

# **Mark Scheme for June 2012**

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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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## Annotations

|             |  |
|-------------|--|
| <b>^</b>    | Something vital to the mark point has been omitted.  |
| <b>BOD</b>  | Benefit of the doubt given.  |
| <b>NBOD</b> | Benefit of the doubt <b>not</b> given.   |
| <b>CON</b>  | Candidate contradicts him/herself.   |
| <b>NAQ</b>  | Candidate has not answered the question as set.  |
| <b>MTP</b>  | Candidate has missed the point of the question.  |
| <b>W</b>    | Candidate is working towards a mark but has not given enough to receive credit at this point.  |
| <b>NE</b>   | Not enough for the candidate to receive credit.  |
| <b>TV</b>   | Answer is too vague to receive credit.   |
| <b>FTC</b>  | Follow-through credit. When an earlier wrong answer has been penalised, this may be used to show that credit can now be given to a part of the script which depends on that earlier wrong answer. This avoids penalising a candidate twice for the same error, but <b>should only be used where specified by the PE.</b> |
| <b>MAX</b>  | Shows that the maximum number of marks for a part-question or question has been awarded (even though the answer may contain further correct points).   |
| <b>R</b>    | The point repeats one already awarded credit.  |
| <b>JE</b>   | Candidate has <i>just</i> given enough to be awarded a mark.   |

Examiners may also underline the key words or phrases that contribute to the answer being worthy of credit or which confirm that the answer is wrong. However, care will be needed as candidates often use underlining to indicate an answer in pre-prepared material. Some also use red ink for this.

## Subject-specific Marking Instructions

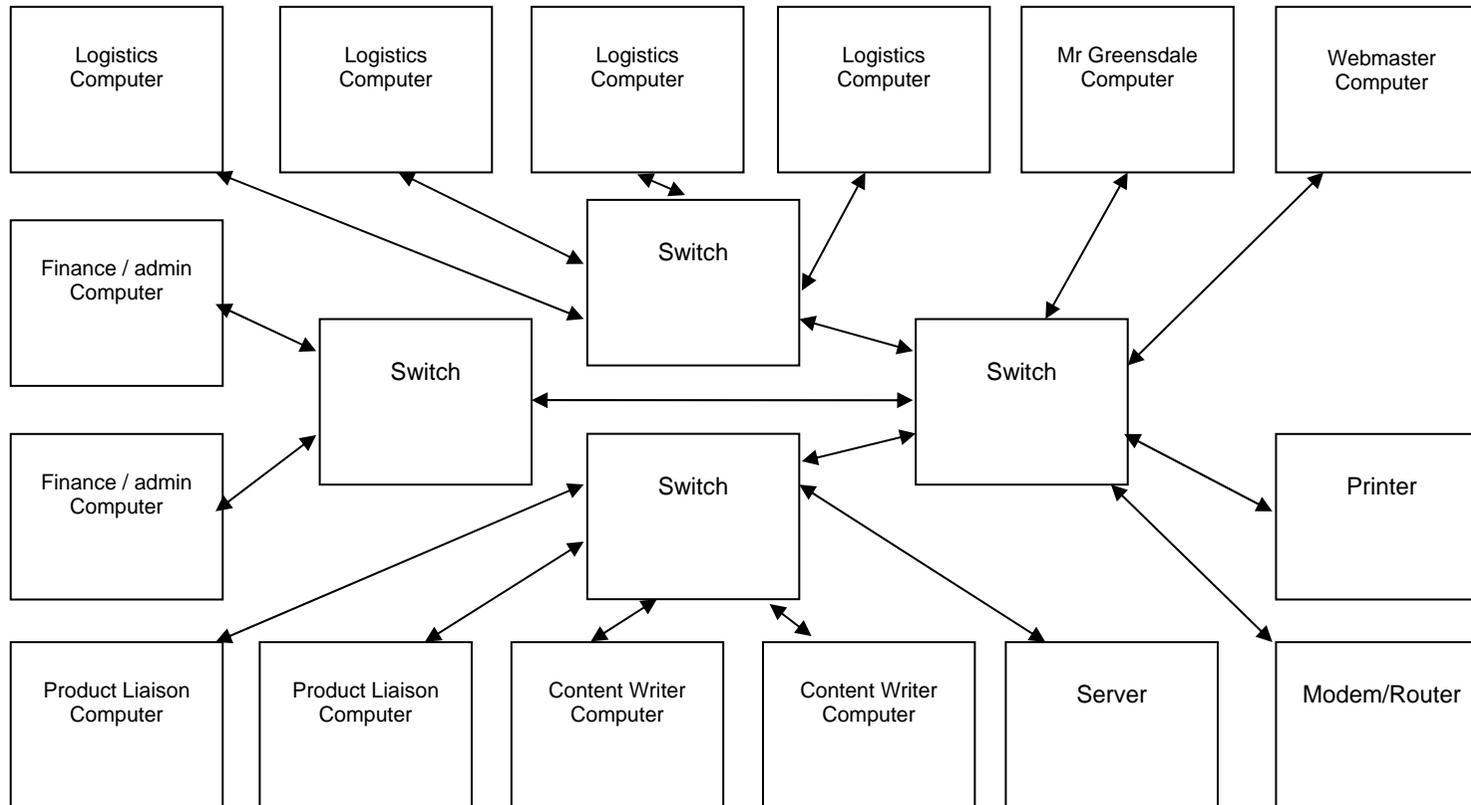
There are 100 marks available for this assessment. They are allocated as follows:

