

Mark Scheme for June 2011

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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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Section A						
Question			Gd	Expected Answer	Marks	Additional Guidance
1				Any 4 from: eg <ul style="list-style-type: none"> • assumptions, limitations or constraints (1) • input documents (1) • input interface/forms (1) • file structures (1) • output documents/reports (1) • data processing (1) • queries (1) • security (1) • backup procedures (1) • restoration procedures (1) • validation routines (1) • error messages (1) • system diagrams (1) • test plan (1) 	[4]	.

Question		Gd	Expected Answer	Marks	Additional Guidance
2			<p>One for identifying the team member, up to two more for description. Maximum 3 marks for any one member.</p> <ul style="list-style-type: none"> • <i>Project Manager/Manager</i> (1) • Oversee entire project (1) from Analysis to Evaluation (1) • Monitors progress (1) against budget/timescales (1) • Meets with management / client (1) to discuss progress (1) • <i>Systems analyst/Analyst</i> (1) • Investigates the current system (1) using observation/interview/document analysis/questionnaires (1) • Writes feasibility study (1) and requirements specification (1) • <i>Systems designer</i> (1) • Designs new system (1) based on analysts requirements (1) • <i>Programmer/software engineer/developer</i> (1) • Creates the software/solution (1) develops the applications system/modifies existing software (1) • Creates technical documentation (1) during development of the system (1) • <i>Tester</i> (1) • Finds any bugs in the system (1) fixes any bugs (1) • Follows test plans (1) documenting results (1) 	[6]	<p><i>The first mark is awarded for a clear statement of who the team member is.</i></p> <p><i>The second mark is awarded for a description of that role.</i></p> <p><i>A third mark can be awarded for an expansion of the description that accurately encompasses tasks undertaken by this individual in fulfilling their role.</i></p>

Question			Gd	Expected Answer	Marks	Additional Guidance
3	(a)			<ul style="list-style-type: none"> provides access for one user at a time (1) 	[1]	<i>The concept of time must be included for the mark.</i>
3	(b)			3 from: <ul style="list-style-type: none"> Processor carries out more than one process at the same time (1) More than one CPU/execute element (1) Pre-emptive multitasking/ OS gives specified time to applications (1) Co-operative multitasking/where the OS waits for the program to give back control(1) 	[3]	
4				One mark for point (max 2), one for expansion (max 3) eg: <ul style="list-style-type: none"> corporate identity (1) corporate colours should be reflected in the HCI wherever possible (1) colours should not clash within the HCI (1) text v background should be easily read by the user (1) use of contrasting colours for partially sighted (1) and colour blind colour combinations used (1) Limitation on the number of colours used (1) should be usable for long periods of time (1) colours must match the user's expectations (1) eg green = good/ red = bad (1) if an error message appears with a red border (1) the user has done something wrong (1) 	[4]	<i>Candidates may put all their answer in one extended sentence without clear separation of a point and expansion or even back to front – this is fine</i> <i>All 4 marks can be gained from a single description.</i> <i>Eg colours must match the user's expectations (1) eg green = good/ red = bad (1) if an error message appears with a red border (1) the user has done something wrong (1)</i>

Question			Gd	Expected Answer	Marks	Additional Guidance
5				<p>One for identifying a limitation, second for description eg</p> <ul style="list-style-type: none"> needs large bandwidth (1) to fully support all features (1) true interactivity is limited (1) available facilities allow more contribution than interaction (1) end user may not have the required hardware (1) wasted time by company producing features that are not seen (1) TV seen as passive entertainment (1) viewers may resent attempts to encourage them to interact more (1) faults on the telecommunications network (1) stops any interaction on the same line (1). 	[4]	<p><i>A candidate can not gain more than two marks solely for the identification of points.</i></p> <p><i>Allow suitable examples.</i></p> <p><i>Allow answers from the viewpoint of the end user, the broadcaster or programme producers</i></p>
6				<p>One mark for point (max 3), one for expansion (max 5)</p> <ul style="list-style-type: none"> involved at all stages of systems life cycle (1) from initial problem definition to final sign off/evaluation/maintenance (1) provides initial problem definition to analyst (1) and liaises between analyst and staff (1) provides requirements to team/project manager (1) these form the basis for the new system (1) signs off the requirements (1) and agrees budget/timescale (1) consulted at end of each stage of life cycle (1) to ensure that system still meets their requirements (1) identifies error/inaccuracies/modifications (1) that need to be completed (1) prior to implementation of system (1) involved in testing of the system(1) to ensure it meets requirements (1) if client not fully involved the system may not meet their requirements (1) 	[6]	<p><i>A clear identification of involvement by the client will gain the initial mark. Look for this first.</i></p> <p><i>Allow suitable examples.</i></p> <p><i>All 6 marks can be gained from a single description.</i></p>

