

Mark Scheme for June 2013

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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.

OCR will not enter into any discussion or correspondence in connection with this mark scheme.

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Annotation	Meaning
	Omission mark
	Benefit of doubt
	Subordinate clause/Consequential error
	Cross
	Expansion of a point
	Follow through
	Not answered question
	Benefit of doubt not given
	Point being made
	Repeat
	Slash
	Tick
	Too vague
	Zero (big)

Subject-specific Marking Instructions

ADDITIONAL OBJECTS: You **must** annotate the additional objects for each script you mark. If no credit is to be awarded for the additional object, please use annotation as agreed at the SSU, likely to be 'seen' or the highlighting tool.

CROSSED OUT, RUBRIC ERROR (OPTIONAL QUESTIONS) AND MULTIPLE RESPONSES

Crossed-out Responses: Where a candidate has crossed out a response and provided a clear alternative then the crossed out response is not marked. Where no alternative response has been provided, examiners may give candidates the benefit of the doubt and mark the crossed out response where legible.

Rubric Error Responses – Optional Questions: Where candidates have a choice of question across a whole paper or a whole section and have provided more answers than required, then all responses are marked and the highest mark allowable within the rubric is given. *(The underlying assumption is that the candidate has penalised themselves by attempting more questions than necessary in the time allowed.)*

Multiple Choice Question Responses: When a multiple choice question has only a single, correct response and a candidate provides two responses (even if one of these responses is correct), then no mark should be awarded (as it is not possible to determine which was the first response selected by the candidate).
When a question requires candidates to select more than one option/multiple options, then local marking arrangements need to ensure consistency of approach.

Contradictory Responses: When a candidate provides contradictory responses, then no mark should be awarded, even if one of the answers is correct.

Short Answer Questions (requiring only a list by way of a response, usually worth only **one mark per response**): Where candidates are required to provide a set number of short answer responses then only the set number of responses should be marked. The response space should be marked from left to right on each line and then line by line until the required number of responses have been considered. The remaining responses should not then be marked. Examiners will have to apply judgement as to whether a 'second response' on a line is a development of the 'first response', rather than a separate, discrete response. *(The underlying assumption is that the candidate is attempting to hedge their bets and therefore getting undue benefit rather than engaging with the question and giving the most relevant/correct responses.)*

Short Answer Questions (requiring a more developed response, worth **two or more marks**): If the candidates are required to provide a description of, say, three items or factors and four items or factors are provided, then mark on a similar basis – that is downwards (as it is unlikely in this situation that a candidate will provide more than one response in each section of the response space.)

Longer Answer Questions (requiring a developed response): Where candidates have provided two (or more) responses to a medium or high tariff question which only required a single (developed) response and not crossed out the first response, then only the first response should be marked. Examiners will need to apply professional judgement as to whether the second (or a subsequent) response is a 'new start' or simply a poorly expressed continuation of the first response.

Question			Answer	Marks	Guidance
1	(a)	(i)	Two from eg: <ul style="list-style-type: none"> • data structures designed (1) storage area for data such as customer details designed/including length/type/validation (1) • end user comments gathered (1) getting comments on the design from the end user so that iteration can take place (1) • prototyping (1) creating the design using software so the end user can see and make comments on it (1). 	4	Allow design of different aspects as different – input, processing, storage, output etc.
		(ii)	Two from, eg <ul style="list-style-type: none"> • project manager assembles their team (1) individuals with the skills base they require (1) • plans and controls the whole project (1) identifying and rectifying potential problems (1) • setting deadlines (1) so that the project is delivered on time (1) • ensuring budgets are adhered to (1) to prevent exceeding the cost agreed with the client (1) • project reports and documentation are written up (1) by co-ordinating the work of different teams (1) • determines when to move to the next step (1) providing progress reports as the project develops (1). 	4	
	(b)	(i)	Two from eg: <ul style="list-style-type: none"> • Monitor (1) required to fit the form on the screen (1) • Hard drive (1) required to store the operating system/application (1) • NIC (1) to connect to the network (1). 	4	Allow any suitable hardware type.
	(c)		eg: <ul style="list-style-type: none"> • <u>requirements</u> from investigation and analysis (1) are used to determine success in the evaluation (1) • payment is provided (1) if the <u>requirements</u> in the analysis section have been met/testing shows it work (1). 	2	Requirements or very close equivalent wording must be in the answer