- Pre-release material                      30 marks
- Section A of test paper                    50 marks
- Section B of the test paper                20 marks

| Task | Answer  | Marks | Guidance |
|------|---|-------|----------|
| 2    | Any 4 from:<br>1 mark for correct representation of a logical tree<br>1 mark for connection devices correctly labelled (switch/router)<br>1 mark for correct number of devices<br>1 mark for including a server (must be accessible from all parts of network)<br>1 mark for including a printer (must be accessible from all parts of network) | 4     |          |

**TASK 2**

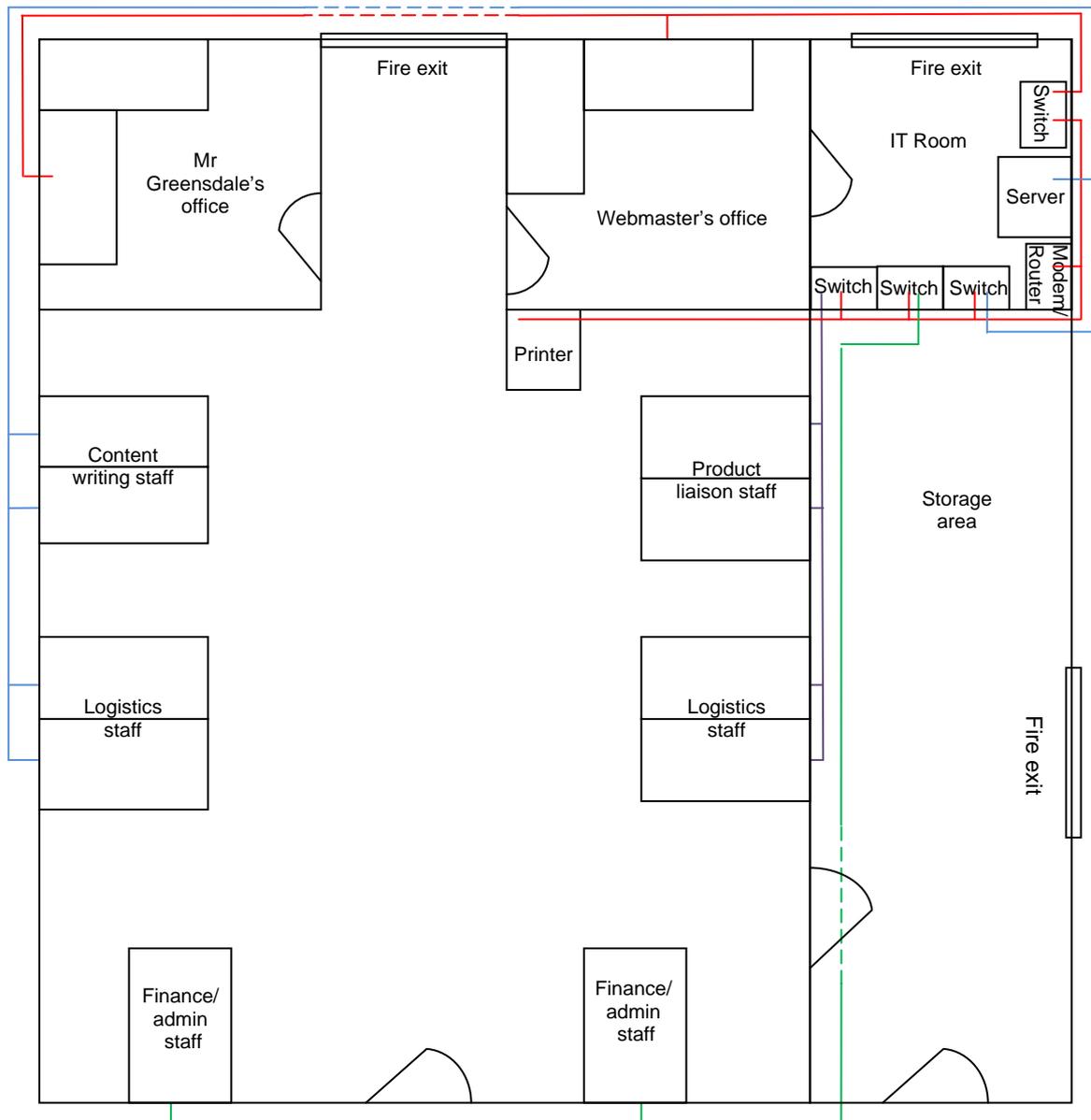
**Correct diagram showing a logical tree network:**



