General Certificate of Secondary Education

Digital Technology

Unit 1: (Compulsory Core)

Digital Technology

[GDG11]

Assessment

GDG11

Assessment Level of Control:
Tick the relevant box (✓)

Controlled Conditions	
Other	

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 eleven** 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 Questions **6** and **8(a)**.

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For Question 1 insert the appropriate letter in the space provided.

1   **(a)** GPS stands for:

    A   Goal Positioning System

    B   Global Positioning Satellite

    C   Global Positioning System

    D   Global Postal System

Answer _____ [1]

(b) Choose the correct name for the law that protects digitally created media.

    A   Copyright Designs and Patterns Act 1988

    B   Copyright Designs and Patents Act 1988

    C   Copyright Digital and Patents Act 1988

    D   Copyright Digital Patterns Act 1988

Answer _____ [1]

(c) FTP stands for:

    A   Field Transfer Protocol

    B   File Translation Protocol

    C   Field Translation Protocol

    D   File Transfer Protocol

Answer _____ [1]

[Turn over

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2 A company uses a database to store information about car sales.

(a) State whether the following statements about databases are **true** or **false**.

Statement	TRUE / FALSE
A relational database is made up of only one table.	[1]
A table consists of one or more records.	[1]
A field contains multiple items of data about a person or thing.	[1]
A key field uniquely identifies records in a table.	[1]

(b) In the screenshot below, what is the relationship between tblCARSSOLD and tblCARS?
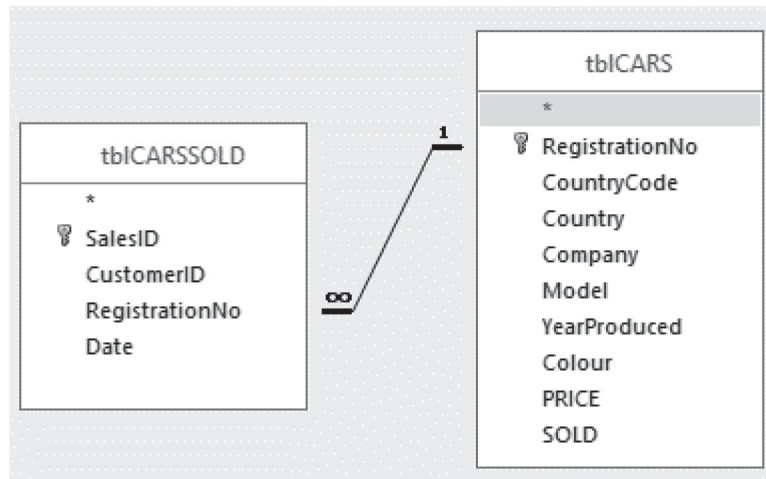
_____ [1]

(c) A sample view of tblCARS is shown below.

RegistrationNo	CountryCode	Country	Company	Model	YearProduced	Colour	PRICE
LIZ4561	CC103	GERMANY	BMW	1	2020	Silver	£24,000.00
PAZ9514	CC102	FRANCE	Peugeot	3008	2018	Silver	£12,000.00
PUI1987	CC101	JAPAN	Toyota	CHR	2019	Midnight Blue	£32,000.00
PUI4567	CC105	ITALY	Fiat	KA	2020	Red	£9,525.00
REZ1991	CC101	JAPAN	Mazda	6	2019	White	£28,500.00
RJZ1234	CC104	SPAIN	Seat	Leon	2018	Green	£8,425.00
VIW9874	CC103	GERMANY	BMW	6	2020	Sunburst	£75,000.00
WAZ7531	CC104	SPAIN	Seat	Ibiza	2017	Green	£6,750.00

(i) In the grid below suggest appropriate data types for the items listed.

Item	Data type
RegistrationNo	[1]
YearProduced	[1]

(ii) State how the data in the sample view above has been sorted.

_____ [1]

The owner runs a query on the data being held in tblCARS and the following results are returned.

Country ⏷	Company ⏷	Model ⏷
JAPAN	Mazda	6
JAPAN	Toyota	CHR

(d) Write the correct criteria required to produce these results in the criteria row.

Field:	Country	Company	Model
Table:	tblCARS	tblCARS	tblCARS
Sort:		Ascending	Ascending
Show:	☑	☑	☑
Criteria:			
or:			

[1]

The owner wants to import data files into the database.

(e) What do the letters CSV stand for?

_____ [1]

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The owner has produced the monthly sales report shown below.

