



Rewarding Learning
ADVANCED SUBSIDIARY (AS)
General Certificate of Education
2024

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]

MONDAY 20 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 **3(c)**, **4(b)** and **5(e)**.

1 (a) A file requires 2 gigabytes of storage.

By converting gigabytes to megabytes, calculate how long it will take to download this file if the download speed is 10 megabytes per second.

[4 marks]

You must show all your working.

_____ seconds

(b) List the different binary values which can be represented using 2 bits. [4 marks]

(c) Explain why one byte can represent one character in ASCII, but two bytes are needed in Unicode.

[4 marks]

(d) The two's complement system can represent positive and negative numbers.

(i) What is the largest (most positive) number that can be represented using a byte?

Give your answer in binary and in decimal.
[2 marks]

(ii) What is the smallest (most negative) number that can be represented using a byte?

Give your answer in binary and in decimal.
[2 marks]

2 (a) Part of a customer data entry screen is shown below.

Create username

**One uppercase followed
by 5 lowercase characters**

Re-enter username

Accept terms and conditions **Required field**

(i) Identify the field for which a presence check is being used. [2 marks]

You must explain your choice.

Field _____

Explanation _____

(ii) Identify the field for which a format check is appropriate. [2 marks]

You must explain your choice.

Field _____

Explanation _____

- (iii)** Explain how data verification is being used.
[2 marks]

(b) The following table shows the van types for hire on a website and their maximum payloads (the weight they can carry), as well as their internal heights.

Van type	Maximum payload kg	Height m
Compact	600	1.2
Small	1000	1.2
Medium	1200	1.4
Large	1400	1.7

(i) By referring to the cell outlined in bold, explain what is meant by [4 marks]

Data _____

Information _____

(ii) A customer wishes to hire a van to transport a 1100kg load which is 1.6m high.

Using this example, explain what is meant by knowledge. [3 marks]

(c) The steps in the calculation of a modulus 11 check digit are listed below.

Fill in the missing words. [4 marks]

Each digit is multiplied by its _____.

The _____ of the products is calculated and _____ by 11.

The _____ is calculated and subtracted from 11.

- 3 (a) Describe each of the following components of a computer system. [9 marks]

Processor _____

Data bus _____

Port _____

- (b) The first step in the fetch-execute cycle is **'Load address into PC'**.

The following table shows the other steps in the fetch-execute cycle. The steps are not shown in the correct order.

A	Load data into MDR
B	Increment PC
C	Copy PC to MAR
D	Execute instruction in CIR
E	Transfer data to CIR

Using the letters **A** to **E**, list the steps in the order in which they occur. [5 marks]

- 4 (a) Describe the main features of each of the following types of operating system. [6 marks]

Multitasking _____

Multithreading _____

(c) Describe the main features of each of the following file formats. [6 marks]

JPEG _____

GIF _____

- 5 (a)** Explain the difference between the World Wide Web (WWW) and the Internet. [4 marks]

WWW _____

Internet _____

(b) Describe **three** ways in which a company could use an intranet. [6 marks]

1. _____

2. _____

3. _____

(c) (i) Describe the purpose of this HTML code.
[3 marks]

```
<ul>  
<li>Dog</li>  
<li>Cat</li>  
<li>Mouse</li>  
</ul>
```

(ii) Describe the purpose of this HTML code.
[4 marks]

```
<a href="https://www.abc.com">  
  
</a>
```

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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