| Task |  | Answer  | Marks | Guidance |
|------|--|---|-------|----------|
| 2    |  | <p>Any 6 from:</p> <ul style="list-style-type: none"><li>1 mark for correct number of connections</li><li>1 mark for correct connection methods for a tree topology</li><li>1 mark for correct cabling shown (not wireless)</li><li>1 mark for placement of network equipment in IT room</li><li>1 mark for placement of printer in office space</li><li>1 mark for placement of server in IT room (not in front of fire exit)</li><li>1 mark for sensible positioning of cables</li></ul> <p>See following diagram</p> | 6     |          |

**TASK 2 EXAMPLE**

**A Correct diagram showing a fully connected physical tree network:**





| Task |  | Answer   | Marks | Guidance |
|------|--|--|-------|----------|
| 2    |  | Justification:<br>Up to two marks for a justification<br>e.g.<br>connected to same switch as product liaison computers (1) product liaison staff will need quicker access (1)<br>connected to main switch (1) directly accessible to all parts of the tree (1) | 2     |          |
|      |  | Evaluation:<br>Some comment is made on the method(s) used (1)<br>A strength or a weakness of the method(s) used is identified (1)<br>A strength and a weakness of the method(s) used is identified (1)   | 3     |          |

| Task                              | Answer  | Marks  | Guidance |                        |                  |  |  |                               |   |   |                            |   |   |                                   |  |   |   |  |
|-----------------------------------|---|--|----------|------------------------|------------------|--|--|-------------------------------|---|---|----------------------------|---|---|-----------------------------------|--|---|---|--|
| 3                                 | <p>Answers may include eg.</p> <table border="1"> <thead> <tr> <th>Problem</th> <th>Impact</th> <th>Minimisation of impact</th> </tr> </thead> <tbody> <tr> <td>Loss of security</td> <td>Possible problems with customer data and Data Protection laws.<br/><br/>Possible problems with financial systems</td> <td>Installation of good security software will reduce the impact.<br/><br/>Must be dealt with on a regular basis.<br/><br/>Should be minimised by the use of good security techniques and practice.</td> </tr> <tr> <td>Loss of speed for individuals</td> <td>Shared access to internet and to database may mean that access is slower.</td> <td>Good network design and a fast broadband connection should make speed acceptable.</td> </tr> <tr> <td>Cost of purchase and setup</td> <td>Network equipment and the cost of installation of cabling will be high.</td> <td>Some old equipment could be incorporated into the new design, especially existing computers, this could reduce the cost but may result in loss of speed if there are incompatibilities.</td> </tr> <tr> <td>Maintenance and supervision costs</td> <td>May need to employ someone to manage the network or contract outside agencies.</td> <td>Costs can be reduced by training an existing member of staff who then takes on the role in addition to their previous role.</td> </tr> </tbody> </table> | Problem  | Impact   | Minimisation of impact | Loss of security | Possible problems with customer data and Data Protection laws.<br><br>Possible problems with financial systems | Installation of good security software will reduce the impact.<br><br>Must be dealt with on a regular basis.<br><br>Should be minimised by the use of good security techniques and practice. | Loss of speed for individuals | Shared access to internet and to database may mean that access is slower. | Good network design and a fast broadband connection should make speed acceptable. | Cost of purchase and setup | Network equipment and the cost of installation of cabling will be high. | Some old equipment could be incorporated into the new design, especially existing computers, this could reduce the cost but may result in loss of speed if there are incompatibilities. | Maintenance and supervision costs | May need to employ someone to manage the network or contract outside agencies. | Costs can be reduced by training an existing member of staff who then takes on the role in addition to their previous role. | 9 | <p><b>H 7-9</b><br/>The candidate will show a clear understanding of the task by identifying problems and giving a detailed explanation of the impact on Green Toes and how each impact could be minimised. The explanations are wholly relevant to Green Toes. The information will be presented in a structured and coherent form. There will be few, if any, errors in spelling, grammar and punctuation. Technical terms will be used appropriately and correctly.