Rewarding Learning

ADVANCED SUBSIDIARY (AS)
General Certificate of Education
2015

Information and Communication Technology

Assessment Unit AS 1

assessing

Module 1: Components of ICT

[AP111]

TUESDAY 23 JUNE, MORNING

MARK SCHEME

General Marking Instructions

Introduction

Mark schemes are published to assist teachers and students in their preparation for examinations. Through the mark schemes teachers and students will be able to see what examiners are looking for in response to questions and exactly where the marks have been awarded. The publishing of the mark schemes may help to show that examiners are not concerned about finding out what a student does not know but rather with rewarding students for what they do know.

The Purpose of Mark Schemes

Examination papers are set and revised by teams of examiners and revisers appointed by the Council. The teams of examiners and revisers include experienced teachers who are familiar with the level and standards expected of students in schools and colleges.

The job of the examiners is to set the questions and the mark schemes; and the job of the revisers is to review the questions and mark schemes commenting on a large range of issues about which they must be satisfied before the question papers and mark schemes are finalised.

The questions and the mark schemes are developed in association with each other so that the issues of differentiation and positive achievement can be addressed right from the start. Mark schemes, therefore, are regarded as part of an integral process which begins with the setting of questions and ends with the marking of the examination.

The main purpose of the mark scheme is to provide a uniform basis for the marking process so that all the markers are following exactly the same instructions and making the same judgements in so far as this is possible. Before marking begins a standardising meeting is held where all the markers are briefed using the mark scheme and samples of the students' work in the form of scripts. Consideration is also given at this stage to any comments on the operational papers received from teachers and their organisations. During this meeting, and up to and including the end of the marking, there is provision for amendments to be made to the mark scheme. What is published represents this final form of the mark scheme.

It is important to recognise that in some cases there may well be other correct responses which are equally acceptable to those published: the mark scheme can only cover those responses which emerged in the examination. There may also be instances where certain judgements may have to be left to the experience of the examiner, for example, where there is no absolute correct response – all teachers will be familiar with making such judgements.

				AVAILABLE MARKS
1	**(a)**	A laser is reflected off the bars The different thicknesses are detected ... and converted to binary 3 × [1]	[3]	
	(b)	Data Raw facts/figures/data is unprocessed 0-123456-78-9 is just a sequence of digits/characters Information Data given a meaning/context/processed data 0-123456-78-9 is the ISBN of the book 4 × [1]	[4]	
	(c)	The check digit is calculated from the other digits ... using weightings/place values Each digit is multiplied by its weighting and these are totalled The total is divided by 11 and the remainder taken and subtracted from 11 If a transposition error occurs ... the weightings of two digits will change 6 × [1]	[6]	13
2	**(a)**	Moving the cursor about the screen/drawing/selecting menu options The cursor can be moved rapidly to any part of the screen/menu list instead of using arrow or tab keys 2 × [1]	[2]	
	(b)	A touch screen is an input **and** output device A stylus may be provided/a finger may be used The screen is covered by a membrane which is sensitive to pressure Alternatively, there is a line of infrared/light/lasers/sensors at the corners/sides of the screen The pressure of the user's finger is detected/the finger cuts the beams The x position/coordinate calculated and y position/coordinate calculated 5 × [1]	[5]	
	(c)	External disk drive/flash pen/DVD [1] Reason: portable, standard interface, suitable storage capacity [1]	[2]	9

				AVAILABLE MARKS
3	(a)	(i)	Advantages Will meet the exact needs of the users as it is designed specifically for the client Off the shelf software will be generic 2 × [1] Closer involvement with development team ... during system maintenance/training/installation 2 × [1] [4]	
		(ii)	Disadvantages Not available immediately as the complete system has to be developed from scratch Off the shelf is immediately available 2 × [1] Full development costs must be borne by the client ... instead of the costs being shared by a number of users 2 × [1] [4]	
	(b)		Payroll practices/procedures are standard ... and there are some fully-tested packages available off-the-shelf with readily available training and support 2 × [1] [2]	
	(c)		Application testing Performed by the developer System tested against system requirements Includes module/integration/system testing Test plans/schedule implemented Test data used/valid, invalid, extreme data Black box/white box testing 3 × [1] Acceptance testing Aims to check that the system meets the user requirements Tested by a group of end users/sample of end users ... using real data/real volumes of data Leads to 'sign off' stage 3 × [1] [6]	
	(d)		User guide Step by step instructions on how to use each function of the SW 2 × [1] Installation guide How to install the required HW and SW configuration 2 × [1] Problem shooting/FAQ section Common problems and their solution 2 × [1] [6]	22