Question	Answer	Marks	Guidance									
2	<p>Four from eg:</p> <ul style="list-style-type: none"> • ensures all elements of the system are tested (1) nothing is missed out (1) makes sure different data types are tested (1) normal/erroneous/extreme data is tested (1) • allows the tests to be repeatable (1) by a third party/different time (1) so that if changes are made to the system (1) can still perform its original function (1) • separates development from testing (1) allowing external company to test it (1) makes sure the developer does not miss out something that does not work (1) increases integrity (1) 	4	Must be related to the importance of a test plan, NOT an explanation of how to perform testing									
3	<table border="1" data-bbox="353 635 1328 946"> <tbody> <tr> <td data-bbox="353 635 510 770">High</td> <td data-bbox="510 635 633 770">5–6</td> <td data-bbox="633 635 1328 770">Candidate has identified positive point(s) and negative point(s) with reason(s) about the impact on broadcasters of digital television. There is a reasoned conclusion.</td> </tr> <tr> <td data-bbox="353 770 510 874">Medium</td> <td data-bbox="510 770 633 874">3–4</td> <td data-bbox="633 770 1328 874">Candidate has identified point(s) with reason(s) about the impact on broadcasters of digital television.</td> </tr> <tr> <td data-bbox="353 874 510 946">Low</td> <td data-bbox="510 874 633 946">1–2</td> <td data-bbox="633 874 1328 946">Candidate has identified point(s) about the impact on broadcasters of digital television</td> </tr> </tbody> </table> <p>Points may include:</p> <ul style="list-style-type: none"> • more channels to choose from means that there is less market share so less money for advertising • interactive television is more complicated to produce and requires more money to create the red button and extras • there are more outlets to display the product – tablets, phones as well as television and this can increase the audience • requires different/additional complex broadcasting equipment to put the material on the web/tablets. 	High	5–6	Candidate has identified positive point(s) and negative point(s) with reason(s) about the impact on broadcasters of digital television. There is a reasoned conclusion.	Medium	3–4	Candidate has identified point(s) with reason(s) about the impact on broadcasters of digital television.	Low	1–2	Candidate has identified point(s) about the impact on broadcasters of digital television	6	Must be impact to broadcasters, not customers.
High	5–6	Candidate has identified positive point(s) and negative point(s) with reason(s) about the impact on broadcasters of digital television. There is a reasoned conclusion.										
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5	<p>1 for identification, 2 for description:</p> <p>Identification</p> <ul style="list-style-type: none"> • batch (1) <p>Description</p> <ul style="list-style-type: none"> • can be produced at a time of low processing (1) such as in the evening (1) • produced at the same time every month (1) the process each time is the same (1) • processes large amounts of data at once (1) no user interaction is needed so staff are not taken up by the processing (1). <p>Identification</p> <ul style="list-style-type: none"> • interactive (1) <p>Description</p> <ul style="list-style-type: none"> • user can give options for booking (1) and be given choices if they do not match (1) • tickets can be reserved (1) until process is finished to avoid double booking (1). 	6	<p>If identification is incorrect then 0 marks for description.</p> <p>Description may be full description of one point, or identification of two points</p>
6	<p>Max 4 eg.</p> <ul style="list-style-type: none"> • can be used to represent good and bad actions (1) such as incorrect data entry for red and correct data entry for green (1) allows the design to link in with the mental model (1) using experience from elsewhere to assist with the use (1) • colour blind colour combinations should be avoided (1) such as green and brown (1) so text and background need to contrast (1) so they can read the text (1) • clashing colours for text and background should be avoided (1) such as orange and yellow (1) so that users who have to look at the screen for long periods of time (1) will not get a headache (1). 	4	<p>Allow use of examples to expand answers.</p> <p>Allow relevant mix and match.</p> <p>Allow answers related to house style/corporate image</p>

