



5220-535 JUNE 2018

Level 3 Advanced Technical Extended Diploma in Digital Technologies (720)

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

If provided, stick your candidate barcode label here.

Wednesday 13 June 2018
09:30 – 12:00

Candidate name (first, last)

First

[illegible]

Last

[illegible]

Candidate enrolment number

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Date of birth (DDMMYYYY)

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Gender (M/F)

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Assessment date (DDMMYYYY)

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Centre number

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Candidate signature and declaration*

- If any additional answer sheets are used, enter the additional number of pages in this box. ➡

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- Please ensure that you **staple** additional answer sheets to the **back** of this answer booklet, clearly labelling them 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.
- 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 assessment and that I will not divulge to any person any information about the questions.**

General instructions

- Use black or blue ball-point pen.
- 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.
- Write all your working out and answers in this booklet.

- 1 a) State **two** analytical tools used to understand feasibility of a proposed application. (2 marks)

- b) Describe how **each** of the tools stated in Question 1a) is used. (4 marks)

- 2 Describe the following system constraints in relation to a feasibility study. (6 marks)
- Hardware
 - Software
 - Web/cloud based

3

- Waterfall
- Rapid Application Development (RAD)
- Agile

(6 marks)

[illegible]

4

a) State **two** types of variable scope.

(2 marks)

b) For **each** of the scope types given in Question 4a), explain their availability for recall, assignment or amendment in a computer program.

(4 marks)

- 5 Explain one reason for using compiler directives in a computer program. (2 marks)

- 6 a) State **three** types of data structures used in programs. (3 marks)

- b) Describe how **each** of the structures stated in Question 6a) is used with program data. (6 marks)

- 7 a) State **two** numeric data types used to define items in a program. (2 marks)

- b) Describe the main features of the numeric data used in **each** of the types named in Question 7a). (4 marks)

8 Describe the purpose of the following 'decision' types.

- Conditional check
- Conditional statement
- Switch/Select Case

(6 marks)

9 a) State **three** types of testing methodologies.

(3 marks)

b) Describe how **each** of the methodologies stated in Question 9a) is used in software development.

(6 marks)

10 State **two** types of functionality testing.

(2 marks)

11 Describe one benefit and one limitation of using an array structure in a program.

(4 marks)

12 a) **Figure 1** shows the pseudocode for an algorithm carried out on an array of numbers called myArray. However some of the lines of code are in the wrong order.

```
1 IF myArray[i] > myValue THEN
2 PRINT myValue
3 SET myValue to myArray[0]
4 ENDFOR
5 SET myValue to myArray[i]
6 ENDIF
7 FOR i = 1 to myArray length - 1
8
```

Figure 1

What is the intended purpose of the algorithm in **Figure 1**?

(2 marks)

- (7 marks)

```
1 IF myArray[i] > myValue THEN
2   PRINT myValue
3   SET myValue to myArray[0]
4 ENDFOR
5 SET myValue to myArray[i]
6 ENDIF
7 FOR i = 1 to myArray length - 1
```

Figure 2

- Discuss the steps that should be carried out to complete the development processes. (9 marks)