

# **Information & Communication Technology**

Advanced GCE A2 H517

Advanced Subsidiary GCE AS H117

## **Mark Scheme for the Units**

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**January 2009**

**H117/H517/MS/R/09J**

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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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**Advanced Subsidiary GCE Information and Communication Technology (H117)**

### MARK SCHEMES ON THE UNITS

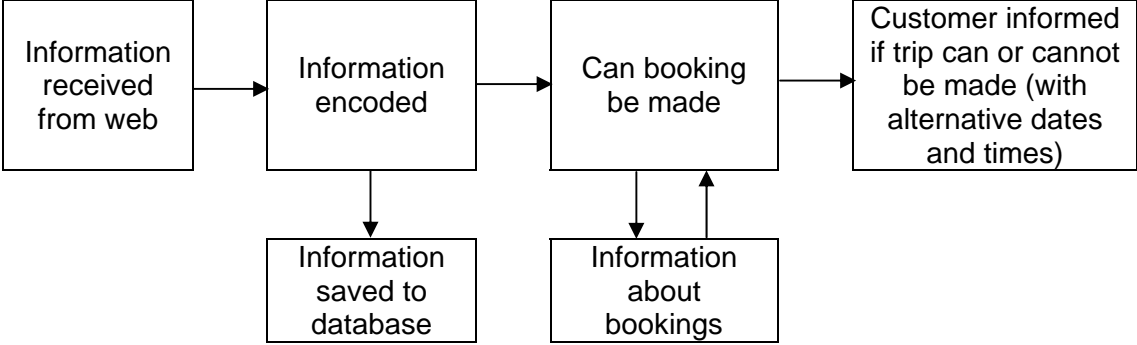
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# G061 Information, Systems and Applications

Question			Gd	Expected Answer	Mks
1	(a)	(i)		<p><b>Describe the term data.</b> 2 from:</p> <p>Alphanumeric characters (1) Without meaning (1) Raw facts/figures (1) Unprocessed (1)</p>	[2]
		(ii)		<p><b>Give an example of data.</b> Must be an example: any set of alphanumeric characters without meaning (1)</p>	[1]
	(b)			<p><b>Describe the difference between information and knowledge.</b> 2 from, 1 from information, 1 from knowledge:</p> <p><b>Knowledge:</b> Knowledge is applied information (1) Knowledge can be opinions/probabilities (1) Knowledge might be wrong (1) Knowledge is understanding the information (1) Knowledge is based on rules (1) Knowledge can change based on additional information (1)</p> <p><b>Information:</b> Information does not change (1) Information is facts (1) Information is processed data (1) Information is data + meaning (1)</p>	[2]
	(c)			<p><b>Describe, using examples how the following can affect the quality of information given by the customer:</b> 2 marks per keyword. One mark for how it affects, one mark for example relevant to boat hire/tours:</p> <p><b>Completeness</b> Missing some of the information/not all present (1) eg: (neg) Only month they want the tour not the date, cannot book (1) (pos) All the information required to answer a query/make a booking is received (1)</p> <p><b>Relevance</b> Must be related to the query/required information (1) eg: (neg) Where they went on holiday last year (1) (pos) Only days they can do the trips (1)</p> <p><b>Accuracy</b> The correct information is given (1) eg: (neg) If incorrect number of people given may not have enough space (1) (pos) All information is correct (1)</p>	[6]

Question		Gd	Expected Answer	Mks
2	(a)		<p><b>Identify three characteristics of the data that show that it is not in first normal form.</b></p> <p>Three from:</p> <p>No primary key/key field (1)  Repeating groups (1)  Data is not atomic/more than one data item in a field (1)  Not unique field names (1)</p>	[3]
	(b)		<p><b>What is the relationship between CUSTOMER and BOOKING?</b></p> <p>One to many (1)</p>	[1]
	(c)		<p><b>Describe three components of a data dictionary.</b></p> <p>Any 3 from, two marks per component. Allow relevant example for second mark.</p> <p>Table Name (1) The name of the table unique for each table in the database (1)  Field Name (1) The unique name for each field (1)  Data Type (1) allocated to each field (1) eg text/string/date/Boolean (1)  Field length (1) the number of characters allocated for the contents of each field (1)  Default Values (1) a value that automatically appears on the creation of a new record (1)  Validation (1) drop down lists/look-ups/presence checks (1)  Relationships between data (1) Primary and Foreign Keys defined  Permissions (1) who can change data (1)  Table Security (1) Access rights /change/edit/ modify/read only (1)  Indexes (1) Any field that is indexed (1)</p>	[6]
	(d)		<p><b>Explain why the integer data type is not appropriate for storing a telephone number.</b></p> <p>2 from:</p> <p>Will not accept leading 0 (1)  Some telephone numbers stored as text – 0800 BOOKTOUR (1)  Will not accept space (1)</p>	[2]
3	(a)		<p><b>Explain why the company has chosen to use thumbnails.</b></p> <p>2 from with expansion:</p> <p>Thumbnails/website is faster loading (1) less time to wait for customer (1)  Wide range of images on the page at a time (1) end user can get overview of what is on offer (1)  Can click thumbnail to go to larger image (1) detailed images given on request (1)  Prevent theft of images (1) quality is too poor (1)</p>	[4]

