

# **Mark Scheme for January 2011**

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by Examiners. It does not indicate the details of the discussions which took place at an Examiners' meeting before marking commenced.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the Report on the Examination.

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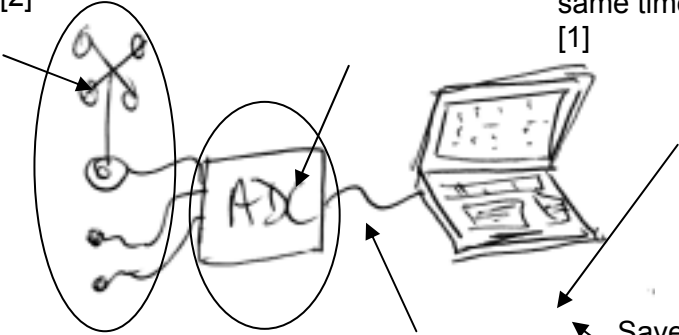
Question	Mark Scheme	Mark	Rationale
1	<p>Allow the complete version of the instruction eg FORWARD for FD and vice versa.  <b>If a candidate uses instructions other than those given in the table, then maximum mark of 4.</b></p> <p><i>(FD 2 -----this is given)</i></p> <p>RT 90  FD 2  <b>1 mark</b></p> <p>LT 90  FD 6  <b>1 mark</b></p> <p>RT 90  FD 6  <b>1 mark</b></p> <p>RT 90  FD 8  <b>1 mark</b></p> <p>RT 90  FD 8  <b>1 mark</b></p> <p>RT 90  <b>1 mark</b></p> <p><b>- OR</b></p>		<p>Only instructions that appear in the table should be used.</p> <p>Both or either of the long or short instruction syntax can be used.</p> <p>Logo requires spaces between some instructions and the parameter (eg REPEAT2 does not work but REPEAT 2 does) but ignore that requirement here.</p> <p>REP is not a valid short instruction for REPEAT but allow it.</p> <p>Each group must be completely correct to score the mark.</p> <p>Allow credit for correct movements that bring the turtle back to where it originated and in the correct orientation. Carefully check the movement and in this case, credit blocks of three correct instructions to a maximum of 6.</p> <p>Some candidates may write the instructions on the actual grid. So if there is NR, then check the grid to make sure this is also blank.</p>

Question	Mark Scheme	Mark	Rationale
	<p>If the candidate uses the REPEAT instruction:</p> <p><i>(FD 2 -----this is given)</i></p> <p>RT 90 FD 2       <b>1 mark</b></p> <p>LT 90       <b>1 mark</b></p> <p>REPEAT 2 [FD 6 RT 90] REPEAT 2 [FD 8 RT 90]</p> <p><b>1 mark the use of REPEAT</b> <b>1 mark the use of 2 after either REPEAT</b> <b>1 mark all correct [FD 6 RT 90] in the first REPEAT</b> <b>1 mark all correct [FD 8 RT 90] in the second REPEAT</b></p> <p><b>- OR</b></p> <p>Candidates may reverse the turtle and/or move it backwards around the shape eg</p> <p>BK 2 RT 90 <b>1 mark</b></p> <p>FD 8 LT 90 <b>1 mark</b></p> <p>FD 8 LT 90 <b>1 mark</b></p> <p>FD 6 LT 90 <b>1 mark</b></p> <p>FD 6</p>		<p>It is possible to spin the turtle around with RT 90 or LT 270 and send it around in the other direction than expected one – check the code for this and award a mark for every two correct instructions.</p>

Question	Mark Scheme	Mark	Rationale
	RT 90 <p style="text-align: center;"><b>1 mark</b></p> FD 2 LT 90 <p style="text-align: center;"><b>1 mark</b></p> FD 2 RT 180/LT 180 <p style="text-align: center;"><b>1 mark</b></p> Allow credit for correct movements that bring the turtle back to where it originated and in the correct orientation.	<b>[6]</b>	
2	Two from: 1 mark for item, 1 mark for benefit. <ul style="list-style-type: none"> <li>• use of keypad/board/ touch screen//key               <ul style="list-style-type: none"> <li>◇ can input <u>complex</u> (sequences of) code(s)/passwords</li> <li>◇ change codes/passwords</li> </ul> </li> <li>• use of biometric scanners or named example               <ul style="list-style-type: none"> <li>◇ check and identify that individual is actually present</li> </ul> </li> <li>• use of voice recognition               <ul style="list-style-type: none"> <li>◇ difficult to copy</li> </ul> </li> <li>• (use of) bar code (reader/scanner)               <ul style="list-style-type: none"> <li>◇ quick data entry</li> <li>◇ more robust than magnetic stripes</li> </ul> </li> <li>• (use of) magnetic stripe (reader/scanner)               <ul style="list-style-type: none"> <li>◇ quick data entry</li> <li>◇ not easily dislodged from eg ID card</li> </ul> </li> <li>• use of RFID scanner               <ul style="list-style-type: none"> <li>◇ quick data entry</li> <li>◇ very robust</li> </ul> </li> </ul>	<b>[4]</b>	Answers should refer to setting not triggering.

