



Rewarding Learning

ADVANCED SUBSIDIARY (AS)
General Certificate of Education
2019

Centre Number

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Candidate Number

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Digital Technology

Assessment Unit AS 2

assessing

Fundamentals of
Digital Technology

MV18

[SDT21]

FRIDAY 24 MAY, AFTERNOON

Time

1 hour 30 minutes, plus your additional time allowance.

Instructions to Candidates

Write your Centre Number and Candidate Number in the spaces provided at the top of this page.

You must answer the questions in the spaces provided.

Do not write on blank pages.

You are not permitted to use any calculating aid in this paper.

Complete in black ink only. Answer **all five** questions.

Information for Candidates

The total mark for this paper is 100.

Figures in brackets printed at the end of each question indicate the marks awarded to each question or part question.

Quality of written communication will be assessed in

Questions **1(f)**, **3(d)** and **4(c)**.

1 A file requires 2 gigabytes of storage.

(a) How long will it take to download this file if the download speed is 64 megabytes per second? You must show all your working. [4 marks]

_____ seconds

(b) Convert the decimal number **-67** to a two's complement binary number using 8 bits. You must show all your working. [3 marks]

(c) Convert the two's complement binary number 01111111_2 to decimal. You must show all your working.
[2 marks]

(d) How many positive decimal numbers can be represented using an 8 bit two's complement system?
[1 mark]

(e) How many negative decimal numbers can be represented using an 8 bit two's complement system?
[1 mark]

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(Questions continue overleaf)

2 The table below shows some annual sales for a shop.

Product	Actual Sales (£)	Target Sales (£)
Chocolate bars	32 661	35 000
Ice cream	18 974	20 000
Sweets	42 562	40 000

(a) By referring to the shaded cell in the table, explain what is meant by each of the following.

Data [2 marks]

Information [2 marks]

Knowledge [3 marks]

(b) Errors can occur during data entry.

(i) Explain how verification can be used to detect errors. [4 marks]

(ii) Explain what is meant by a transposition error. [2 marks]

(c) Describe each of the following methods of data validation. [6 marks]

Range check

Type check

Length check

(d) A chocolate bar has the product code 91167M where M represents the modulus 11 check digit.

Calculate the value for M, showing all your working.
[5 marks]

M = _____

- 3 (a) Describe the role of each of the following during the fetch-execute cycle. [4 marks]

Program counter

Current instruction register

(b) Name and describe the three buses used during the fetch-execute cycle. [6 marks]

Name _____

Description _____

Name _____

Description _____

Name _____

Description _____

(c) Explain how each of the following can influence the speed of a computer. [4 marks]

Processor type

Cache memory

4 (a) Point of sale (POS) terminals are widely used in supermarkets.

(i) Identify four different input devices you would expect to find in a POS terminal. [4 marks]

1. _____

2. _____

3. _____

4. _____

(ii) Describe two ways in which a POS terminal will provide feedback. [4 marks]

1. _____

2. _____

(b) Explain why batch processing is suitable for a payroll application but unsuitable for a stock control application.
[4 marks]

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(Questions continue overleaf)

5 (a) Explain the following web technology terms. [4 marks]

URL

IP address

(c) Explain each of the following HTML tags. [6 marks]

<body>

<h1>

<p>

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(Questions continue overleaf)

(d) The following HTML code includes a cascading style sheet (CSS).

```
<html>
<head>
<style>

    body {background-color: lightblue;}

    h1 {font-family: arial;color:red;
text-align: center; font-size: 40px;}

    p {font-family: verdana; color: green;
text-align: center;
font-size: 30px;}

</style>
</head>

<body>

<h1>Cascading Style Sheet</h1>

<p>CSS is a language that describes how
the html web page should be displayed</p>

</body>

</html>
```


For Examiner's use only	
Question Number	Marks
1	
2	
3	
4	
5	

Total Marks	
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Examiner Number

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