Centre Number

Candidate Number

Digital Technology

Unit 1: (Compulsory Core)
Digital Technology

[GDG11]

GDG11

FRIDAY 24 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 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 Question **8**.

14166.09**R**

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

1 **(a)** One kilobyte (KB) contains:

    A   100 bytes

    B   256 bytes

    C   10000 bytes

    D   1024 bytes

                      Answer _____ [1]

(b) A WAN is:

    A   A World Area Network

    B   A Wired Application Network

    C   A Wide Area Network

    D   A World Applications Network

                      Answer _____ [1]

(c) The law designed to protect against software copying is:

    A   The Computer, Data and Software Act

    B   The Copyright, Data and Patents Act

    C   The Copyright, Designs and Patents Act

    D   The Copyright, Designs and Software Act

                      Answer _____ [1]

(d) What do the letters SSD stand for?

A Solid State Drive

B Solid Storage Drive

C Solid State Device

D Solid Storage Device

Answer _____ [1]

(e) What do the letters RSI stand for?

A Rest and Support Injury

B Restrictive Support Injury

C Repetitive Strain Injury

D Repetitive Straining Injury

Answer _____ [1]

(f) Why does a computer need a hard disk drive?

A To boot up the computer

B To access programs that are currently running

C To store data, files, and software currently not in use

D To access the data stored in the CPU

Answer _____ [1]

[Turn over

(g) What type of signal is passed through a fibre-optic cable?

A Radio signals

B Wi-Fi

C Light signals

D Electrical signals

Answer _____ [1]

(h) Which of the following is not an output device?

A Monitor

B Microphone

C Speaker

D Printer

Answer _____ [1]

(i) What is the name given to a short-range wireless communication technology?

A Intranet

B Internet

C Bluetooth

D Router

Answer _____ [1]

(j) What should a strong password consist of?

A Only letters

B Numbers and special characters

C Name of a person

D Letters, numbers, and special characters

Answer _____ [1]

2 Many web-based email accounts use cloud computing technology.

(a) State what is meant by the term cloud computing.

_____

_____ [1]

(b) Give **one** advantage of cloud computing.

_____

_____ [1]

(c) List **two** potential risks with cloud computing.

1. _____

_____

2. _____

_____ [2]

3 A booking agent created a relational database to keep a record of his artists' performances. A section of the three tables is shown below.

tblArtist

ArtistID	ArtistName
RO1	Rock On
TD1	The Delights
SF1	Stage Fright

tblVenue

VenueID	Venue	Location
OH101	Opera House	Belfast
BB201	The Black Box	Belfast
LY301	The Lyric	Belfast
MM401	Mossley Mill	Newtownabbey
RS501	Riverside	Coleraine

tblBookings

ConcertID	ArtistID	VenueID	ConcertDate	TicketPrice
A123	RO1	OH101	20/05/2024	£35
A223	TD1	BB201	21/05/2024	£40
A314	SF1	LY301	23/05/2024	£26
A351	RO1	MM401	23/05/2024	£40
A410	TD1	RS501	29/05/2024	£60

(a) In the blank spaces below, state an appropriate data type for each field.

Field Name	Data Type
ConcertID	[1]
ConcertDate	[1]
TicketPrice	[1]

(b) Using the words supplied below complete the sentences about databases. (Not all words will be used.)

