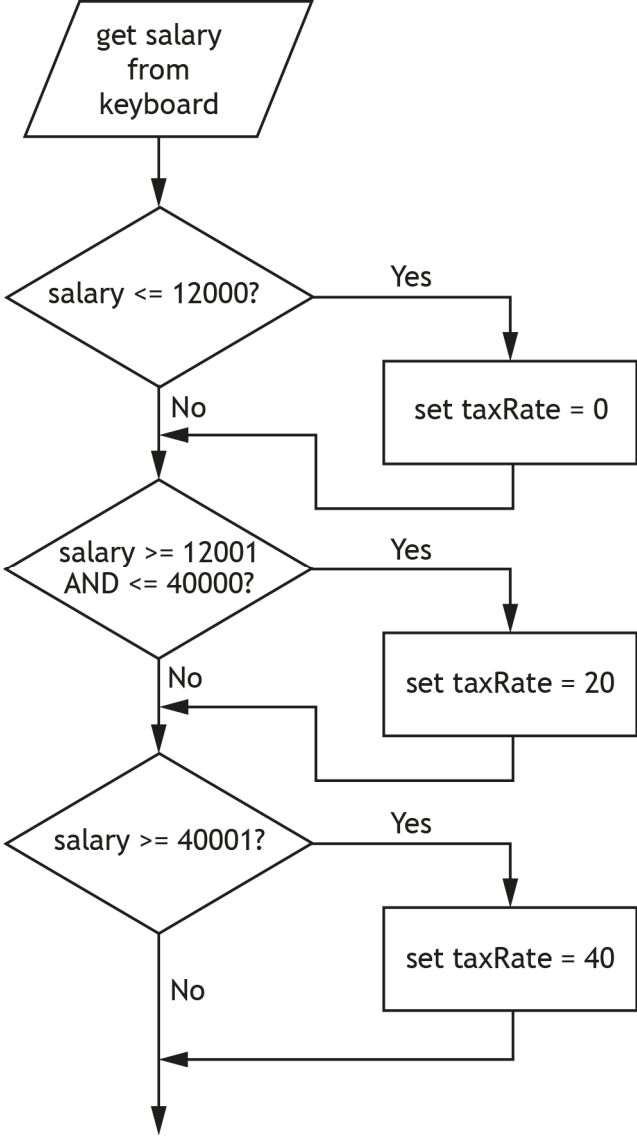
Question			Expected response	Max mark	Additional guidance
1.			183	1	
2.			To correct errors	1	Also accept 'to add additional code'
3.			Any two from: <ul style="list-style-type: none"> • data must be kept accurate • data must be held securely • data can only be used for declared purposes 	2	
4.			One mark each for: <ul style="list-style-type: none"> • compares 83 to 70 • doesn't enter loop (because condition is false) • sends signal to alarm 	3	
5.	(a)		Restricts access to a network	1	
	(b)		Data is coded/unreadable	1	
6.			One mark each for: <ul style="list-style-type: none"> • control character example • printable character example <p>Example responses for 6:</p> <ul style="list-style-type: none"> • 'Start of Text', 'Escape', 'Delete' or any other character from 0-13 of ASCII code • A-Z, a-z, 0-9, punctuation or any visible character 	2	
7.			Either one from: <ul style="list-style-type: none"> • to show the intended user interface to client • it allows end-users to get the look and feel of a website 	1	

Question		Expected response	Max mark	Additional guidance
8.	(a)	Ellipse	1	
	(b)	Any two from: <ul style="list-style-type: none"> • co-ordinates • fill colour • line colour 	2	Any other appropriate attribute
9.	(a)	Restricted choice	1	
	(b)	Either one from: <ul style="list-style-type: none"> • eliminates input errors • users are presented with the only options 	1	
10.		One advantage from: <ul style="list-style-type: none"> • MP3 file takes up less memory • MP3 file can be uploaded quickly One disadvantage: <ul style="list-style-type: none"> • sound quality poorer 	2	
11.		Any two from: <ul style="list-style-type: none"> • set computers to go into sleep mode after a period of inactivity • reduce monitor settings • activate hard disk shut down settings 	2	
12.		Mantissa – 195 Exponent – 3	2	Also award marks if either answer is converted to binary
13.		One mark each for: <ul style="list-style-type: none"> • internal hyperlink – links to a page within the same website/domain) • external hyperlink – links to page/document in another website/domain 	2	

