

**MARK SCHEME for the May/June 2010 question paper
for the guidance of teachers**

**0417 INFORMATION AND COMMUNICATION
TECHNOLOGY**

0417/12 Paper 12 (Written), maximum raw mark 100

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 must be read in conjunction with the question papers and the report on the examination.

- CIE will not enter into discussions or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the May/June 2010 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

Ques. No.	Answer	marks																				
1	A DVD RAM C Magnetic tape B Pen drive D Magnetic disc	1, 1 1, 1																				
2	Blu ray disc Optical mark reader Graph plotter Projector Graphics tablet Web cam	1 1																				
3	<table border="1"> <thead> <tr> <th></th> <th>TRUE</th> <th>FALSE</th> <th></th> </tr> </thead> <tbody> <tr> <td>Input devices are examples of hardware.</td> <td>✓</td> <td></td> <td>1</td> </tr> <tr> <td>Backing storage devices are examples of software.</td> <td></td> <td>✓</td> <td>1</td> </tr> <tr> <td>A Graphic User Interface is a part of an operating system.</td> <td>✓</td> <td></td> <td>1</td> </tr> <tr> <td>A laptop computer cannot be carried around.</td> <td></td> <td>✓</td> <td>1</td> </tr> </tbody> </table>		TRUE	FALSE		Input devices are examples of hardware.	✓		1	Backing storage devices are examples of software.		✓	1	A Graphic User Interface is a part of an operating system.	✓		1	A laptop computer cannot be carried around.		✓	1	
	TRUE	FALSE																				
Input devices are examples of hardware.	✓		1																			
Backing storage devices are examples of software.		✓	1																			
A Graphic User Interface is a part of an operating system.	✓		1																			
A laptop computer cannot be carried around.		✓	1																			
4		1 1 1 1 1																				
5 (a)	a hub is a device used to connect computers together to form a LAN	1																				
(b)	an Intranet is a network with restricted access	1																				
(c)	a Proxy server can allow networked computers to connect to the internet	1																				
(d)	a WLAN is a wireless local area network	1																				
6	Three from: Pen drives have greater storage capacity Pen drives are more portable Not all machines have CD drives Faster access to data More robust More secure as biometric data can be incorporated Don't need specialist hardware/software for pen drives	3																				

7	<p>PENUP FORWARD 70 PENDOWN FORWARD 60 PENUP FORWARD 80 RIGHT 90/PENDOWN PENDOWN/RIGHT 90 FORWARD 80 RIGHT 90 FORWARD 100</p> <p>1 mark for each 2/3 statements</p>	5															
8	<table border="1"> <tr> <td>Web logs</td> <td>✓</td> </tr> <tr> <td>Databases</td> <td></td> </tr> <tr> <td>Models</td> <td></td> </tr> <tr> <td>Wikis</td> <td>✓</td> </tr> <tr> <td>DTP</td> <td></td> </tr> <tr> <td>Social networking sites</td> <td>✓</td> </tr> </table>	Web logs	✓	Databases		Models		Wikis	✓	DTP		Social networking sites	✓	1 1 1			
Web logs	✓																
Databases																	
Models																	
Wikis	✓																
DTP																	
Social networking sites	✓																
9	<table border="1"> <thead> <tr> <th></th> <th>TRUE</th> <th>FALSE</th> </tr> </thead> <tbody> <tr> <td>Withdrawing money from an ATM</td> <td></td> <td>✓</td> </tr> <tr> <td>Producing utility bills</td> <td>✓</td> <td></td> </tr> <tr> <td>Booking a plane ticket</td> <td></td> <td>✓</td> </tr> <tr> <td>Producing payslips</td> <td>✓</td> <td></td> </tr> </tbody> </table>		TRUE	FALSE	Withdrawing money from an ATM		✓	Producing utility bills	✓		Booking a plane ticket		✓	Producing payslips	✓		1 1 1 1
	TRUE	FALSE															
Withdrawing money from an ATM		✓															
Producing utility bills	✓																
Booking a plane ticket		✓															
Producing payslips	✓																