			AVAILABLE MARKS
4	**(a)** To hold the stock control software/application ... while it is running 2 × [1] To hold stock data ... before it is saved/processed 2 × [1] To hold part of the O.S. ... which needs to be in memory 2 × [1]	[6]	
	(b) Holds the bootstrap/loader/BIOS ... permanently/so that it is available on power up 2 × [1]	[2]	
	(c) Transposition error Two characters/digits have been interchanged 2 × [1]	[2]	
	(d) Double entry [1] The employee keys in the data twice The system checks that both versions match 2 × [1] Proofreading [1] The user checks the input against the source document ... to ensure the entered data is as intended 2 × [1]	[6]	
	(e) Range check [1] A valid quantity might be less than 200, for example [1]	[2]	18

			AVAILABLE MARKS
5	**(a)** Bus Sending node places data on the bus The data travels along the bus ... in both directions Each node checks if the data is intended for it The recipient reads the data 3 × [1]		
	Ring Sending node sends data to the adjacent computer This node checks if the data is intended for it If it is not, the computer passes the data on to the next computer Data travels in one direction A token system is used 3 × [1]	[6]	
	(b) The hub ... of each of a number of star networks ... is connected directly ... to a single bus connection/backbone The level of traffic within each star network is high compared to the level of traffic between star networks 4 × [1]	[4]	
	(c) IP address A unique number which uniquely identifies an internet device Part of it identifies the network Part of it identifies the device It may be static or dynamic 3 × [1]		
	Gateway A gateway joins two networks ... that use different protocols It converts data to the appropriate format 3 × [1]		
	Proxy server Hold recently accessed web pages in cache memory Intercepts all requests into and out of the network Filters/monitors requests 3 × [1]	[9]	19

			AVAILABLE MARKS
6	**(a)**	A special document/form is used to collect the data This has specific areas/boxes representing the user's choices/answers/ selections which the user shades in/fills in The document is scanned using light ... and the positions of the user's answers/choices determined 4 × [1] [4]	
	(b)	The answers can be read electronically ... without the risk of human error 2 × [1] The answers can be read at electronic speeds ... reducing the processing time As it is multiple choice, each question has a finite number of responses Each can be allocated a box 2 × [1] [4] [2] for each of 2 reasons	
	(c)	Usernames and passwords [1] A username and password is allocated to each authorised user The username is unique The user is usually first given a default password The password can be created/changed/selected by the user Both are required for logging on 3 × [1] Access rights [1] Each authorised user is allocated specific access rights This controls what the user can do with files/data records Example: Read only allows the user to read a file but not modify it Rights are identified in an access table ... which is checked by the DBMS whenever a user requests access 3 × [1] Data encryption [1] Data is coded/translated ... before transmission ... by the application of a key/function/password On receipt the data is decrypted/restored to plain text Intercepted data is meaningless without possession of the key 3 × [1] [1] for name [3] for description [4] for each of two methods [8]	16

		AVAILABLE MARKS
7	**(a)** It is a (pseudo) programming language ... which defines the structure/layout of a web page It uses tags to ... insert multimedia/images/lists ... insert hyperlinks to other pages CSS may be used 4 × [1] [4]	
	(b) Processing takes place instantly ... so that the transaction being processed causes the database to be updated immediately ... before the next transaction 2 × [1] [2]	
	(c) Transactions are grouped/stored temporarily ... until a suitable quantity is available ... or a set time is reached All transactions undergo the same processing There is no need for human intervention It is usually performed during off peak periods 4 × [1] [4]	
	(d) PayPal acts as an intermediary between the buyer and the seller The customer and retailer must register their bank account details with PayPal PayPal hides the customer's financial details from the seller It offers buyers protection for their purchases in case of fraud 4 × [1] [4]	
	(e) HTTPS [1] This is a secure protocol ... which sets up a secure connection for a client/server It uses an extra layer of encrypted data ... which is used for authentication 3 × [1] [4]	18
	Quality of written communication	5
	Total	**120**

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