



# Cambridge IGCSE™

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**INFORMATION AND COMMUNICATION TECHNOLOGY**

**0417/21**

Paper 2 Document Production, Data Manipulation and Presentations

**February/March 2022**

MARK SCHEME

Maximum Mark: 80

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**Published**

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

Cambridge International will not enter into discussions about these mark schemes.

Cambridge International is publishing the mark schemes for the February/March 2022 series for most Cambridge IGCSE™, Cambridge International A and AS Level components and some Cambridge O Level components.

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This document consists of **16** printed pages.

**Generic Marking Principles**

These general marking principles must be applied by all examiners when marking candidate answers. They should be applied alongside the specific content of the mark scheme or generic level descriptors for a question. Each question paper and mark scheme will also comply with these marking principles.

**GENERIC MARKING PRINCIPLE 1:**

Marks must be awarded in line with:

- the specific content of the mark scheme or the generic level descriptors for the question
- the specific skills defined in the mark scheme or in the generic level descriptors for the question
- the standard of response required by a candidate as exemplified by the standardisation scripts.

**GENERIC MARKING PRINCIPLE 2:**

Marks awarded are always **whole marks** (not half marks, or other fractions).

**GENERIC MARKING PRINCIPLE 3:**

Marks must be awarded **positively**:

- marks are awarded for correct/valid answers, as defined in the mark scheme. However, credit is given for valid answers which go beyond the scope of the syllabus and mark scheme, referring to your Team Leader as appropriate
- marks are awarded when candidates clearly demonstrate what they know and can do
- marks are not deducted for errors
- marks are not deducted for omissions
- answers should only be judged on the quality of spelling, punctuation and grammar when these features are specifically assessed by the question as indicated by the mark scheme. The meaning, however, should be unambiguous.

**GENERIC MARKING PRINCIPLE 4:**

Rules must be applied consistently, e.g. in situations where candidates have not followed instructions or in the application of generic level descriptors.

**GENERIC MARKING PRINCIPLE 5:**

Marks should be awarded using the full range of marks defined in the mark scheme for the question (however; the use of the full mark range may be limited according to the quality of the candidate responses seen).

**GENERIC MARKING PRINCIPLE 6:**

Marks awarded are based solely on the requirements as defined in the mark scheme. Marks should not be awarded with grade thresholds or grade descriptors in mind.

Name, centre number, candidate number right aligned  
No other placeholders 1 mark

Name, Centre number, Candidate number

# Upgrade your data storage

There are two good reasons to upgrade your hard disk drive. You may need more storage capacity

Title entered accurately 1 mark  
HD-title style applied - matches style defined in EV 2 1 mark  
(serif 28pt, centre, bold, italic, 0pt before 0pt after)

If you can physically upgrade the storage on your computer,

Text box:  
Text box placed correctly, no hidden text, aligned to top of text and right margin 1 mark  
Contents of text file located, copied, fully visible and formatted to HD-body style and bold 1 mark  
Grey background applied to text box 1 mark  
3-4pt thickness line around text box 1 mark

Once you are sure you can upgrade, find out which of technologies and formats are compatible with your system.

## WHICH DRIVE WORKS FOR YOU?

If you can upgrade, then you need to find out which sort of drive is best for your machine. It is worth checking what storage devices are available of the current sorts

Columns:  
Section break – applied to correct text 1 mark  
2 columns, 1.5 cm column spacing 1 mark

format stick. The SATA connected drive will fit in most desk-top computers, while the newer M.2 format requires a special slot to be is becoming available light-weight laptop

- Mechanical hard drives
- Solid state drives
- SATA connected SSDs
- M.2 format SSDs

effectively a miniature PCI-Express socket with a theoretical maximum bandwidth of 32 Gbits/second compared with 6



## MECHANICAL HARD DRIVES

These hard drives offer reliable performance at reasonable prices per gigabyte. They are much slower than SSDs and provide economical solutions to large capacity second-hand storage where speed is not at a premium. They are not recommended as the main storage where a smaller SSD will

Image:  
Image inserted in correct paragraph 1 mark  
Aligned to top of text, right of column, text wrapped 1 mark  
Rotated through 180 degrees 1 mark  
Resized to half column width, aspect ratio maintained 1 mark

Bullets:  
Square shaped bullet selected and applied to correct text 1 mark  
Bullets indented 1.5 cm from left margin 1 mark  
Text in single line spacing with 6 pt after 1 mark

thicknesses of SATA drives – 7 mm or 9.5 mm. You may need to check on your laptop computer whether it is limited to the thinner size. The use of a spacer can pad the thickness of a slimmer drive in a 9.5 mm space.

