



5220-535 MARCH 2019

**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.

Thursday 7 March 2019
09:30 – 12:00

Candidate name (first, last)

First

Last

Candidate enrolment number

Date of birth (DDMMYYYY)

Gender (M/F)

Assessment date (DDMMYYYY)

Centre number

Candidate signature and declaration*

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

- 1 State **four** system constraints that need to be considered when analysing end-user needs.

(4 marks)

- 2 Explain why the following project constraints must be considered when planning a software application.
- Budget.
 - Time.
 - Specialist skills.

(6 marks)

- (6 marks)

This image shows a blank sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

- (3 marks)

- (6 marks)

- (3 marks)

7

- Array.
- Stack.
- Queue.

(6 marks)

This image shows a single sheet of white paper with horizontal ruling lines. The lines are evenly spaced and run across the width of the page. There are no margins, text, or other markings on the paper.

8

- Conditional check.
- Conditional statement.
- Switch statement.

(6 marks)

[illegible]

- (6 marks)

[illegible]

- (4 marks)

11 Explain the use of the following testing methodologies in software development.

- Stress testing.
- Data boundary testing.

(4 marks)

12 Explain the use of the following items when preparing documentation for a software application.

- Project timelines.
- Test plan.

(4 marks)

13 Explain the use of **each** of the following techniques when creating well-formed code.

- Indentation.
- Notes.

(4 marks)

- 14 You have been provided with the pseudocode in **Figure 1** as part of an interview process for a position as a software developer technician.

To demonstrate your level of understanding you have been asked to carry out the following **two** tasks.

- Describe the purpose of the whole pseudocode algorithm in **Figure 1**. (2 marks)
- Identify and correctly locate using line numbers, **seven** separate coding techniques used in the pseudocode in **Figure 1**.

Use the following format for your answer:

Line number	Coding technique identified	(7 marks)
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```

1 // The following algorithm has 19 instruction lines
2 array int marks[x]
3 array string outcomes[x]
4
5 int pass = 40
6 int passes = 0
7 int fails = 0
8 int i = 0
9 int a = 0
10 float b = 0
11
12 for (i = 0 to x -1)
13     a = a + marks[i]
14     if marks[i] >= pass
15         passes = passes + 1
16         outcomes[i] = "pass"
17     else
18         fails = fails + 1
19         outcomes[i] = "fail"
20     end if
21 next i
22
23 b = a/x

```

Figure 1

Question 14 continued

- Discuss what you would include in your document for the programming team.

[illegible]