



## General Certificate of Secondary Education

# Information and Communication Technology 3522 *Specification B*

*3522/H Full Course Higher Tier*

## Mark Scheme

*2005 examination – June series*

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.



It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

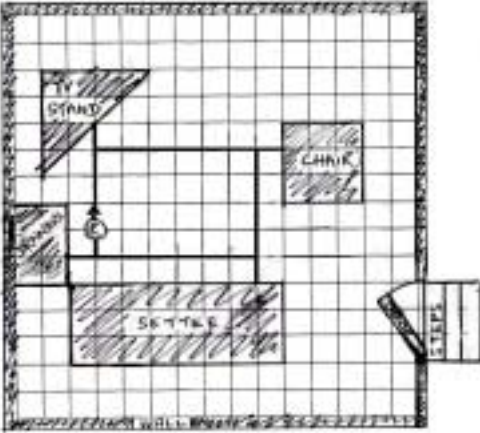
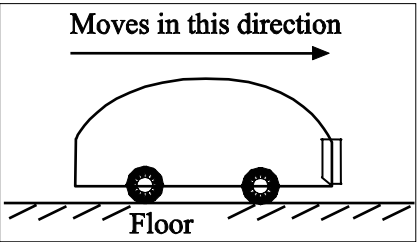
## 3522/H - Higher Tier Written Paper

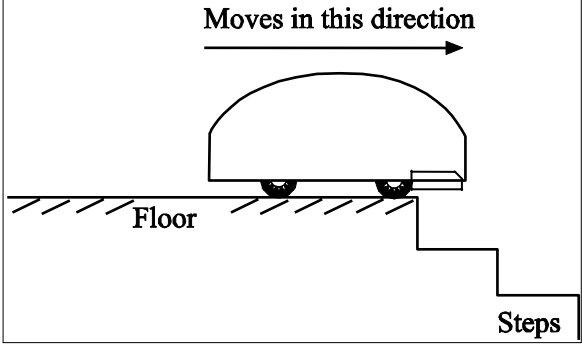
1.		
a.	These points. D is joined to connects to the Internet C is joined to contains the processor, memory and hard disk G is joined to selects from a menu	3 marks
b.		
i.	This point. E-mail	1 mark
ii.	This point. Spreadsheet	1 mark
iii.	This point. Web browser or e-mail	1 mark
iv.	This point. Operating System	1 mark
c.	These points. There are no files on the floppy disk. You can store up to 1.44 Mbytes on a 3.5inch floppy disk. There are no folders on the floppy disk.	3 marks
d.	Any reasonable. For example: Backup, 1m Virus protection, 1m Specific example of physical security, 1m Username and password, 1m Firewall, 1m Spyware, 1m NOT: no food or drink NOT: encryption	5 marks
<b>Total for this question:</b>		<b>15 marks</b>

2.		
a.		
i.	This point. The average number of customers at each checkout = 4 The average time customers have to queue = 12	2 marks
ii.	This point. =B1/B2 or B1/B2 or equivalent NOT: sum(B1/B2)	1 mark
iii.	This point. =B3*B4 or B3*B4 or equivalent NOT: B3xB4; sum(B3*B4)	1 mark
iv.	These points or their equivalents. Open more checkouts/fit more checkouts in the supermarket, 1m Staff work faster/put experienced staff that can process customers faster on all the checkouts, 1m Improve the speed at which the checkout technology works, 1m	2 marks
v.	Any reasonable. Put an IF statement in B6 to warn the manager; for example, =IF(B5>10,"customers queuing too long")	1 mark
b.		
i.	Any reasonable. For example: Data to be collected: Number of checkouts being used Manual method: a person counts the number in use Automatic method: network detects number of checkouts being operated or similar.	2 marks
ii.	Any reasonable. For example: Data to be collected: Time to process a customer Manual method: person times using a stop watch. Automatic method: start and end of processing a customer detected by the computer.	2 marks
c.	These points. On-line Multi-tasking	2 marks
d.	Any reasonable. For example: Understanding of model suggests capacity of supermarket depends on number of checkouts, or speed at which customers go through checkout. So in designing the supermarket: Install high speed checkout technology (training staff to work faster would not be part of the supermarket design although features of the checkout that enabled them to work faster would be) Use model to work out the number of checkouts needed.	2 marks
<b>Total for this question:</b>		<b>15 marks</b>

