Rewarding Learning

ADVANCED SUBSIDIARY (AS)
General Certificate of Education
January 2013

Information and Communication Technology

Assessment Unit AS 1

assessing

Module 1: Components of ICT

[AW111]

THURSDAY 17 JANUARY, MORNING

MARK SCHEME

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			AVAILABLE MARKS
1	(a)	Data may have been transcribed inaccurately from the claims form . . . due to illegible handwriting [1] for each of **two** points The database software may contain errors . . . resulting in incorrect data being held in the database [1] for each of **two** points The data may be out of date . . . due to people changing address [1] for each of **two** points A guest may have filled in the form incompletely Example: a line of the address missing [1] for each of **two** points [2] for each of **three** reasons [6]	
	(b)	<u>A direct data source</u> A data source designed and used for a specific purpose The claims forms are designed to gather details about expenses [1] for each of **two** points <u>An indirect data source</u> A data source designed for one purpose . . . but subsequently used for a different purpose Data from the claims forms are used to generate an invitation list [1] for each of **three** points [5]	
	(c)	<u>Benefit</u> The data is immediately available . . . so time/money does not have to be spent collecting it [1] for each of **two** points <u>Drawback</u> The data may not be totally relevant for the new purpose . . . as it was designed for another purpose [1] for each of **two** points Additional processing may be required . . . since the source may contain additional data/data in a different format [2] for one drawback [4]	15
2	(a)	<u>Data</u> Data consists of raw facts and figures Example: 34568 on its own is just a sequence of digits [1] for each of **two** points <u>Information</u> Data given meaning or context Example: 34568 is Black's CustomerID [1] for each of **two** points [4]	
	(b)	It is a key field . . . which uniquely identifies a particular customer . . . which provides a link between tables [1] for each of **two** points [2]	

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			AVAILABLE MARKS
(c)	Double entry The data is entered twice and the system checks that both versions match [1] for each of **two** points Proof-reading The person inputting the data reads over it carefully to ensure that the data is entered as intended [1] for each of **two** points	[4]	
(d)	**(i)** A transposition error has occurred Two digits have been entered the wrong way round [1] for each of **two** points	[2]	
	(ii) The check digit was calculated from each of the other digits . . . using a weighting . . . based on the position of each digit The check digit will be automatically . . . re-calculated when the incorrect CustomerID is entered Maximum [3] The calculation will produce a different check digit because two digits have changed places [1] for each of **four** points	[4]	
(e)	Barcode reader The barcode reader contains a laser . . . which scans the barcode . . . which is a sequence of parallel lines The laser is reflected off the dark lines [1] for each of **three** points Laser printer The printer receives a stream of bits representing the page to be printed Electronic circuitry inside the printer converts this data into the image/page to be printed A laser beam scans back and forth across a drum inside the printer . . . building up a pattern of static electricity This is used to attract toner onto the paper to create the image/page A fuser unit bonds the toner to the paper [1] for each of **three** points	[6]	22
3 **(a)**	ALU Performs calculations . . . such as addition/subtraction/multiplication/division To perform Boolean/AND/OR operations To perform shift operations [1] for each of **two** points Control unit Directs the flow/sends a series of commands The flow of program instructions . . . including jumps/loops . . . and data . . . in and out of memory . . . in and out of registers Fetches and decodes instructions [1] for each of **two** points		

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			AVAILABLE MARKS
	Cache memory To store the most recently accessed data . . . so that if it is required again . . . it can be retrieved in less time [1] for each of **two** points	[6]	
(b)	Name Bus Star Composite [1] Description It consists of a single backbone cable . . . to which a number of star networks are each connected directly via their hubs Communication within a particular star is controlled by its hub Communication between different star networks is via the backbone There is a high level of traffic within each star There is a lower level of traffic on the bus connection [1] for each of **three** points	[4]	
(c) **(i)**	Meetings can be arranged ad hoc/at short notice Time is not wasted travelling There are no travelling costs A large number of people can participate without the need for a very large venue It is environmentally friendly [1] for each of **four** benefits	[4]	
(ii)	All participants could be added to an address book/contact list The participants will be selected from an address book/contacts list . . . and added using CC/BCC An attachment such as a document giving an agenda could be added The email could be marked urgent Automatic notification of the e-mail being read The date/time could be automatically inserted into the recipients' diaries A hyperlink could link to the website/automatic acceptance of invitations [1] for each of **six** points	[6]	
(d)	The ITU is a worldwide organisation/United Nations agency It coordinates governments and private organisations It regulates the use of the radio spectrum throughout the world It assigns communication satellite orbits It establishes standards for a range of communication systems It organises meetings and exhibitions [1] for each of **four** points	[4]	24

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AVAILABLE MARKS

4 **(a)** **(i)** Access to global market
. . . as buyers with Internet access can purchase products
[1] for each of **two** points

Sales 24/7
. . . as buyers can purchase products unrestricted by shop opening hours
[1] for each of **two** points

