



Information Systems

Higher

Finalised Marking Instructions

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Part Two: General Marking Principles for Information Systems Higher

This information is provided to help you understand the general principles you must apply when marking candidate responses to questions in this Paper. These principles must be read in conjunction with the specific Marking Instructions for each question.

- (a) Marks for each candidate response must always be assigned in line with these general marking principles and the specific Marking Instructions for the relevant question. If a specific candidate response does not seem to be covered by either the principles or detailed Marking Instructions, and you are uncertain how to assess it, you must seek guidance from your Team Leader/Principal Assessor. *You can do this by posting a question on the Marking Team forum or by e-mailing/phoning the e-marker Helpline.*
- (b) Marking should always be positive ie, marks should be awarded for what is correct and not deducted for errors or omissions.

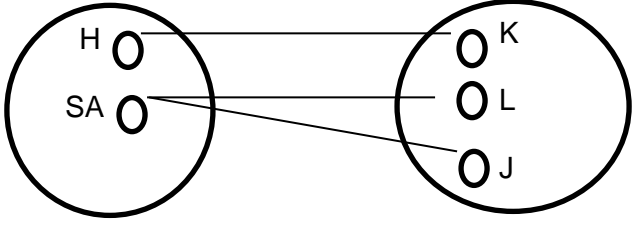
GENERAL MARKING ADVICE: Information Systems Higher

The marking schemes are written to assist in determining the “minimal acceptable answer” rather than listing every possible correct and incorrect answer. The following notes are offered to support Markers in making judgements on candidates’ evidence, and apply to marking both end of unit assessments and course assessments.

- a. Marks for each candidate response must always be assigned in line with these general marking principles and the specific Marking Instructions for the relevant question. If a specific candidate response does not seem to be covered by either the principles or detailed Marking Instructions, and you are uncertain how to assess it, you must seek guidance from your Team Leader/Principal Assessor. You can do this by posting a question on the Marking Team forum or by e-mailing/phoning the emarker Helpline.
Alternatively, you can refer the issue directly to your Team Leader by checking the ‘Referral’ box on the marking screen.
- b. Marking should always be positive ie, marks should be awarded for what is correct and not deducted for errors or omissions.
- c. Technical terms which have been spelled incorrectly should still be awarded the relevant mark.
- d. In situations where the subsequent part of a question depends on the correct answer to the first part, candidates who answer the first part incorrectly and then go on in the subsequent part of the question to give a correct answer based on their answer to the first part will be awarded the relevant mark for the subsequent part of the question.
- e. In situations where the candidate has achieved the maximum number of marks available without getting to the end of their answer, a marker should award the maximum marks. However, in situations where there is only one correct answer and the candidate has split their answer with a/or an or, then this should not be accepted as a separate response and the marks should not be awarded. For example, if the correct answer for a data type question is date then a response of (date/time) or (date or time) would attract 0 marks as the/and the or combines the answer making it incorrect.

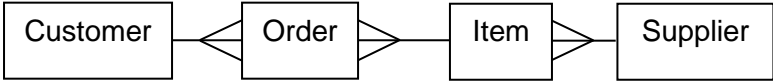
- f. In situations where the candidate writes the correct answer followed by an alternative incorrect answer then this should not be penalised. However, if the candidate writes an incorrect answer followed by a correct alternative answer this should not be awarded the marks. For example if the correct answer to a 1 mark question is written and the candidate includes an alternative incorrect answer such as visual then the following would apply:
Written (visual) = 1 mark.
Written/visual = 0 marks (example of combining as in (e) above).
Visual (written) = 0 marks.