</p> <p><b>M 4-6</b><br/>The candidate will show an understanding of the task by identifying problems and giving some appropriate explanations of their impact on Green Toes and how some impacts could be minimised. The explanations will be mostly relevant to Green Toes. The information will be presented in a structured format. There may be occasional errors in spelling, grammar and punctuation. Technical terms will be mainly correct.</p> <p><b>L 0-3</b><br/>The candidate will demonstrate a limited understanding of the task and will identify problems with some general explanation of their potential impact. Little or no reference will be made to Green Toes. Information will be poorly expressed and there will be a limited, if any, use of technical terms. Errors of grammar, punctuation and spelling may be intrusive.</p> |
| Problem                           | Impact  | Minimisation of impact   |          |                        |                  |  |  |                               |   |   |                            |   |   |                                   |  |   |   |  |
| Loss of security                  | Possible problems with customer data and Data Protection laws.<br><br>Possible problems with financial systems  | Installation of good security software will reduce the impact.<br><br>Must be dealt with on a regular basis.<br><br>Should be minimised by the use of good security techniques and practice. |          |                        |                  |  |  |                               |   |   |                            |   |   |                                   |  |   |   |  |
| Loss of speed for individuals     | Shared access to internet and to database may mean that access is slower.   | Good network design and a fast broadband connection should make speed acceptable.  |          |                        |                  |  |  |                               |   |   |                            |   |   |                                   |  |   |   |  |
| Cost of purchase and setup        | Network equipment and the cost of installation of cabling will be high.   | Some old equipment could be incorporated into the new design, especially existing computers, this could reduce the cost but may result in loss of speed if there are incompatibilities.      |          |                        |                  |  |  |                               |   |   |                            |   |   |                                   |  |   |   |  |
| Maintenance and supervision costs | May need to employ someone to manage the network or contract outside agencies.  | Costs can be reduced by training an existing member of staff who then takes on the role in addition to their previous role.  |          |                        |                  |  |  |                               |   |   |                            |   |   |                                   |  |   |   |  |

## SECTION A

| Question | Answer   | Marks | Guidance |
|----------|--|-------|----------|
| 1        | <p>One mark for an appropriate benefit plus a further mark for an expansion of up to three costs<br/>e.g.</p> <ul style="list-style-type: none"> <li>• sharing of expensive hardware / such as printers/file storage devices/internet connection (1) reduces costs for Green Toes(1)</li> <li>• sharing software resources / such as office type software packages / site licences are cheaper (1) reduces costs for Green Toes (1)</li> <li>• software can be updated more easily (1) saves time for Green Toes (1)</li> <li>• sharing common data / all employees can access the data if necessary (1) such as product data in database (1)</li> <li>• potential intranet provision / Green Toes could use a web server to host an intranet for sharing company information (1) this could result in better informed employees (1)</li> <li>• improved communication between employees / by email/intranet/conferencing (1) allows Green Toes employees to work more efficiently (1)</li> <li>• centralised management / access to data can be restricted for each employee as appropriate / e.g. only product liaison staff can change the contents of the database, everyone else can just look (1) helps increase security (1)</li> </ul> | 6     |          |

