

---

**APPLIED INFORMATION & COMMUNICATION TECHNOLOGY**

**9713/12**

Paper 1 Written A

**May/June 2017**

MARK SCHEME

Maximum Mark: 80

---

**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 will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the May/June 2017 series for most Cambridge IGCSE<sup>®</sup>, Cambridge International A and AS Level and Cambridge Pre-U components, and some Cambridge O Level components.

---

© IGCSE is a registered trademark.

This document consists of **7** printed pages.

Question	Answer	Marks																				
1	<table border="1"> <tr> <td>A hard disk provides direct access.</td> <td>✓</td> </tr> <tr> <td>A CD ROM stores several Gigabytes of data.</td> <td></td> </tr> <tr> <td>A Blu-ray disk stores less data than a DVD.</td> <td></td> </tr> <tr> <td>A magnetic tape has quicker data access than a hard disk.</td> <td></td> </tr> <tr> <td>A magnetic tape is a suitable medium for storing backups of server data.</td> <td>✓</td> </tr> <tr> <td>A CD R/W cannot be overwritten.</td> <td></td> </tr> <tr> <td>Blu-ray disks are not used to store data.</td> <td></td> </tr> <tr> <td>A pen drive can store more data than a CD.</td> <td>✓</td> </tr> <tr> <td>Flash memory cards are used in mobile (cell) phones.</td> <td>✓</td> </tr> <tr> <td>Solid state drives are more prone to failure than magnetic media.</td> <td></td> </tr> </table>	A hard disk provides direct access.	✓	A CD ROM stores several Gigabytes of data.		A Blu-ray disk stores less data than a DVD.		A magnetic tape has quicker data access than a hard disk.		A magnetic tape is a suitable medium for storing backups of server data.	✓	A CD R/W cannot be overwritten.		Blu-ray disks are not used to store data.		A pen drive can store more data than a CD.	✓	Flash memory cards are used in mobile (cell) phones.	✓	Solid state drives are more prone to failure than magnetic media.		4
A hard disk provides direct access.	✓																					
A CD ROM stores several Gigabytes of data.																						
A Blu-ray disk stores less data than a DVD.																						
A magnetic tape has quicker data access than a hard disk.																						
A magnetic tape is a suitable medium for storing backups of server data.	✓																					
A CD R/W cannot be overwritten.																						
Blu-ray disks are not used to store data.																						
A pen drive can store more data than a CD.	✓																					
Flash memory cards are used in mobile (cell) phones.	✓																					
Solid state drives are more prone to failure than magnetic media.																						

Question	Answer	Marks																				
2	<table border="1"> <tr> <td>Data files are often converted to a common text format in order that they can be exported to another software package.</td> <td>✓</td> </tr> <tr> <td>Validation is to check that data is reasonable.</td> <td>✓</td> </tr> <tr> <td>Verification is to check that data is correct.</td> <td></td> </tr> <tr> <td>A range check is a verification check.</td> <td></td> </tr> <tr> <td>Comparing two versions of the same input data is a type of verification.</td> <td>✓</td> </tr> <tr> <td>Charts are never exported from a database into another software package.</td> <td></td> </tr> <tr> <td>OR and NOT are mathematical operators.</td> <td></td> </tr> <tr> <td>It is only possible to sort data on one criterion.</td> <td></td> </tr> <tr> <td>“Several to several” is a type of relationship.</td> <td></td> </tr> <tr> <td>In order to create a relational database you have to identify a key field.</td> <td>✓</td> </tr> </table>	Data files are often converted to a common text format in order that they can be exported to another software package.	✓	Validation is to check that data is reasonable.	✓	Verification is to check that data is correct.		A range check is a verification check.		Comparing two versions of the same input data is a type of verification.	✓	Charts are never exported from a database into another software package.		OR and NOT are mathematical operators.		It is only possible to sort data on one criterion.		“Several to several” is a type of relationship.		In order to create a relational database you have to identify a key field.	✓	4
Data files are often converted to a common text format in order that they can be exported to another software package.	✓																					
Validation is to check that data is reasonable.	✓																					
Verification is to check that data is correct.																						
A range check is a verification check.																						
Comparing two versions of the same input data is a type of verification.	✓																					
Charts are never exported from a database into another software package.																						
OR and NOT are mathematical operators.																						
It is only possible to sort data on one criterion.																						
“Several to several” is a type of relationship.																						
In order to create a relational database you have to identify a key field.	✓																					

Question	Answer	Marks
3	<p><b>Four from:</b></p> <p>Spreadsheet/graphing software to store data to plot student progress charts</p> <p>Spreadsheet to store data and use conditional formatting to show student progress/targets</p> <p>Web browser to check the reports have loaded satisfactorily</p> <p>Word processing software to type up reports</p> <p>Email software to inform the Principal that the reports have been uploaded</p> <p>IM software to inform the Principal that the reports have been uploaded.</p>	4