Question	Mark Scheme	Mark	Rationale																				
3	<p>This question to be marked using this grid:</p> <table border="1"> <thead> <tr> <th></th> <th>1 point</th> <th>2 points</th> <th>3 or more points</th> </tr> </thead> <tbody> <tr> <td>No expansions</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>1 expansion</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>2 expansions</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>3 or more expansions</td> <td>4</td> <td>5</td> <td>6</td> </tr> </tbody> </table> <p>Example points and expansions include:</p> <ul style="list-style-type: none"> <li>• use of USER/ID and/or password/security question <ul style="list-style-type: none"> <li>◇ identify the user to the system/security</li> <li>◇ use of password rules</li> </ul> </li> <li>• Correct log off procedures <ul style="list-style-type: none"> <li>◇ Prevent next user from viewing files</li> </ul> </li> <li>• use of encryption of files <ul style="list-style-type: none"> <li>◇ data/information cannot be read by unauthorised user (even if stolen/copied/accessed)</li> </ul> </li> <li>• use of firewall <ul style="list-style-type: none"> <li>◇ to prevent (unauthorised) intrusions (from outside the network/other computers/internet)</li> </ul> </li> <li>• use of anti-spyware/malware/key logging software <ul style="list-style-type: none"> <li>◇ to detect/prevent hackers finding out passwords etc</li> </ul> </li> <li>• make sure the wireless router is secure <ul style="list-style-type: none"> <li>◇ password protect the router</li> <li>◇ use authentication when connecting to the router</li> </ul> </li> <li>• close unused ports on the internet router <ul style="list-style-type: none"> <li>◇ to prevent access by hackers/applications using rarely used ports</li> </ul> </li> <li>• filter/block unused protocols <ul style="list-style-type: none"> <li>◇ eg ICMP</li> </ul> </li> </ul>		1 point	2 points	3 or more points	No expansions	1	2	3	1 expansion	2	3	4	2 expansions	3	4	5	3 or more expansions	4	5	6	<b>[6]</b>	Do not accept references to physical security or references to removable storage media.
	1 point	2 points	3 or more points																				
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4 (a)	<p>Six from:</p> <ul style="list-style-type: none"> <li>• <b>2 named</b> sensors eg <ul style="list-style-type: none"> <li>◇ temperature,</li> <li>◇ light,</li> <li>◇ moisture (to measure rainfall),</li> <li>◇ humidity,</li> <li>◇ pressure,</li> <li>◇ wind</li> </ul> </li> </ul> <p>Max 2 marks for sensors</p> <ul style="list-style-type: none"> <li>• sensors connected to ADC/connected directly to the computer system</li> <li>• ADC connected to computer system</li> <li>• (ADC is needed because) sensors use analogue signals <ul style="list-style-type: none"> <li>◇ computers only use/understand digital signals</li> </ul> </li> <li>• interface box used <ul style="list-style-type: none"> <li>◇ protection of computer input circuitry</li> <li>◇ more than one sensor is used</li> </ul> </li> <li>• (computer system set up) to record/collect data <ul style="list-style-type: none"> <li>◇ at same time each day/set interval of 24 hours</li> </ul> </li> <li>• (computer system set up) to save the data in appropriate format</li> </ul>		<p>“Sensors” is given in the question so must name the sensors.</p> <p>1 mark for each named sensor to max 2</p> <p>On a diagram:</p> <p>No mark for unlabelled computer on a diagram – the computer system is given in the question. The mark is for setting up the computer.</p> <p>1 mark allowed for connection if sensors connected directly to computer.</p>