| Question |     | Answer   | Marks | Guidance |
|----------|-----|--|-------|----------|
| 2        | (a) | One mark each for up to 4 of:<br>e.g.<br>all employees computers will require a password (1) all access internet through proxy server (1) proxy server keeps a record of IP addresses attached (1) passes web page onto correct computer (1) server receives requests for web pages (1) from employees' browser (1) receives web pages for employees (1) matches received pages with requested pages (1) caches web pages (1) increases speed of access for employees to common pages (1) accessed by Green Toes employees (1) requests page if not cached (1) | 4     |          |
|          | (b) | One mark each for up to 4 of:<br>e.g.<br><br>matches IP addresses to MAC addresses (1) so that data is sent to correct computer (1) keeps access control lists (1) to increase security for Green Toes (1) uses subnet masks to direct packets (1) so that packets go to the right part of the network (1)   | 4     |          |
| 3        | (a) | Up to a maximum of two marks for a description<br>e.g. <ul style="list-style-type: none"> <li>• Data can travel faster (1) direct connection between individual devices for extra security (1)</li> <li>• Fault tolerant (1) can bypass faulty connections to increase reliability for Green Toes network (1)</li> </ul>   | 2     |          |
|          | (b) | Up to 3 marks for a suitable explanation<br>e.g. <ul style="list-style-type: none"> <li>• too costly to implement (1) specialist network devices required (1) Green Toes is too small to justify the expense (1)</li> <li>• network traffic at Green Toes will not be high enough (1) direct connection between devices is not required (1) too much of the network would be redundant (1)</li> <li>• too much cabling for a small premises (1) such as the Green Toes office (1) cabling would be difficult to manage (1)</li> </ul>                          | 3     |          |

| Question |     | Answer  | Marks | Guidance |
|----------|-----|---|-------|----------|
| 4        | (a) | Up to a maximum of two marks for a description:<br>e.g. <ul style="list-style-type: none"><li>• keeps track of user accounts (1) to ensure access is only by Green Toes staff (1)</li><li>• controls access to the database (1) to ensure that only one of the two product staff update it at once (1)</li></ul>  | 2     |          |
|          | (b) | Up to three marks for a suitable explanation:<br>e.g. <ul style="list-style-type: none"><li>• allows one user to log in (1) by interrogating the Green Toes server (1) which looks up their user name and password (1)</li><li>• sends request for access and receives data (1) which is dealt with by the server (1) when the user wants to access a particular record (1)</li></ul> | 3     |          |