10 (a)	<p>Three from: Humidity Moisture Temperature Light pH CO₂</p>	3																		
(b)	<p>Sensors feed back analogue data Computers can only work with digital/binary data/cannot read analogue</p>	1 1																		
(c)	<table border="1"> <tr> <td>Computer readings are more accurate.</td> <td>✓</td> <td>1</td> </tr> <tr> <td>Students always forget to take readings</td> <td></td> <td></td> </tr> <tr> <td>Students might be unavailable to take readings during school holidays.</td> <td>✓</td> <td>1</td> </tr> <tr> <td>Computers can record data for later use.</td> <td></td> <td></td> </tr> <tr> <td>Computers can analyse the results.</td> <td></td> <td></td> </tr> <tr> <td>Computers can react to changes in the conditions immediately.</td> <td>✓</td> <td>1</td> </tr> </table>	Computer readings are more accurate.	✓	1	Students always forget to take readings			Students might be unavailable to take readings during school holidays.	✓	1	Computers can record data for later use.			Computers can analyse the results.			Computers can react to changes in the conditions immediately.	✓	1	
Computer readings are more accurate.	✓	1																		
Students always forget to take readings																				
Students might be unavailable to take readings during school holidays.	✓	1																		
Computers can record data for later use.																				
Computers can analyse the results.																				
Computers can react to changes in the conditions immediately.	✓	1																		
(d)	<p>Two from: Earth/chemical particles will not affect its performance. It can operate without needing to refill the paper as regularly/can work on continuous paper. Running costs are low.</p>	2																		
(e)	<p>Two from: It will be cheaper to buy. Print outs will be clearer. It is more compact.</p>	2																		
11 (a)	4	1																		
(b)	5	1																		
(c)	Relational database	1																		
(d)	<p>Two from: Data does not have to be typed in twice/referential integrity. Quicker to enter new data. So fewer errors are likely. So less memory/storage capacity is used. So it is easier to edit data.</p>	2																		
(e)	Code	1																		
(f)	Book Borrowed	1																		
(g)	Cost	1																		
(h)	Date	1																		
(i)	Range check	1																		
(j)	Format/picture/input mask	1																		

12	<p>A router – so that data can be transferred from one network to another</p> <p>A browser – to access the (world wide) web /view web pages/surf the net</p> <p>Email – so that he can send messages to people <u>outside the</u> network/home</p> <p>An ISP – in order that he can access the internet/email/to provide internet service</p>	1	1	1																								
13 (a)	<table border="1"> <tr> <td>Data encryption techniques are easy to crack.</td> <td></td> <td></td> </tr> <tr> <td>Data can be accessed without being in the building where it is stored.</td> <td>✓</td> <td>1</td> </tr> <tr> <td>Data thieves do not leave physical signs of robbery.</td> <td>✓</td> <td>1</td> </tr> <tr> <td>Data passwords are easy to guess.</td> <td></td> <td></td> </tr> </table>	Data encryption techniques are easy to crack.			Data can be accessed without being in the building where it is stored.	✓	1	Data thieves do not leave physical signs of robbery.	✓	1	Data passwords are easy to guess.																	
Data encryption techniques are easy to crack.																												
Data can be accessed without being in the building where it is stored.	✓	1																										
Data thieves do not leave physical signs of robbery.	✓	1																										
Data passwords are easy to guess.																												
(b)	<table border="1"> <tr> <td>Make backups of the data.</td> <td></td> <td></td> </tr> <tr> <td>Users should write down their password in case they forget it.</td> <td></td> <td></td> </tr> <tr> <td>Have a firewall connected to the network.</td> <td>✓</td> <td>1</td> </tr> <tr> <td>Have different levels of access to the data.</td> <td>✓</td> <td>1</td> </tr> </table>	Make backups of the data.			Users should write down their password in case they forget it.			Have a firewall connected to the network.	✓	1	Have different levels of access to the data.	✓	1															
Make backups of the data.																												
Users should write down their password in case they forget it.																												
Have a firewall connected to the network.	✓	1																										
Have different levels of access to the data.	✓	1																										
14 (a)	<table border="1"> <thead> <tr> <th></th> <th>True (✓)</th> <th>False (✓)</th> <th></th> </tr> </thead> <tbody> <tr> <td>Examining documents has to be done in the presence of all the workers.</td> <td></td> <td>✓</td> <td>1</td> </tr> <tr> <td>Appointments have to be made with a worker in order to complete a questionnaire.</td> <td></td> <td>✓</td> <td>1</td> </tr> <tr> <td>It is possible to change questions in the course of an interview.</td> <td>✓</td> <td></td> <td>1</td> </tr> <tr> <td>Observing the current system can provide a detailed view of the workings of the system.</td> <td>✓</td> <td></td> <td>1</td> </tr> </tbody> </table>		True (✓)	False (✓)		Examining documents has to be done in the presence of all the workers.		✓	1	Appointments have to be made with a worker in order to complete a questionnaire.		✓	1	It is possible to change questions in the course of an interview.	✓		1	Observing the current system can provide a detailed view of the workings of the system.	✓		1							
	True (✓)	False (✓)																										
Examining documents has to be done in the presence of all the workers.		✓	1																									
Appointments have to be made with a worker in order to complete a questionnaire.		✓	1																									
It is possible to change questions in the course of an interview.	✓		1																									
Observing the current system can provide a detailed view of the workings of the system.	✓		1																									
(b)	<table border="1"> <tr> <td>Inputs to the current system</td> <td></td> <td></td> </tr> <tr> <td>User and information requirements</td> <td></td> <td></td> </tr> <tr> <td>Data capture forms</td> <td>✓</td> <td>1</td> </tr> <tr> <td>Validation routines</td> <td>✓</td> <td>1</td> </tr> <tr> <td>Problems with the current system</td> <td></td> <td></td> </tr> <tr> <td>File structure</td> <td>✓</td> <td>1</td> </tr> <tr> <td>Report layouts</td> <td>✓</td> <td>1</td> </tr> <tr> <td>Limitations of the system</td> <td></td> <td></td> </tr> </table>	Inputs to the current system			User and information requirements			Data capture forms	✓	1	Validation routines	✓	1	Problems with the current system			File structure	✓	1	Report layouts	✓	1	Limitations of the system					
Inputs to the current system																												
User and information requirements																												
Data capture forms	✓	1																										
Validation routines	✓	1																										
Problems with the current system																												
File structure	✓	1																										
Report layouts	✓	1																										
Limitations of the system																												