SALES REPORT

Year Produced	Country Code	Country	Company	Model	Colour	Price
2018						
	CC102	FRANCE	Peugeot	3008	Silver	£12,000.00
2019						
	CC101	JAPAN	Mazda	6	White	£28,500.00
2020						
	CC103	GERMANY	BMW	1	Silver	£24,000.00
	CC103	GERMANY	BMW	6	Sunburst	£75,000.00
					TOTAL SALES	£139,500.00

(f) **(i)** What feature in the database software has the owner used to produce the sales data before creating this report?

_____ [1]

(ii) How has the data on the sales report above been organised?

_____ [1]

[Turn over

(g) A form like the one below is used to enter data into tblCARS.

CARS FOR SALE

RegistrationNo	LJZ4561
CountryCode	CC103
Country	Germany
Company	BMW
Model	1
YearProduced	2020
Price	£24,000.00

Sold ☐

Colour   Silver

Describe how the following validation checks could be used on the form.

Presence check

_____

_____ [2]

Range check

_____

_____ [2]

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(Questions continue overleaf)

3 Piotr has created a spreadsheet to record the marks for students taking four subjects.

	A	B	C	D	E	F	G	H	I	J	K
1				Overall Results							
2											
3											
4											
5			Student ID	Student Name	Computing Total	Maths Total	English Total	Science Total	Average Mark		
6			54852	Robert Lyttle	93	74	95	90	88		
7			68713	Kacey Smith	67	53	69	61	63		
8			21597	Terri Gibson	81	63	74	87	76		
9			32198	Hailey McMaster	85	68	85	80	80		
10			45843	Michael Johnson	53	33	48	39	43		
11											

(a) What formatting feature has Piotr used on cells E5:I5?

Feature	Tick (✓) correct answer
Merge text	
Wrap text	
Shrink to fit	

[1]

In cell I6 Piotr has used a formula to calculate the Average Mark for a student.

(b) State the formula used in cell I6.

_____ [1]

Piotr has replicated the formula on cells I7:I10.

(c) What is the benefit of Piotr using this feature?

_____

_____ [1]

In cell F6 below, Piotr has used the dollar symbol ($) in the formula when multiplying E6 by F4.

	A	B	C	D	E	F
1						
2	**Science**					
3						
4						0.4
5			Student ID	Student Name	Assignment 1	Assignment 1 Weighted
6			54852	Robert Lyttle	92	=E6 * F4
7			68713	Kacey Smith	57	=E7 * F4
8			21597	Terri Gibson	85	=E8 * F4
9			32198	Hailey McMaster	81	=E9 * F4
10			45843	Michael Johnson	50	=E10 * F4

(d) Tick (✓) the correct term for this in the table below.

Terminology	Tick (✓)
Absolute currency referencing	
Absolute cell referencing	
Absolute column referencing	

[1]

Piotr has created a template letter to distribute results.

(e) What is a template?

_____

_____

_____ [2]

(f) What feature of a spreadsheet would Piotr use to ensure that a Student ID is entered in the correct range?

_____ [1]

(g) Below is a screenshot which includes Robert Lyttle's results letter.

(i) In the table below, tick (✓) the correct formula used to produce the Grade for the student Robert Lyttle.

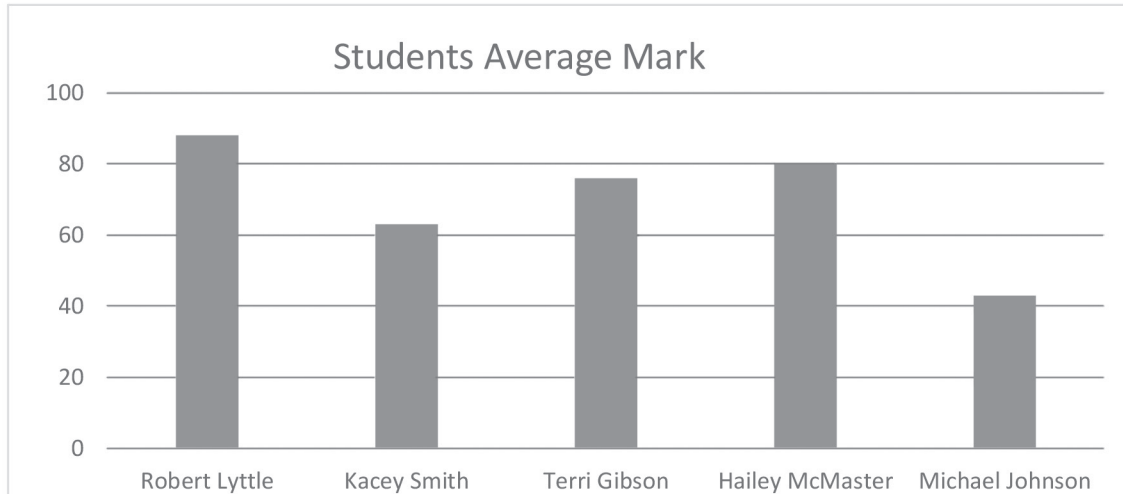| Formula	Tick (✓)
=IF(B23=75, "DISTINCTION", IF(B23=60, "COMMENDATION", IF(B23=40, "PASS", "FAIL")))	
=IF(B23>=75, "DISTINCTION", IF(B23>=60, "COMMENDATION", IF(B23>=40, "PASS", "FAIL")))	
=IF(B23<=75, "DISTINCTION", IF(B23<=60, "COMMENDATION", IF(B23<=40, "PASS", "FAIL")))	