Part Three: Marking Instructions for each Question

Question		Expected Answer(s)	Max Mark	Additional Guidance
1.	(a)	Might/may (1 mark) delete the only instance of the school's (details) (1 mark)	2	0 marks if school is not mentioned
1.	(b)	List of values eg U12, U14, U16, U18 or equivalent (2 marks)	2	"List of values" – (1 mark) Must have a list of values between U12...U18 any attempt at a list (1 mark)
2.	(a)	School Pupil 	2	Fully labelled diagram (1 mark) Correct links (1 mark)
2.	(b)	1:M (1 mark)	1	
3.	(a)	Referential integrity states that foreign keys can only take values (1 mark) which already exist (1 mark) in the related field in another table	2	Must refer to values for (1 mark)
3.	(b)	Table or collection of related records	1	
4.	(a)	1NF (1 mark) <ul style="list-style-type: none"> • Only single valued attributes (1 mark) • No multi valued attributes/no repeating data (1 mark) • Still partial key dependencies (1 mark) 	3	
4.	(b)	Quantity * price (1 mark) Sum of this field or placed in a summary field (1 mark)	2	Idea of sum to add up the calculation

Question		Expected Answer(s)	Max Mark	Additional Guidance
5.		<ul style="list-style-type: none"> • Data Processing System, • Decision Support System, • Management Information System • Executive information System <p>Any 3 for (3 marks)</p>	3	DPS/DSS/MIS/EIS 3 abbreviations = (2 marks) 2 abbreviations = (1 mark) Accept expert system and distributed database
6.		<ul style="list-style-type: none"> • Relevance (or appropriateness) • Accuracy • Completeness • Reliability (or objectivity) • Timing • Level of detail (or conciseness) • Presentation • Availability <p>Any 2 for (2 marks)</p>	2	
7.	(a)	Insert page break/section break (1 mark) To keep topics/information/text together (1 mark) Or Making sure appropriate amount of content on each page (1 mark)	2	Avoiding widows and orphans (2 marks) Appropriate amount of white space (1 mark)
7.	(b)	Style, size, colour, font, alignment, line spacing Any 2 for (2 marks)	2	
8.		Competitive advantage (2 marks) Initial costs (2 marks) Upgrade/replacement/maintenance costs (2 marks) Retraining costs (2 marks) Reduced (1 mark) running costs (1 mark) Globalisation (1 mark) Reach more customers (1 mark) Computerised on-demand stock control (2 marks)	2	Need description of these terms
9.		Deliberate or intentional flooding/overloading (1 mark) a server with large amount of requests (1 mark)	2	Must mention server for second mark
10.		Long-term (1 mark) permanent/read only storage (1 mark)	2	Kept indefinitely (1 mark) Not changed (1 mark)

Question		Expected Answer(s)			Max Mark	Additional Guidance
11.					17	
		UNF	1NF	2NF		3NF
		<u>Customer No</u> Name Address Telephone Holiday ID Departure Date Duration Cost Hotel Hotel Rating	<u>Customer No</u> Name Address Telephone <u>Holiday ID</u> Departure date Duration Cost Hotel Hotel Rating <u>Customer No*</u>	<u>Customer No</u> Name Address Telephone <u>Holiday ID*</u> <u>Customer No*</u> Cost <u>Holiday ID</u> Departure Date Duration Hotel Hotel Rating	<u>Customer No</u> Name Address Telephone <u>Holiday ID*</u> <u>Customer No*</u> Cost <u>Holiday ID</u> Departure Date Duration Hotel* <u>Hotel</u> Hotel Rating	
		<p>There are (6 marks) for the process and (11 marks) for the final 3NF</p> <p>Process</p> <p>1NF (1 mark) for creating a second entity including Customer No and no other duplicate attributes (1 mark) for including all 7 multi valued attributes shown (ignore extra attributes)</p> <p>2NF (1 mark) for removing Holiday ID (accept part of candidate's compound key but NOT Customer No)) (1 mark) for leaving a copy of Holiday ID (or part of candidate's compound key) only behind</p> <p>3NF (1 mark) for removing a non-key dependency provided a PK is not removed with it (1 mark) for leaving a copy of the non-key dependency behind</p> <p>Looking only at 3NF</p> <p>(4 marks for attributes)</p> <ul style="list-style-type: none"> (1 mark) for each entity having the correct attributes (a misplaced non-key attribute would only lose (1 mark), ie would not lose the mark in both entities) <p>(4 marks for Primary keys)</p> <ul style="list-style-type: none"> (2 marks) for the compound Primary key (Customer No + Holiday ID + Departure Date Or Customer No + either one of Holiday ID OR Departure Date) (1 mark) for Holiday ID as PK (1 mark) for Hotel as PK <p>(3 marks for Foreign keys)</p> <ul style="list-style-type: none"> (1 mark) for each correct Foreign key <p>Only give FK if it links to a single PK</p>				