Question	Gd	Expected Answer	Mks
(b)		<p><b>Describe two characteristics of bitmap graphics.</b> 2 from, with expansion:</p> <p>Made up of pixels (1) each pixel can be a different colour/pixel is a square of colour (1) Blurs/pixelates (1) when you zoom in/enlarge (1) Takes up a lot of memory (1) each pixel stored individually (1) Can be compressed (1) into smaller file size (1) Created by camera/scanner (1) in RAW or compressed format (1)</p>	[4]
(c)		<p><b>Describe how the Copyright, Designs and Patents Act (1988) can be used to protect the use of the images on the website.</b> Any 4 from:</p> <p>Allows creator of images to control rights to use/can give permission to others to use (1) Gives creator right to prosecute people (1) who use images without consent (1) Only applies once the image has been taken/used (1) May charge for use (1) Cannot stop the images being taken (1) Establishes ownership (1)</p>	[4]
4		<p><b>Describe two advantages of encoding data.</b> 2 from, one for identification, second for expansion/example.</p> <p>Less memory requirement (1) storing less information therefore less memory is required (1) Increased security (1) If the codes are not apparent then it is difficult to know and understand the meaning of the codes (1) Speed of input increased (1) the codes take less time to enter therefore it is quicker to input large amount of data (1) Data Validation possible (1) since the codes follow a strict set of numbers and letters they are easy to validate/less input errors(1) Better organisation of data (1) if the data is in a standardised format then it can be compared and organised (1)</p>	[4]

Question	Gd	Expected Answer	Mks
5		<p><b>Draw the input, process, storage, output, feedback drawing of the process.</b></p>  <pre> graph LR     A[Information received from web] --&gt; B[Information encoded]     B --&gt; C[Can booking be made]     C --&gt; D[Customer informed if trip can or cannot be made (with alternative dates and times)]     B --&gt; E[Information saved to database]     F[Information about bookings] --&gt; C     C --&gt; F     </pre> <p>1 mark for input.                      1 mark for information encoded                      1 mark for output – can/cannot be made                      1 mark for information saved/retrieved                      1 mark for can booking be made/output</p>	<b>[5]</b>
6	(a)	<p><b>Describe three advantages to the company of networking the booking office to their head office.</b>                      Three from:                      Data can be backed up (1) without physically transporting it (1)                      Monitoring of bookings (1) so the office know what to advertise (1)                      Anti virus/ spam/updates (1) can be done centrally (1)                      Shared documents such as policies (1) immediate updates to both sites (1)                      Access to files (1) to monitor employees (1)                      Communication (1) to solve problems/update on bookings (1)</p>	<b>[6]</b>
	(b)	<p><b>Describe the difference between hardware and software.</b>                      Hardware can be touched (1)                      Software is the programs (1)</p>	<b>[2]</b>
	(c)	<p><b>Describe the role of each type of software.</b>                      2 marks per piece of software.</p> <p><b>Utility Software</b>                      Assists the user in basic tasks (1)                      To provide additional services not included in applications/OS (1)                      Specific utility role (1)</p> <p><b>Operating System Software</b>                      To communicate with the hardware (1)                      Interface between user and computer (1)                      To give a platform for the applications software to run on (1)                      Manages sharing of resources (1)                      Allocates and manages tasks (1)</p>	<b>[4]</b>

