

Information & Communication Technology

Advanced GCE A2 H517

Advanced Subsidiary GCE AS H117

Mark Scheme for the Units

June 2009

H117/H517/MS/R/09

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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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MARK SCHEMES ON THE UNITS

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G061 Information, Systems and Applications

Question		Expected Answer	Marks
1	(a)	<p>Using an example, show how data collected by the airline about its customers can become information.</p> <p>Max 2 marks if no meaning, must be example:</p> <p>Data: 11/12/08 (1) Context: date (1) / Structure: dd/mm/yy (1) Meaning: Date flight booked from UK to Amsterdam (1)</p>	[3]
	(b)	<p>Describe two advantages of gathering the data from an indirect source.</p> <p>1 for identification, 2nd for description, examples: Time (1) information likely to be immediately available rather than wait for it to be collected(1) Cost (1) May be cheaper to buy the information rather than pay for collection (1) Choice (1) many different available sources for the data giving wider range (1) Partly analysed (1) saves time when processing (1)</p>	[4]
	(c)	<p>Compare the use of holiday brochures and the Internet as means of obtaining information on airlines and flights.</p> <p>1 mark for each complete comparison, eg</p> <p>Internet more likely to be up to date whereas brochure only up to date when it was first printed (1) Internet available from a variety of locations whereas need to physically request the brochure (1) Internet site can be accessed whenever the customer wants, whereas the brochure needs to be sent for / collected before it can be used (1) The Internet brochure is environmentally friendly as only electricity and no printed matter whereas the printed one, if not disposed of correctly can have a negative environmental impact. Internet can give you availability of flights and hotel bookings whereas the brochure can only tell you what might be available (1)</p>	[3]
2	(a)	<p>Identify the most appropriate data type for the following fields:</p> <p>House number Text/Alphanumeric/String (1) Price of tickets Real / Currency (1) Telephone number Text/Alphanumeric/String (1)</p>	[3]
	(b)	(i) <p>What is the purpose of verification?</p> <p>1 from: To make sure the object is the same as the source (1) To make sure the data has been entered correctly (1)</p>	[1]

Question		Expected Answer	Marks
	(b) (ii)	<p>Describe how proof reading works as a method of verification. 2 from:</p> <p>Original is read (1) and compared to what has been entered (1) Making sure source and object match (1)</p>	[2]
	(c) (i)	<p>The database contains tables, records and fields. Describe how these database elements are related to each other. 3 from:</p> <p>Tables contain rows each row is a record (1) Tables contain columns each column contains field headings and fields (1) Each record contains individual items of data (1) Each item of data is [contained within] a field (1)</p> <p>Allow three marks for diagram if correctly labelled: Allow three marks for valid examples.</p>	[3]
	(ii)	<p>Explain the purpose of relationships in a database. 3 from e.g:</p> <p>To link [records in different] tables (1) To ensure referential integrity (1) making sure data is not duplicated (1) Reducing storage space required (1)</p>	[3]
	(d)	<p>Describe two disadvantages of normalisation. 1 for identification, 2nd for description/expansion or example:</p> <p>Limits data storage (1) calculated fields may need to be stored (1) Does not store historical calculated data (1) Increases number of tables (1) increases processing / memory requirements (1) Fails to meet needs of airline (1) may want whole address as one not as single elements (1)</p>	[4]
	(e) (i)	<p>What is the difference between a simple and a complex query? 2 from:</p> <p>Simple contains one criteria (1) Complex contains more than one criteria / Complex uses AND,OR,NOT (1)</p>	[2]
	(ii)	<p>Give an example of a simple query and a complex query that could be used to search the customer database.</p> <p>Simple example (1) Complex example (1)</p>	[2]