SECTION 2

Question		Expected response	Max mark	Additional guidance
14.	(a)	Password = 'Bingo' OR attempts = 3 One mark each for: <ul style="list-style-type: none"> • Password = 'Bingo' • OR • attempts = 3 	3	
	(b)	String	1	
	(c)	FOR eachDay FROM 1 TO 7 DO RECEIVE wage[eachDay] FROM KEYBOARD SET totalWage TO totalWage + wage[eachday] END FOR SET weeklyAverage TO totalWage / 7 One mark each for: <ul style="list-style-type: none"> • fixed loop • input • running total • divide by 7 for average outside loop • use of array 	5	Only mark constructs, as answer does not need to be syntactically accurate.
15.	(a)	One mark each for: <ul style="list-style-type: none"> • a picture of the two golfers (with file type) • text about the golf competition • a video of the interview (with file type) 	3	
	(b)	Marks awarded as noted below: <pre>p (1) { font-size: 10px; (1) font-family: "Helvetica"; (1) text-align: left; (1) }</pre>	4	Syntax must be accurate, as an example has already been given in the question.
	(c)	Any two from: <ul style="list-style-type: none"> • links work • graphic/text display correctly • styling is correct • consistency across pages 	2	
16.	(a)	One mark each for: <ul style="list-style-type: none"> • input – salary • process – decide which tax rate based on salary • output – tax rate 	3	

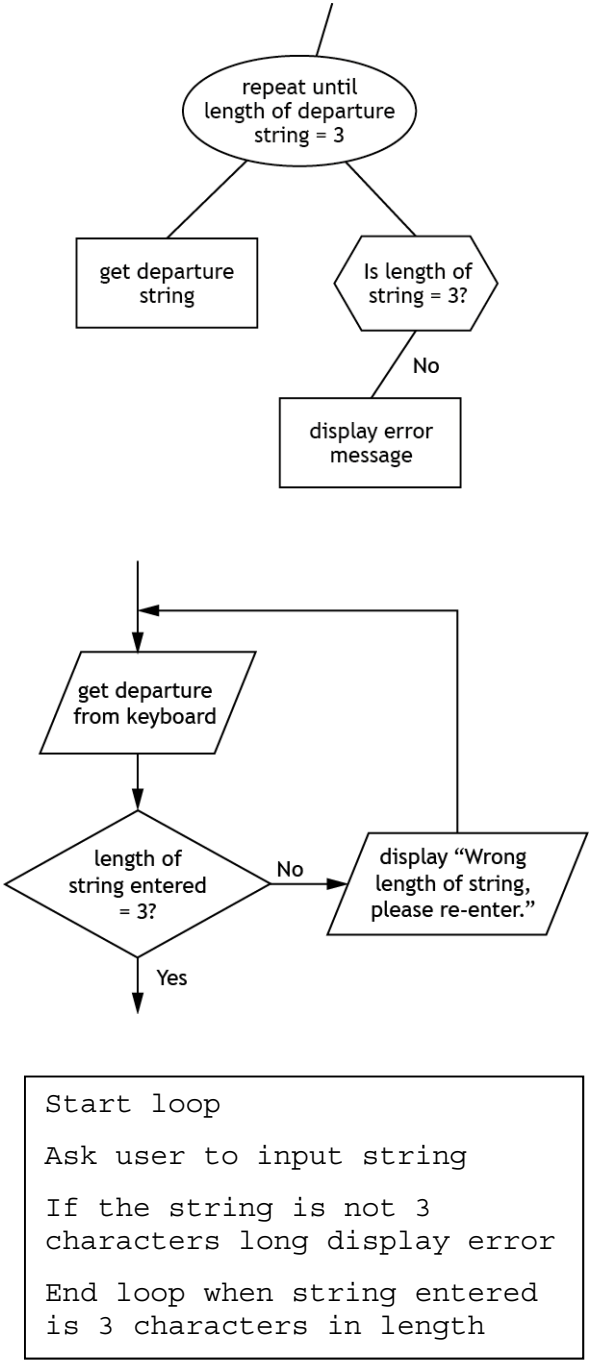
Question		Expected response	Max mark	Additional guidance
16.	(b)	<p>One mark each for:</p> <ul style="list-style-type: none"> • selection constructs • conditions correct • tax rate assigned • efficient solution <p>Expected flowchart response for 16(b):</p>  <pre> graph TD Start[/get salary from keyboard/] --> D1{salary >= 12001?} D1 -- No --> P1[set taxRate = 0] D1 -- Yes --> D2{salary >= 40001?} D2 -- No --> P2[set taxRate = 20] D2 -- Yes --> P3[set taxRate = 40] P1 --> Exit[] P2 --> Exit P3 --> Exit </pre>	4	