Question		Gd	Expected Answer	Marks	Additional Guidance
7	(a)		<p>Max 2 for each type eg:</p> <p>adaptive maintenance</p> <ul style="list-style-type: none"> when a new need is identified (1) such as mail merging letters to parents/a new MIS does not have to be purchased by the school (1) changes in working practices (1) such as changes to lesson length/times (1) changes in working external factors (1) such as government directives (1) <p>perfective maintenance</p> <ul style="list-style-type: none"> introduction of new technology (1) such as touch screens (1) following requests from users (1) such as parent access to student records/to show how school responds to requests (1) 	[4]	<p><i>A clear identification of a factor will gain the first mark. Look for this initially.</i></p> <p><i>The second mark is for an expansion of the factor which reasons why the factor is considered.</i></p> <p><i>A candidate can not gain more than two marks solely for the identification of factors.</i></p> <p><i>Must be contextualised</i></p>
7	(b)		<p>Two from, two marks each:</p> <ul style="list-style-type: none"> the expertise of the staff (1) because they might need training to use the software (1) the costs of installing/producing the software (1) must be cost effective in terms of licenses/training costs (1) the long term benefits (1) need to outweigh the inconvenience of installation (1) the current system needs to be considered (1) for compatibility with the new software (1) timing of upgrade (1) to cause least disruption / volume of workload (1) 	[4]	

Question			Gd	Expected Answer	Marks	Additional Guidance
8		(i)		One reason from eg <ul style="list-style-type: none"> so information does not lose its integrity (1) so it can be trusted by those using and those receiving the information (1) One example from (linked to reason) eg <ul style="list-style-type: none"> the customers might gain/lose confidence with the firm (1) the firm loses money through orders being sent to the wrong customers (1) 	[2]	<i>Allow negative reasons – if the information is NOT exchanged accurately</i> <i>One mark for reason, second for example linked to reason</i>
		(ii)		One reason from eg <ul style="list-style-type: none"> so that the information does not become out of date (1) that the information still has value related to its age when received (1) One example from (linked to reason) eg <ul style="list-style-type: none"> customers may not be billed in the correct financial year (1) the firm could lose money because the equipment they are ordering is out-of-date (1) 	[2]	<i>Allow negative reasons – if the information is NOT exchanged in a timely manner</i> <i>One mark for reason, second for example linked to reason</i>

Question		Gd	Expected Answer	Marks	Additional Guidance						
9			<p>Mark according to grid below:</p> <table><tr><td>3</td><td>Two complete comparisons</td></tr><tr><td>2</td><td>One complete comparison</td></tr><tr><td>0-1</td><td>One individual point about either side</td></tr></table> <p>Topics for comparison may include:</p> <p>availability</p> <ul style="list-style-type: none">ADSL requires the user needs to be within a certain distance from a compatible local exchange <i>whereas</i> a satellite connection can be used in remote areas where physical and wireless connections are not available <p>connection type</p> <ul style="list-style-type: none">ADSL is uses copper cable to connect <i>whereas</i> a satellite connection relies upon microwaves <p>bandwidth</p> <ul style="list-style-type: none">ADSL offers sufficient bandwidth (Mb/s) to allow more data to be sent at the same time meaning large volumes of data can be handled at once <i>whereas</i> a satellite connection has a much lower bandwidth (Kb/s) meaning lower volumes of data can be sent at any one time <p>multimedia</p> <ul style="list-style-type: none">ADSL can handle simultaneous data and audio streaming <i>whereas</i> a satellite connection would mean multimedia files suffer delays and stoppages during their presentation on screen <p>symmetry</p> <ul style="list-style-type: none"><i>both</i> ADSL and satellite are asymmetric meaning downstream has a much higher bandwidth than upstream	3	Two complete comparisons	2	One complete comparison	0-1	One individual point about either side	[3]	<p><i>'and so does satellite' type answers will not gain two marks, even if the ADSL point is perfectly true.</i></p>
3	Two complete comparisons										
2	One complete comparison										
0-1	One individual point about either side										

