



General Certificate of Secondary Education
2023

Centre Number

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Candidate Number

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Digital Technology

Unit 1: (Compulsory Core)
Digital Technology



[GDG11]

GDG11

THURSDAY 18 MAY, AFTERNOON

TIME

1 hour.

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.

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

Answer **all twelve** questions.

INFORMATION FOR CANDIDATES

The total mark for this paper is 90.

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 Question **11(a)**.



1 Complete the table below.

(a) Place **one** of the following terms beside the correct definition. (Not all terms will be used.)

BYTE BIT KILOBYTE

Definition	Term
The smallest unit of digital data represented by either 0 or 1	[1]
Describes eight binary digits	[1]

(b) A student scores 51 in a Computing Module. State the most appropriate data type for storing the student score.

_____ [1]



(c) Below is an example of the results a student has received in their term exams.

Code	Module	Mark	Remarks
CM101	COMMUNICATIONS	57	
CM11	COMPUTING	51	
MT101	MATHS 1	72	MATHS 1 & 2 AVERAGE = 76%
MT102	MATHS 2	79	MATHS 2 GCSE EQUIVALENCE = "B"
CM12	BUSINESS	75	
	AVERAGE MARK for 5 MODULES	67	

From the table above:

(i) Identify one item of Data	[1]
(ii) Identify one piece of Information	[1]

[Turn over



2 Cassie is creating an image using a graphics software package.

(a) In the table below, place a tick (✓) beside **three** statements that are true about vector graphics.

Statement	Tick (✓)
When stretched the image can become blurred	
The image quality does not depend on resolution	
The image takes up a lot of storage space	
The image can be stretched without loss of clarity	
There is no need to store individual pixel values	

[3]

(b) What effect does the resolution of the image have on the image size?

[2]

Cassie is viewing a video online.

(c) Circle the correct statement about buffering.

Buffering is used to minimise interruptions to viewing

Buffering is used to hold the segments of the video that have been played

[1]



Cassie changes the sample rate on a sound file she has created.

(d) In the table below, tick (✓) the statement which is true about Cassie's sound file.

Statement	Tick (✓)
Increasing the sample rate increases the quality of the audio file	
Increasing the sample rate decreases the file size	

[1]

(e) What do the letters ADC stand for?

[1]

(f) Complete the sentence below about compression techniques by placing the following words in the correct place.

LOSSLESS **LOSSY**

A file can be fully restored to its original state using _____

compression. _____ is a method of compression that means

the data discarded from a file can never be recovered.

[2]

[Turn over



3 Sinead works for a software company. She creates a database to store details about clients' projects for each client and staff who worked on each project.

(a) Use the words listed below to complete the sentences which describe the key features of a database. (Each word will be used once only.)

RECORD TABLES REPORT QUERY MACRO FORM

Data stored in a database will be held in one or more _____ [1].

Each table will have a key field which is used to uniquely identify

each _____ [1].

A _____ [1] can be used with criteria to locate specific data

in a database. This data can then be displayed in a user-friendly format using

a _____ [1].

A _____ [1] can be used to add data to a database.

Some tasks in the database can be automated using a _____ [1].



Sinead's database includes a number of built-in validation checks.

(b) Apart from a presence check, use the descriptions listed below to identify the most appropriate validation check for each field shown.

FieldName	Table	Description	Validation Method
clientID	clientTBL	Key field Must begin with C followed by 5 numeric characters e.g. C12345	[1]
projectlength	projectTBL	Must be more than 1 day and less than 100 days	[1]
staffsurname	staffTBL	Can contain only alphabetic characters	[1]

[Turn over



- 4 Mia runs a garden centre and employs five staff. To calculate the total amount of wages to pay her staff weekly she uses a spreadsheet.

Part of the spreadsheet is shown below.