Question		Expected Answer	Marks
3	(a)	<p>Identify two other input devices that the airline computers could have and give an example of how each would be used. 1 mark for identification of device. 2nd for use. E.g.</p> <p>Scanner (1) to read passport (1) Sensor/pressure/scales (1) to weigh luggage (1) Touch screen (1) to select seats (1) Chip reader (1) to collect credit card details (1)</p>	[4]
	(b)	<p>The computers have a WIMP (windows, icons, menus, pointers) interface. Describe the characteristics of a WIMP interface. Any 4 from:</p> <p>Memory intensive (1) Graphical interface (1) use of pictures to represent objects (1) Direct manipulation interface (1) cursor direction reflects hand movements (1) Area of the screen (1) contains grouped icons/elements (1) Predefined list of options (1) can be pop-up/drop down (1)</p>	[4]

Question		Expected Answer	Marks
4	(a)	<p>Describe three characteristics of an airline booking system. 1 for identification, 2nd for expansion e.g.</p> <p>INPUT</p> <p>Time of flight / Date of flight (1) to see if availability (1) Leaving / via / destination (1) To see if route exists (1) Seat number /Class (1) to check if available (1) Name/number/address of passenger (1) to make booking / legal reasons (1) Credit card number / expiry date (1) to take payment (1)</p> <p>PROCESS</p> <p>Check flight exists (1) so booking can be made (1) Check flight not full (1) so seats can be booked (1) Reserve seats (1) so no one else can book them (1) Calculate price (1) so customer knows how much to pay (1) Take payment (1) so company can make profit (1) Real time system (1) so no double booking can take place (1) Record locking of booking (1) so reserves it for set amount if time (1)</p> <p>OUTPUT</p> <p>Confirmation of booking / booking number (1) so passenger knows they have a booking (1) Amount to pay (1) so payment can be made (1)</p> <p>STORAGE</p> <p>Customer details (1) legal reasons / for future bookings (1) Flight / ticket details (1) so system knows who is on flight (1)</p>	[6]

Question	Expected Answer	Marks
(b)	<p>Describe two considerations that should have been taken into account when designing the data-entry screen. 2 from, 1 for identification and 2nd for description / expansion / example:</p> <p>Layout (1) logical down the page (1) Error messages (1) sound / visual (1) White space (1) not cramped (1) Expertise of users (1) use of shortcuts / explanations that can be avoided (1) Text size/style (1) large enough to see/read (1) Colour (1) colour blindness/pre conceived ideas red/green (1)</p>	[4]
5	<p>Describe two advantages of using sound as a means of making announcements. 2 from, 1 for identification and 2nd for description / expansion / example:</p> <p>Do not need to read/see (1) young/elderly/blind can still understand where to go (1) Location (1) do not need to see where the announcement is coming from (1) Attention (1) can hear whilst doing other things / reading (1) Coverage (1) can cover a wide area e.g. airport (1)</p>	[4]
6	<p>Explain how a lack of standardisation amongst the software used could affect the airline. 3 from eg:</p> <p>Cannot communicate (1) passenger details will go missing / not be accessible (1) Connecting flights will contain incorrect details (1) may be booked / no space available (1)</p>	[3]

Question		Expected Answer	Marks
7	(a)	<p>Give two reasons why a master slide should be used when creating the presentation. 2 from, single statements:</p> <p>To ensure corporate image/consistent layout is used (1) Different presentations worldwide can be similar (1) No items left out (1) Change to master slide updates all slides in presentation (1)</p>	[2]
7	(b)	<p>Describe two advantages of using a wizard to create the master slide. 2 from, 1 for identification and 2nd for description / expansion / example:</p> <p>Complexity (1) master slides with complex backgrounds and objects can be created (1) Experience (1) novice or expert users can create similar master slides (1) Corporate image/consistent layout (1) a wizard can include the corporate image ensuring the master follows it (1)</p>	[4]
	(c) (i)	<p>Describe the following features of presentation software: Slide transition 2 from, 1 for identification and 2nd for description / expansion / example:</p> <p>Method of moving from one slide to another (1) Automatic / manual / timings (1) Example of method of transition (1)</p>	[2]
	(ii)	<p>Animation 2 from, 1 for identification and 2nd for description / expansion / example:</p> <p>Moving an object (1) Set of pictures with a time delay (1) Example of animation (1)</p>	[2]