## CAPACITY OR SPEED?

The performance difference between an SSD and a mechanical drive is not only about data transfer speed, but also on seek time. On a mechanical hard disk the head has to physically move between different areas of the disk surface as it fetches bits of data for different programs or processes. On an SSD all locations are instantly addressable so performance is smooth and responsive.

Footer:  
Page number centre aligned and no other placeholders or field codes 1 mark

HD-subhead seen modified (EV3); all formatting correct (Serif, 12pt, italic, bold, all capitals, centre, 9pt after, 0pt before, single line spacing) 1 mark

Candidate name, Centre number, Candidate number

<i>Type of Storage</i>	<i>Benefits</i>	<i>Disadvantages</i>
<i>Mechanical hard disk drive</i>	<i>Large capacity at relatively low price per GB</i>	<i>Slow, not so good as system drive</i>
<i>Solid state drive (SATA)</i>	<i>Fast with commonly available 2.5 inch slots</i>	<i>Quite expensive especially for large capacity drives</i>
<i>Solid state drive (M.2 format)</i>	<i>Small but very fast</i>	<i>Need specialised slot and expensive</i>
<i>Cloud storage</i>	<i>Unlimited storage</i>	<i>Not under personal control</i>

A large capacity (up to several terabytes) hard disk drive is an economical storage option. Mechanical hard drives are available in 3.5 inch size. For a primary drive SSD, a capacity of 1TB is affordable. Similarly an M.2 format drive may be used as secondary storage.

So far we have only talked about internal storage. There is also a possibility of using any of the drive types discussed for portability of data and can take it from one computer to another. You can choose to store data on a server in the cloud and have it accessible from anywhere that you have an internet connection.

Table:

1pt internal and external gridlines printed 1 mark

Notes column only deleted with contents 1 mark

HD-table style applied to text 1 mark

Table 15 cm wide and centred on the page,

no split words 1 mark

6pt space after the table 1 mark

Page break removed maintaining paragraphs and spacing, after ... secondary storage. 1 mark

**DISK**

There are several options to transferring the contents of the old disk onto the new disk. One method is to make a clean install using a version of the operating system on disk. This method will remove all existing programs you have. These will need to be reinstalled after the new disk is operating. An alternative method which will preserve your existing programs is to use cloning software (often supplied with a new disk drive) and make an exact copy of the current disk. This can be quite straightforward, but if the new disk is a smaller capacity than the one it is replacing may involve you in deciding what to keep and what to leave out. A third route is to make a virtual image of the source disk and copy it onto external media, then boot from a disk containing the imaging software choosing which files to keep.

Good luck if you decide to upgrade your storage.

Presentation:

Styles applied consistently with consistent spacing – no changes to body text (Arial 11pt, justified, 0 space before, 6pt after) 1 mark

Doc complete/paras intact, portrait, cols and pages aligned at top, no widows/orphans, lists and table not split, no blank pages 1 mark

Title, fully visible and accurate 1 mark

New field **Retail** same currency format as Price 1 mark  
*Retail* calculated (*Price* \*1.2) 1 mark