Question			Gd	Expected Answer	Mks
7	(a)	(i)		<p><b>Identify an appropriate storage device to back-up the data.</b></p> <p>1 from:            External/portable hard drive (1)            Tape (1)            USB/Memory stick/Key (1)            CDR/RW/DVDR/RW (1)</p>	[1]
		(ii)		<p><b>Justify your choice of storage device.</b></p> <p>2 from:            Size is large enough to contain all the required data (1)            Speed is fast enough to back up and copy the data in the time required (1)            It is portable so it can be moved from location to location without difficulty (1)</p>	[2]
	(b)			<p><b>Explain how passwords and firewalls can be used to protect the data.</b></p> <p>2 marks for each:  <b>Passwords</b>            Stop individuals from accessing the data (1) unless they have the correct password (1)            Without the correct password (1) presented with just a screen (1)            Can record invalid attempts (1) so system manager can find out when/where/who (1)            Three attempts and then the file locks preventing access (1)  <b>Firewalls</b>            Contains levels of access allocated to different users (1) only data at a certain level can be seen by certain individuals (1)            Can only accept connections from allowed network connections (1) ties down who can access data (1)</p>	[4]
8				<p><b>Identify three tasks that the company can use desktop publishing software for.</b></p> <p>3 from eg:            Creating a calendar (1)            Create a poster (1)            Create a flyer (1)            Allow formatting / editing</p>	[3]



Question		Gd	Expected Answer	Mks
9			<p><b>Describe three characteristics of an on-line training system.</b> 3 from, 1 for identification, 2nd for exemplification/example:</p> <p>Use of video clips (1) to demonstrate a feature or an action (1) Use of images and text (1) to give additional explanation (1) Step by step features (1) to allow the user to copy (1) User should move from one question to the next (1) based on responses so may get same question (1) Physical trainer should be able to intervene (1) or be called upon for help (1) Trainer should be able to view a student's progress (1) and see if they are behind or in front(1) Statistical information should be available (1) to see where they are at (1) Ability to move around (1) backwards and forwards and redo sections (1) Tests and instant feedback for the student (1) to know where to target next (1) Available from any location with a PC (1) not dependent on being at work (1) Internet connection (1) links to additional help sites (1)</p>	[6]
10	(a)		<p><b>Identify three form controls that could be used and give an example of its use in the presentation.</b> Max 3 for identification of form control, 2nd mark for example of use relevant to tour eg:</p> <p>Drop down list (1) holding dates of tours (1) Spinner (1) holding number of people (1) Button (1) to move to next screen/ book tour (1) Text box (1) enter name to personalise presentation (1) Check box (1) to highlight required information on printout (1) Image (1) to hold logo (1)</p>	[6]
	(b)		<p><b>Describe the different needs these visitors would have when using the presentation for the first time.</b> Allow 3/1 split</p> <p><b>Novice</b> Instructions for use (1) Consistency of screen/font (1) No advanced features (1) On line help (1) Assistant on hand (1)</p> <p><b>Expert</b> Shortcuts similar to other products (1) Skip areas and move on (1) Abbreviated help (1)</p>	[4]

Question		Gd	Expected Answer	Mks
11	(a)		<p><b>Give two reasons why a computer model of the boat is created.</b></p> <p>Ability to ask what if questions (1) without rebuilding the model from scratch (1)</p> <p>Inbuilt calculations (1) less chance of error in calculating (1)</p> <p>Automatic recalculation -make a change and all related formulae and values change and result can be seen (1)</p> <p>Danger of making the boat (1) without testing – may sink (1)</p> <p>Too long to have to rebuild if it does not work (1) can create and test in model first decreasing time (1)</p> <p>Use of variables and constants (1) allows entire model to be changed by changing one value (1)</p> <p>Cheaper to build computer models (1) than many manual ones (1)</p> <p>Model can be backed up (1) if original lost, a copy (1)</p>	<b>[4]</b>