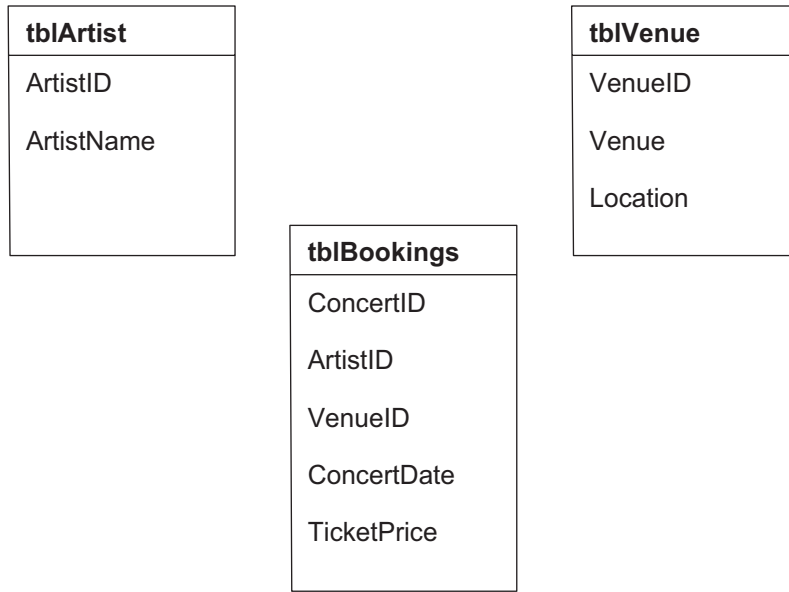**RECORD   TABLE   COLUMN**

In a relational database, data is stored in a _____ [1].

A _____ [1] is made up of several fields.

[Turn over

14166.09**R**

Below is a diagram of the three tables in the relational database, tblArtist, tblVenue and tblBookings.

tblArtist

ArtistID

ArtistName

tblVenue

VenueID

Venue

Location

tblBookings

ConcertID

ArtistID

VenueID

ConcertDate

TicketPrice

(c) How many fields are there in the table tblVenue?

_____ [1]

(d) State the Primary key in the table tblBookings.

_____ [1]

The booking agent has run a query on the relational database, and the following output was produced.

ConcertID	ArtistID	ArtistName	VenueID	Venue	ConcertDate	TicketPrice
A123	RO1	Rock On	OH101	Opera House	20/05/2024	£35.00
A351	RO1	Rock On	MM401	Mossley Mill	23/05/2024	£40.00

(e) Identify the Field and the Criteria to produce the output shown above.

Field	Criteria
[1]	[1]

The booking agent created the following query.

Field:	ConcertID	ArtistID	VenueID	ConcertDate	TicketPrice
Table:	tblBookings	tblBookings	tblBookings	tblBookings	tblBookings
Sort:					
Show:	✓	✓	✓	✓	✓
Criteria:					=26
or:					=40

Using the above query.

(f) State how many records will be displayed when this query is run.

_____ [1]

4 A community group are planning to create a new computer games room. They have approached four different companies for quotations. If the total is over £2000 then 15% discount is applied.

The spreadsheet below contains the quotations.

	A	B	C	D	E
1	Community Project Budget Sheet				
2	Budget	£2,000.00		Discount	15%
3					
4	**Items**	**Quotation 1**	**Quotation 2**	**Quotation 3**	**Quotation 4**
5	Flooring	£750.00	£600.00	£700.00	£400.00
6	Paint	£50.00	£65.00	£45.00	£40.00
7	Table	£75.00	£45.00	£65.00	£57.00
8	Blinds	£100.00	£95.00	£110.00	£90.00
9	Television	£650.00	£550.00	£625.00	£500.00
10	Games Console	£300.00	£345.00	£295.00	£369.00
11	Gaming Chair	£70.00	£65.00	£65.00	£60.00
12	Virtual Reality Headset	£500.00	£550.00	£450.00	£600.00
13	**Total**	**£2,495.00**	**£2,315.00**	**£2,355.00**	**£2,116.00**
14	Discount Amount	£374.25	£347.25	£353.25	£317.40
15	**Total Cost**	**£2,120.75**	**£1,967.75**	**£2,001.75**	**£1,798.60**
16	**In Budget**	Over Budget	In Budget	Over Budget	In Budget

(a) What formula does cell B13 contain?

_____ [2]

(b) What is the formula used in cell D15 to calculate Total Cost?

_____ [1]

(c) State how the text in cell A1 has been formatted.

_____ [1]

(d) In the grid below place a tick (✓) against the correct function to select the lowest price for a Television.

Function	Tick (✓)
AVERAGE	
ROUND	
MIN	
MAX	

[1]

(e) Cell C14 contains the following formula, =C13*E2.
Complete the following sentence by inserting one of the two words given below.

