



**General Certificate of Secondary Education
2024**

Digital Technology

Unit 1:

(Compulsory Core)

Digital Technology

[GDG11]

FRIDAY 24 MAY, AFTERNOON

**MARK
SCHEME**

General Marking Instructions

Introduction

Mark schemes are published to assist teachers and students in their preparation for examinations. Through the mark schemes teachers and students will be able to see what examiners are looking for in response to questions and exactly where the marks have been awarded. The publishing of the mark schemes may help to show that examiners are not concerned about finding out what a student does not know but rather with rewarding students for what they do know.

The Purpose of Mark Schemes

Examination papers are set and revised by teams of examiners and revisers appointed by the Council. The teams of examiners and revisers include experienced teachers who are familiar with the level and standards expected of students in schools and colleges.

The job of the examiners is to set the questions and the mark schemes; and the job of the revisers is to review the questions and mark schemes commenting on a large range of issues about which they must be satisfied before the question papers and mark schemes are finalised.

The questions and the mark schemes are developed in association with each other so that the issues of differentiation and positive achievement can be addressed right from the start. Mark schemes, therefore, are regarded as part of an integral process which begins with the setting of questions and ends with the marking of the examination.

The main purpose of the mark scheme is to provide a uniform basis for the marking process so that all the markers are following exactly the same instructions and making the same judgements in so far as this is possible. Before marking begins a standardising meeting is held where all the markers are briefed using the mark scheme and samples of the students' work in the form of scripts. Consideration is also given at this stage to any comments on the operational papers received from teachers and their organisations. During this meeting, and up to and including the end of the marking, there is provision for amendments to be made to the mark scheme. What is published represents this final form of the mark scheme.

It is important to recognise that in some cases there may well be other correct responses which are equally acceptable to those published: the mark scheme can only cover those responses which emerged in the examination. There may also be instances where certain judgements may have to be left to the experience of the examiner, for example, where there is no absolute correct response – all teachers will be familiar with making such judgements.

		AVAILABLE MARKS													
1	(a) D	[1]	10												
	(b) C	[1]													
	(c) C	[1]													
	(d) A	[1]													
	(e) C	[1]													
	(f) C	[1]													
	(g) C	[1]													
	(h) B	[1]													
	(i) C	[1]													
	(j) D	[1]													
2	(a) "Key is through the Internet. or named Cloud storage" Cloud computing is storing/accessing data or programs through the Internet	[1]	4												
	(b) Any one from: Remote global access to files [1] Collaborative working [1] Don't need large servers [1] Share files [1] Cost [1] Software updates [1] Backup and recovery [1] Unlimited storage [1] Reduce carbon footprint	[1]													
	(c) Any two from: Security issues [1] data stored in cloud at risk to hackers [1] Viruses uploaded to cloud could destroy data [1] Spread viruses [1] Potential downtime [1] Band width limitations [1]	[2]													
3	(a)	Two answers in one row no marks.	3												
	<table border="1" style="display: inline-table; vertical-align: top;"> <thead> <tr> <th>Field Name</th> <th>Data Type</th> <th></th> </tr> </thead> <tbody> <tr> <td>ConcertID</td> <td>Text/String</td> <td>[1]</td> </tr> <tr> <td>ConcertDate</td> <td>Date/Time</td> <td>[1]</td> </tr> <tr> <td>TicketPrice</td> <td>Currency</td> <td>[1]</td> </tr> </tbody> </table>	Field Name		Data Type		ConcertID	Text/String	[1]	ConcertDate	Date/Time	[1]	TicketPrice	Currency	[1]	Date [1]
	Field Name	Data Type													
	ConcertID	Text/String		[1]											
ConcertDate	Date/Time	[1]													
TicketPrice	Currency	[1]													
(b) In a relational database, data is stored in a __TABLE_ [1]. A _RECORD [1] is made up of several fields.	[2]														
(c) 3	[1]														
(d) ConcertID	[1]	2													
(e)	Accept =ROI [1]														
<table border="1" style="display: inline-table; vertical-align: top;"> <thead> <tr> <th>Field</th> <th>Criteria</th> </tr> </thead> <tbody> <tr> <td>ArtistID [1]</td> <td>RO1 [1]</td> </tr> <tr> <td>Artistname [1]</td> <td>Rock On [1]</td> </tr> </tbody> </table>	Field		Criteria	ArtistID [1]	RO1 [1]	Artistname [1]	Rock On [1]								
Field	Criteria														
ArtistID [1]	RO1 [1]														
Artistname [1]	Rock On [1]														
(f) 3	[1]	10													

4 (a) Pay close attention
 NB use of SUM [1] correct cell co-ordinates [1]
 E.G., SUM [1](B5:B12 [1] or SUM [1](B5-B12) [1] both brackets are necessary
 B5+B6+B7+B8+B9+B10+B11+B12 [1] [2]

(b) D13-D14 or (D13-D14) Equal sign not required [1]

(c) Wrap Text/Text Wrap/Text Wrapping [1]

(d)

Function	Tick (✓)
AVERAGE	
ROUND	
MIN	✓
MAX	

[1]

(e) ___ABSOLUTE___ [1] cell references include the dollar \$ sign. [1]

(f)

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

[1]

(g) 1. A5:A12
 2. C4:C12 Pay close attention
 3. E4:E12 [3]

(h) Bar/Column (chart) Bar graph [1] [1]

11

5 (a)

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

[3]