Question	Mark Scheme	Mark	Rationale
	<p>Or marks can be awarded for parts of a diagram:</p> <p>sensors shown, labelled with name [2]</p> <p>ADC shown [1] OR Interface box shown [1]</p> <p>Connection(s) to ADC shown [1]</p> <p>computer system <b>must</b> be labelled with setup eg set to collect data [1] at same time each day [1]</p>  <p>Save data [1]</p> <p>connection from ADC/interface box to computer system shown [1]</p>	<b>[6]</b>	
<b>(b)</b>	<p><b>(i)</b> Two from:</p> <ul style="list-style-type: none"> <li>• more accurate readings taken</li> <li>• more accurate time intervals</li> <li>• data stored directly in electronic form</li> <li>• computer does not forget to take readings</li> <li>• computer can take readings when unattended</li> <li>• immediate graphical display of results eg graphs, charts</li> </ul>	<b>[2]</b>	



Question	Mark Scheme	Mark	Rationale
(ii)	Two from: <ul style="list-style-type: none"> <li>• data lost if power supplies fails/battery fails/power loss</li> <li>• data lost if computer system develops fault</li> <li>• unsafe if not connected/protected from elements properly</li> <li>• long cable connections required</li> <li>• expertise/training needed for setup</li> <li>• unsupervised computers can be stolen/interfered with</li> </ul>	<b>[2]</b>	
(c)	Four from: <ul style="list-style-type: none"> <li>• use of spreadsheet/appropriate software               <ul style="list-style-type: none"> <li>◇ use formulas/functions/named example                   <ul style="list-style-type: none"> <li>- to derive new information</li> <li>- carry out “what if”</li> <li>- make predictions</li> </ul> </li> </ul> </li> <li>• produce graph               <ul style="list-style-type: none"> <li>◇ line for <u>continuous</u> data</li> <li>◇ bar for <u>discrete</u> data</li> <li>◇ format/label graph/add legends/titles</li> <li>◇ to detect trends</li> </ul> </li> </ul>	<b>[4]</b>	

Question	Mark Scheme	Mark	Rationale
5 (a)	<p>Three descriptions from:</p> <ul style="list-style-type: none"> <li>• Favourites/bookmarks/history <ul style="list-style-type: none"> <li>◇ re-ordering/buy more</li> <li>◇ suggested purchases</li> </ul> </li> <li>• input methods for entering data <ul style="list-style-type: none"> <li>◇ buttons</li> <li>◇ text boxes</li> <li>◇ drop down lists</li> </ul> </li> <li>• search engine <ul style="list-style-type: none"> <li>◇ enter item details</li> <li>◇ to find the item they wanted to buy</li> </ul> </li> <li>• menus/links/hyperlinks <ul style="list-style-type: none"> <li>◇ to access other parts of website (quickly)</li> </ul> </li> <li>• validation routines <ul style="list-style-type: none"> <li>◇ check that data is entered as required</li> <li>◇ is reasonable</li> </ul> </li> <li>• security measures <ul style="list-style-type: none"> <li>◇ passwords and user IDs</li> <li>◇ for creating customer accounts</li> <li>◇ for payment eg secure websites/https</li> </ul> </li> <li>• contact details of company <ul style="list-style-type: none"> <li>◇ email/message boxes</li> </ul> </li> <li>• shopping basket <ul style="list-style-type: none"> <li>◇ ability to save for later</li> <li>◇ ability to edit/alter</li> </ul> </li> <li>• item tracking <ul style="list-style-type: none"> <li>◇ enter order number and track goods for delivery</li> </ul> </li> <li>• video/audio description of goods/3D views/zoom views <ul style="list-style-type: none"> <li>◇ detailed description/show item in different views</li> </ul> </li> <li>• FAQs <ul style="list-style-type: none"> <li>◇ Answers to standard questions</li> </ul> </li> <li>• Checkout facility <ul style="list-style-type: none"> <li>◇ Use of electronic payment methods</li> </ul> </li> </ul> <p>1 mark for the feature, one mark for the description</p>	<b>[6]</b>	