# Drives for Gamers or Creative Work

Drive_Code	Model_Code	Model	Maker	Country	Suitability	Form_Factor	Read	Capacity_TB	Price	Retail
DD66	M280C3030500	XLR8 CS3030	Pliny	Indonesia	Gaming	M.2	3500	0.500	£76.00	£91.20
DD88	TDMX2000NV	Attack Pro	TData	Japan	Enterprise Creative	M.2	4950	2.000	£450.00	£540.00
DD55	LRD10Z002TG8	Excel Plus	Kyoto	Japan	Gaming	M.2	3400	2.000	£400.49	£480.59
DD60	CSSDF1000MP600	Forza MP600	Corsir	Japan	Creative Professional	M.2	4950	2.000	£202.99	£243.59
DD51	CSSDF2000MP600	Forza MP600	Corsir	Japan	Creative Professional	M.2	4950	2.000	£389.99	£467.99
DD59	ZP2000GM31011	Firacude 510	Seemore	USA	Gaming	M.2	3450	2.000	£322.99	£387.59
DD50	ZP1000GM31011	Firacude 510	Seemore	USA	Gaming	M.2	3450	1.000	£166.44	£199.73
DD49	ZP2000GM31002	Firacude 520	Seemore	USA	Creative Professional	M.2	5000	2.000	£357.28	£428.74
DD48	ZP500GM31002	Firacude 520	Seemore	USA	Creative Professional	M.2	5000	0.500	£113.06	£135.67
DD46	ZP1000GM31002	Firacude 520	Seemore	USA	Creative Professional	M.2	5000	1.000	£206.77	£248.12
DD64	PEKKW256G8XT	760p series	Ibstock	USA	Gaming	M.2	3210	0.256	£63.98	£76.78

Amended record DD88 1 mark

Sorted ascending by Country 1 mark

Capacity 3dp 1 mark

Price currency sign, 2dp 1 mark

Record DD65 deleted 1 mark

**Select records**  
Suitability *Gaming* or contains *Creative* 1 mark  
Read >2200 1 mark

21 September 2020

Name, centre number, candidate number

Specified fields and data, correct order 1 mark  
Landscape, no truncation, single page wide, no page numbers 1 mark

**Labels report**

Candidate details at bottom of every label	1 mark
Title top of all labels, 100% accurate, larger, bold	1 mark
Sorted ascending by <i>Price</i>	1 mark
Two labels side by side, portrait, 8 labels to page	1 mark

**Large capacity drives for home use**

Seemore  
Richmond  
Home  
SATA 6Gb/s  
£57.32

Swordfish 120  
USA  
SSD

Name, centre number, candidate number

Seemore  
Richmond  
Home  
SATA 6Gb/s  
£100.70

Swordfish 120  
USA  
SSD

Name, centre number, candidate number

**Large capacity drives for home use**

WestPoint  
Richmond  
SOHO SMB  
SATA 6Gb/s  
£109.44

WP Red SA500  
USA  
SSD

Name, centre number, candidate number

**Large capacity drives for home use**

Samsing  
Seoul  
SOHO SMB  
SATA 6Gb/s  
£109.44

860 Evo  
Korea  
SSD

Name, centre number, candidate number

**Large capacity drives for home use**

Crux  
Kuala Lumpur  
SOHO SMB  
SATA 6Gb/s  
£109.98

MX500  
Malaysia  
SSD

Name, centre number, candidate number

**Large capacity drives for home use**

WestPoint  
Richmond  
SOHO SMB  
SATA 6Gb/s  
£111.98

WP Blue  
USA  
SSD

Name, centre number, candidate number

**Large capacity drives for home use**

WestPoint  
Richmond  
SOHO SMB  
PCIe gen3 NVMe  
£124.99

WP Blue  
USA  
SSD

Name, centre number, candidate number

**Large capacity drives for home use**

Samsing  
Seoul  
SOHO SMB  
SATA 6Gb/s  
£129.77

860 Evo series 1  
Korea  
SSD

Name, centre number, candidate number

**Labels selection**

<i>Suitability</i> contains Home or SOHO	1 mark
<i>Format</i> is SSD	1 mark
<i>Price</i> <130 and <i>Capacity</i> 1 or more	1 mark

<i>Maker</i> and <i>Model</i> on same line	1 mark
<i>City</i> and <i>Country</i> on same line	1 mark
<i>Connection</i> and <i>Format</i> on same line	1 mark
Correct label layout with min 1 space between fields	1 mark
<i>Suitability</i> and <i>Price</i> present on correct lines	1 mark

**Tawara Computer Supplies**  
 The Wharfage  
 Tawara Bay  
 Main Island

02 February 2022

## Delivery Note

Deliver to:

«Title» «First\_Name» «Last\_Name»  
 «Address\_1»  
 «Town»  
 «Post\_Code»

Our Product Code	Model	Make	Connection	Form Factor	Capacity	Price
«Drive_Code»	«Model»	«Make»	«Connection»	«Form_Factor»	«Capacity» Terabytes	£«Price»