(b) The main purpose of the CPU is to **MANAGE** [1] the functions of a computer by **PROCESSING** [1] data and instructions. [2]

(c)	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	✓	

Mark **Question 5(c)** by row, if two ticks in a row no marks

[4]

(d) Immediate Access Store Do not accept storage

[1]

10

6 (a)

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

[2]

Accept ticks instead of True

(b) Any **two** from:

Data collisions [1]

Adding more workstations slows the performance of the network [1]

High traffic can slow down the transmission of data [1]

If the cable breaks/has problems the network stops working [1]

NB Cable must refer to the Main cable or Backbone

Bounce back on the cable can distort the data being transmitted [1]

or Bounce back on the cable can cause data to be lost if damaged

[2]

(c) Any **one** from:

A network in a company spread over a small geographical area/normally contained in a single building/can be found in a home or school

[1]

(d) The process of encoding data before it is sent across a network is called **ENCRYPTION** [1]. This method makes the data **UNREADABLE** [1] if it is intercepted. When the data arrives at its destination, the data can only be **DECODED** [1] with the software key.

[3]

(e) HTTPS Hypertext Transfer Protocol Secure

[1]

- (f) Method of infection [1] Correct expansion [1]
 Email [1] open attachment/download/open email – do something with email
 Click link [1] download virus
 Hacking [1] virus downloaded (by hacker)
 Trojan horse [1] disguises itself
 Worm [1] replicates itself
 Malware [1] If he surfs through hacked websites
 Or by viewing a legitimate site serving malicious ads, download infected files, open a malicious email attachment

Examples:

Ben could open an email with an infected attachment. [1] The virus will run/be downloaded when the attachment is opened [1]

Ben could click a link [1] and the virus is downloaded to his computer [1]

- Not Spyware
- Not virus on its own – it has to be specific
- Not answers related to viruses in the customer data
- Not downloading a file (must refer to downloading a virus)
- Not phishing

Note that Ben gets the virus while using an Internet connection [4]

AVAILABLE
MARKS

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- 7 (a) (i) Any **two** from:
- Compression [1]
 - Reduce the file size [1]
 - Reference to removing detail [1] [2]
- (ii) MP4/MOV (or another suitable format) MPEG [1]
- (b) The number of bits [1] used for each sound sample [1] [2]

5

8 Level 0 ([0])

Answer is not worthy of credit.

Level 1 ([1]–[2])

The candidate demonstrates a basic knowledge of one threat [1] or both threats [2]. The candidate makes limited use of spelling, punctuation and grammar. The meaning of the text is not always clear. The structure of the answer is basic. There is no use of specialist terms.

Candidate briefly describes one threat [2]

Level 2 ([3]–[4])

The candidate describes one threat [3] or briefly describes two threats [4]. The candidate makes satisfactory use of spelling, punctuation, and grammar. The meaning of the text is usually clear. The candidate demonstrates a satisfactory form and style appropriate to the question. The answer is not structured under the two headings. There is some use of specialist terms.

Level 3 ([5]–[6])

The candidate fully describes the two threats. [5]/[6] The candidate makes good use of spelling, punctuation and grammar. The meaning of the text is always clear. The candidate demonstrates a good level of knowledge appropriate to the question. The structure of the answer is good. There is sufficient use of specialist terms.

Please mark by Level

One tick Level 1, two ticks Level 2 and three ticks Level 3

Answers should include:

Phishing

- Designed to catch data such as bank detail, security code, usernames, passwords
- Victim receives and responds to a communication that appears to be from a valid or known source.
- Communication is fraudulent.
- It allows the fraudster to capture private information before the victim realises/reference to identity theft.
- Often uses emails.
- Trying to access data belonging to another person.

Denial of Service

- Involves the computer repeatedly sending requests to a server/bombarding the server
- Requests overload the system/flood the network with traffic/preventing the system from functioning.
- Requests will slow the system down.
- May take the website/s offline for a temporary period.
- A malicious attempt to disrupt normal traffic to a web property.
- Difficulty responding to legitimate requests.

- 9 (a) Any **three** from:
 Joystick [1] Mouse [1] Games controller [1] Touchscreen [1] Keyboard [1]
 Microphone [1] Head Sets [1] Not Head phones [3]
- (b) Any **two** from:
 Eye strain [1] Backache [1] Epilepsy [1] RSI [1]
 Back strain/Back pain Do not accept Sore Back [2]
- (c) Any **one** from plus expansion:
 Violent games [1] can lead to cyberbullying [1]
 Waste time [1] schoolwork suffers [1]
 Chatting to people you do not know [1] could be a danger? [1] Addiction [1]
 - if not used as a health risk
 Social isolation, lack of physical activity [2]

AVAILABLE
MARKS

7

10

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

8

11 (a)			AVAILABLE MARKS
Statement	Legislation		
To protect personal data	Data Protection Act		
To enable prosecution of hackers	Computer Misuse Act (1990)	[2]	
(b) Any two from:			
Can name or give a description			
Cyberbullying [1] Fake/Bogus profile [1] Privacy issue [1]/Trolling is different than cyber bullying [1] Data theft [1] Defamation [1] Identity fraud [1] locate victims [1] create false news [1] cyber stalking [1]		[2]	
(c) Any two from:			
User codes/User IDs/Logins [1] Passwords [1] Firewall [1] Two-Factor Authorization [1] Encryption [1] Levels of access [1]		[2]	6
		Total	90