| Question                 | Answer   | Marks | Levels of Response                    |                    |  |                          |   |   |   |
|--------------------------|--|-------|---------------------------------------|--------------------|--|--------------------------|---|---|---|
| 5                        | <p>Answers may include:</p> <table border="1"> <tr> <td>Log</td> <td>Use and how this will aid maintenance</td> </tr> <tr> <td><b>Problem Log</b></td> <td> <p>Look up log of previous problems, this might help with current problems on Green Toes network</p> <p>Describes what was going on when the problem occurred, can be used to help spot recurring problems and to identify malfunctioning equipment</p> <p>Date and time of problem can be cross reference with the communication log, to identify if the problem was with communication</p> <p>Green Toes logs will use an easily identifiable file naming system and directory structure so that previous problems can be easily referenced</p> <p>Access rights are set so that only maintenance company can access, to ensure that files are not accidentally deleted or changed</p> </td> </tr> <tr> <td><b>Communication log</b></td> <td> <p>Identify what was happening at a particular time (date, time and duration), user may not have been aware when reporting</p> <p>Identify where bottlenecks occur using source, destination, size and file type information, network could be reconfigured to be more efficient</p> <p>Record all transmission times, connection types and lost data to identify problems with particular connections</p> <p>Identifies the protocols used for data transfer, so that software problems can be identified by maintenance company</p> </td> </tr> </table> | Log   | Use and how this will aid maintenance | <b>Problem Log</b> | <p>Look up log of previous problems, this might help with current problems on Green Toes network</p> <p>Describes what was going on when the problem occurred, can be used to help spot recurring problems and to identify malfunctioning equipment</p> <p>Date and time of problem can be cross reference with the communication log, to identify if the problem was with communication</p> <p>Green Toes logs will use an easily identifiable file naming system and directory structure so that previous problems can be easily referenced</p> <p>Access rights are set so that only maintenance company can access, to ensure that files are not accidentally deleted or changed</p> | <b>Communication log</b> | <p>Identify what was happening at a particular time (date, time and duration), user may not have been aware when reporting</p> <p>Identify where bottlenecks occur using source, destination, size and file type information, network could be reconfigured to be more efficient</p> <p>Record all transmission times, connection types and lost data to identify problems with particular connections</p> <p>Identifies the protocols used for data transfer, so that software problems can be identified by maintenance company</p> | 9 | <p><b>H 7-9</b><br/>The candidate will show a clear understanding of the question by providing a detailed explanation including a consideration of problem and communication logs. The candidate will make reference to the contents of each type of log. The explanation will be wholly relevant to Green Toes. The information will be presented in a structure and coherent form. There will be few, if any, errors in spelling, grammar and punctuation. Technical terms will be used appropriately and correctly.</p> <p><b>M 4-6</b><br/>The candidate will show an understanding of the question by providing an explanation of the use of both problem and communication logs. The focus may be one-sided. The explanation will be mostly relevant to Green Toes. The information will be presented in a structured format. There may be occasional errors in spelling, grammar and punctuation. Technical terms will be mainly correct.</p> <p><b>L 0-3</b><br/>The candidate will demonstrate a limited understanding of the question by providing a limited explanation, which may be structured as a list of points. Little or no reference will be made to Green Toes, Information will be poorly expressed and there will be a limited, if any, use of technical terms. Errors of grammar, punctuation and spelling may be intrusive.</p> |
| Log                      | Use and how this will aid maintenance  |       |                                       |                    |  |                          |   |   |   |
| <b>Problem Log</b>       | <p>Look up log of previous problems, this might help with current problems on Green Toes network</p> <p>Describes what was going on when the problem occurred, can be used to help spot recurring problems and to identify malfunctioning equipment</p> <p>Date and time of problem can be cross reference with the communication log, to identify if the problem was with communication</p> <p>Green Toes logs will use an easily identifiable file naming system and directory structure so that previous problems can be easily referenced</p> <p>Access rights are set so that only maintenance company can access, to ensure that files are not accidentally deleted or changed</p>   |       |                                       |                    |  |                          |   |   |   |
| <b>Communication log</b> | <p>Identify what was happening at a particular time (date, time and duration), user may not have been aware when reporting</p> <p>Identify where bottlenecks occur using source, destination, size and file type information, network could be reconfigured to be more efficient</p> <p>Record all transmission times, connection types and lost data to identify problems with particular connections</p> <p>Identifies the protocols used for data transfer, so that software problems can be identified by maintenance company</p>  |       |                                       |                    |  |                          |   |   |   |

| Question |     | Answer   | Marks | Guidance |
|----------|-----|--|-------|----------|
| 6        | (a) | <p>Up to a maximum of two marks for an explanation:</p> <p>e.g.</p> <ul style="list-style-type: none"> <li>• can access company information from outside (1) could make dealing with customers at Green Toes premises easier (1)</li> <li>• could access work at home through extranet (1) may allow flexible working (1)</li> <li>• possibility of discussion forum through the extranet (1) could discuss working practices at any time (1)</li> </ul>   | 2     |          |
|          | (b) | <p>Up to a maximum of two marks for an explanation:</p> <p>e.g.</p> <ul style="list-style-type: none"> <li>• can have access to relevant information (1) without visiting Green Toes (1).</li> <li>• can share documents through extranet (1) such as outline agreements or customer figures(1)</li> <li>• can submit product information through extranet (1) to save time between introducing the product and getting it onto the database and website (1)</li> <li>• can participate in a producer forum (1) hosted on the extranet (1)</li> </ul>    | 2     |          |
|          | (c) | <p>Up to a maximum of two marks each for an explanation of two disadvantages:</p> <p>e.g.</p> <ul style="list-style-type: none"> <li>• possible security issues (1) caused by allowing producers to access (1)</li> <li>• cost of equipment to set up (1) Green Toes is on a low budget (1)</li> <li>• someone will be needed to maintain the extranet (1) there are no existing staff available for this (1)</li> <li>• someone will be needed to create the content for the extranet (1) there are no existing staff available for this (1)</li> </ul> | 4     |          |

