Rewarding Learning

ADVANCED SUBSIDIARY (AS)
General Certificate of Education
2014

Information and Communication Technology

Assessment Unit AS 1

assessing

Module 1: Components of ICT

[AP111]

MONDAY 9 JUNE, AFTERNOON

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.

1 **(a)** <u>Direct data source</u>
A data source designed and used for a specific purpose
The purpose of the application form is to gather details for the loyalty card/
reward customers with special offers
[1] for each of **two** points

<u>Indirect data source</u>
A data source used for a purpose other than its original purpose
The data from the application forms could be used for a mail shot to
advertise loans/car insurance/sold to a third party
[1] for each of **two** points [4]

(b) <u>Benefit</u>
The data should be completely relevant
... as the source has been designed for the specific purpose
[1] for each of **two** points

<u>Drawback</u>
The data source data collection document has to be designed/the data
has to be gathered and processed
This is time consuming/expensive
[1] for each of **two** points [4]

(c) Double entry [1]

Proofreading [1]

(d) <u>Type check</u>

<u>Field</u>   Town [1]
<u>Justification</u>   This field consists of text/letters/characters [1]

<u>Check digit</u>

<u>Field</u>   Customer number [1]
<u>Justification</u>   The check digit can be calculated from the numeric
                       digits using weightings [1]

<u>Format check</u>

<u>Field</u>   Post code [1]
<u>Justification</u>   A post code must followed a preset
                       pattern/syntax/picture [1] [6]   16

2 (a) Converts HTML code to display a web page [1]
Navigation buttons/refresh button/home page button/multiple tabs/
hyperlinks to other pages [1]
History/bookmarks [1]
Address bar to enter URL [1]
Search engine for search criteria [1]
User preferences can be set/accessibility options/plugins/
security settings [1] [4]

(b) Light (a laser) is passed over the newspaper cutting/a scanner is used
... converting its light and dark areas into binary/digital data
The OCR software can distinguish between types of content – text, tables
The OCR program matches any text elements
… with an internal library of characters, letters, numbers, spaces, etc.
[1] for each of **four** points [4]

(c) (i) The brightness/darkness can be altered
The contrast can be altered
The colour saturation/hue can be altered
The image can be cropped/straightened
Parts of the image can be copied/moved/cloned/blurred
Filters can be applied
[1] for each of **four** points [4]

(ii) <u>JPEG</u>
It uses image compression
... to reduce the file size
... at the possible expense of image quality/lossy compression
The degree of 'lossiness' can be varied
... to balance the file size against the quality of the image
[1] for each of **three** points

<u>Bitmap</u>
Each pixel in the image
... is represented using 8/16/24/32 bits (the colour depth)
All detail in the image is stored/no compression is used
... resulting in large file sizes
[1] for each of **three** points [6]   18

3 **(a)** <u>RAM</u>
To store data currently in use
... before it is saved
To store the current application
... temporarily
[1] for each of **three** points

<u>Cache memory</u>
To store the most recently accessed data
To store the most frequently accessed data
... so that it can be accessed again with faster transfer speed
[1] for each of **three** points   [6]

(b) The hard disk contains a stack of platters/disks
... and a set of read/write heads
Data is written magnetically
... in sectors
... in tracks
... in clusters
[1] for each of **five** points   [5]

(c) **(i)** Allows a single user to perform more than one task at a time
To run more than one application program at a time/Example: have
a browser and word processing SW open at the same time
The OS must keep track of where the user is in these tasks
... and enable them to go from one to the other without losing data
The OS allocates storage and other resources accordingly
[1] for each of **four** points   [4]

(ii) Application software performs specific tasks for the user/performs
everyday tasks
These may be generic such as word processing/spreadsheets
... or special purpose such as payroll systems
[1] for each of **three** points   [3]

(iii) The software may not be developed consistently/
there may be different versions
... because it is developed collaboratively
[1] for each of **two** points

It may not be widely used
Therefore third party peripherals/software
may not be compatible
[1] for each of **two** points

There may be restricted resources available for development
Therefore it may not be as robust/it may not be fully tested
[1] for each of **two** points   [4]