Question			Gd	Expected Answer	Marks	Additional Guidance
10	(a)			One mark for point (max 2), One mark for expansion (max 3) eg <ul style="list-style-type: none"> the vehicle can be located (1) at any time (1) most appropriate vehicle (1) dispatched to closest emergency site (1) arrive within stated time (1) meeting response targets (1) if vehicle is stolen (1) location can be passed to police/vehicle retrieved (1) 	[4]	.
10	(b)	(i)		One mark for point (max 2), One mark for expansion (max 3) eg <ul style="list-style-type: none"> postcodes of emergency locations can be passed to driver (1) drivers never lost (1) quickest route taken (1) roadworks to emergency can be avoided (1) public satisfaction (1) less waiting time between call and response (1) new members can get to emergency (1) even if they do not know the area (1) drivers can focus on driving/safer (1) do not have to look at map (1) 	[4]	

Question			Gd	Expected Answer	Marks	Additional Guidance
10	(b)	(ii)		<p>One mark for point (max 3), one for expansion (max 5) eg:</p> <p>Sound</p> <ul style="list-style-type: none"> • voice (1) relaying directions (1) • beep (1) warning of speed camera (1) • alert (1) switching on/off (1) • jingle (1) properly functioning (1) • ring (1) incoming call to mobile telephone (1) <p>Graphics</p> <ul style="list-style-type: none"> • icons (1) representing functions/settings (1) • 3-D maps (1) relaying journey (1) • 2-D plan views (1) giving route through junctions (1) • colour (1) battery level (1) • cursor (1) awaiting postcode entry (1) • progress bars (1) calculating route (1) • slide (1) audio level (1) • scroll bars (1) language choices (1) • radio buttons (1)/tick boxes (1) requiring choice of preference (1) <p>Text</p> <ul style="list-style-type: none"> • road names (1) change as journey progresses (1) • distances (1) updated throughout journey (1) • follow-up questions (1) required to confirm choices (1) • route (1) detailed stages (1) distance/time countdown (1) • tips (1) displayed to assist set up and use (1) • function confirmation (1) on buttons (1) <p>LED</p> <ul style="list-style-type: none"> • power light (1) indicates if devices is on/off (1) 	[6]	<i>Do not look to penalise candidates for not responding under all headings.</i>

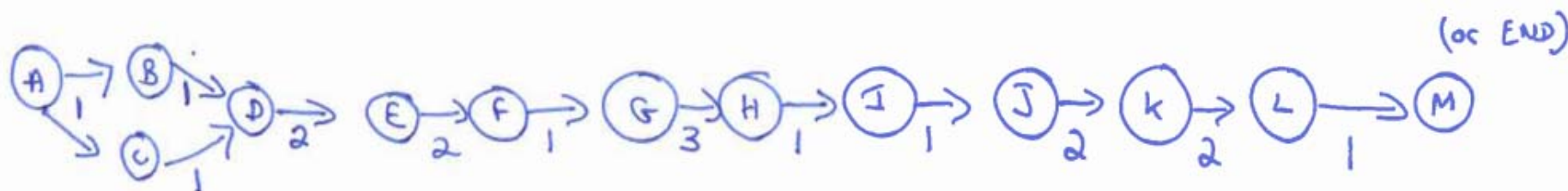
Question			Gd	Expected Answer	Marks	Additional Guidance
11				<p>Max two from accuracy eg has to be correct to be relied upon (1) the casualty may need medication and if the amount given is not accurately noted, further doses may prove life threatening (1)</p> <p>Max two from completeness eg with only part of the required information it is worthless / missing information (1) the casualty's full name and date of birth would be required to establish medical history (1)</p> <p>Max two from level of detail eg too much/ too little information will make decision making difficult (1) knowing that the casualty has allergies is not specific enough to make a judgement on which medication to administer (1)</p>	[6]	Allow negative responses – inaccuracy of information, incomplete data, too much or too little level of detail.

