

**UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS**  
International General Certificate of Secondary Education

**MARK SCHEME for the May/June 2011 question paper**  
**for the guidance of teachers**

**0417 INFORMATION AND COMMUNICATION  
TECHNOLOGY**

**0417/11**

Paper 1 (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.

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

Cambridge is publishing the mark schemes for the May/June 2011 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.



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7	<p><b>RIGHT</b> 90  <b>REPEAT</b> 8  <b>FORWARD</b> 100  <b>LEFT</b> 45  <b>END REPEAT</b></p> <p>1 mark for each correct statement</p>	5
8	<p><b>Four</b> from:  Cheques are collected together  During the course of the day  Cheques are then processed all at once  Cheques are processed overnight  Bank accounts updated following morning  No human intervention</p>	4
9 (a)	<p><b>Three</b> from:  Workers can use own office so documents do not get lost in transit/bulky documents/equipment do not have to be carried around  Company can call meeting at short notice  Employees can work from home  Company does not have to pay travelling expenses  Company does not have to pay hotel expenses  Company does not have to pay for conference room facilities  Travelling time is saved  Might be dangerous to fly/travel  Disabled people may find it difficult to travel</p>	3
(b)	<p><b>Three</b> from:  Takes time to train employees  Difficult to call international meetings because of time differences  Initial cost of hardware  Equipment can break down  Strength of signal/bandwidth/lipsync can be a problem/connection can be lost/power cuts  Loss of personal/social contact  Takes time for workers to learn new technology  Can't sign documents</p>	3
10 (a) (i)	Air conditioning (Y/N)	1
(ii)	<p><b>One</b> from  The field only contains Y or N (two possibilities)  It saves time entering data  It reduces errors when inputting data  It's easier to validate  It saves storage space for the file</p>	1
(b) (i)	Number sold	1
(ii)	<p><b>One</b> from:  Might need to calculate total of all cars sold  Easier to validate  Might need to produce a graph  Can easily find best selling make</p>	1

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11	<p><b>Four</b> from:</p> <p>ROM cannot be changed/RAM can be changed  RAM can be read from and written to  ROM is read only memory and RAM is random access memory  ROM holds instructions that need to be unchanged such as BIOS/program cycles in a washing machine/program instructions in games  RAM holds the work that is being currently done by the user  ROM is non-volatile/RAM is volatile</p>	4
12	<p><b>Four</b> from:</p> <p>Symptoms are entered  Uses interactive interface/Asks questions...  ... based on previous responses  Expert system analyses data  Inference engine compares symptoms  Compares with those held in knowledge base...  ... uses rules base  Matches are found  Suggests probabilities/possible diagnoses</p>	4
13	<p><b>Two</b> devices from:</p> <p>CD  DVD  Blu-ray  DVD RAM</p> <p><b>One</b> advantage from:  More portable/less likely to spike/cheaper to buy</p> <p><b>One</b> disadvantage:  Limited capacity/slower access times/slower transfer rates/can be more easily lost/can be more easily stolen/can be more easily scratched</p>	2  1  1
14	<p>LAN uses cables to transmit data  WLAN uses wireless technology</p> <p><b>Advantage</b>  Cheaper as less cabling/new workstations can be sited anywhere/different devices can be connected easily</p> <p><b>Disadvantage</b>  Slower transfer rates/limited transmission distance/physical obstacles can limit transmission/less security</p>	1 1  1  1