	A	B	C	D	E	F	G
1	Week Beginning		06/06/2023				
2	Name	Hourly Rate	Hours Worked / Week	Total Wages	Tax Deducted	Tax Amount	Take Home Pay
3	Mary Black	£15.00	35	£525.00	YES	£105.00	£420.00
4	Val Duggan	£10.50	35	£367.50	YES	£73.50	£294.00
5	Omar Douglas	£10.00	30	£300.00	YES	£60.00	£240.00
6	Sean Boyle	£17.50	35	£612.50	YES	£122.50	£490.00
7	Jeff Jones	£10.50	20	£210.00	NO	£0.00	£210.00
8			155	£2,015.00		£361.00	£1,654.00
9							
10	Tax Rate	0.2					
11							
12	Earning before Tax		£210				

- (a) What formatting method has been used on cells A12 and B12?

_____ [1]



(b) State the formula used in the following cells.

(i) C8 _____ [1]

(ii) D3 _____ [1]

The formula in cell F3 contains an absolute cell reference.

(c) Explain what is meant by an absolute cell reference.

_____ [2]

(d) In the table below, place a tick (✓) beside the formula used in cell E3.

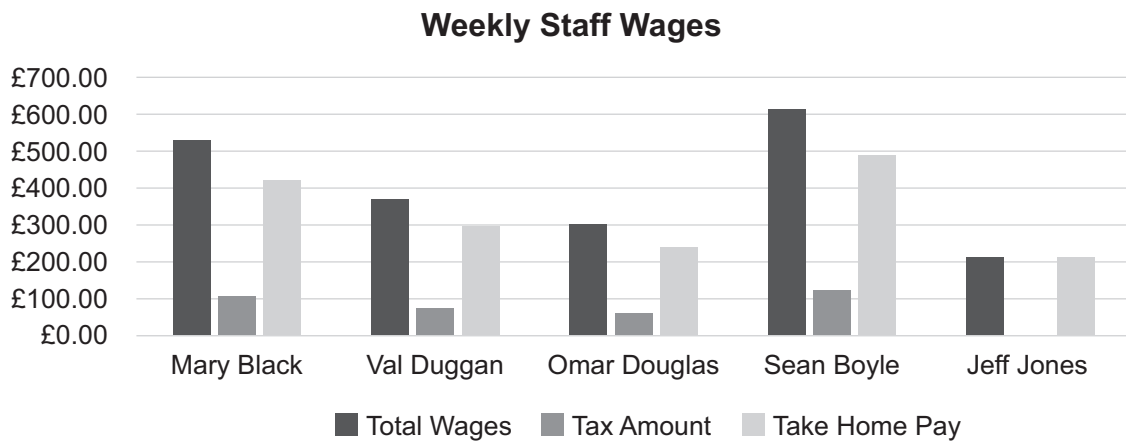
Formula	Tick (✓)
=IF(D3<C12, "YES", "NO")	
=IF(D3>C12, "YES", "NO")	
=IF(D3>=C12, "YES", "NO")	

[1]

[Turn over



Mia has produced a chart to provide her with information on staff wages.



(e) What is the name for this type of chart?

_____ [1]

(f) State **three** cell ranges Mia used to create the chart above.

1. _____
2. _____
3. _____ [3]

(g) State the term that describes a preformatted layout into which data can be added.

_____ [1]





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13768

[Turn over



24GDG1111

5 Omar runs a small business manufacturing parts for bikes. His staff have their own computer systems.

(a) What do the letters CPU stand for in relation to a computer system?

_____ [1]

(b) List **two** resources managed by the operating system in a computer system.

1. _____ [1]

2. _____ [1]

(c) Complete the table below by writing the correct term beside the definition.
(Not all terms will be used.)

Multi-tasking	Real-time	Multi-user
Definition	Term	
Data is processed immediately on collection		
Manages the sharing of CPU time and resources needed by many users		

[2]

(d) Which software group does defragmentation belong to?