Question			Gd	Expected Answer	Marks	Additional Guidance
12	(a)			<p>One mark for point (max 3), one for expansion (max 5)</p> <ul style="list-style-type: none"> allows access to files (1) from any connected computer (1) access rights on files (1) password required to view (1) indexing of files (1) for searching (1) disk quotas (1) users cannot store large/too many files in user area (1) stores files (1) for shared access (1) 	[6]	
12	(b)			<p>Three from, two marks each eg:</p> <ul style="list-style-type: none"> images can be used by all levels of user (1) do not know who is using it (1) usability for different levels of user (1) makes the interface seem easy to use (1) pictures easier than lots of text (1) eg relate to mountain rescue – pictures of knots (1) interactivity of web site(1) makes end user more inclined to learn /motivating(1) intuitive – mouse/images (1) makes us of previous learnt applications (1) menus options pages/drop down pop up (1) allows access to options (1) 	[6]	

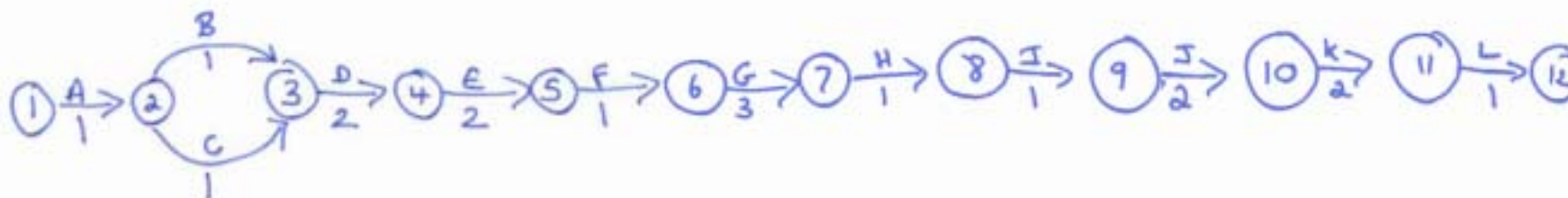
Question		Gd	Expected Answer	Marks	Additional Guidance
13	(a)		<p>One from eg:</p> <ul style="list-style-type: none"> • storage is only required at the central location for the centralised database (1) the local indexes stored at each site take up far less memory (1) • queries are processed locally(1) this speeds up searches as only the required data is retrieved from the central location (1) • less data traffic than complete centralisation (1) as only data is sent and not the additional information /forms/reports structure (1) • increased security (1) only central database needs increased security as that is where the data is stored (1) • integrity of data not compromised (1) as it is stored in only one location and one database to update (1) • centralised back-up of data (1) management backup easier as one person's responsibility (1) 	[2]	<i>The second is for an expansion of the advantage.</i>
13	(b)		<p>One mark for point (max 2), one for expansion (max 3) eg:</p> <ul style="list-style-type: none"> • only certain people see certain fields (1) financial matters not revealed to all (1) • to conform to the law/DPA (1) keeping personal information private (1) • reduces amount of data being sent between locations (1) in order to speed up data transfer (1) allowing faster reaction time (1) meaning rescue reaches emergency quicker (1) 	[4]	

Question			Gd	Expected Answer	Marks	Additional Guidance
14	(a)			One per component: <ul style="list-style-type: none"> • knowledge base (1) • inference engine (1) • user interface (1) 	[3]	
14	(b)			Two from, two marks each eg: <ul style="list-style-type: none"> • can be used by all members (1) available 24/7/not reliant on a human/expert who understands weather data being present to give answers (1) • takes account of different weather information (1) that users cannot understand (1) • speeds up the decision making process (1) know whether to postpone training because of bad weather forecast (1) 	[4]	<i>The second is for an expansion of the advantage or an example.</i>

Question		Gd	Expected Answer	Marks	Additional Guidance
15	(a)		<ul style="list-style-type: none"> 1 for 2 correct outputs from A/2 1 for 2 correct inputs to D/3 1 for linear sequence D/3-L/11 must conclude with end/extra node (M/end/12) or line and arrow 1 for correct time and arrows on all links <p>Accept numbers in nodes – if numbers must also have letters / written tasks between nodes</p>	[4]	<p><i>The conventions used for CPA diagrams vary between resources and, it is expected, between centres.</i></p> <p><i>Accept tasks/times either above or below lines</i></p> <p><i>Accept either style of diagram, if EST/LFT incorrect or missing – ignore</i></p>