| Question     | Answer   |  |  |  | Marks  | Levels of Response |               |            |              |   |  |  |             |  |  |   |   |   |
|--------------|--|--|--|--|--------|--------------------|---------------|------------|--------------|---|--|--|-------------|--|--|---|---|---|
| 7            | <p>Answers may include eg.</p> <table border="1"> <thead> <tr> <th>Method</th> <th>Advantages</th> <th>Disadvantages</th> <th>Evaluation</th> </tr> </thead> <tbody> <tr> <td><b>Video</b></td> <td>Allows full communication between participants. Facial expression adds to quality of communication. Feels more like being face to face.</td> <td>Requires all participants to have a webcam and microphone. Relies heavily on a good/fast broadband connection.</td> <td>Not all producers (especially in remote areas) will have fast enough broadband. Green Toes will need enough equipment for everyone who needs to participate. Green Toes will need to purchase the software to run it. Producers may not have the equipment. May be viable if software has a teleconferencing option built in for individual participants using a telephone line.</td> </tr> <tr> <td><b>Tele</b></td> <td>Allows audio comms between all participants at the same time. Everyone likely to have phone/mobile. Cheaper and easier method to set up.</td> <td>Difficult to read the conversation. Participants may be less likely to contribute because of lack of body language</td> <td>More producers are likely to be able to participate. Less equipment will be needed at Green Toes as all employees have smart phones. Green Toes will need to purchase the software to run it.</td> </tr> </tbody> </table> |  |  |  | Method | Advantages         | Disadvantages | Evaluation | <b>Video</b> | Allows full communication between participants. Facial expression adds to quality of communication. Feels more like being face to face. | Requires all participants to have a webcam and microphone. Relies heavily on a good/fast broadband connection. | Not all producers (especially in remote areas) will have fast enough broadband. Green Toes will need enough equipment for everyone who needs to participate. Green Toes will need to purchase the software to run it. Producers may not have the equipment. May be viable if software has a teleconferencing option built in for individual participants using a telephone line. | <b>Tele</b> | Allows audio comms between all participants at the same time. Everyone likely to have phone/mobile. Cheaper and easier method to set up. | Difficult to read the conversation. Participants may be less likely to contribute because of lack of body language | More producers are likely to be able to participate. Less equipment will be needed at Green Toes as all employees have smart phones. Green Toes will need to purchase the software to run it. | 9 | <p><b>H 7-9</b><br/>The candidate will show a clear understanding of the question by identifying relevant advantages/benefits and disadvantages/limitations and giving a full and appropriate evaluation of the use of both conferencing methods. The evaluation will be wholly relevant to Green Toes. The information will be presented in a structured and coherent form. There will be few, if any, errors in spelling, grammar and punctuation. Technical terms will be used appropriately and correctly.</p> <p><b>M 4-6</b><br/>The candidate will show an understanding of the questions by identifying relevant advantages/benefits and disadvantages/limitations and will have given some appropriate evaluation of the use of both conferencing methods. The evaluation may be one-sided. The evaluation will be mostly relevant to Green Toes. The information will be presented in a structured format. There may be occasional errors in spelling, grammar and punctuation. Technical terms will be mainly correct.</p> |
| Method       | Advantages   | Disadvantages  | Evaluation   |  |        |                    |               |            |              |   |  |  |             |  |  |   |   |   |
| <b>Video</b> | Allows full communication between participants. Facial expression adds to quality of communication. Feels more like being face to face.  | Requires all participants to have a webcam and microphone. Relies heavily on a good/fast broadband connection.     | Not all producers (especially in remote areas) will have fast enough broadband. Green Toes will need enough equipment for everyone who needs to participate. Green Toes will need to purchase the software to run it. Producers may not have the equipment. May be viable if software has a teleconferencing option built in for individual participants using a telephone line. |  |        |                    |               |            |              |   |  |  |             |  |  |   |   |   |
| <b>Tele</b>  | Allows audio comms between all participants at the same time. Everyone likely to have phone/mobile. Cheaper and easier method to set up.   | Difficult to read the conversation. Participants may be less likely to contribute because of lack of body language | More producers are likely to be able to participate. Less equipment will be needed at Green Toes as all employees have smart phones. Green Toes will need to purchase the software to run it.  |  |        |                    |               |            |              |   |  |  |             |  |  |   |   |   |

| Question | Answer | Marks | Levels of Response   |
|----------|--------|-------|--|
|          |        |       | <p><b>L 0-3</b><br/>           The candidate will demonstrate a limited understanding of the question and will identify relevant advantages or disadvantages with limited explanation. No real attempt at an evaluation of the use of the conferencing methods will have been made. Little or no reference will be made to Green Toes, Information will be poorly expressed and there will be a limited, if any, use of technical terms. The answer may be structured as a list. Errors of grammar, punctuation and spelling may be intrusive.</p> |