Question		Expected Answer	Marks
8	(a)	<p>Identify three stages, in order, required to export and import files between applications with no common file format.</p> <p>Max 2 from Open file in package 1/A format (1) Convert to package 2/B readable format (1)</p> <p>Max two from Save file in package 2/B readable format (1) Open file in package 2/B format (1) Convert to new file/package 3/B readable format (1) Open file in package 3/B (1) Save in package 3/B format (1)</p>	[3]
	(b)	<p>Describe two advantages of using clipart in the presentation.</p> <p>1 for identification, 2nd for description, eg</p> <p>Availability (1) easy to find the image that you want (1) Inclusion in package /accessibility (1) usually included with the package, no need to go and find an image (1) Price (1) clipart packages are cheaper than hiring a designer (1)</p>	[4]
	(c)	<p>Evaluate the suitability of using vector graphics in the airlines presentations.</p> <p>Any 4 3 from: Image can be enlarged without loss of quality (1) moving from small to large presentation does not require new images (1) Size of the image is small (1) making it easier to transfer between devices / load (1) Vectors based on lines (1) so more use when drawing maps (1) Lack of detail in images (1) cannot display photographs (1) 1 for evaluation of suitability.</p>	[4]

Question		Expected Answer	Marks
9	(a)	<p>Describe how a cartography graphics library may be used when creating the presentation of the routes. 2 from, eg:</p> <p>Pre made images /maps collected together can be placed in [correct] sequence (1) As maps come from the same library – same size/type/resolution (1) Map/special symbols from library placed into presentation Only one cost required for the graphics library and can use all images within it (1)</p>	[2]
	(b)	<p>Describe one disadvantage of graphic libraries. 1 for identification and 2nd for description eg</p> <p>Availability (1) graphic required may not part of the collection Quality (1) resolution / size of image may not be appropriate (1) Cost (1) may be expensive to purchase the library for one or two images (1)</p>	[2]
	(c)	<p>Describe how the presentation can be reformatted to be used with a touch screen in the aeroplane. 4 from:</p> <p>Timings/automatic transition need to be removed (1) Method of manually moving from slide to slide added (1) hotspot / button (1) Size need to be considered (1) may need to change font /image size (1) Different resolution/presentation page size (1)</p>	[4]

Question		Expected Answer	Marks
10	(a)	<p>Describe how variables and functions could be used in the spreadsheet.</p> <p>2 from, 1 function, 1 variable, 1 for identification, 2nd for expansion/example/exemplification eg:</p> <p>Variable Used to hold a value used elsewhere in the spreadsheet/ can be a cell reference / or named (1) such as pay per hour/ example of use relating to wages (1)</p> <p>Function Built in calculation/reserved word (1) example of use relating to wages (1)</p>	[4]
	(b)	<p>Describe absolute and relative referencing and give examples of each relating to the wages spreadsheet.</p> <p>2 marks for absolute, 2 marks for relative. 1 mark for description, 1 for example.</p> <p>Absolute When cell is copied absolute reference remains the same (1) Calculating pay per day using amount per hour as absolute reference (1)</p> <p>Relative When cell is copied relative reference changes (1) Adding up hours worked for a week relative is days (1)</p>	[2] [2]
	(c)	<p>Give two disadvantages of using spreadsheet software to work out the wages for the employees.</p> <p>2 from:</p> <p>Need access to the program (1) Mistake on data-entry can be replicated throughout the wages spreadsheet(1) leading to wrong amounts being paid (1) Need skills to be able to use the program (1) Limited data handling functions/better programs available (1)</p>	[2]

