



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



SDT21

[SDT21]

MONDAY 20 MAY, AFTERNOON

TIME

1 hour 30 minutes.

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 outside the boxed area on each page or on blank pages.

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

Complete in black ink only. **Do not write with a gel pen.**

Answer **all five** questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 100.

Figures in brackets printed down the right-hand side of pages 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)**.

14250.06R



20SDT2101

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.

You must show all your working.

_____ seconds [4]

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

_____ [4]

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

_____ [4]



(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]

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

Give your answer in binary and in decimal.

_____ [2]

[Turn over

14250.06R



20SDT2103

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.

You must explain your choice.

Field _____

Explanation _____

[2]

(ii) Identify the field for which a format check is appropriate.

You must explain your choice.

Field _____

Explanation _____

[2]

(iii) Explain how data verification is being used.

[2]



(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 shaded cell, explain what is meant by

Data _____

Information _____

_____ [4]



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

Using this example, explain what is meant by knowledge.

[3]

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

Fill in the missing words.

Each digit is multiplied by its _____.

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

The _____ is calculated and subtracted from 11. [4]





3 (a) Describe each of the following components of a computer system.

Processor _____

Data bus _____

Port _____

[9]

[Turn over

14250.06R



20SDT2107

(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]



4 (a) Describe the main features of each of the following types of operating system.

Multitasking _____

Multithreading _____

[6]



(b) Command line and WIMP are two common types of user interface.

Evaluate these interfaces from the point of view of the inexperienced user.

Quality of written communication will be assessed in this question.

[6]

[Turn over



(c) Describe the main features of each of the following file formats.

JPEG _____

GIF _____

[6]





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(Questions continue overleaf)

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[Turn over



20SDT2113

5 (a) Explain the difference between the World Wide Web (WWW) and the Internet.

WWW _____

Internet _____

_____ [4]



(b) Describe three ways in which a company could use an intranet.

1. _____

2. _____

3. _____

_____ [6]

[Turn over



(c) (i) Describe the purpose of this HTML code.

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

[3]

(ii) Describe the purpose of this HTML code.

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

[4]



- (e) A business decides to replace its proprietary word processing software with open source software.

Evaluate this decision with respect to cost.

Quality of written communication will be assessed in this question.

[6]

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Question Number	Marks
1	
2	
3	
4	
5	

Total Marks	
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Examiner Number

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