Question			Expected Answer(s)	Max Mark	Additional Guidance
12.	(a)		 <p><i>(1 mark) for each correct join with no extra join and 1 more mark if the join has the correct cardinality</i></p>	6	Count each extra join once eg 2 extra joins with 3 correct joins would be awarded 4 marks. A join is a single line between two entities
12.	(b)	(i)	<p>A – Integer <i>(1 mark)</i></p> <p>B – Real <i>(1 mark)</i></p> <p>C – Object/Link <i>(1 mark)</i></p> <p>D – Lookup from Supplier <i>(1 mark)</i></p> <p>E – N <i>(1 mark)</i></p>	5	
12.	(b)	(ii)	<p>Advantage</p> <ul style="list-style-type: none"> Faster to find <i>(1 mark)</i> specific records <i>(1 mark)</i> Faster to search/sort <i>(1 mark)</i> records by the index / large amounts of data <i>(1 mark)</i> <p>Disadvantages</p> <ul style="list-style-type: none"> Too many indices <i>(1 mark)</i> can slow the system down <i>(1 mark)</i> Spends too much time <i>(1 mark)</i> maintaining the indices <i>(1 mark)</i> <p>Any 1 bullet for (2 marks)</p>	2	

Question			Expected Answer(s)	Max Mark	Additional Guidance
13.	(a)	(i)	<p>Future proofing – making sure that a system has a reasonable length of life (1 mark) <i>or</i> does not need to be totally replaced too soon (1 mark)</p> <p>Compatibility – ensure new computers can run older versions of the software (1 mark) <i>or</i> that older computers on the network can run the new software</p> <p>Legacy Systems - maintain an older computer with working software (1 mark) Consider using emulation (1 mark)</p>	3	
13.	(a)	(ii)	Upgrade (1 mark)	1	
13.	(b)		Functionality, performance, usability, compatibility, data migration, reliability, resource requirements, portability and support (any 5 for 5 marks)	5	Accept system requirements
13.	(c)		<p>Client-server: server providing data or services to a number of clients (1 mark)</p> <p>LAN: a network that is restricted/contained/confined/limited/within to one building or site. (1 mark)</p> <p>Network adapter: allows the computer to send and receive data across the network. (1 mark)</p>	3	<p><i>Must have the concept of contained or within the one building and not refer to a type of building e.g. family home</i></p> <p>Do not accept connect to network</p>

Question		Expected Answer(s)	Max Mark	Additional Guidance
14.	(a)	<p>So that she can fit in (1 mark) to the game environment (1 mark)</p> <p>Morag is hiding her identity (1 mark) as she is female (1 mark)</p> <p>May not want to get any abuse for playing the game (2 marks)</p>	2	Other answers possible
14.	(b)	<p>Source: primary and internal</p> <p>Level: operational</p> <p>Time: present</p> <p>Frequency: continuous</p> <p>Form: written</p> <p>Type: Aggregated (or sampled)</p>	8	<p>Must have heading to get mark for category</p> <p>Accept Timing + present for 1 mark</p>
14.	(c)	<ul style="list-style-type: none"> • Adding “zombie type” graphics • Animation of “zombie type” animation • Use of “zombie type” sound/background music • Use colours from the game (palette) • Navigation to restart game/exit screen/etc <p>Any bullet for (1 mark)</p>	3	All have to relate to the webpage eg zombies

