



5220-535 JUNE 2019 Level 3 Advanced Technical Extended Diploma in Digital Technologies (720)

Level 3 Digital Technologies (Application Development) – Theory exam (2)

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- If additional answer sheets are used, enter the additional number of pages in this box.
- **O**
- Before taking the examination, **all candidates** must check that their barcode label is in the appropriate box. Incorrectly placed barcodes may cause delays in the marking process.
- Please ensure that you staple additional answer sheets to the **back** of this answer booklet, clearly labelling these with your full name, enrolment number, centre number and qualification number in BLOCK CAPITALS.
- All candidates need to use a **black/blue** pen. **Do not** use a pencil or gel pen, unless otherwise instructed.
- If provided with source documents, these documents **will not** be returned to City & Guilds, and will be shredded. Do not write on the source documents.
- *I declare that I had no prior knowledge of the questions in this examination and that I will not divulge to any person any information about the questions.

You should have the following for this examination

• a pen with blue or black ink

General instructions

- The marks for questions are shown in brackets.
- Answer all questions.
- Answer the questions in the spaces provided. Answers written in margins or on blank pages will **not** be marked.
- Cross through any work you do not want to be marked.

2

1	Explain how each of the following styles of programming can be used to create
	software applications.
	Event Driven.
	Object Oriented.
	Procedural.

•	Procedural.	(6 marks)
	te three project constraints that can be considered when gathering end-user uirements.	(3 marks)

Current products.Future developments.	(4 m
State three systems life-cycle models that can be used whapplication project.	nen developing a software (3 m

5	Explain how the following sections of a requirements document help the developer of
	a software application meet the client's needs.

- Overview of project aims. Design specification.

•	Project management.	(6 marks)
		_

6	State four components or structures that are used to hold single or multiple data	
	values in program code.	(4 mark



(6 marks)

7	Explain how the following types of 'variable scope' control the availability of data
	values in the program code of a software application.

- Local.
- Global.

	Ciosai.	
•	Static.	
•	Static.	



•	while()	
•	do while()	(6 n
Exp	plain one benefit of using pseudocode to model each of the following during the sign specification phase of a software application project.	
des •	ign specification phase of a software application project. Structures.	
des •	ign specification phase of a software application project.	(6 n
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grap	phical models.	(4 m
Expl	ain the use of the following functionality testing methods that can be applied to	
Expl	ain the use of the following functionality testing methods that can be applied to ware applications before final release.	
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20-535	12 June 2019
 Explain why the following aspects of application software testing can be included the software documentation of a development project. Testing technique justification. Test plan. 	ded in
• Test log.	(6 marks
Explain why each of the following is included in the user documentation of a	

•	Inpu	t	val	idat	ion r	ules.
	_					

iroubleshooting guide.			
	Troubleshooting guide.	Troubleshooting guide.	Troubleshooting guide.

You are a software developer and have been asked to explain some features of an application which have been modelled in pseudocode. The pseudocode specifies an algorithm used to calculate a salary bonus based on a sales net amount recorded by its employees.

To demonstrate your level of understanding you have been asked to carry out the following three tasks relating to the pseudocode in Figure 1.

Explain the purpose of the code specified between lines 13 and 21.

(2 marks) (2 marks)

Explain the purpose of the code specified at line 22.

c) Identify and correctly locate using line numbers, **five** separate coding techniques used in the pseudocode.

(5 marks)

You must use the following format for your answer:

Line number Coding technique identified

```
array int net[x]
 2
    array float gross[x]
 3
 4
    int a = 0
 5
    int b = 20
    int c = 60
 6
    int d = 0
 8
    float e = 0
 9
10
    i = 0
11
12
    WHILE (i < x)
13
         a = net[i]
14
         if (a < b)
15
             d = a
16
         else if (a > c)
17
             d = a + a * .20
18
         else
19
             d = a + a * .10
         end if
20
21
         gross[i] = d
22
         e = e + (d - a)
    i = i + 1
23
24
    LOOP
25
26
    OUTPUT e
```

Figure 1

See next page

You are a junior software developer working in a large company. You have been asked to create a proposal for implementing a program that will be installed on the Windows PCs of the company's accounts department to automate bonus calculations. Your manager has asked for an outline of the processes required to produce the program.	
Discuss what can be included in the outline you will submit to your manager. The outline should use technical language appropriate to the intended audience.	(9 marks)
	to create a proposal for implementing a program that will be installed on the Windows PCs of the company's accounts department to automate bonus calculations. Your manager has asked for an outline of the processes required to produce the program. Discuss what can be included in the outline you will submit to your manager.