Question		Answer	Marks	Guidance
7		<p>Three from eg:</p> <ul style="list-style-type: none"> • connectivity issues such as bandwidth shared between concurrent users (1) could mean they cannot load the web sites (1) • number of resources found may be too many (1) to find what they require (1) • resources could be biased (1) they need to cross reference the material found (1) • plagiarism could be committed (1) difficult to rewrite / reword material found on the internet (1) • distraction caused by other activities social networking (1) may take up more time leaving less to do the work (1) • filtering may prevent the site they need to visit being displayed (1) meaning they cannot get the information they require (1). 	6	Allow impacts in widest sense.
8	(a)	<p>One from: eg.</p> <ul style="list-style-type: none"> • to allow authorised access to the intranet (1) from anywhere (with internet connection) (1) • to provide access to a secure area (1) (for pupils and staff to use) when not at school (1). 	2	Allow relevant mix and match.

Question		Answer	Marks	Guidance								
	(b)	<table border="1"> <tr> <td>4</td> <td>Two complete comparisons</td> </tr> <tr> <td>3</td> <td>One complete comparison and one individual point</td> </tr> <tr> <td>2</td> <td>One complete comparison</td> </tr> <tr> <td>1</td> <td>One individual point about either side</td> </tr> </table> <p>Points may include:</p> <ul style="list-style-type: none"> • Both the intranet and extranet are only available to authorised users • the school's intranet does not have to provide Internet access <i>whereas</i> an extranet is accessed using the Internet • the intranet requires usernames and id's <i>similarly</i> an extranet is only available to approved parties • the intranet is a secure private computer network using the school's communications infrastructure <i>whereas</i> an extranet uses public telecommunication systems to securely share part of the school's information. 	4	Two complete comparisons	3	One complete comparison and one individual point	2	One complete comparison	1	One individual point about either side	4	
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2	One complete comparison											
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9	(a)	<p>One from:</p> <p>eg.</p> <ul style="list-style-type: none"> • increased bandwidth allows increased volume to be transmitted (1) • more data can be transmitted to the students at the same time (1) • reduced stuttering of videos (1) and improves picture and sound synchronisation in videos (1). 	2									

Question		Answer	Marks	Guidance
	(b)	<p>Two from eg:</p> <ul style="list-style-type: none"> determine the rules that both devices are to use (1) to ensure that the communication occurs without error (1) protocols can detect and correct errors (1) ensuring mistakes do not have a impact (1) governs the exchange of data (1) speed of transmission / encoding / control signals and error detection techniques (1) allows devices to work together (1) making communication transparent irrespective of make (1) defines how data is transferred (1) via an internationally agreed standard (1). 	4	
10	(a)	<p>One from eg:</p> <ul style="list-style-type: none"> a network of workstations (1) organised around one or more servers / connected to a server (1) 	2	Allow labelled diagram.
	(b)	<p>Two from eg:</p> <ul style="list-style-type: none"> centralised anti-virus management (1) takes onus away from user (1) all client workstations can be managed from a centralised point (1) applications can be deployed using the server with no user involvement (1) server provides processing power and large amounts of memory (1) client workstations can have lower processing speeds / hard disk capacity making them cheaper to purchase (1) usernames and passwords required to access network (1) higher level of security can be managed and maintained (1). 	4	

Question		Answer			Marks	Guidance								
	(c)	<table border="1"> <tr> <td>High</td> <td>5–6</td> <td>Candidate has explained in detail why wireless access points should be used for the given situation.</td> </tr> <tr> <td>Medium</td> <td>3–4</td> <td>Candidate has described advantage(s) of using wireless for the given situation.</td> </tr> <tr> <td>Low</td> <td>1–2</td> <td>Candidate has identified advantage(s) of using wireless for the given situation.</td> </tr> </table> <p>Points may include:</p> <ul style="list-style-type: none"> allows the computers to be used anywhere within range of the point can connect more than just computers – tablets and phones can also connect to a wireless network rooms can be rearranged without physically having to move points allowing more flexibility. 	High	5–6	Candidate has explained in detail why wireless access points should be used for the given situation.	Medium	3–4	Candidate has described advantage(s) of using wireless for the given situation.	Low	1–2	Candidate has identified advantage(s) of using wireless for the given situation.		6	Answers must be advantages
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11	(a)	<p>Three from eg:</p> <ul style="list-style-type: none"> system will meet all the requirements of the school/do everything they want it to do (1) because users have been part of the design process (1) it will not be instantly available to the school (1) because the system may take time to complete (1) the system may have a lot of bugs in it (1) because it wont be extensively tested (1) the system is more likely to integrate with the existing systems (1) as the design has been based on the current system (1). 		6										
	(b)	<p>Two marks for explanation, one mark for example: eg.</p> <ul style="list-style-type: none"> users pre-existing knowledge used/exists (1) therefor to create an interface that matches user expectations (1) such as error messages in red(1). 		3	Example must be how perception is applied rather than of the perception.									