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(b)	<p>This question to be marked using this grid:</p> <table border="1"> <thead> <tr> <th></th> <th>1 point</th> <th>2 points</th> <th>3 or more points</th> </tr> </thead> <tbody> <tr> <td>No expansions</td> <td>1</td> <td>2</td> <td>3</td> </tr> <tr> <td>1 expansion</td> <td>2</td> <td>3</td> <td>4</td> </tr> <tr> <td>2 expansions</td> <td>3</td> <td>4</td> <td>5</td> </tr> <tr> <td>3 or more expansions</td> <td>4</td> <td>5</td> <td>6</td> </tr> </tbody> </table> <p><b>A maximum of 4 marks for all advantages, or all disadvantages.</b></p> <p>Example points and expansions include:</p> <p><b>Example advantages</b></p> <ul style="list-style-type: none"> <li>• no need to leave home <ul style="list-style-type: none"> <li>◇ useful if housebound/disabled</li> </ul> </li> <li>• reduced prices <ul style="list-style-type: none"> <li>◇ just in time stock control</li> <li>◇ no need for storage facilities by retailer</li> </ul> </li> <li>• can buy at anytime <ul style="list-style-type: none"> <li>◇ when stores closed</li> </ul> </li> <li>• can buy from anywhere in world <ul style="list-style-type: none"> <li>◇ wider customer base</li> <li>◇ more choice of suppliers/goods</li> </ul> </li> <li>• No need to travel <ul style="list-style-type: none"> <li>◇ save cost of travel</li> <li>◇ save time</li> <li>◇ delivery maybe free</li> </ul> </li> </ul> <p>Example disadvantages:</p> <ul style="list-style-type: none"> <li>• security <ul style="list-style-type: none"> <li>◇ of personal details</li> </ul> </li> </ul>		1 point	2 points	3 or more points	No expansions	1	2	3	1 expansion	2	3	4	2 expansions	3	4	5	3 or more expansions	4	5	6		
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Question		Mark Scheme	Mark	Rationale
		<ul style="list-style-type: none"> <li>◇ of credit card details</li> <li>• fraud               <ul style="list-style-type: none"> <li>◇ websites may not be genuine</li> <li>◇ goods may not arrive</li> </ul> </li> <li>• goods may be different               <ul style="list-style-type: none"> <li>◇ from those ordered</li> <li>◇ may not be accurately described on the website</li> </ul> </li> <li>• goods may not be delivered when convenient               <ul style="list-style-type: none"> <li>◇ have to be at home to accept goods</li> <li>◇ may not be possible to deliver to another address</li> </ul> </li> <li>• difficulty with returning goods               <ul style="list-style-type: none"> <li>◇ may have to pay costs</li> <li>◇ no return addresses</li> </ul> </li> <li>• purchaser may not be genuine               <ul style="list-style-type: none"> <li>◇ may not pay for goods promptly</li> <li>◇ may not have funds to pay for goods/not pay at all</li> </ul> </li> </ul>	[6]	
6	(a)	<p><b>Four from:</b></p> <ul style="list-style-type: none"> <li>• create data capture sheet</li> <li>• use columns for each field</li> <li>• use titles/headers of fields</li> <li>• one named example</li> <li>• use tally chart</li> <li>• record data in fields/columns/tally chart boxes</li> <li>• check/verify her entries/recordings</li> <li>• date the recordings</li> <li>• encode data/use appropriate coding</li> </ul>	[4]	
	(b)	<ul style="list-style-type: none"> <li>• Verification</li> <li>• Validation</li> </ul>	[2]	These are the only two answers.

Question	Mark Scheme	Mark	Rationale
(c)	<p>Two features from:</p> <ul style="list-style-type: none"> <li>• Searches               <ul style="list-style-type: none"> <li>◇ use of Boolean expressions</li> <li>◇ example of Boolean expression eg AND, OR, NOT to match criteria/customer requirements</li> </ul> </li> <li>• Sorting               <ul style="list-style-type: none"> <li>◇ in descending/ascending order</li> <li>◇ of eg suitable example such as price, engine size</li> </ul> </li> <li>• Creation of chart/graph               <ul style="list-style-type: none"> <li>◇ for eg costings/availability</li> </ul> </li> <li>• Creation of reports/customisable forms               <ul style="list-style-type: none"> <li>◇ For customer to review/take away/hard copy</li> </ul> </li> </ul> <p>1 mark for the feature, one for description/use</p>	<b>[4]</b>	
7	<p>To be marked as a level of response:</p> <p><b>Level 3 (7-8 marks)</b>  Candidates will address all aspects of the question and discuss/consider different implications/advantages/disadvantages/benefits/drawbacks of health issues.  <b>The issues raised will be justified.</b> There will be a <b>reasoned</b> conclusion.  The information will be relevant, clear, organised and presented in a structured and coherent format.  Specialist terms will be used correctly and appropriately.</p> <p><b>Level 2 (4-6 marks)</b>  Candidates will address <b>all</b> aspects of the question and discuss/consider different implications although development of some of the points/implications/advantages/disadvantages/benefits/drawbacks of health issues.  There will be a conclusion.</p>		<p>In the lower band, marks are awarded for points with limited expansions. To be awarded 3 marks candidates must mention at least one problem and one benefit.</p> <p>In the middle band, marks are awarded for responses that give expansions of either but not of both.</p> <p>In the higher band, expansions of both problems and benefits will be given.</p>