Absolute   **Relative**

_____ [1] cell references include the dollar ($) sign.

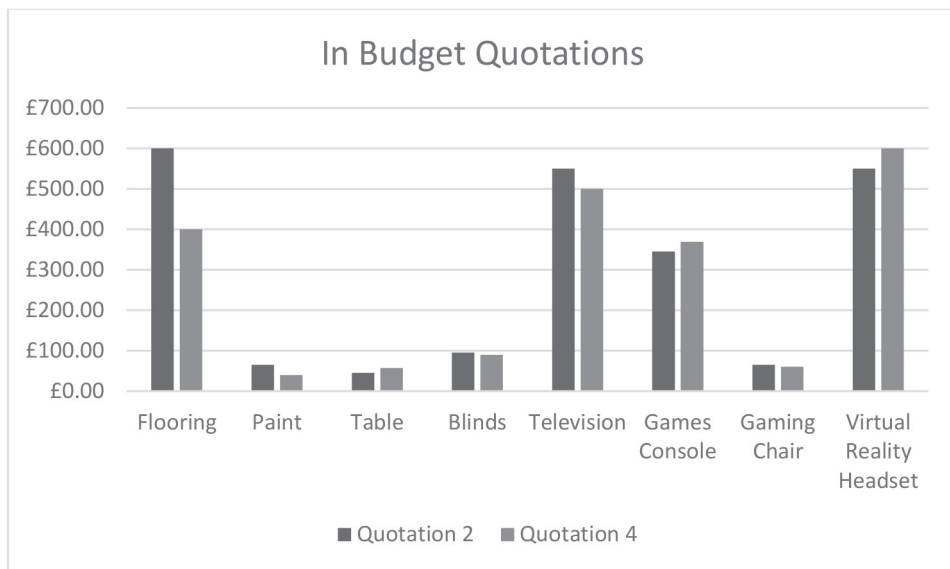**(f)** Place a tick (✓) beside the correct IF statement used in cell B16.

IF statement	Tick (✓)
=IF(B15<=B2,"Budget","Budget")	
=IF(B15<=B2,"In Budget","Over Budget")	
=IF(B15>=B2,"In Budget","Over Budget")	

[1]

[Turn over

(g) State the cell ranges used to produce the graph below.

In Budget Quotations

1. _____

2. _____

3. _____ [3]

(h) What name is given to the graph type shown above?

_____ [1]

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(Questions continue overleaf)

5 Computers make use of different hardware components.

(a) For each row in the table below choose the term that best matches the description. (Not all terms will be used.)

Arithmetic and Logic Unit   **Control Unit**   **Program Counter**   **Cache**

Description	Term
A small amount of high-speed memory close to the processor	
Responsible for fetching and decoding instructions	
Carries out calculations and comparisons	

[3]

(b) Using the words supplied below, complete the following sentence about the Central Processing Unit (CPU). (Not all words will be used.)

Memorise   **Processing**   **Manage**

The main purpose of the CPU is to _____ [1] the functions of a

computer by _____ [1] data and instructions.

Elsie is producing a table to help her understand the differences between RAM and ROM.

(c) Complete the table below by placing a tick (✓) in the row under the correct heading.

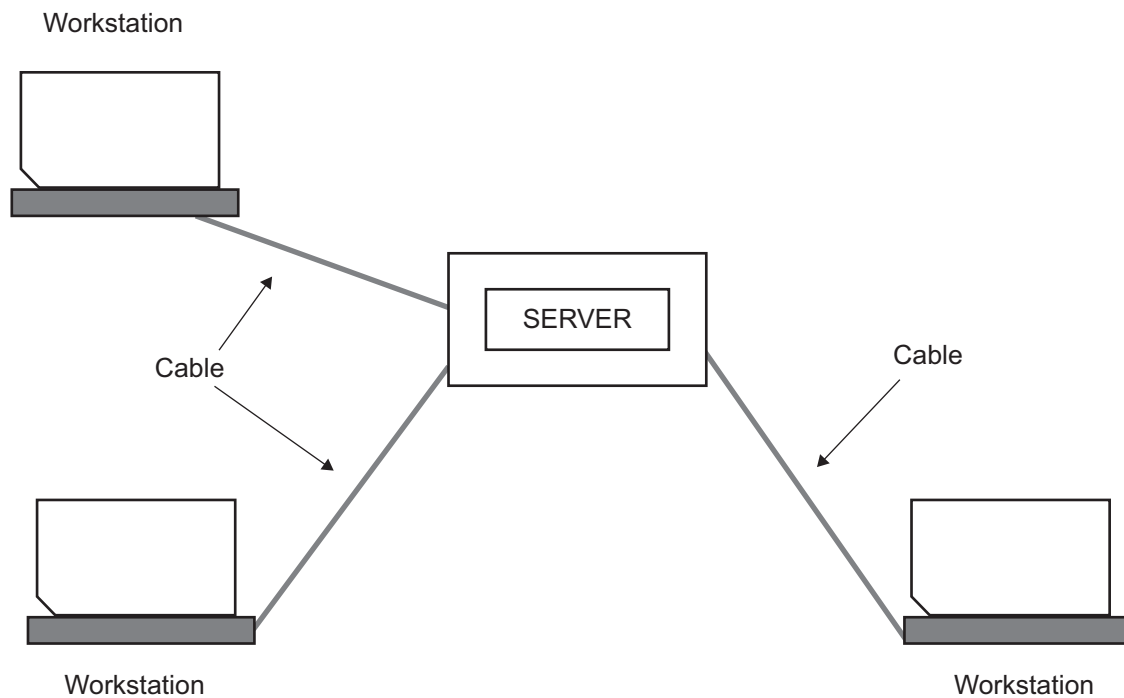| Statement	RAM	ROM
The memory is non-volatile		
Data is read only and cannot be changed		
Data will be lost when the computer is turned off		
Stores current data and instructions that are being used		