15	<p>Direct changeover – One from: It is the quickest method of implementation/the benefits are available immediately Do not have the expense of running two systems</p> <p>Parallel running There is always the old system to fall back on in the event of the new system failing</p> <p>Phased implementation – One from: Still have rest of old system if new system fails Training can be gradual Enables refinement of each phase of the system before fully implementing</p>	3																								
16	<p>Two strategies and two reasons from:</p> <p>Strategy – compare the solution with the original task requirements/design brief Reason – to ensure that requirements have been met</p> <p>Strategy – identify any limitations/necessary improvements to the system Reason – so that system works without problems</p> <p>Strategy – Collect data from the users of the new system Reason – to see how well they are coping with the new system/ to see how well the new system works</p> <p>Strategy – analyse (evaluate) the users' responses to the results of testing/using the system Reason – so that users needs are taken into account</p>	4 (2 + 2)																								
17	<p>Three from: Web cam/video camera to input/capture video (images of participants/documents) router/modem to transmit data to participants' (computers) Microphone to input voices of participants/to speak to other participants Headphones/speakers to output voices to participants/hear other participants Large screen/projector to see other participants</p>	3																								
18	<table border="1"> <tr> <td>The number in stock of the matching record is read</td> <td>4</td> <td>1</td> </tr> <tr> <td>Until a match is found with the entered bar code</td> <td>3</td> <td>1</td> </tr> <tr> <td>The bar code field in the data file is read record by record</td> <td>2</td> <td>1</td> </tr> <tr> <td>The bar code on the product is read by the bar code reader</td> <td>1</td> <td></td> </tr> <tr> <td>The new value of number in stock is written back to the file</td> <td>8</td> <td>1</td> </tr> <tr> <td>If it is equal to the re-order number then more goods are automatically re-ordered</td> <td>7</td> <td>1</td> </tr> <tr> <td>One is subtracted from the number in stock</td> <td>5</td> <td>1</td> </tr> <tr> <td>The number in stock is compared with the re-order number</td> <td>6</td> <td>1</td> </tr> </table>	The number in stock of the matching record is read	4	1	Until a match is found with the entered bar code	3	1	The bar code field in the data file is read record by record	2	1	The bar code on the product is read by the bar code reader	1		The new value of number in stock is written back to the file	8	1	If it is equal to the re-order number then more goods are automatically re-ordered	7	1	One is subtracted from the number in stock	5	1	The number in stock is compared with the re-order number	6	1	
The number in stock of the matching record is read	4	1																								
Until a match is found with the entered bar code	3	1																								
The bar code field in the data file is read record by record	2	1																								
The bar code on the product is read by the bar code reader	1																									
The new value of number in stock is written back to the file	8	1																								
If it is equal to the re-order number then more goods are automatically re-ordered	7	1																								
One is subtracted from the number in stock	5	1																								
The number in stock is compared with the re-order number	6	1																								

Page 7	Mark Scheme: Teachers' version	Syllabus
	IGCSE – May/June 2010	0417

19	<p>Three from:</p> <p>If the airplane crashed you wouldn't need to replace it – saving money</p> <p>If the airplane crashed nobody is injured</p> <p>It is easy to recreate extreme weather conditions</p> <p>It is easy to create unusual flying conditions</p> <p>Can recreate mechanical/computer failure from previous real situations</p> <p>Cheaper fuel costs</p>	3
20	<p>Phishing</p> <p>One from:</p> <p>is using <u>e-mails</u> pretending to be the target's bank</p> <p>Fake <u>email</u> to get personal details</p> <p>Pharming</p> <p>One from:</p> <p>is installing malicious code on a pc or server to redirect to fake websites</p> <p>redirecting users to websites which look authentic to get personal details</p> <p>Spam (is the sending/receiving of) unsolicited/junk emails</p>	1 1 1
21 (a)	<p>Two from:</p> <p>Unlikely to be lost (if addressed correctly)</p> <p>Faster to arrive</p> <p>Quicker/easier to send the same message to several people</p> <p>You don't have to leave the office to send a letter</p>	2
(b)	<p>Two from:</p> <p>Very large documents can be sent/emails often have a limit to the size of attachments</p> <p>Legal documents can be sent/email signatures are not legally binding</p> <p>Special delivery ensures delivery/If undelivered can be tracked/if lost can claim compensation</p> <p>Might not have the software to open attachments</p> <p>Recipient may not have/doesn't need email address/access to computers/internet</p>	2