Question			Expected Answer(s)	Max Mark	Additional Guidance
15.	(a)		<ul style="list-style-type: none"> Shows all the key tasks that must be completed Shows the order of the tasks in a project Start and finish times of each task Shows which tasks can only take place once other tasks have been completed Sequence of project tasks which produces the shortest overall duration <p>Any 2 bullets (2 marks)</p>	2	The word task has to be present in answer
15.	(b)	(i)	Project management software	1	
15.	(b)	(ii)	<ul style="list-style-type: none"> Timelining Resource allocation Gantt charts or Pert charts/charting Optimisation <p>Any 2 bullets (2 marks)</p>	2	

Question			Expected Answer(s)	Max Mark	Additional Guidance
16.	(a)		Delivery medium – DVD ROM User/audience – newly qualified coaches Content – sample lesson plans/instructional video clips Purpose – to support coaches Any 3 pairs for (6 marks)	6	Need item and example for (2 marks) 0 marks for example without correct item Budget/Timescale – (1 mark) for each User/Audience is required
16.	(b)		Multimedia programmer Subject expert Project manager Multimedia designer Media specialist	5	
16.	(c)	(i)	Visual representation (1 mark) of its function (1 mark)	2	Not just picture on its own
16.	(c)	(ii)	Media (video) player controls	1	
16.	(d)		Breadcrumbs (1 mark) hierarchy/trail of pages (1 mark) Back tracking (1 mark) repeated use (returns to a recognisable page) (1 mark) History table (1 mark) shows all previously visited pages (1 mark)	6	

Question			Expected Answer(s)	Max Mark	Additional Guidance
17.	(a)		Composite or hybrid	1	
17.	(b)	(i)	Absolute	1	
17.	(b)	(ii)	<div style="display: flex; flex-direction: column; align-items: flex-start;"> <div style="margin-bottom: 10px;"><input type="text" value="Logo"/></div> <div style="display: flex; width: 100%; margin-bottom: 10px;"> <input style="width: 60%; margin-right: 20px;" type="text" value="Enter email"/> <input style="width: 30%; margin-left: 20px;" type="text"/></div> <div style="display: flex; width: 100%; margin-bottom: 10px;"> <input style="width: 60%; margin-right: 20px;" type="text" value="Username"/> <input style="width: 30%; margin-left: 20px;" type="text"/></div> <div style="display: flex; width: 100%; margin-bottom: 10px;"> <input style="width: 60%; margin-right: 20px;" type="text" value="Password"/> <input style="width: 30%; margin-left: 20px;" type="text"/></div> <div style="display: flex; width: 100%; margin-bottom: 10px;"> <input style="width: 60%; margin-right: 20px;" type="text" value="Re-Enter Password"/> <input style="width: 30%; margin-left: 20px;" type="text"/></div> <div style="display: flex; width: 100%;"> <input style="width: 40%; margin-right: 20px;" type="text" value="Back"/> <input style="width: 50%; margin-left: 20px;" type="text" value="Submit"/> </div> </div>	5	(1 mark) for logo (1 mark) for 4 labels (1 mark) for 4 text boxes (1 mark) for Back Button (1 mark) for Submit button
17.	(b)	(iii)	Form fill-in	1	
17.	(b)	(iv)	To validate/check the password (1 mark) Data integrity (1 mark)	2	

Question			Expected Answer(s)	Max Mark	Additional Guidance
17.	(c)	(i)	<p>Screen</p> <ul style="list-style-type: none"> • Alignment of buttons • Font hard to read (1 mark) on buttons (1 mark) <p>Integration</p> <ul style="list-style-type: none"> • Links don't work • Background music does not play <p>Acceptance</p> <ul style="list-style-type: none"> • Puzzles is missing • Only 3 games available (1 mark) instead of 4 (1 mark) <p>Usability</p> <ul style="list-style-type: none"> • Unexplained icons <p>Any bullet for (2 marks)</p>	8	
17.	(c)	(ii)	<p>Good – can choose different languages (2 marks)</p> <p>Poor – no audio to read out game types for visually impaired</p>	2	Need good and reason for (2 marks)