[1]

[Turn over

(ii) Suggest a function which could be used to return Robert's highest subject result.

_____ [1]

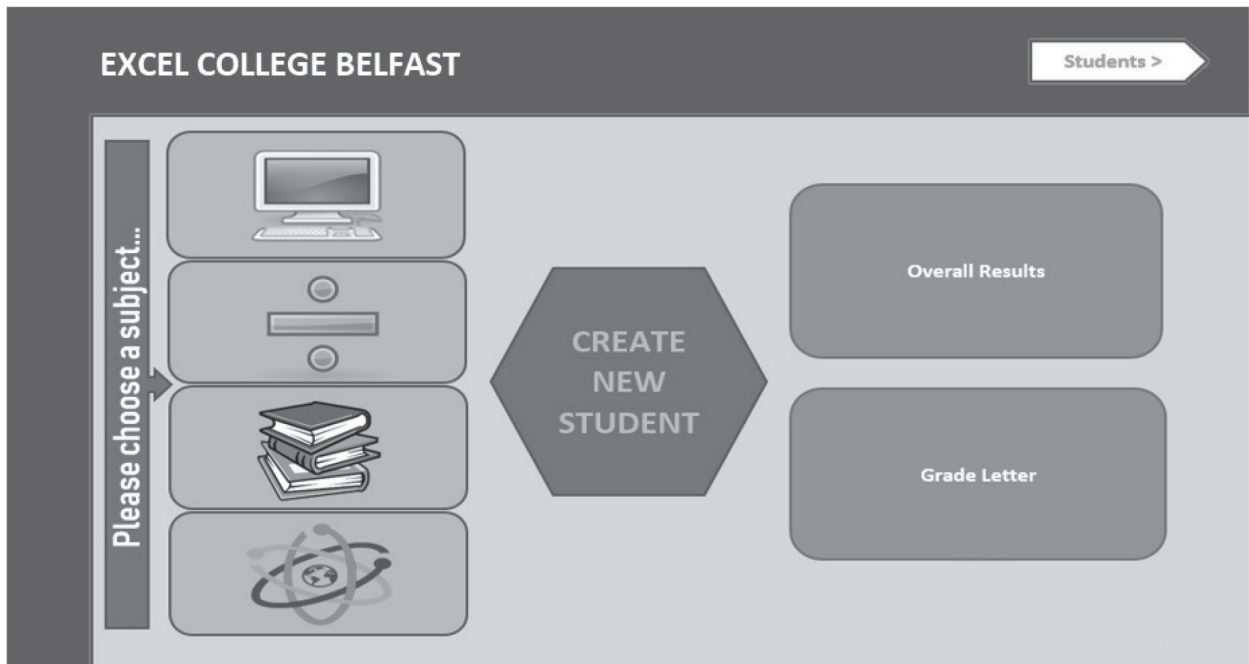Piotr produces a graph for the Head of Year.

Students Average Mark

Robert Lyttle	88
Kacey Smith	63
Terri Gibson	76
Hailey McMaster	80
Michael Johnson	43

(h) Identify **two** cell ranges used to produce the graph.

_____

_____ [2]

To make navigation of the system easy Piotr created a Graphical User Interface.

(i) What feature in the spreadsheet software has he used to link one worksheet to another?

_____ [1]

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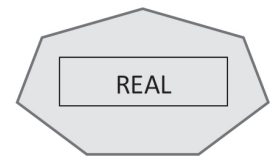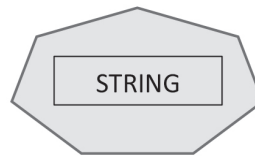**4** A computer stores data in binary format.