3.		
a.		
i.	This point. <b>Parcel_Number</b>	1 mark
ii.	Any reasonable. For example: The key field identifies the parcel.	1 mark
b.		
i.	Any reasonable. For example: The <b>Parcel_Number</b> has the same value as in an existing record. The <b>Parcel_Number</b> must be unique.	2 marks
ii.	This point. The database should generate the key field.	1 mark
c.		
i.	Any reasonable. For example: The content of the <b>Posted_At</b> field and the <b>Content</b> field have been transposed. The <b>Content</b> of the parcel is unlikely to be Manchester. XLOG has only 5 offices and none of them is in a town called Medicines.	1 mark
ii.	This point. Validation	1 mark
iii.	Any reasonable. For example: Use a table lookup on the <b>Posted_At</b> field.	1 mark
iv.	This point. Sometimes, records that should be selected by a search condition will not be selected.	1 mark
d.		
i.	This point. Rooney and no others, 1m	1 mark
ii.	This point. Patel, Delker – must have both and no others for 1m – in any order	1 mark
iii.	This point. Jones and no others, 1m	1 mark
e.	Any reasonable feature of a database. For example: The database can store information about thousands of parcels. Information about a parcel can be found very quickly. The database can be updated on the Web.	1 mark
f.	These points. Ascending On the <b>Posted_At</b> field	2 marks
	<b>Total for this question:</b>	<b>15 marks</b>

4.		
a.	These points in this order. table column	2 marks
b.	Any reasonable. For example: Words A and B have different fonts Words A and B have different sizes of text Word B is underline whereas word A is not	3 marks
c.	This point. word art	1 mark
d.	These points in this order. bullet border centred	3 marks
e		
i.	Any reasonable. For example: The text will be more readable when projected as it is larger. Bullets help prompt the presenter. Bullets help structure the presenter's talk. Bullets summarising the talk for the audience.	2 marks
ii.	Any reasonable. For example: More detailed information can be given. Complex information can be explained at length.	2 mark
f.	These points. Identifies each clearly and correctly.  portrait   landscape  States that one is horizontal and one is vertical, or equivalent, but doesn't clearly show which is which, 1m	2 marks
	<b>Total for this question:</b>	<b>15 marks</b>

5.		
a.	<p>Any reasonable. For example:                  Turns and clears the end of the settee, e.g. R F8 (or F9 or F10), 1m                  Moves behind the settee and stops at point B, e.g. R F6 R F4 (or F5 or F6 respectively), 1m                  Answer clear but incorrect syntax, -1m</p>	2 marks
b.		
i.	<p>These points.                  Bumps into TV stand and heads off in correct direction towards chair, 1m                  Completes at least 2 bumps correctly, 1m                  Completes the circuit, 1m                  Correct rectangle but some 'ends' missing, 2m in total</p> 	3 marks
ii.	<p>Any reasonable. For example:                  The robot vacuum cleaner goes round and round the same path.                  The robot vacuum cleaner will not clean the whole floor.</p>	1 mark
c.		
i.	<p>Any reasonable. For example:                  Touch sensor; distance sensor</p>	1 mark
ii.	<p>This point.                  Puts cross on flat surface of robot vacuum cleaner at the front.                  The centre of the cross must be at the front within 1mm of the edge but not on the corner.</p> 	1 mark
iii.	<p>Any reasonable. For example:                  Electric motor</p>	1 mark

d.		
i.	<p>This point.          Puts cross on underside of robot vacuum cleaner ahead of the front wheels.          The centre of the cross must be on the underside within 1mm of the edge but not on the corner.</p> 	1 mark
ii.	Any reasonable. For example: Light; distance sensor	1 mark
iii.	Any reasonable. For example: Stop.	1 mark
iv.	<p>These points.          Description is in this context, 1m          Description includes sensing, 1m          Description includes reaction, 1m          Description makes clear that feedback is a cyclical process, 1m</p>	3 marks
<b>Total for this question:</b>		<b>15 marks</b>

6.		
a.		
i.	This point. mouse	1 mark
ii.	This point. speakers	1 mark
b.		
i.	Any reasonable. For example: A touch screen allows input, whereas a standard monitor screen does not.	1 mark
ii.	Any reasonable. For example: Both allow output.	1 mark
c.		
i.	Any reasonable, for example: Hard disk, magnetic tape	1 mark
ii.	This point. CD-ROM	1 mark
d.		
i.	Any reasonable. For example: The computer is set to print in background mode. The document is placed in the printer queue on the server before it is printed. The document is output to the buffer in the printer before it is printed.	3 marks
ii.	These points. Star or line topology with a file server and 3 computers, 1m Other networked hardware, e.g. printer, 1m each Other local hardware, e.g. scanner, 1m each Connection to another network, 1m	4 marks
e.	Any reasonable. For example: Higher bandwidth can increase the capacity of a network. Higher bandwidth can increase the speed of a network. If bandwidth is too narrow, Internet access using the network is likely to be very slow.	2 marks
	<b>Total for this question:</b>	<b>15 marks</b>



