Rewarding Learning

ADVANCED SUBSIDIARY (AS)
General Certificate of Education
January 2014

Information and Communication Technology

Assessment Unit AS 1

assessing

Module 1: Components of ICT

[AP111]

FRIDAY 17 JANUARY, 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 the 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 the 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)**	The form is designed for a specific purpose . . . to gather details about the property [1] for each of two points The data collected by the form could be used for another purpose Example: the address could be used as part of a mail-shot for double glazing [1] for each of two points [4]	
	(b)	<u>Benefit</u> The data has already been collected This saves the time/expense of gathering the data [1] for each of two points <u>Drawback</u> The data may not been completely relevant for the required purpose . . . and may require additional processing [1] for each of two points [4]	
	(c)	Presence check [1] Description [1] The field value must exist/is required Length check [1] Description [1] The number of characters must be correct Type check [1] Description [1] The value must be a string, for example Range check [1] Description [1] The value must lie between two limits Format check [1] Description [1] The characters must match a picture or pre-set pattern Lookup table [1] Description [1] The value must already exist in a table/drop down list [2] for each of three checks [6]	
	(d)	To ensure that the data being entered is as intended . . . that it matches the source document [1] for each of two points [2]	
	(e)		

	1	2	3	4	3	
Weightings	5	4	3	2	1	[1]
Products	5	8	9	8	3	[1]
Total	33					[1]
Remainder (÷ 11)	0					[1]

The remainder is zero, hence the reference number is valid [1] [5] 21

			AVAILABLE MARKS
2	**(a)**	It is an input/output device It is used with a data projector It displays what the computer displays The whiteboard is sensitive to pressure/contact Input is via a stylus A GUI is used/icons can be selected or clicked/applications can be executed Notes/diagrams can be handwritten on the whiteboard . . . and saved/used with OCR [1] for each of four points [4]	
	(b)	It is re-writable It is portable It is non-volatile It uses the common USB connection It has a sufficient storage capacity [1] for each of three features [3]	
	(c)	The OMR form contains boxes/shapes Each box is in a specific position The user makes a mark in the boxes The completed forms are scanned using light The marks reflect less light/let less light pass through the paper The position of each is determined from a template [1] for each of four points [4]	
	(d)	It is a direct entry method . . . so there will be no transcription errors [1] for each of two points The completed tests can be scanned automatically . . . so a large number of forms can be processed at the same time/using batch processing [1] for each of two points [2] for each of two benefits [4]	
	(e)	To act as an interface between the HW/SW . . . and humans [1] for each of two points [2]	
	(f)	Allows multiple terminals/workstations/nodes . . . to access a <u>single</u> large computer system It appears each has exclusive use of the system The OS must manage/allocate/balance its resources . . . such as memory/processing/data requests . . . while optimising use of the processor The OS logs use of resources Time slicing/interrupts/priorities may be used [1] for each of four points [4]	21

			AVAILABLE MARKS
3	**(a)**	Bus network A node transmits its data via the backbone cable All nodes receive the data . . . but only the intended recipient reads the data [1] for each of three points Star network A node sends its data to the server/hub The server/hub identifies the intended recipient . . . and forwards the data directly to that node [1] for each of three points	[6]
	(b)	To enable different devices to communicate coherently Devices may be from different manufacturers Devices may differ in their transmission speeds/character sets/ error detecting methods Agreed standards/rules must be used [1] for each of four points	[4]
	(c)	Hub It connects devices in the network/segments of a network together . . . by sending data to the intended recipient A passive hub . . . sends the data to all nodes/segments An intelligent hub . . . monitors the data traffic/sends the data to the correct node/segment [1] for each of three points Proxy server It processes requests from users/clients for resources . . . such as files/web pages It uses caching to speed up access It may monitor/filter requests It may apply security controls/access controls/scan for viruses [1] for each of three points IP address It uniquely identifies a device . . . connected to the Internet/public network It consists of a number of parts . . . which identify the country/region/general location of the device It can be static . . . or dynamic [1] for each of three points	[9]
	(d)	It uses radio waves . . . to send information between two devices in close proximity to each other . . . which have been paired together It is a protocol/it defines the communication standard [1] for each of four points	[4]
	(e)	It provides a high bandwidth It consists of a large number of individual strands . . . each of which can transmit a number of frequencies It is difficult to intercept It is not subject to interference [1] for each of three points	[3]
			26