Question	Expected Answer(s)	Max Mark	Additional Guidance
18.	<p>Kerning – adjusting spacing (1 mark) between certain letter pairs (1 mark)</p> <p>OR</p> <p>Anti-aliasing – smoothing out/blurring (1 mark) the jagged edges in graphics or text (1 mark)</p>	2	
19.	<p>TIFF features - high colour depth, large file size, lossless compression, large bitmaps</p> <p>Use – detailed scans</p> <p>JPEG features - 24 bit-up to 16 million colours, small file size, lossy compression</p> <p>Use – photographs</p> <p>GIF features - 8 bit- 256 colours, 72-90 dpi, small file size, lossless compression, interlacing, transparency</p> <p>Use - animation, web graphics</p> <p>MP3 features -small file size, compression can be 6:1</p> <p>Use – music download from web/store recorded music</p> <p>MIDI features - small size file, no compression, easy to manipulate</p> <p>Use – can be embedded in web pages/store sound instructions</p> <p>MPEG features - large file size, 30 frames per second, output high-quality playback</p> <p>Use - video</p> <p>(1 mark) for feature (1 mark) for use</p>	8	

Expert Systems

Question			Expected Answer(s)	Max Mark	Additional Guidance																
20.	(a)		<ul style="list-style-type: none"> • Preservation of expertise because the experts may die in a pandemic • Dissemination of expert knowledge because the whole world needs to be on alert for pandemics • Combine expertise of multiple experts in each of the diseases <p>Any advantage for (2 marks)</p> <ul style="list-style-type: none"> • Restricted domain may not include new pandemics • High development cost needs to be paid for by some international organisation <p>Any disadvantage for (2 marks) A generic advantage or disadvantage gets (1 mark) only</p>	4																	
20.	(b)	(i)	<p>Symptom = diarrhoea Spread = water Death = hours</p> <p>There are many acceptable versions of these in terms of words used and notations</p> <p>(2 marks) for any correct pair and (1 mark) for 2 other correct pairs</p>	3																	
20.	(b)	(ii)	<table border="1"> <thead> <tr> <th>Pandemic</th> <th>Symptom</th> <th>Spread</th> <th>Death</th> </tr> </thead> <tbody> <tr> <td>Cholera</td> <td>Diarrhoea</td> <td>Water</td> <td>Hours</td> </tr> <tr> <td>Bubonic Plague</td> <td>Swollen glands</td> <td>Fleas</td> <td>Weeks</td> </tr> <tr> <td>Spanish Flu</td> <td>fever</td> <td>People</td> <td>Hours</td> </tr> </tbody> </table> <p>(1 mark) for 4 headings – many variations possible (1 mark) for each correct row – a missing column could gain (2 marks)</p>	Pandemic	Symptom	Spread	Death	Cholera	Diarrhoea	Water	Hours	Bubonic Plague	Swollen glands	Fleas	Weeks	Spanish Flu	fever	People	Hours	4	
Pandemic	Symptom	Spread	Death																		
Cholera	Diarrhoea	Water	Hours																		
Bubonic Plague	Swollen glands	Fleas	Weeks																		
Spanish Flu	fever	People	Hours																		

Question			Expected Answer(s)	Max Mark	Additional Guidance
20.	(b)	(iii)	<p>IF symptom IS diarrhoea AND spread IS water AND death IS hours THEN pandemic IS cholera</p> <p>IF symptom IS 'swollen glands' AND spread IS fleas AND death IS weeks THEN pandemic IS 'bubonic plague'</p> <p>IF symptom IS fever AND spread IS people AND death IS hours THEN pandemic IS 'Spanish flu'</p> <p>(1 mark) for each correct rule – a missing condition could gain (2 marks) here (1 mark) for IF (and THEN) (1 mark) for IS (or =) and AND</p>	5	Do not penalise syntax (capitals or missing “”) Accept backward chaining versions (see b iv) (or a mixture)
20.	(b)	(iv)	<p>Pandemic IS cholera IF symptom IS diarrhoea AND spread IS water AND death IS hours</p> <p>(1 mark) for putting the conclusion first (or last)</p> <p>Backward chaining (or forward chaining) (1 mark)</p>	2	
20.	(b)	(v)	<p>What symptom? Diarrhoea / swollen glands / fever</p> <p>(1 mark) for question relating to any of candidates headings (1 mark) for options from candidates rules or factor table</p>	2	
20.	(c)		<p>A – knowledge acquisition (or elicitation) B – knowledge engineer (or programmer) C – constructing facts and rules or writing in a knowledge representation language (KRL) D – system validation E – expert (or knowledge engineer)</p> <p>(1 mark) for each</p>	5	