Order prepared by: Candidate Name

Name ZZ999 9999

<p><b>Mailmerge master</b></p> <p>Candidate details in footer of master document and Name replaces <i>Candidate Name</i> 1 mark</p> <p>Address block</p> <ul style="list-style-type: none"> <li>Chevrons &lt;&gt; replaced by correct fields 1 mark</li> <li>Correct position and original spacing maintained 1 mark</li> </ul> <p>Product table</p> <ul style="list-style-type: none"> <li>Chevrons &lt;&gt; replaced by merge fields with correct spacing for <i>Capacity</i> and <i>Price</i> 1 mark</li> </ul> <p>Master document printed 1 mark</p>
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**Tawara Computer Supplies**  
The Wharfage  
Tawara Bay  
Main Island

02 February 2022

**Mailmerge delivery notes**  
Correct 4 delivery notes printed 1 mark

## Delivery Note

Deliver to:

Ms Katherine Griffin  
96 Scrimshire Lane  
Alfreton  
NN7 300

<b>Our Product Code</b>	<b>Model</b>	<b>Make</b>	<b>Connection</b>	<b>Form Factor</b>	<b>Capacity</b>	<b>Price</b>
DD11	Nitra 3731	Seemore	SAS 12Gb/s	2.5 inch	3.2 Terabytes	£1993.55

Order prepared by: Candidate Name

Name ZZ999 9999



**Tawara Computer Supplies**  
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Tawara Bay  
Main Island

02 February 2022

## Delivery Note

Deliver to:

Mr Jake Abbott  
39 Vicar Lane  
Edingley  
NN15 6QL

<b>Our Product Code</b>	<b>Model</b>	<b>Make</b>	<b>Connection</b>	<b>Form Factor</b>	<b>Capacity</b>	<b>Price</b>
DD59	Firacude 510	Seemore	PCIe gen3 NVMe	M.2	2 Terabytes	£322.99

Order prepared by: Candidate Name

Name ZZ999 9999

**Tawara Computer Supplies**  
The Wharfage  
Tawara Bay  
Main Island

02 February 2022

## Delivery Note

Deliver to:

Mrs Ella McKenzie  
63 Thames Street  
Sutton-in-Asfield  
NN7 4TW

<b>Our Product Code</b>	<b>Model</b>	<b>Make</b>	<b>Connection</b>	<b>Form Factor</b>	<b>Capacity</b>	<b>Price</b>
DD14	Nitra 3331	Seemore	SAS 12Gb/s	2.5 inch	1.92 Terabytes	£494.75

Order prepared by: Candidate Name

Name ZZ999 9999

**Tawara Computer Supplies**  
The Wharfage  
Tawara Bay  
Main Island

02 February 2022

## Delivery Note

Deliver to:

Mr Charlie Simmons  
59 Warren St  
Rufford  
NN11 0AU

<b>Our Product Code</b>	<b>Model</b>	<b>Make</b>	<b>Connection</b>	<b>Form Factor</b>	<b>Capacity</b>	<b>Price</b>
DD51	Forza MP600	Corsir	PCIe gen4 NVMe	M.2	2 Terabytes	£389.99

Order prepared by: Candidate Name

Name ZZ999 9999



M.2 drives have solid state memory chips on a small 'stick'

Chart	
Vertical bar chart (correct data)	
with correct category labels present	1 mark
Chart title 100% accurate	1 mark
Axis titles 100% accurate	1 mark
Values displayed for all bars	1 mark
Display a legend showing the years 2020 and 2021	1 mark
In correct place on correct slide	1 mark
Sales analysis slide printed with presenter notes	1 mark
... Presenter notes as given	1 mark

09/07/2021

*Upgrade options for storage*

Overview presented by: Candidate name

*Consider your storage needs*

- What is most important for you?
- Is it:
  - capacity?
  - the format?
  - the connection?
  - 24/7 reliability?
  - speed of reading/writing?