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4 (a) Multiple nodes are directly connected, each via its own cable
    ... to the hub/server
    ... which is in charge of communication
A node sends data to the hub
The hub determines the recipient
The hub forwards the data to the recipient
[1] for each of **four** points   [4]

(b) <u>Star</u>
Communication between the hub and the cable's single node will be affected
No other communication will be affected
[1] for each of **two** points

<u>Bus</u>
If the backbone fails communication between all/most nodes will be affected
If the cable connecting a node to the backbone fails, only communication
to/from that node will be affected
[1] for each of **two** points   [4]

(c) <u>IP address</u>
A unique number
... assigned to any device/computer connected to the Internet
[1] for each of **two** points

<u>Router</u>
Connects a number of networks together
Handles incoming and outgoing traffic
... using the IP addresses of senders and receivers
Selects the most efficient route
[1] for each of **two** points

<u>Proxy server</u>
Intercepts all requests to the Internet
... to see if it can meet the request
If not, it forwards the request to the Internet
It stores recently used pages in (cache) memory
The proxy server may be used to filter requests
It hides the IP address
[1] for each of **two** points
            [6]

(d) An intranet is a private network
... used by an organisation
... to restrict/control access
... to authorised users
[1] for each of **three** points   [3]   17

5 (a) The system should meet the exact requirements of the user
... as it is designed specifically for them
[1] for each of **two** points

The developers will be "on-site"
... to assist with implementation/training
[1] for each of **two** points

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

(b) (i) <u>User requirements stage</u>
The system analyst
... identifies the functionality required of the system
... from the end-users
Fact finding methods are used
[1] for each of **three** points

<u>Implementation</u>
The system is developed
... from the technical specification
Software/code produced
Installation of the new system
Testing of the overall system
Staff training
Changeover
Data conversion
[1] for each of **three** points   [6]

(ii) <u>Project manager</u>
To oversee/manage the development of the new system
To plan/schedule the project/set time scales
To manage the budget
To allocate resources – human, hardware, software
To monitor progress
To identify/respond to risk/bottlenecks
To report to management/client
[1] for each of **three** points

<u>End user</u>
To help the analyst establish the user requirements
To participate in acceptance testing
To use the system on a daily basis
... so that they can participate in the system review
[1] for each of **three** points   [6]

(c) (i) System requirements/user requirements
Data model/DFDs/ERDs/normalisation
IOdesign/report specifications/query designs
Code listings
Test plans/schedule/data/results
Detailed HW and SW configuration
[1] for each of **three** components   [3]

(ii) User documentation [1]
It contains an overview of system/introduction to system
The HW and SW
... installation instructions
... a user guide
... troubleshooting section/FAQ section
... training materials
backup procedures/maintenance procedures
[1] for each of **four** points [5]

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6 **(a)** <u>https</u>
Used when the information being communicated is sensitive/confidential
... such as credit/debit card details/passwords
It uses encryption
... for the sensitive/confidential data
... so that intercepted data is meaningless
[1] for each of **four** points

<u>PayPal</u>
PayPal is used to send and receive money online/over the Internet
It acts as an intermediary between buyer and seller/third party
... so that most of the buyer's details are withheld from the seller
The buyer logs on using an email address and password/PayPal account
A user is notified by email if a payment is made into their account
[1] for each of **four** points [8]

(b) <u>Logic bomb</u>
A logic bomb lies dormant
... until a specific piece of program code is activated
A typical activator for a logic bomb is a date
The logic bomb checks the system date and does nothing until a
pre-programmed date and time is reached
A logic bomb may wait for a certain message from its programmer before
executing its code
[1] for each of **three** points

<u>Macro virus</u>
A macro virus is written in a macro programming language
... which is a normal part of an application such as a word processor/
spreadsheet
A macro enables a short program to be embedded in a document/file
... and run automatically when the document is opened
The application may be infected so that all future documents created in the
application are infected
[1] for each of **three** points [6]

(c) It will describe how the organisation will continue to function after a natural
disaster
It will identify the main risks to the organisation from possible disasters
It will identify the key data
... and key personnel
It will specify the procedures to be performed if a disaster occurs
...and how the company's data can be restored when the disaster is over
Alternative premises/permanent standby staff may be used
[1] for each of **four** points [4]

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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

[5]

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Total   **120**