Question			Expected Answer(s)	Max Mark	Additional Guidance
20.	(d)		MYCIN, ONCOIN, INTERNIST <i>Any two for (1 mark) each</i>	2	
21.			<ul style="list-style-type: none"> • Certainty factors can be percentages or values 0 to 1 • Certainty factors express the likelihood of correctness • Certainty factors are combined using possibility theory • User input can include selecting a certainty factor • Certainty factors can be included in the user interface • An example like very confident could be 0.8 • A condition can have a certainty factor attached • A rule can have a certainty factor attached • The system (inference engine) can combine certainty factors • $cf(\text{conclusion}) = cf(\text{rule}) * \min(cf(\text{condition1}), cf(\text{condition 2}), \dots)$ <p><i>Any bullet (1 mark) to a maximum of (6 marks)</i></p>	6	

Question		Expected Answer(s)	Max Mark	Additional Guidance
22.	(a)	To validate/check email address is correct/same (1 mark) Data integrity – (1 mark)	2	
22.	(b)	Sees(gwen, ant) $\wedge \neg$ hungry(gwen) \longrightarrow blasts(gwen, ant) (1 mark) for use of and, not and arrow symbols (1 mark) for correct logical use of predicate notation (1 mark) for gwen as a predicate in sees and hungry	3	Accept many variations for sees, hungry and blasts
22.	(c)	Gwen sees an ant $\wedge \neg$ Gwen is hungry \longrightarrow Gwen blasts the ant (1 mark) for use of and, not and arrow symbols (1 mark) for correct logic	2	Each statement should be complete – she is hungry (not acceptable) Accept introducing a shorthand for each statement if it is explained
22.	(d)	$\forall X$: capture(X, 'dung ball') $\wedge \neg$ injured (X) \longrightarrow rank(X, 'bombardier beetle') (1 mark) for using predicate logic (1 mark) for introducing variable (1 mark) for each correct use of the variable as a predicate (1 mark) for use of (for all symbol)	6	Gamer capture dung ball $\wedge \neg$ Gamer injured \longrightarrow Gamer ranked Bombardier beetle (3 marks for use of variable 3 times)

Question		Expected Answer(s)	Max Mark	Additional Guidance
23.	(a)	<p>Inference engine used (1 mark)</p> <p>Knowledge base is database (1 mark)</p> <p>Need to mention at least one of the components of an expert system for (2 marks)</p> <p>Combines an expert system and database (1 mark only)</p>	2	
23.	(b)	<p>Database uses queries (or reports/forms) expert system uses consultation (or asks the user question and gives advice)</p> <p>(1 mark) for each</p>	2	