Question		Gd	Expected Answer	Mks
	(b)		<p><b>Describe the terms worksheets, cells and ranges and give an example of how they would be used in the accounts spreadsheet.</b></p> <p>2 marks for each, description for 1 mark, example of use for 2nd:</p> <p><b>Worksheets</b> Collection of sheets/holds data on similar topics (1) Collection of cells/rows and columns (1) Example: different months put into separate worksheets – collection is the year (1)</p> <p><b>Cells</b> Individual box/contains text, number, formula, function/intersection of row and column (1) Example: holds name of month (1)</p> <p><b>Ranges</b> Collection of cells (1) Example: All expenditure for a month (1)</p>	[6]
12	(a)		<p><b>Describe the following characteristics of documents and give an example of how each would be used by the company.</b></p> <p>2 marks per characteristic, 1 for description, 2nd for example of how used in Header - technically. should be context:</p> <p><b>Header</b> Placed at top of every page of document (1) Example: contains document reference for internal policies/address of company on letters to customers (1)</p> <p><b>Paragraph</b> Section of text with carriage return at end (1) Example: used to introduce new tour in a letter to customers (1)</p> <p><b>Frame</b> Independent area of the page/box on the page (1) Example: holds company logo (1)</p>	[6]
	(b)		<p><b>Identify the steps, in order, involved in creating a mail merge.</b></p> <p>3 from:</p> <p>Create data source (1)/Create letter (1) Link data source (1) Insert merge fields FROM data source (1) Check merge fields with data/preview (1) Complete merge (1)</p>	[3]

Question		Gd	Expected Answer	Mks
	(c)		<p><b>Describe two advantages of using mail merge for producing the letters to customers.</b>            2 from, 1st for identification, 2nd for description/            exemplification/example:</p> <p>Allows one letter to be created and the rest automatically generate (1) faster to produce mass mailing (1)            Only one letter needs to be error checked (1) less chances of mistakes (1)            Data source can be reused/used for different purposes (1) time saving (1)            Data source only needs checking for accuracy once (1) letters go to correct places (1)</p>	<b>[4]</b>
13			<p><b>Give reasons why the company needs a house style for its documents and presentations.</b></p> <p>To create recognition in its customers (1) by always using same logo/colour on all its communications (1)            To ensure all documents contain the required information (1) nothing is left out/data is in the same place (1)            To allow pre printed paper to be used (1) so text does not cover logo/footer (1)            Consistency amongst the documents (1) different people can work on the same document (1)            Teams of people can work on the same document (1) when comes together no formatting required (1)</p>	<b>[4]</b>

Question		Expected Answer
14		<b>Discuss possible future developments in ICT and their impact on transport in the UK.</b> It is a banded response, with L, M and H and a mark for a conclusion giving a total of 11.
8-11	High	The candidate is able to discuss clearly the impacts and consequences. Candidates will show a detailed level of understanding and be able to explain in detail both the impacts <b>and</b> 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.  The information will be presented in a fluent and well structured manner. Subject specific terminology will be used accurately.
4-7	Medium	The candidate is able to explain superficially the impact(s) and consequences(s).  Candidates will show a limited (some) understanding and be able explain, in reasonable detail, at least one impact <b>and</b> one consequence. Discussion though informed, may stray from the point but specific knowledge will be evident. The information will be well presented and some subject specific terminology will be used.
1-3	Low	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.

Impacts and consequences may include:

Booking systems to place bookings for trains and cars, make sure you have a ticket before travelling, personalised route planning means travel companies know how many on each train/bus and only need to provide transport for that number – reduced expenditure on running empty buses/trains and all those that do run, everyone has a seat. Less pollution as they can be environmentally friendly, less cars/busses in the city centres less need to repair the roads as weight of vehicles is lighter, those that still need to drive can get to their destination quicker.

Car Trains – ICT to monitor distance to car in front, allows vehicles to travel close together and faster meaning that individuals get to their destination faster and less stressed, more cars can travel on the same amount of roads meaning that less roads will need to be built.

Malfunction in one of the vehicles can cause a large accident as there is likely to be more vehicles involved.

Less accidents and vehicles have monitoring systems and can react faster than individuals meaning cars can travel faster and there will be less accidents on the road.

# Grade Thresholds

Advanced GCE ICT, H117  
January 2009 Examination Series

## Unit Threshold Marks

Unit		Maximum Mark	A	B	C	D	E	U
G061	Raw	120	77	68	59	50	42	0
	UMS	120	96	84	72	60	48	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		No	Aggregation	in	January		0

## XXXX candidates aggregated this series

For a description of how UMS marks are calculated see:

[http://www.ocr.org.uk/learners/ums\\_results.html](http://www.ocr.org.uk/learners/ums_results.html)

Statistics are correct at the time of publication.

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