7.																							
a.	<p>These points in this order.</p> <p>Systems Analysis and Design</p> <p>Testing</p> <p>Monitoring and Evaluation</p>	3 marks																					
b.	<p>These points.</p> <table border="1"> <thead> <tr> <th>Label</th> <th>Action</th> <th></th> </tr> </thead> <tbody> <tr> <td>B</td> <td>Identify the car as it enters the city centre</td> <td>B followed by F, 1m</td> </tr> <tr> <td>A</td> <td>Record the time</td> <td rowspan="2">Uses A twice, not necessarily in the correct order, 1m</td> </tr> <tr> <td>F</td> <td>Identify the car as it leaves the city centre</td> </tr> <tr> <td>A</td> <td>Record the time</td> <td rowspan="2">Both statements in this order but may not be together, 1m</td> </tr> <tr> <td>E</td> <td>Calculate the time the car has been in the city centre</td> </tr> <tr> <td>D</td> <td>Calculate the charge</td> <td rowspan="2">Final statement, and all other statements present and in the correct order, 1m</td> </tr> <tr> <td>C</td> <td>Send the motorist the bill</td> </tr> </tbody> </table>	Label	Action		B	Identify the car as it enters the city centre	B followed by F, 1m	A	Record the time	Uses A twice, not necessarily in the correct order, 1m	F	Identify the car as it leaves the city centre	A	Record the time	Both statements in this order but may not be together, 1m	E	Calculate the time the car has been in the city centre	D	Calculate the charge	Final statement, and all other statements present and in the correct order, 1m	C	Send the motorist the bill	4 marks
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c.	<p>Any reasonable advantage. For example:</p> <p>The council increases its income.</p> <p>Bills can be sent automatically to motorists.</p> <p>There is likely to be less congestion from cars in the city centre.</p> <p>If the council gets its money from congestion charges, increases in council tax may be lower.</p> <p>Stolen cars can be identified as they enter the city centre, and the police informed, so that cars can be returned to their owners.</p> <p>It could be easier to park.</p> <p>Any reasonable disadvantage. For example:</p> <p>The ICT system will be expensive to set up.</p> <p>The council will be unpopular with motorists and may not be re-elected.</p> <p>Fewer people in the city centre may make the city uninteresting, and even more people will stay away.</p> <p>Shops in the city centre may have fewer customers.</p> <p>Cars are tracked, so that there is less privacy for the motorist.</p> <p>Bills are sent to the owner of the vehicle who may not be the driver.</p> <p>There could be errors identifying a car.</p>	8 marks max 5 adv or 5 disadv																					
<b>Total for this question:</b>		<b>15 marks</b>																					

8.		
a.	<p>Any reasonable. For example. This might work because: Those few who have access can be monitored. National firewalls can block undesirable Web sites. All the information available on the Web may not be available in the language spoken by traditional societies. Educated office workers are more likely to speak English, so that restrictions are well targeted.</p> <p>This might not work because: Restricting the people who have access to the Internet and the Web does not prevent those who have access looking at restricted information. There are so many different ways to connect to the Internet that National firewalls can be avoided. Educated office workers are more likely to speak English, so that if there was wider access it might not make monitoring harder.</p>	4 marks max 3 adv or 3 disadv
b.	<p>Any reasonable. For example: Software companies are discouraged from developing software. Other companies may not pay for software and have a commercial advantage.</p>	2 marks
c.	<p>Any reasonable advantage. For example: Standardisation/automated manufacturing leads to economies of scale and goods are cheaper. Manufacturers have access to larger markets using the Internet. Jobs can be outsourced around the world using international ICT networks. This leads to more jobs in developing countries. The web can highlight common ground between different cultures. Using the web, people can understand other cultures and will be more tolerant of these so that war is less likely. A great diversity of opinion is expressed on the Web. People who are isolated can find others with similar attitudes. For example, those working against oppression can contact others outside their society for assistance and support.</p> <p>Any reasonable disadvantage. For example: Widespread access to information about social and political democracy on the web may undermine social stability in non democratic countries. The web leads to standardisation, and national and cultural identity is eroded as the differences between peoples' ways of life diminish. The Web can highlight differences between cultures making conflict harder to avoid conflict. For example, families may be split up when people adopt attitudes to marriage that are common in other countries but not in their own cultures. Access to on line shopping can lead to frustration in countries where most people earn very low wages and cannot afford to buy the goods available. Access to international on line gambling may undermine traditional values. Jobs can be outsourced around the world using international ICT networks. This leads to job losses in developed countries, and the rapid movement of jobs around the world which can be destabilising. In order to access the Internet, it is necessary to invest in telecommunications and power networks. This may cost too much for a poor country. A great diversity of opinion is expressed on the Web. People can find others with similar attitudes. Terrorism can be organised more easily on a global scale.</p>	9 marks max 5 adv and max 5 disadv
	<b>Total for this question:</b>	<b>15 marks</b>