_____ [1]



(e) Complete the following table stating whether a microphone and high definition display are input or output devices and then give an example of use. The first one has been completed for you.

Device	Input or Output	Example of Use
Games controller	Input	Playing a video game
Microphone	[1]	[1]
High definition display	[1]	[1]

[Turn over



6 (a) For each of the tasks below, recommend a suitable communication medium from the list provided. (Use each communication medium only once.)

Fibre-optic

Bluetooth

Wi-Fi

5G

Task	Media
Connecting a mobile phone to wireless headphones	
Accessing company files via the cloud while travelling	
Connecting a business's LAN to the Internet	
Connecting a smart TV to a home network	

[4]

(b) What is the Internet of Things?

[1]





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13768



24GDG1115

7 Michael works for a company that permits flexible working. When working in the Belfast office Michael connects to a LAN.

(a) What do the letters LAN stand for?

_____ [1]

(b) Complete the sentence about a LAN using the words listed.

Router Switch

The _____ [1] is used to connect the network to the Internet.

On a wired network each device will connect to a _____ [1]

using Ethernet cables.

The company uses a bus network.

(c) Draw and label a diagram to show how computers are connected on a bus network.

[3]



(d) State **one** benefit to the company of connecting their computers together in a network.

[1]

(e) What is the purpose of a Network Interface Card in a computer?

[1]



8 Communicating online poses security problems.

(a) What is a communication protocol?

[2]

(b) Which of the following protocols FTP or HTTPS is required to ensure that data transmitted is secure?

[1]

(c) Explain what is meant by a “phishing” email attack.

[1]

(d) Place the correct term beside the definitions in the table. (Not all terms will be used.)

WORM	SPYWARE	VIRUS	KEY LOGGER
Definition			Term
Collects user information without permission and sends it to a remote computer			
Software that can self-replicate on networks and cause damage to data			
Software used to record each keystroke on a computer			

[3]



Organisations use encryption to protect data.

(e) Explain the term encryption.

[2]

[Turn over

13768



24GDG1119

9 Many companies are now making use of cloud storage or cloud computing.

(a) What is cloud computing?

[2]

(b) List **two** advantages to a company of using cloud computing.

1. _____ [1]

2. _____ [1]

(c) State **two** ways in which cloud computing can help an online gamer.

1. _____

2. _____

[2]



10 Jim buys a new computer game. He makes a copy and gives it to his friend.

(a) What law has he broken?

_____ [1]

(b) Below is a table containing six principles. Place a tick (✓) beside **two** Data Protection Act principles that are incorrect.

Principle	Tick (✓)
Data should be used fairly and lawfully.	
Data should be adequate and relevant to the purpose for which it was collected.	
Data should be kept without security.	
Data should be kept for as long as the user of the data decides.	
Data should be processed within the rights of the data subject.	
Data should be kept accurate and up to date.	

[2]

(c) State **one** responsibility for each of the following individuals regarding the Data Protection Act.

(i) Information Commissioner

_____ [1]

(ii) Data Controller

_____ [1]

[Turn over



11 The increased use of digital technology has impacted on employment.

(a) Discuss this statement in relation to changes in work patterns and job losses.

[6]

Online learning has created many advantages for learners who cannot attend formal classes.

(b) State **two** disadvantages of online training.

1. _____

2. _____

[2]



12 Processing is an activity carried out by the computer system.

(a) In the table below, place the word “Batch” in the row that best describes batch processing.

Statements about processing	Response
Processing data fast enough to influence the behaviour of the next input	
Processing that enables several users to use the system at once	
Processing data all together during processor downtime	

[1]

Chen Chi is learning about backing up his computer files.

(b) Explain the term backup.

[2]

The available space on Chen Chi’s hard drive is limited due to storing many high definition video files.

(c) How can he overcome this problem?

[1]

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For Examiner's use only	
Question Number	Marks
1	
2	
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Total Marks	
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Examiner Number

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