Greater e-communication with customers
. . . via e-mail, pop ups, online surveys, search engine referrals
[1] for each of **two** points

More effective use of multimedia
. . . interactive navigation/using multimedia
[1] for each of **two** points

[2] for each of **two** benefits [4]

(ii) The customer could use a search box
The customer would enter key words
. . . about the product being searched for
. . . and follow the links in the list of results
Alternatively, the customer could use hyperlinks
. . . or tabs on the website
. . . to navigate to the appropriate page
[1] for each of **four** points [4]

(iii) HTML is a pseudo programming language
HTML can be used to create and edit web pages
. . . set the properties of the web page
. . . using tags
. . . insert multimedia elements (text, images, sounds, moving video clips)
. . . edit the layout of a page
. . . using tags
. . . create style sheets for consistency of style on a number of web pages
. . . insert hyperlinks to navigate from one page to another
. . . insert frames to a page to split it into different areas
. . . include sections of program code to provide animation/interactivity
[1] for each of **four** points [4]

(b) **(i)** Data to be processed is grouped/held in bundles
. . . until a suitable quantity/processing time is reached
Then the entire batch is processed in one go
. . . usually at an 'off peak period'/overnight
All data undergoes the same processing
. . . without human intervention
Control languages or scripts can be used
[1] for each of **four** points [4]

(ii) An order will be processed immediately it is made
The stock level will be updated immediately
. . . before the next transaction takes place
The appropriate amount will be immediately debited from the customer's account
If there is not sufficient stock a purchase cannot be made

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				AVAILABLE MARKS
		If there are insufficient funds in the customer's account the purchase cannot be made [1] for each of **four** points	[4]	
	(c)	TCP/IP The IP layer responsibe for moving packets of data . . . from node to node The TCP layer is responsible for the correct delivery of packets . . . and reassessment packets at the destination [1] for each of **three** points		
		https used when the information being communicated is sensitive/ confidential such as credit/debit card details It uses encryption . . . for sensitive data . . . so that intercepted data is meaningless [1] for each of **three** points	[6]	26
5	**(a)**	Legal feasibility Will the proposed system comply with all relevant legislation . . . such as the DPA/CDPA? [1] for each of **two** points		
		Social feasibility What will the effect be on employees?/Will there be redundancies, retraining, relocation? What will the effect be on customer service? [1] for each of **two** points	[4]	
	(b)	Observation [1] (Representative) users of the system are observed . . . as they carry out their daily tasks [1] for each of **two** points		
		Questionnaire [1] (Representative) users complete a set of questions . . . which may be open or closed . . . to identify current processes/data [1] for each of **two** points		
		Interview [1] The users answer questions from the analyst/specialist . . . on a one-to-one basis The interview may be structured or unstructured [1] for each of **two** points		
		Document inspection [1] Samples of orders/invoices/reports are examined . . . to identify the inputs and outputs [1] for each of **two** points		
		[3] for each of **two** methods	[6]	

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			AVAILABLE MARKS
(c)	**(i)**	It will take a relatively long time to develop . . . as all stages of the life cycle must be completed [1] for each of **two** points It will be relatively expensive . . . as the full development costs must be met by the client [1] for each of **two** points [2] for each of **two** disadvantages [4]	
	(ii)	<u>Evolutionary prototyping</u> The prototype is continually refined until it meets the user requirements . . . whereupon it becomes the new system <u>Throwaway prototyping</u> The prototype is continually refined until the user requirements are identified . . . whereupon the system is developed from scratch using an alternative method [1] for each of **four** points [4]	
(d)		To write the program code . . . from the module specifications To test the code To debug the code To document the code To maintain the code [1] for each of **three** points [3]	
(e)		Software for which the copyright to source code . . . is in the public domain No licence is required to use the code Users can use/change/improve the software . . . and redistribute it modified or unmodified The software is usually developed in a public, collaborative manner [1] for each of **three** points [3]	
(f)		It aims to ensure the organisation can continue operating . . . after a natural disaster/disruption, such as flooding/earthquakes It identifies critical data . . . and specifies the backup and recovery method to be used It identifies critical data processing operations . . . and ensures key personnel . . . will continue to have access to the organisation's computer systems It may identify an alternative location where the organisation could operate until the threat/damage is over [1] for each of **four** points [4]	28
		Quality of written communication	5
		Total	**120**

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Quality of Written Communication (QWC) in GCE Mark Schemes.

AVAILABLE MARKS

The assessment of quality of written communication.

Marks are to be allocated to QWC in accordance with the following criteria.

Performance Level	Criteria	Marks
Threshold	Candidates spell, punctuate and use the rules of grammar with reasonable accuracy; they use a limited range of specialist terms appropriately.	0, 1
Intermediate	Candidates spell, punctuate and use the rules of grammar with considerable accuracy; they use a good range of specialist terms with facility.	2, 3
High	Candidates spell, punctuate and use the rules of grammar with almost faultless accuracy, deploying a range of grammatical constructions; they use a wide range of specialist terms adeptly and with precision.	4, 5

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