Question		Expected Answer	Marks
11	(a)	<p>Explain the purpose of the DPA. 3 from, allow expansions.</p> <p>To protect the individual from the company (1) Allow UK citizens to access data held on them in other EU countries (1) Meet EU regulations (1) To allow the individual to access data held about them by the company (1) To place regulations on the use of personal data (1) To allow prosecution of companies that break the DPA (1)</p>	[3]
	(b)	<p>Explain the implications of the DPA for the airline. 3 from, allow expansions, eg:</p> <p>Need a filing system for personal data (1) so that it can be given to the customer if requested within 40 days (1) Need to appoint a data controller (1) to ensure principles are in place (1) Need to protect personal data (1) and train staff in use (1)</p>	[3]
12		<p>Explain how the airline can use biometric security systems to protect access to data. 3 from:</p> <p>Fingerprint/DNA/Voice/Retina scans (1) How works up to a max 2 – scans fingerprint, finds identifying unique marks (1) matches/does not match to record in system (1) Used to protect customer data/employee data (1) Could change voice over time/lose finger/eye and not access data (1)</p>	[3]
13	(a)	<p>Describe how the employees could recognise these health problems. 1 mark per health problem: Deep vein thrombosis: swelling of the calf / pain in the calf /calf pain that is noticeable, or worse when standing or walking/bruising (1) Backache: pain in back / muscle spasm (1) Eyesight defects: Blurred vision / dry eyes / continuous blinking (1)</p>	[3]
	(b)	<p>For each health problem, give an appropriate different solution. 1 mark per solution, eg:</p> <p>Deep vein thrombosis: 5 minute break every hour / leg exercises / flight socks / chair of adjustable height (1) Backache: chair of adjustable height / back / 5 minute break every hour / adjustable monitor (1) Eyesight defects: 5 minute break every hour / correctly lit room / screen filter / LCD monitor (1)</p>	[3]

Question		Expected Answer			Marks
14				Discuss the impact of ICT on air travel.	[11]
		8-11	High	<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>	
		4-7	Medium	<p>The candidate is able to explain superficially the impact(s) and consequences(s)</p> <p>Candidates will show a limited understanding and be able to explain, at least one impact and one 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.</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>	
		0-3	Low	<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>	
				<p>Impacts and consequences may include:</p> <p>Efficient booking systems to place bookings for trains and cars to catch the airplane and beyond. No need for tickets, use of biometrics to ascertain if you have bought a ticket. More efficient engines leading to less pollution.</p> <p>Security systems – biometric meaning less delays whilst passports checked, less chance of illegal immigrants or terrorist activities because of the better security.</p> <p>In flight systems – videos/dvds telephone – less boredom factor so parents less stressed when they reach their destination and ready to enjoy their holiday – likely to fly further with young children.</p> <p>Increase in size of planes – better designs/modelling leading to larger planes – more facilities, better relaxation but increase in fares to compensate.</p>	

Grade Thresholds

Advanced GCE ICT (H117 H517)
June 2009 Examination Series

Unit Threshold Marks

Unit		Maximum Mark	A	B	C	D	E	U
G061	Raw	120	70	61	53	45	37	0
	UMS	120	96	84	72	60	48	0
G062	Raw	80	66	58	50	42	35	0
	UMS	80	64	56	48	40	32	0

Specification Aggregation Results

Overall threshold marks in UMS (i.e. after conversion of raw marks to uniform marks)

	Maximum Mark	A	B	C	D	E	U
H117	200	160	140	120	100	80	0

The cumulative percentage of candidates awarded each grade was as follows:

	A	B	C	D	E	U	Total Number of Candidates
H117	5.8	18.3	38.2	60.8	79.9	100	4936

4936 candidates aggregated this series.

For a description of how UMS marks are calculated see:
http://www.ocr.org.uk/learners/ums_results.html

Statistics are correct at the time of publication.

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