(a) How many bits are there in a byte?

_____ [1]

(b) What is the name given to a group of four bits?

_____ [1]

(c) Using the words provided, complete the table stating which data type matches the data.

INTEGER　　　CHARACTER　　　STRING　　　REAL
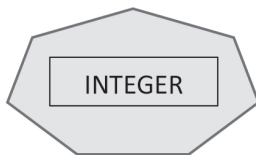
The first one has been completed as an example.

Data	Data type
22/05/19	DATE/TIME
24, 125, -23	[1]
A, £, @	[1]
Main Street	[1]
1.34, 6.2	[1]

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5 All computer systems contain a CPU.

(a) What do the letters CPU stand for?

_____ [1]

(b) List **two** registers used in the Fetch-Execute Cycle.

1. _____

2. _____ [2]

The speed that the CPU operates at is measured in cycles per second. One cycle per second equals one Hertz.

(c) How many instructions will a CPU with a clock speed of 4 GHz carry out per second?

Instructions per second	Tick (✓)
4 billion	
4 million	

[1]

(d) How does the clock speed impact on a computer's performance?

_____

_____

_____ [2]

[Turn over

6 Describe the functions of the following network resources.

1. A switch

_____

_____

_____

2. A router

_____

_____

_____ [4]

7 John runs a small joinery business. He uses the following devices in the office:

- a laser printer
- a PC with a hard disk drive, a large screen and speakers.

(a) List **two** features of a typical laser printer.

1. _____

2. _____ [2]

(b) John is going to change his PC to one which has a solid state drive. Describe the advantage of using a solid state drive instead of a hard disk drive.

_____

_____

_____ [2]

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8 The increase in the use of digital technology has brought many benefits. However, this is not always the situation when talking about social media.

(a) Describe **two** ways that social media can be misused.

_____

_____

_____

_____

_____

_____

_____

_____ [6]

(b) What three V's are commonly associated with Big Data?

1. _____

2. _____

3. _____ [3]

[Turn over

9 **(a)** What do the letters HTTPS stand for?

_____ [1]

(b) State the purpose of a protocol in data communication.

_____

_____

_____ [2]

Shefaa's email account has been hacked and she needs to change her password.

(c) What advice would you give Shefaa when she is choosing a new secure password?

_____

_____

_____ [2]

(d) Shefaa has received an email containing a Trojan horse virus. Describe how a Trojan horse virus can enter and damage computer systems.

_____

_____

_____ [2]

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10 Anne's multimedia company creates posters, logos and digital advertisements.

(a) The image, sound and video data can be created in a number of file formats.

(i) Circle the compressed file formats in the list below.

| JPEG | MP3 | MIDI | AVI | MP4 | [3] |

(ii) Data files can be compressed using lossy or lossless compression.
Describe the difference between the two types of compression.

_____

_____

_____ [2]

(b) Anne has decided to make use of cloud computing but she is concerned about cybersecurity and cybercrime.

What is cybercrime?

_____

_____ [2]

(c) Describe how levels of access can help prevent data theft on a network.

_____

_____

_____ [2]

[Turn over

(d) Anne has a lot of client data and she must ensure her company complies with the Data Protection Act.

(i) List **two** principles of the Data Protection Act.

1. _____

_____

2. _____

_____ [2]

(ii) Encryption can help protect data. Describe the process of data encryption.

_____

_____

_____ [2]

(e) Anne is also worried that her work may be used by other people without her permission. What law is designed to stop this happening?

_____ [2]

11 Using the terms in the list below, choose one term that best matches the definition in the left-hand column (not all terms will be used).

BACKUP   BUFFER   DATA THEFT   WIFI   INTRANET

PHISHING   GIF   BLUETOOTH   SPYWARE

TELEWORKING   FIREWALL   DENIAL OF SERVICE   JOB DISPLACEMENT

SPAMMING   TIFF   E-COMMERCE

Definition	Term
Software that allows the user to gain information about another person's computer activity.	
Hardware or software designed to protect a network by controlling what data can and cannot enter.	
An intermediate storage area used to hold downloaded segments of a video not yet played.	
A copy of data kept in case the original copy is damaged or lost.	
Wireless technology used for transmitting data over short distances.	
A term used to describe an impact of digital technology on employment.	
An attack on a network which involves flooding the network with useless traffic.	
A term used to describe commercial transactions conducted electronically on the Internet.	

[8]

THIS IS THE END OF THE QUESTION PAPER

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