Question	Answer	Marks
4	<p><b>Six from:</b></p> <p>Student answers are neater (using computers) so <u>easier for teacher to read</u> and mark</p> <p>Will take longer to carry out the test as students cannot type as fast as they can write</p> <p>Can include videos and sound to illustrate questions which will make the test more interesting for the students</p> <p>If the network crashes there will be a delay in the testing</p> <p>Students will find the test more interesting so less likely to skip school</p> <p>No need to worry about students forgetting writing equipment.</p> <p>1 mark available for a reasoned conclusion.</p>	6

Question	Answer	Marks
5(a)	<p>LEFT(E2,1)</p> <p>LEFT() E2,1</p> <p>1 mark 1 mark</p>	2
5(b)	<p>MID(E2,2,1)</p> <p>MID() E2,2 ,1</p> <p>1 mark 1 mark 1 mark</p>	3
5(c)	<p>RIGHT(E2,1)</p> <p>RIGHT() E2,1</p> <p>1 mark 1 mark</p>	2
5(d)	<p>CONCATENATE (I2, H2, G2)</p> <p>CONCATENATE() I2, H2 ,G2</p> <p>1 mark 1 mark 1 mark</p>	3



Question	Answer	Marks
8(a)	<p><b>Six from:</b></p> <p>Journalist types up/edits their story using word-processing software/DTP            Journalist types up/edits their story using laptop/tablet computer            Takes photographs using a digital camera/phone/tablet computer            Import images from digital camera/phone            Edit images using image editing software            Connect laptop/tablet computer to internet using mobile phone/WIFI hotspot/dongle            Email story to editor's office            Email photos separately using phone/laptop/tablet computer.</p>	6
8(b)	<p><b>Six from:</b></p> <p>Edit/format the journalist's story to remove mistakes            Crop the images to remove unwanted material            Resize the image to fill the layout            Choose margin sizes            Produce the layout/template of the magazine page            Kerning – the process of adjusting the space between individual letters in words            Adjusting the leading – the space between lines on a page            Adjust the size/type of font in the bodytext            Adjust the size/type of font in the headings/headlines            Change the font type so it is easy to read            Adjust the font size so it is small enough for stories to fit on a page            Adjust the font size so it is large enough to read.</p>	6

Question	Answer	Marks
9	<p><b>Four from:</b></p> <p>Have less contact with colleagues            More difficult to discuss ideas with colleagues            Cannot see the editor daily...            ...so have less chance to impress editor to improve job prospects            More difficult to attend meetings to keep up to speed with newspaper developments.</p>	4

Question	Answer	Marks
10	<p><b>Two from:</b></p> <p>Ultraviolet light is allowed to pass through the film negatives...            ...to expose the printing plate            When the plates are exposed to light, a chemical reaction occurs            This allows the light-sensitive coating on the aluminium to develop the image.</p>	2

Question	Answer	Marks
11	<p><b><i>Eight from:</i></b></p> <p><i>He would need exception reports to:</i>            Make sure that somebody was not being paid too much            Tell him if the system was working properly or not            Let him know if the system was accepting duplicate data</p> <p><i>He would need to have financial reports so that:</i>            He could see trends in pay across the company            He could compare pay across departments in the company            He could see the pay structure within departments            He could see how much the company was spending on paying the workers/tax authorities</p> <p><i>Examples</i>  <i>Exception reports</i>            An employee earning an unusually large amount of money            An employee who has been on an emergency tax code for a long period of time            Two employees having the same national insurance number</p> <p><i>Financial reports</i>            Information about all employees of the company            Information about employees in a given department            Information about the salaries of all employees            Total salaries of all employees            National insurance contributions for all employees            The total amount of national insurance contributions paid to the tax authorities            The income tax that each employee has paid            The total amount of income tax paid to the tax authorities            The amount of money paid to each bank that employees have an account with            All the earnings and deductions of employees            The earnings and deductions of each employee by department            A summary of all the totals of the earnings/deductions of each department.</p> <p>Must have reasons to gain more than 6 marks.</p>	8

Question	Answer	Marks
12(a)	<p><b><i>Two from:</i></b></p> <p>Could observe <u>users performing set tasks...</u>            ...and record their progress using video recording            Get a user to perform a task and measure the time it takes them to carry out the task.</p>	2

Question	Answer	Marks
12(b)	<p><b>Five from:</b></p> <p>Observation gives you an overall view of the whole system  Observer can see how separate tasks overlap  Can see how workers interact  Can see if the methods being used are efficient  Does not give you an opportunity to find out what users think of the new system  Some people who know they are being observed change the way they work</p> <p>1 mark is available for a reasoned conclusion.</p>	<b>5</b>

Question	Answer	Marks
13	<p><b>Eight from:</b></p> <p>You would have a time axis horizontally  A list of stages of the project/systems life cycle vertically  Some activities would be in sequence horizontally  Some activities would be in parallel vertically  Examples of sequential activities would be Analysis, followed by Design followed by Development, Testing, Implementation then Evaluation  One mark for any two individual examples of parallel activities within different stages of the systems life cycle (one from each of Analysis, Design, Development, Testing, Implementation, Evaluation e.g. Analysis –interviews, questionnaires, examining documents, observation).</p> <p>One mark for any two individual examples of sequential activities from different stages of the systems life cycle (e.g. Designing the required data structures and creating the data structures).</p>	<b>8</b>