Question	Mark Scheme	Mark	Rationale
	<p>For the most part the information will be relevant and presented in a structured and coherent format.</p> <p><b>Specialist terms</b> will be used appropriately and for the most part correctly.</p> <p><b>Level 1 (0-3 marks)</b> Candidates may only address <b>some</b> aspects of the question, and give <b>basic</b> descriptions of health issues. Answers may be <b>simplistic</b> with little or no relevance. There will <b>be little or no use</b> of specialist terms.</p> <p><b>Example health problems:</b></p> <ul style="list-style-type: none"> <li>• RSI <ul style="list-style-type: none"> <li>◇ caused by repeated actions eg repetitive clicking of mouse</li> <li>◇ prevented by eg wrist rest</li> </ul> </li> <li>• neck/back problems <ul style="list-style-type: none"> <li>◇ caused by incorrect posture</li> <li>◇ caused by incorrect position of eg chair/monitor</li> <li>◇ prevented by regular breaks/moving about</li> </ul> </li> <li>• eyestrain/dry eye <ul style="list-style-type: none"> <li>◇ caused by incorrect position of monitor</li> <li>◇ caused by incorrect monitor resolution</li> <li>◇ caused by incorrect blink rate</li> <li>◇ prevented by correct positioning eg height of chair/monitor</li> <li>◇ prevented by blinking regularly/looking away from monitor</li> </ul> </li> <li>• physical dangers <ul style="list-style-type: none"> <li>◇ trailing wires causing trips/falls</li> <li>◇ equipment may fall and cause harm</li> </ul> </li> <li>• electrical shocks <ul style="list-style-type: none"> <li>◇ caused by poor positioning of wiring</li> <li>◇ caused by overloaded sockets</li> <li>◇ caused by unauthorised interference with wiring/installations</li> </ul> </li> </ul>		<p>Note that while spellings, punctuation and grammar are not assessed in this Unit, a grade C descriptor is:</p> <p><b><i>They show a good understanding of basic ICT terms and definitions and are able to contrast and compare related ideas.</i></b></p> <p>and a grade A descriptor is:</p> <p><b><i>They use ICT terms and definitions appropriately and are able to contrast and compare related ideas.</i></b></p>

Question	Mark Scheme	Mark	Rationale
	<p><b>Example benefits</b></p> <ul style="list-style-type: none"> <li>• housebound/disabled               <ul style="list-style-type: none"> <li>◇ do not need not need to leave home</li> <li>◇ can operate devices using specialised input devices</li> <li>◇ be more independent</li> </ul> </li> <li>• artificial limbs/body parts               <ul style="list-style-type: none"> <li>◇ return some movement to limbs</li> <li>◇ enhanced movement of limbs when nerves damaged</li> <li>◇ replacement of lost limbs</li> </ul> </li> <li>• aids to enhance hearing/aid hearing impaired               <ul style="list-style-type: none"> <li>◇ digital hearing aids</li> <li>◇ cochlea implants</li> <li>◇ induction loop systems</li> <li>◇ infra red systems</li> </ul> </li> <li>• aids to enhance vision/aid visually impaired               <ul style="list-style-type: none"> <li>◇ Braille printing</li> <li>◇ zoom functions/screen magnification software</li> <li>◇ text to speech software/speech to text software</li> <li>◇ sensory substitution                   <ul style="list-style-type: none"> <li>- eg electronic travel aids</li> <li>- eg cortical implants</li> </ul> </li> </ul> </li> <li>• research and development               <ul style="list-style-type: none"> <li>◇ increasingly pervasive sensing networks                   <ul style="list-style-type: none"> <li>- to collect data</li> </ul> </li> <li>◇ higher processing power used to collate large amounts of information</li> <li>◇ the ability to transfer larger amounts of information more quickly through both wired and wireless systems.</li> </ul> </li> </ul>	<b>[8]</b>	
	<b>Higher Paper Total</b>	<b>[60]</b>	

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