Question		Expected response	Max mark	Additional guidance
16.	(b)	<p>Alternative flowchart response for 16(b):</p> <p>This solution would not be awarded the mark for an efficient solution.</p>  <pre> graph TD Start[/get salary from keyboard/] --> D1{salary <= 12000?} D1 -- Yes --> P1[set taxRate = 0] P1 --> J1(()) D1 -- No --> J1 J1 --> D2{salary >= 12001 AND <= 40000?} D2 -- Yes --> P2[set taxRate = 20] P2 --> J2(()) D2 -- No --> J2 J2 --> D3{salary >= 40001?} D3 -- Yes --> P3[set taxRate = 40] P3 --> End[] D3 -- No --> End </pre>		

Question		Expected response	Max mark	Additional guidance	
17.	(a)	<pre> erDiagram Staff --} Bike : prepares Staff { string staffName string employeeNumber PK string staffAddress string telNo string expertise } Bike { string serialNumber PK string make string model string gears string type string employeeNumber* } </pre>	4		
	(b)	(i)	Gears have not been changed to 8	1	
		(ii)	All Raleigh bikes now have seven gears	1	The Raleigh Cuckoo and Raleigh Sprint now also have seven gears
	(c)	(i)	One mark each for: <ul style="list-style-type: none"> not fit for purpose two records deleted (both "Boardman CX Team 14" bikes deleted) 	2	
		(ii)	If delete includes the serial number	1	Use primary key

Question		Expected response	Max mark	Additional guidance
18.	(a)	<p>Any two from:</p> <ul style="list-style-type: none"> • text changes appearance in middle of sentence (changes to italics) • bullets are different sizes • text in bullet list in different fonts • text in bullet list changes styles 	2	
	(b)	<pre> Golf Cricket Ten Pin Bowling </pre> <p>One mark each for:</p> <ul style="list-style-type: none"> • and surround text • and surround list • one for each list item 	3	
	(c)	(i) Javascript	1	
		(ii) onmouseover	1	
	(d)	(i) ID	1	
		(ii) One mark each for:	3	
		<ul style="list-style-type: none"> • 10px • LightGreen • italic and left 		
	(e)	(i) One mark each for:	2	
		<ul style="list-style-type: none"> • grid of pixels • colour of each pixel stored 		
		(ii) One mark each for:	2	
		<ul style="list-style-type: none"> • compressed file format • downloads faster 		
	(f)	Single file of styles (1) that can be applied to multiple pages (1)	2	
	(g)	<p>Any one from:</p> <ul style="list-style-type: none"> • find a copyright-free graphic • ask for permission • pay to use it 	1	

Question		Expected response	Max mark	Additional guidance
19.	(a)	Pseudocode	1	
	(b)	BarBryantGla One mark each for: <ul style="list-style-type: none"> • identifying only surname entered • three strings in correct order • no spaces as concatenated 	3	
	(c)	One mark each for: <ul style="list-style-type: none"> • assignment • concatenation 	2	
	(d)	Interpreter – any one from: <ul style="list-style-type: none"> • don't have to leave editing environment • position of errors in code identified during test run Compiler – any one from: <ul style="list-style-type: none"> • compiled code runs faster • code is only translated once • compiled code cannot be edited • compiled code requires less memory to execute 	2	