Question		Answer	Marks	Guidance
	(c)	<p>Four mark, points may include</p> <ul style="list-style-type: none"> • <u>changes</u> in working practices • <u>changes</u> in external factors • <u>changes</u> in hardware/software • <u>changes</u> in school objectives 	4	Candidates may provide a detailed description/explanation of a single point, or simply provide a list of points
12	(a)	<p>Two from:</p> <p>eg.</p> <ul style="list-style-type: none"> • benefits that the new software will bring (1) do they outweigh the costs/time/disruption of upgrading (1) • staff/student expertise in the current system (1) how much can be carried across (1) • how much retraining will be required (1) and how much will it cost/disruption (1) • will new hardware be required to support the new software (1) costs of the new hardware (1). 	4	
	(b)	<p>Two from:</p> <p>eg.</p> <ul style="list-style-type: none"> • can be done in your own time/place (1) do not have to do it in front of lots of people who might be better than you (1) • can go over each topic a number of times (1) reinforce the learning (1) • uses different methods of training (1) sound/video/text images to convey information (1) which can suit different people (1) • management can monitor progress (1) and give help if there is a problem/someone stuck (1) • no embarrassment/competition when learning (1) those around you do not know where you are up to (1). 	4	

Question		Answer			Marks	Guidance
13		High	5–6	Candidate has explained in detail advantages why encryption should be used	6	Answers must be positive
		Medium	3–4	Candidate has described advantage(s) why encryption should be used		
		Low	1–2	Candidate has identified advantage(s) why encryption should be used		
		<p>Points may include:</p> <ul style="list-style-type: none"> • only those that know the key can get access to the data which stops anyone who intercepts the data from reading it • encryption can be difficult to crack so even if intercepted the contents of an encrypted file cannot be read • memory sticks can easily be lost so a method within the memory stick needs to be used, such as encryption. 				

14			High	5–6	The candidate has identified positive point(s) and negative point(s) with reason(s) for using a spreadsheet to model the costs. There is a reasoned conclusion.	6	Can include reasons for NOT using
			Medium	3–4	The candidate has identified point(s) with reason(s) for using a spreadsheet to model the costs.		
			Low	1–2	The candidate has identified points for using a spreadsheet to model the costs.		
			<p>Points may include:</p> <ul style="list-style-type: none"> • allows novice users to fill in a pre prepared template – technical expertise not required to run the model • automatic recalculation allows a value to be changed and all associated values to be updated. This allows different figures to be entered and the knock on effect on the overall figure to be seen • results can be presented in different ways, can be figures in rows and columns or they can be put into a graph • if there is an error in the function/formula then all associated results will be incorrect • relies on the expertise of the user/person who set up the spreadsheet to have set it up correctly • if the model/spreadsheet does not contain all the values then it can give incorrect information. 				