<b>Page 5</b>	<b>Mark Scheme: Teachers' version</b>	<b>Syllabus</b>	<b>Paper</b>
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<b>15</b>	<p><b>Two</b> problems from:  Headaches (from staring at screen continuously)  Eyestrain (from staring at screen continuously)  RSI in fingers (from continual typing/repetitive clicking of mouse)  RSI in wrists (from continual typing/repetitive clicking of mouse)  Backache from sitting in same position all day</p> <p><b>Two</b> matching methods from:  Use anti-glare screen (headaches/eyestrain)  Take regular breaks (all)  Use ergonomic keyboard (RSI)  Use wrist rests (RSI)  Use straight backed chair/maintain good posture (backache)</p>	<b>4</b>
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16	<p><b>Three</b> matched triples from:</p> <p>Authentication technique/User ID and Passwords/PIN/memorable data  <b>Advantage</b>  Only person who knows password can access data  <b>Disadvantage</b>  Key logging software can detect key presses/passwords can be intercepted by expert hackers/user can forget password</p> <p>Encryption  <b>Advantage</b>  Data is scrambled into unreadable form/only person/computer with key can understand data  <b>Disadvantage</b>  Data can still be deleted from system</p> <p>Firewall  <b>Advantage</b>  Only allowed users/computers can access data  <b>Disadvantage</b>  It is not necessarily the hacker that is excluded but the computer/hackers might use an acceptable computer</p> <p>Digital certificates  <b>Advantage</b>  Only computer with certificate can access data  <b>Disadvantage</b>  Can be expensive to purchase</p> <p>Anti Spyware  <b>Advantage</b>  Prevents spyware from invading your computer and gaining personal information  <b>Disadvantage</b>  Doesn't work for all invasions/needs to be continually updated</p> <p>TANs  <b>Advantage</b>  Is a double layer of security  <b>Disadvantage</b>  PIN can be forgotten/if misused can generate wrong TAN</p> <p>Award one mark for name and one for an advantage and one for a disadvantage up to a maximum of three marks for each triple answer</p>	9
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<b>17 (a)</b>	<p><b>Three descriptions</b> from:            Observing the librarian/students/teachers using the current system            Questionnaires are distributed to librarian/students/teachers asking questions about the current system            Interviewing the librarian/students/teachers asking questions about the current system            Examining documents from the current system</p>	<b>3</b>
<b>(b)</b>	<p>Appropriate spacing for each field            Forward and backward buttons</p> <p>Title            Author's name            Reference number/ISBN/Publisher/Picture of cover/Dewey number/Genre or category/fiction or non-fiction/target age group/picture of author/date published/summary of contents/no. of copies/cost price/selling price/number of pages/hardback or softback</p> <p>Information fills the page AND is clearly a screen form</p> <p><b>Maximum of five marks</b></p>	<p><b>1</b> <b>1</b></p> <p><b>1</b> <b>1</b></p> <p><b>2 marks for 4 items, 1 for 3 items else 0</b></p> <p><b>1</b></p>
<b>17c</b>	<p><b>Three</b> from:            Keyboard to type in data            A bar code (reader)            A magnetic stripe (reader)            Touch screen            Biometric methods            RFID</p>	<b>3</b>
<b>18 (a)</b>	<p>Normal data            Data is between 0 and 100/within the given range</p>	<b>1</b> <b>1</b>
<b>(b)</b>	<p>Extreme data            Data is on the boundary of given range</p>	<b>1</b> <b>1</b>
<b>(c)</b>	<p>Abnormal data            Data is outside the given range</p>	<b>1</b> <b>1</b>

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19	<p>Technical</p> <p><b>Two</b> from:</p> <p>Program listing</p> <p>Programming language</p> <p>Flowchart/algorithm</p> <p>List of variables</p> <p>File structure</p> <p>Purpose of the system/program</p> <p>Input format or example</p> <p>Output format or example</p> <p>Hardware requirements</p> <p>Software requirements</p> <p>Sample runs/test runs</p> <p>Known bugs/possible errors</p> <p>Validation rules</p> <p>2</p> <p>User</p> <p><b>Two</b> from:</p> <p>How to load software/install/run software</p> <p>How to save a file</p> <p>How to search</p> <p>How to sort</p> <p>How to print</p> <p>How to add records</p> <p>How to delete/edit records</p> <p>Purpose of the system/program (only if not mentioned in technical documentation)</p> <p>Input format or example (only if not mentioned in technical documentation)</p> <p>Output format or example (only if not mentioned in technical documentation)</p> <p>Hardware requirements (only if not mentioned in technical documentation)</p> <p>Software requirements (only if not mentioned in technical documentation)</p> <p>Sample runs (only if not mentioned in technical documentation)</p> <p>Error messages</p> <p>Error handling</p> <p>Tutorials</p> <p>Troubleshooting guide/Contact details/help line/FAQ</p> <p>1</p> <p>2</p>	1
20	<p><b>Six</b> from:</p> <p>Does site have excessive advertising</p> <p>Is the advertising related only to its own products</p> <p>Can use the final part of a URL to identify reliability</p> <p>.ac, .gov, .org are usually fairly reliable</p> <p>Can compare information from reliable sites to see if it is reliable</p> <p>Can compare with information from reliable/authenticated/text books</p> <p>Is site endorsed</p> <p>Does it have links to other reliable sites/unreliable sites</p> <p>Does it have testimonials</p> <p>See if responsible bodies have endorsed the site</p> <p>Check the date of the last update</p> <p>Are there links to and from the website to and from well known reliable websites?</p> <p>Checking the author's credentials</p>	6