Question	Expected response	Max mark	Additional guidance
19. (e)	 <pre> graph TD Start([repeat until length of departure string = 3]) --> GetString[get departure string] GetString --> IsLength{{Is length of string = 3?}} IsLength -- No --> DisplayError[display error message] DisplayError --> Start IsLength -- Yes --> End(()) </pre> <p>Start loop Ask user to input string If the string is not 3 characters long display error End loop when string entered is 3 characters in length</p>	4	Content of error message may be given in full or simply implied, "error message".

- One mark each for:
- input of string
 - conditional loop
 - condition length = 3 characters
 - error message

Question			Expected response	Max mark	Additional guidance												
20.	(a)	(i)	To link two tables	1													
		(ii)	One mark for each correct row <table border="1" style="margin-left: 40px;"> <thead> <tr> <th></th> <th>Table</th> <th>Field</th> </tr> </thead> <tbody> <tr> <td>Primary key</td> <td>Branch</td> <td>branchNumber</td> </tr> <tr> <td>Primary key</td> <td>Car</td> <td>registration</td> </tr> <tr> <td>Foreign key</td> <td>Car</td> <td>branchNumber</td> </tr> </tbody> </table>		Table	Field	Primary key	Branch	branchNumber	Primary key	Car	registration	Foreign key	Car	branchNumber	3	Primary key rows do not have to be written in the order shown.
	Table	Field															
Primary key	Branch	branchNumber															
Primary key	Car	registration															
Foreign key	Car	branchNumber															
		(iii)	One branch has many cars	1	One-to-many on its own is not enough for a mark.												
	(b)		One mark each for: <ul style="list-style-type: none"> headings two correct cars identified order of two cars correct <table border="1" style="margin-left: 40px;"> <thead> <tr> <th>Make</th> <th>Model</th> <th>Registration</th> </tr> </thead> <tbody> <tr> <td>Nissan</td> <td>Qashqai</td> <td>SH88 NNG</td> </tr> <tr> <td>Volkswagen</td> <td>Golf</td> <td>ST99 FDT</td> </tr> </tbody> </table>	Make	Model	Registration	Nissan	Qashqai	SH88 NNG	Volkswagen	Golf	ST99 FDT	3				
Make	Model	Registration															
Nissan	Qashqai	SH88 NNG															
Volkswagen	Golf	ST99 FDT															
	(c)		One mark for each correct row: <table border="1" style="margin-left: 40px;"> <tbody> <tr> <td>Field(s)</td> <td>model, colour, town, mileage</td> </tr> <tr> <td>Table(s)</td> <td>car, branch</td> </tr> <tr> <td>Search criteria</td> <td>model = "Ka"</td> </tr> <tr> <td>Sort order</td> <td>mileage ascending</td> </tr> </tbody> </table>	Field(s)	model, colour, town, mileage	Table(s)	car, branch	Search criteria	model = "Ka"	Sort order	mileage ascending	4					
Field(s)	model, colour, town, mileage																
Table(s)	car, branch																
Search criteria	model = "Ka"																
Sort order	mileage ascending																
21.	(a)		One mark each for: <ul style="list-style-type: none"> bonus, real sales, integer 	2													
	(b)		One mark each for: <ul style="list-style-type: none"> Extreme – 0 Exception – any suitable example (<0, text) 	2	Extreme – also allow limits of later conditions: 10,11,20,21												
	(c)	(i)	Logic	1													

Question			Expected response	Max mark	Additional guidance
21.	(c)	(ii)	One mark each for: <ul style="list-style-type: none"> • change first condition • to sales > 10 and <= 20 Example structure chart response for 21(c)(ii): 	2	Alternative response could include redrawing the design as shown below:
	(d)	(i)	Register	1	
		(ii)	Arithmetic Logic Unit (ALU)	1	

[END OF SPECIMEN MARKING INSTRUCTIONS]