Slides imported in title and bullet layout, no text changed 1 mark  
 Slide 1 a title layout with candidate name 1 mark  
 Slide no's top right and candidate details same position on every slide with no overlap on any slide 1 mark  
 All 5 bullet points demoted 1 mark  
 Slide *Suitable applications for HDDs* deleted 1 mark  
 All slides, 4 slides to page, landscape 1 mark

*Hard Disk Drives*

- These are mechanical with moving parts
- Available with very large capacities
- Fit 3.5 and 2.5 inch bays
- Tried and tested technology
- Read/write access relatively slow

*Solid State Technology*

- Commonly called SSD
- Has no moving parts
- Can have extremely fast read/write speeds
- Reliable for 24/7 working

09/07/2021

### *SSD formats*

- SATA connections will fit in 2.5 inch bays and are used in desktop or laptop computers
- PCIe NVMe M.2 format needs special connections
- M.2 slots becoming available in high end laptops

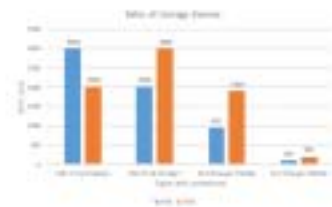
### *Need for speed*

- SATA connected 2.5 inch disk drives usually have similar read/write speeds to HDDs
- PCIe connected M.2 drives can reach much higher speeds
- Fourth generation PCIe drives take read/write speeds up even further

### *Suitable applications for SSD storage*

- Home office
- Small business environment
- Enterprise businesses
- Data centres
- DVR

### *Sales analysis 2020 - 2021*



- HDD sales are going down
- SSD sales are increasing
- New, specialised formats growing in popularity

Step 1 – **EVIDENCE 1** here:

Name	Date modified	Type	Size
UPGRADE	14/05/2020 15:40	Microsoft Word Document	718 KB

File saved as UPGRADE in format of software 1 mark

Step 4 – **EVIDENCE 2** here:

**HD-title**  
Style correctly named based on normal 1 mark  
Serif 28pt, centre, bold, italic, single, 0pt before and after 1 mark

Step 8 – **EVIDENCE 3** here:

**HD-subhead** style modified and based on normal 1 mark

Step 13 – **EVIDENCE 4** here:

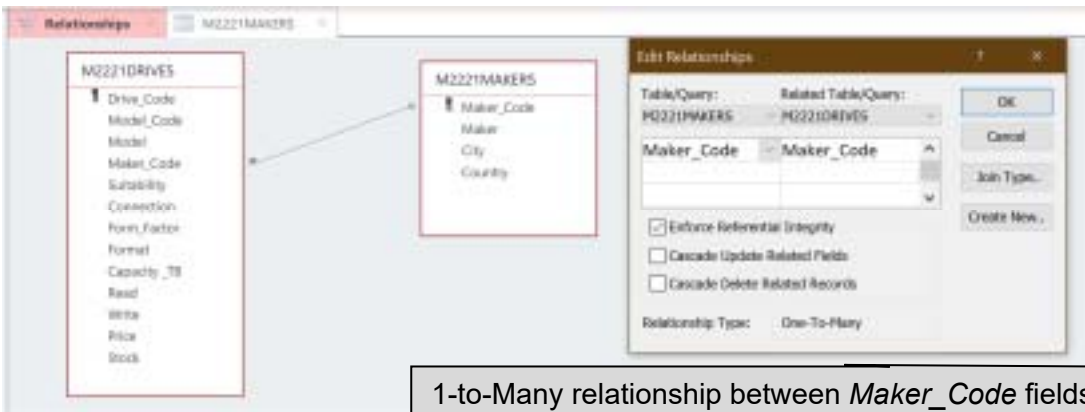
Field Name	Data Type
Drive_Code	Short Text
Model_Code	Short Text
Model	Short Text
Maker_Code	Short Text
Suitability	Short Text
Connection	Short Text
Form_Factor	Short Text
Format	Short Text
Capacity_TB	Number
Read	Number
Write	Number
Price	Currency
Stock	Number

Field names as given, correct data types,  
*Drive\_Code* field as primary key, no ID field 1 mark

Field Name	Data Type
Maker_Code	Short Text
Maker	Short Text
City	Short Text
Country	Short Text

Field names as given, correct data types, no ID field 1 mark  
*Maker\_Code* as a primary key 1 mark

Step 14 – **EVIDENCE 5** here:



1-to-Many relationship between *Maker\_Code* fields 1 mark

Step 20 – **EVIDENCE 6** here:

```
{ DATE \@ "dd MMMM yyyy" \* MERGEFORMAT }
```

Today's date in this format 1 mark

Step 21 – **EVIDENCE 7** here:

Automated selection 1 mark