Question			Expected Answer(s)	Max Mark	Additional Guidance
24.	(a)		<div style="border: 1px solid black; padding: 10px; text-align: center;"> <h2>King's Hotel</h2> <h3>Conference Facilities</h3> <h4>Conference</h4> </div> <p>Box with width greater than height – (1 mark) Conference Facilities smaller than “King’s Hotel” – (1 mark) Alternative text “conference” shown instead of picture (1 mark) All centred – (1 mark)</p>	4	
24.	(b)		<pre><title>King's Hotel</title></pre> <p><code><title></code> - (1 mark) <code></title></code> - (1 mark) Between <code><head></code> and <code></head></code> - (1 mark)</p>	3	
24.	(c)		<pre>ContactUs</pre> <p><code><a href =</code> (1 mark) mailto: info@KingsHotel.biz.co.uk (1 mark) > Contact us/email to (some appropriate text) (1 mark) <code></code> (1 mark)</p>	4	candidates are not supplied with the text for the link so any appropriate text will suffice
24.	(d)		<p>A – border (1 mark) B – 1 or 2 (1 mark) C - tr (1 mark) D – Width (1 mark)</p>	4	
24.	(e)	(i)	<p>Any two of: Protocol =http</p> <p>Hostname or domain = www.kingshotel.biz Path(name) = conference/images Filename or File identifier = Strathbrae.jpg (2 marks) each pair</p>	4	Any 2 points for (2 marks) each (1 mark) for a part OR a name (including a part with a wrong name OR a name with a wrong part)
24.	(e)	(ii)	DNS (1 mark)	1	

Question			Expected Answer(s)	Max Mark	Additional Guidance
25.	(a)		<p>Page structure and layout EITHER Good as everything is clearly laid out/there is no information overload/all the information required is displayed OR Poor as the central buttons are not aligned (1 mark)</p> <p>Download Efficiency Good as there are no graphics to slow download (1 mark)</p> <p>Browser compatibility No issues (1 mark)</p>	3	An evaluation must be made (normally good or poor)
25.	(b)	(i)	<p>A set of rules/commands (1 mark) for formatting a number of web pages (1 mark)</p> <p>A language (1 mark) used to describe how an HTML document should be formatted (1 mark)</p> <p>A hierarchy of style sheets for controlling the display of webpages (2 marks)</p>	2	
25.	(b)	(ii)	<p>External style sheet (1 mark) The name may well be displayed on many webpages (1 mark)</p>	2	
25.	(b)	(iii)	<p>Yes – dynamic (1 mark) There are several areas which may change for different users (1 mark) eg Username (1 mark) OR Language (1 mark)</p>	3	

Question			Expected Answer(s)	Max Mark	Additional Guidance
26.			A - IETF B – Nominet C – W3C D - IANA (1 mark) for each correct	4	
27.			<ul style="list-style-type: none"> • Data is broken into packets • Each packet is given a destination address • Each packet is allocated an ID number • Each packet sent by best possible route • May be different for each packet • Due to load balancing or equipment failure • Uses TCP/IP protocol • Routers connect the many smaller networks which make up the Internet • Router looks at destination address of packet • Looks up routing table to find out where to send packet • Routers monitor network traffic loads • Routing tables contains lists of optimum routes for destinations • Routing table is a dynamic database • Router then decides which route to send data packet along • Data packets re-assembled into correct order <p>Any bullet for 1 mark</p>	8	

Question		Expected Answer(s)	Max Mark	Additional Guidance
28.	(a)	To validate/check email address is correct/same (1 mark) <i>Any point for (1 mark)</i> Data integrity – (1 mark)	2	
28.	(b)	Encryption/secure servers (1 mark) using Secure Socket Layer (SSL) (1 mark) Encryption description + method eg PGP, RSA (2 marks)	2	
28.	(c)	Sunshine Holidays can find the location (1 mark) of most visitors to their site and then arrange more holidays departing from airports in that area (1 mark) OR Create a language translator to attract more foreign customers (1 mark) OR Knowing which page is the entry page most used (1 mark) Could be used to feature offers/particular holidays (1 mark) OR Find out most popular browser (1 mark) Optimise site for this browser to attract customers (1 mark) Other answers may be acceptable	2	For full marks answer must describe the information collected, how it would be used and the benefit to Sunshine Holidays To get second mark must state the benefit
28.	(d)	The comparison of the email addresses (1 mark) could be done by the client to give a faster response than sending both the server to check and respond if there is an error (1 mark)	2	Email address comparisons – (1 mark) Faster response (1 mark)

[END OF MARKING INSTRUCTIONS]