OR



Question		Gd	Expected Answer	Marks	Additional Guidance
15	(b)		<p>Three from, two marks each eg:</p> <ul style="list-style-type: none"> • increased costs (1) which will require reduced service to compensate/extra money spending reducing other services (1) • time delays (1) reduce efficiency of service/endanger public (1) • technical failure of ICT (1) will lead to late arrival to scene/non-arrival and loss of life/public outcry/political interference (1) • perceived failure (1) will result in public concern/lack of public support (1) • decision needs to be made whether to cancel project or continue (1) bearing in mind the number of public funded failures already documented (1) 	[6]	

Question		Gd	Expected Answer			Marks	Additional Guidance
16			9-11	4	<p>The candidate is able to discuss clearly the impact and consequences. Candidates will show a detailed level of understanding and be able to explain in detail both the impacts and consequences of more than one position.</p> <p>Logical arguments are produced to demonstrate a clear understanding of the question.</p> <p>Ideas will be expressed clearly and fluently using specific knowledge to support and inform the discussion.</p> <p>There may be a reasoned conclusion.</p> <p>Subject specific terminology will be used accurately and appropriately.</p>		
					<p>The candidate is able to discuss the impact(s) and consequences(s) Candidates will show a limited understanding and be able to explain, at least one impact and associated consequence of a given position, however explanations may lack specific detail and/or concentrate on either an impact or consequence with a limited explanation of the other. Subject specific terminology will be used accurately and appropriately.</p>		
					<p>The candidate is able to explain the impact(s) or consequences(s) Candidates will show a limited understanding and be able to explain, at least one impact or consequence of a given position, however explanations may lack specific detail.</p> <p>The explanation, though informed, may stray from the point but specific knowledge will be evident.</p> <p>Some subject specific terminology will be used.</p>		
					<p>0-2</p> <p>1</p> <p>The candidate is able to describe superficially the impact or consequences. The information may be poorly expressed and may be in the form of a list of points.</p> <p>Subject specific terminology may be limited or missing.</p>		

Question		Gd	Expected Answer	Marks	Additional Guidance
16			<p>Points for discussion may include for example;</p> <ul style="list-style-type: none"> • never out of contact • mobile phone coverage most places • satellite phones for use in disaster area • digital cameras, video cameras, upload to website <p>Possible Impacts may include for example:</p> <ul style="list-style-type: none"> • never out of contact so can reassure families and rest of team at home when arrive and if any problems • can take lots of pictures not limited to films or carry lots of films around uploading to website or blog • not the right contract for use in that area • technology allows you to know what is happening in the rest of the world; can check up on flights; confirm bookings etc. <p>Possible Consequences for discussion may include for example;</p> <ul style="list-style-type: none"> • not completely relaxed; can take the work with you • people from home can contact you with other matters • prank texting • increase in insurance and claims if devices damaged or lost 	[11]	

Question	Gd	Expected Answer	Marks	Additional Guidance	
17			It is a banded response, with 4 bands.		
			9-11	4	The candidate is able to discuss clearly the impact and consequences. Candidates will show a detailed level of understanding and be able to explain in detail both the impacts and consequences of more than one position. Logical arguments are produced to demonstrate a clear understanding of the question. Ideas will be expressed clearly and fluently using specific knowledge to support and inform the discussion. There may be a reasoned conclusion. Subject specific terminology will be used accurately and appropriately.
			6-8	3	The candidate is able to discuss the impact(s) and consequences(s) Candidates will show a limited understanding and be able to explain, at least one impact and associated consequence of a given position, however explanations may lack specific detail and/or concentrate on either an impact or consequence with a limited explanation of the other. Subject specific terminology will be used accurately and appropriately.
			3-5	2	The candidate is able to explain the impact(s) or consequences(s) Candidates will show a limited understanding and be able to explain, at least one impact or consequence of a given position, however explanations may lack specific detail. The explanation, though informed, may stray from the point but specific knowledge will be evident. Some subject specific terminology will be used.
			0-2	1	The candidate is able to describe superficially the impact or consequences. The information may be poorly expressed and may be in the form of a list of points. Subject specific terminology may be limited or missing.

Question			Gd	Expected Answer	Marks	Additional Guidance
17				<p>Possible points for discussion may include for example;</p> <ul style="list-style-type: none"> • mobile devices used for payment • wireless mobile connectivity • inclusion of biometric technology to make transactions safer • biometrics for advertising • virtual measurement and try-on • cyber theft • encryption • cost increase to allow for technological advances 	[11]	

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