AVAILABLE MARKS

4 **(a)** Cells can contain labels, numbers, formatted content
Cells can contain formulae
. . . and functions to perform financial calculations
'What if' calculations can be performed
. . . to assist decision making
Graphs can be created
[1] for each of six points [6]

(b) Users may not keep passwords private
Users may choose obvious/weak passwords
Users may not change passwords regularly
Users may use the same password for a number of systems
[1] for each of three points [3]

(c) Each user will be allocated access rights
. . . to the patient records database
. . . according to their needs
Example of access right (Read/Write/Delete)
Appropriate example: Doctor may amend patient records/Appointments desk staff may look up patient records
The access rights are stored in a table
When a user attempts to access the database their access rights will be checked in the table
Each user has a username and password
[1] for each of four points [4]

(d) Health and Safety Act [1]
The Act specifies legal standards for computer equipment
Employees may receive damages for injuries caused through use of ICT equipment
. . . if the employer could have foreseen the risk but did nothing about it
[1] for each of three points

Computer Misuse Act [1]
It is illegal to access computer material without permission
. . . or to access materials with intent to commit or facilitate a crime
. . . or to modify materials without permission
[1] for each of three points

Data Protection Act [1]
The Act is designed to protect personal data stored on computers or in an organised paper filing system
. . . and gives legal rights to people who have information stored about them
It defines eight principles
[1] for each of three points

Copyright Designs and Patents Act [1]
The Act applies the concept of intellectual property/ownership to software
A licence is required for copyrighted software
It is illegal to copy unlicensed software
It is illegal to distribute unlicensed software
[1] for each of three points

[4] for each of two Acts [8]

			AVAILABLE MARKS
(e)	HTML is a programming language HTML code controls the appearance/layout of each web page It uses tags . . . to define the structure of the page(head/body/content) The page can contain text/images/multimedia . . . and hyperlinks/navigation buttons/menus CSS/templates may be used [1] for each of four points	[4]	25

5 **(a)** It is immediately available
The cost will be shared over many users
It should be properly tested
There should be support/training materials available
It should be possible to obtain reviews of the system
[1] for each of four benefits [4]

(b) Will the system be technically feasible?
Will the system be sociably feasible?
Will the system be legally feasible?
[1] for each of two benefits [2]

(c) The layout of data capture forms will be produced
The layout of the user interface will be produced
Queries and reports designed
Validation methods will be specified
Verification methods will be specified
The data structures will be created
Module specifications will be produced
The HW and SW will be specified
The system specification will be produced
[1] for each of four points [4]

(d) <u>Technical documentation</u>
The system specification/user requirements
Module specifications
DFDs
ERMs
Data dictionary
Gantt charts
Program listings
Test schedule/test data
HW & SW configuration
[1] for each of three points

<u>User documentation</u>
User guide/manual
The troubleshooting section/FAQs
Training materials – tutorials
Installation guide
HW/SW configuration
[1] for each of three points [6]

AVAILABLE MARKS

			AVAILABLE MARKS
(e)	Application testing Performed by the developer Software tested against its specification . . . using test data Includes system/unit/integrated testing [1] for each of three points Acceptance testing Performed by the end user . . . in a realistic environment/using real data The user reports back to the developer Any errors will have to be corrected . . . before the contract is complete [1] for each of three points	[6]	22
		QWC	5
		Total	**120**

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

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]