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15	<table border="1"> <thead> <tr> <th colspan="2"></th> <th colspan="3"></th> <th colspan="3">2014</th> </tr> <tr> <th></th> <th>Task</th> <th>Start</th> <th>End</th> <th>Dur</th> <th>Jan</th> <th>Feb</th> <th>Mar</th> </tr> </thead> <tbody> <tr> <td></td> <td>Construction of New Building</td> <td>2/1/14</td> <td>19/3/14</td> <td>77</td> <td colspan="3"></td> </tr> <tr> <td>1</td> <td>Foundations and drainage</td> <td>2/1/14</td> <td>15/1/14</td> <td>14</td> <td colspan="3"></td> </tr> <tr> <td>2</td> <td>Steel frame</td> <td>16/1/14</td> <td>29/1/14</td> <td>14</td> <td colspan="3"></td> </tr> <tr> <td>3</td> <td>Brickwork and roof</td> <td>30/1/14</td> <td>19/2/14</td> <td>21</td> <td colspan="3"></td> </tr> <tr> <td>4</td> <td>External windows and doors</td> <td>20/2/14</td> <td>26/2/14</td> <td>7</td> <td colspan="3"></td> </tr> <tr> <td>5</td> <td>Internal works</td> <td>20/2/14</td> <td>5/3/14</td> <td>14</td> <td colspan="3"></td> </tr> <tr> <td>6</td> <td>Decoration</td> <td>6/3/14</td> <td>12/3/14</td> <td>7</td> <td colspan="3"></td> </tr> <tr> <td>7</td> <td>Fixtures and fittings</td> <td>13/3/14</td> <td>19/3/14</td> <td>7</td> <td colspan="3"></td> </tr> <tr> <td>8</td> <td>Building Inspection</td> <td>20/2/14</td> <td>21/2/14</td> <td>2</td> <td colspan="3"></td> </tr> </tbody> </table>											2014				Task	Start	End	Dur	Jan	Feb	Mar		Construction of New Building	2/1/14	19/3/14	77				1	Foundations and drainage	2/1/14	15/1/14	14				2	Steel frame	16/1/14	29/1/14	14				3	Brickwork and roof	30/1/14	19/2/14	21				4	External windows and doors	20/2/14	26/2/14	7				5	Internal works	20/2/14	5/3/14	14				6	Decoration	6/3/14	12/3/14	7				7	Fixtures and fittings	13/3/14	19/3/14	7				8	Building Inspection	20/2/14	21/2/14	2				6
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<ul style="list-style-type: none"> • Recognisable Gantt Chart similar to that above(1) • Identifiable time line on x axis (1) • Identification of task by name or number on y axis(1) • Task 8 identified as days not weeks (shorter block) (1) • Overall duration of tasks/finish date is 11 weeks or ends mid March(1) • Tasks 4/5/8 start at same time (1) • Clearly identifiable start date or end date (1) • Arrow links to successor/from predecessor tasks (1) 																																																																																															
<p>If all tasks start at the same time, MAX 5.</p>																																																																																															

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16	9–11	4	<p>The candidate is able to show a detailed level of understanding by discussing the impacts and consequences of hardware and software developments on learning.</p> <p>Descriptions will concentrate on the impact and the consequence. Ideas will be expressed clearly and fluently using specific knowledge to support and inform the discussion.</p> <p>Subject specific terminology, where used, will be accurate and appropriate. Spellings, grammar and punctuation will be used correctly.</p>	11	
	6–8	3	<p>The candidate is able to show a good level of understanding by discussing the impact(s) and consequence(s) of hardware or software developments on learning.</p> <p>Descriptions may concentrate on either the impact or the consequence(s) with limited depth on the other.</p> <p>Subject specific terminology, where used, will be accurate. For the most part spellings, grammar and punctuation will be used correctly.</p>		
	3–5	2	<p>The candidate is able to describe one impact or consequence of hardware or software developments on learning.</p> <p>Subject specific knowledge will be evident and some subject terminology will be used. There may be occasional errors in spelling, grammar and punctuation.</p>		
	1–2	1	<p>The candidate is able to identify relevant points of hardware or software developments on learning.</p> <p>Subject specific terminology may be limited or missing. Errors of grammar, punctuation and spelling may be intrusive.</p>		

Question	Answer	Marks	Guidance
	<p>Possible points for discussion may include for example;</p> <ul style="list-style-type: none">• use of social media• use of laptops/tablets in classroom – 3D/Holographic teaching• distance learning with video conferencing• online learning and testing methods• wireless mobile connectivity and accessibility• inclusion of biometric technology for secure environments• biometrics for targeted advertising / educational promotion• virtual modelling of ideas• virtual classrooms / staff• cyber theft / plagiarism• cost increase in education as a whole to allow for technological advances.		

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