[4]

(d) What do the letters IAS stand for?

_____ [1]

[Turn over

6 A diagram of a star network is shown below.

Workstation

SERVER

Cable

Cable

Workstation

Workstation

(a) Complete the grid by placing the word TRUE in the rows that are an advantage of a star network.

Statement	Advantage
If the server fails, then the network will continue to work	
A new workstation can be attached directly without shutting down the network	
If a workstation fails, then the network will continue to work	

[2]

(b) State **two** disadvantages of using a bus topology to network computers.

1. _____

2. _____ [2]

(c) What is a Local Area Network?

_____ [1]

(d) Complete the sentences below using the words provided about data transmission. (Not all terms will be used.)

UNREADABLE   **DECODED**   **ENCRYPTED**   **ENCRYPTION**

The process of encoding data before it is sent across a network is called

_____ [1]. This method makes the data _____ [1]

if it is intercepted. When the data arrives at its destination, the data can only be

_____ [1] with the software key.

(e) State the protocol which the World Wide Web (WWW) uses for secure data transmissions.

_____ [1]

Ben works between home and his office; he accesses customer data using an internet connection.

(f) Explain **two** ways Ben's computer could become infected by a virus.

1. _____

_____

2. _____

_____ [4]

7   Clarendon College produces video tutorials which are made available for students on a website.

   (a) (i)   Explain the process that Clarendon College can use to ensure that the students can download the video quickly.

   _____

   _____ [2]

   (ii)   State a suitable video file format for these tutorials.

   _____ [1]

   (b)   Podcasts are also used. What is meant by bit depth when referring to a sound recording?

   _____

   _____ [2]

8 Describe each of the following cybercrime threats.

Quality of written communication will be assessed in this question.

Phishing

_____

_____

_____

_____

Denial of Service

_____

_____

_____

_____ [6]

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9 Computer gaming is a popular method of home entertainment.

(a) List **three** input devices required for computer gaming.

1. _____

2. _____

3. _____ [3]

(b) State **two** health hazards connected with computer gaming.

1. _____

2. _____ [2]

(c) Apart from health hazards, describe **one** disadvantage of computer gaming.

_____

_____ [2]

10 Place the correct term below against the appropriate definition.

GPS   Macro   Integer   Operating System   Spyware

Backup   Intranet   Graphical User Interface

Definition	Term
A private network accessible only within an organisation	
A method used to keep another copy of the original data	
A computer program that provides the instructions that enable the computer hardware to work	
A series of stored commands that can be activated using a button	
A program installed on a computer to automatically collect information about the user over a period of time	
A data type which stores positive or negative whole numbers	
A navigation system that uses satellites and gives the user directions to a destination	
Used to interact with a computer through icons and menus	

[8]

11 Jonathan is learning about computer legislation.

(a) Place the following legislation in the table, beside the appropriate statement. (Not all words will be used.)

Computer Misuse Act   **Consumer Contract Regulations**

Data Protection Act

Statement	Legislation
To protect personal data	
To enable prosecution of hackers	

[2]

(b) List **two** forms of social media misuse.

1. _____

2. _____ [2]

(c) List **two** steps that an organisation can take to stop hackers gaining entry to a computer system.

1. _____

2. _____ [2]

_____

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