## SECTION B

| Question                         |  | Answer  | Marks     | Guidance |                                  |   |                               |  |   |  |
|----------------------------------|--|---|-----------|----------|----------------------------------|---|-------------------------------|--|---|--|
| 8                                |  | <p>Up to a maximum of two marks for a description:</p> <p>e.g.</p> <ul style="list-style-type: none"> <li>• in remote areas (1) where no broadband is available (1)</li> <li>• as a back up (1) when broadband is temporarily unavailable (1)</li> </ul>  | 2         |          |                                  |   |                               |  |   |  |
| 9                                |  | <p>Up to a maximum of three marks to include any three of:</p> <ul style="list-style-type: none"> <li>• interprets HTML tags</li> <li>• displays translated HTML on screen</li> <li>• uses DNS to look up web server address</li> <li>• sends request for web pages to web server</li> <li>• displays HTML code when requested</li> <li>• interprets hyperlinks in code and deals with them when clicked on</li> <li>• sends requests to run applets</li> <li>• deals with events such as mouse clicks, selection from menus, mouse movement, etc</li> </ul>  | 3         |          |                                  |   |                               |  |   |  |
| 10                               | (a)  | A network of devices that use wireless signals to communicate / communicates without cables   | 1         |          |                                  |   |                               |  |   |  |
|                                  | (b)  | <p>One mark for each component plus a further mark for identifying a function and a final mark for expanding on the description of that function</p> <table border="1"> <thead> <tr> <th>Component</th> <th>Function</th> </tr> </thead> <tbody> <tr> <td>Wireless hub/router/access point</td> <td>Receives wireless signals (1) from all devices (1)<br/>Broadcasts wireless signals (1) for all devices to detect (1)<br/>identify the intended device (1) by using the MAC address (1).</td> </tr> <tr> <td>Wireless network card/adaptor</td> <td>Sends wireless signals (1) to the hub (1)<br/>Receives wireless signals (1) from the hub (1)<br/>Processes signals which have its MAC address attached (1)<br/>sending data to the processor (1).</td> </tr> </tbody> </table> | Component | Function | Wireless hub/router/access point | Receives wireless signals (1) from all devices (1)<br>Broadcasts wireless signals (1) for all devices to detect (1)<br>identify the intended device (1) by using the MAC address (1). | Wireless network card/adaptor | Sends wireless signals (1) to the hub (1)<br>Receives wireless signals (1) from the hub (1)<br>Processes signals which have its MAC address attached (1)<br>sending data to the processor (1). | 6 |  |
| Component                        | Function   |   |           |          |                                  |   |                               |  |   |  |
| Wireless hub/router/access point | Receives wireless signals (1) from all devices (1)<br>Broadcasts wireless signals (1) for all devices to detect (1)<br>identify the intended device (1) by using the MAC address (1).          |   |           |          |                                  |   |                               |  |   |  |
| Wireless network card/adaptor    | Sends wireless signals (1) to the hub (1)<br>Receives wireless signals (1) from the hub (1)<br>Processes signals which have its MAC address attached (1)<br>sending data to the processor (1). |   |           |          |                                  |   |                               |  |   |  |

| Question | Answer  | Marks | Guidance |
|----------|---|-------|----------|
| 11       | <p>TCP/IP (1<sup>st</sup> mark) then up to a maximum of two marks for a suitable justification including any of:</p> <ul style="list-style-type: none"> <li>• comes as standard with popular operating systems</li> <li>• deals with network communication within a LAN and on the internet</li> <li>• no need to change protocol use between network and internet</li> <li>• simple to set up and configure</li> </ul>   | 3     |          |
| 12       | <p>Up to a maximum of 5 marks for a suitable explanation including any of:<br/>e.g.</p> <ul style="list-style-type: none"> <li>• install the physical connection such as ADSL line, DSL line, etc</li> <li>• configure the modem/router with the ISP's details</li> <li>• configure the modem/router with the organisation's username and password/ authentication details</li> <li>• install proxy server to manage access for network computers</li> <li>• configure network clients to access the internet through the proxy server</li> <li>• test the connection to ensure that it all works</li> <li>• document all settings so that the installation can be reinstated if necessary</li> </ul> | 5     |          |

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