

**MARK SCHEME for the October/November 2009 question paper
for the guidance of teachers**

9713 APPLIED ICT

9713/03

Paper 3 (Written B), maximum raw mark 80

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

- CIE will not enter into discussions or correspondence in connection with these mark schemes.

CIE is publishing the mark schemes for the October/November 2009 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.



Page 2	Mark Scheme: Teachers' version	Syllabus	Paper
	GCE A/AS LEVEL – October/November 2009	9713	03

- 1 (a) **Any three points from:**
files are compressed MP3 file is 1/10th the size of a normal "song" file
developments in CODECs
removes high frequency information
however: higher the bit rate, larger the file, less can be stored but music quality is better
more compression results in lower quality sound [3]
- (b) **Any four from:**
possible to download files from **the Internet**
much **more** material on the Internet
torrent type of usage more prevalent
MP3/4 players/flash memory cards are more available/have larger capacities/cheaper hard disk storage
video on demand being promoted by service providers
Blue ray technology with more information/higher quality
MP3/I-Pod docking stations have replaced CD players
combined mobile phone/MP3/movie players [4]
- (c) (i) **Any four points from (max 3 advantages and 3 disadvantages):**
advantages
more programmes available
not as affected by atmospheric conditions
high definition sound/picture
better format for compression
better quality recordings possible
more sophisticated programme guide

disadvantages
can break up (pixelate) if signal is interrupted
time lag
requires special electronic decoders
hardware can be more expensive [4]
- (ii) **Any two points from:**
use of satellite dishes rather than an aerial
high speed cable to UBR/service
LNB to reduce received frequencies
need for digital receiver/decoders connected to TV [2]

Page 3	Mark Scheme: Teachers' version	Syllabus	Paper
	GCE A/AS LEVEL – October/November 2009	9713	03

2 (a) **One mark for each problem (max of 3) and one mark for each solution (max of 3):**

problems

computer fraud
 money taken from **Daniel's** accounts
 stolen **customer** ids
 fraudulent orders placed by hackers
 viruses/trojan inserted into web site
 hacking into systems
 deleting/amending and distributing personal data
 "spyware" on computer system
 tracking sites logging customer interests

solution

locked rooms/physical security
 firewalls configured to prevent unauthorised access
 digital certification for transactions
 encryption of customer data transferred
 anti-virus software kept up to date
 user ids and passwords
 anti-pop up software
 anti-spyware software
 monitoring web traffic
 authentication techniques

[6]

(b) Any three points from:

use of emails and attachments
 use of web forms on his website to answer queries
 on line chatting/instant messaging/webcams for a webcast/forum
 use of VoIP technology
 mail merge email newsletter
 Daniel maintains a blog/twitter site

[3]

(c) Use of any four of the following:

use of scanners to import images of his products
 use of digital cameras to take photographs of his products
 web authoring packages to create his web site
 DTP/word processors to create text
 photo image editing of images for the web site
 use thumbnails to link to full sized image/fit a number of images on one page
 use of library of designs
 use of clip art to save time
 photo galleries to save time

[4]

(d) One mark for device and one mark for reason:

dot matrix printer
 this uses physical pressure/impact
 impact printer goes through several pages

[2]

Page 4	Mark Scheme: Teachers' version	Syllabus	Paper
	GCE A/AS LEVEL – October/November 2009	9713	03

- 3 (a) **Any two points from:**
 can work anywhere in the building
 more convenient mode of working
 safer – no trailing wires
 can use away from home – e.g. airports
 less expensive way to set up a LAN [2]
- (b) **Any four points from:**
 an increase in RSI risk due to long hours on computer
 vision and posture problems/back ache due to incorrect use of system
 electrocution risk with mains leads
 concerns with long term exposure to wifi
 fire risks due to laptop overheating
 trip hazards due to any cables/bag [4]
- 4 (a) **Any four (3 maximum for each) points from:**
Company:
 reduces (booking) expenses:
 no need to print out tickets
 no need for postage
 do not so many offices/staff to issue tickets
 eliminates loss of important documents
 can't be lost, stolen or mislaid
- Customer:
 simplifies and speeds up check-in at airports
 easier to buy tickets and arrange seat
 simpler for passengers – all that is required is a form of id [4]
- (b) **Any two points from:**
 security features when ticket issued e.g. customer must provide passport number
 need proof of ID (e.g. passport)
 need to provide customer details when using e-ticket e.g. customer last name [2]
- (c) **Any four points from:**
 unemployment for clerical workers
 new employment in technical work
 shorter working times/more flexible working for staff
 less time spent queuing at check-in/buying tickets
 no need to wait for tickets to arrive
 less time spent in the process of checking in
 e-tickets have encouraged more travellers benefiting certain societies/countries
 increases digital divide as customers need Internet access [4]

Page 5	Mark Scheme: Teachers' version	Syllabus	Paper
	GCE A/AS LEVEL – October/November 2009	9713	03

- 5 (a) **Any three points from:**
 safer than flying the real thing
 can try out manoeuvres without risk
 can try out various scenarios to see how the pilot reacts
 pilot can be automatically assessed
 less expensive to run once set up
 a scenario can be repeated as often as required [3]
- (b) **Any six points from:**
 pilot makes changes to controls
 sensors give feedback to system
 information from sensors is compared to stored data
 computer sends signals to motors to change position etc.
 use of ADC **and** DAC interfaces
 system sounds warning sounds/buzzers
 system updates displays for pilot
 automatically records data during training [6]
- 6 **Any five points from:**
 system asks questions
 user responds with answers
 future questions are dependent on answers received
 searches the knowledge base to find a match with input
 using the inference engine to match...
 according to rules base
 most likely outcome is given ...
 ... with % accuracy/probability [5]
- 7 **Any seven points from (each point needs expansion and reference to scenario, rather than generic responses, to gain the mark)**
 analysis
 research similar systems, establish I/O, look at existing system, observation/questionnaires/
 interviews of users/managers
 design
 hardware and software specification for this situation, I/O layouts, establish suitable
 validation rules, create suitable file structures
 developing
 create data structures, amend structures and program modules in light of testing
 testing
 test each module with normal/live data, test each module with abnormal and extreme data,
 test system with all modules connected
 implementation
 parallel runs, direct changeover, phased implementation, pilot run
 documentation
 technical documentation (test plans and runs, purpose, listings, flowcharts, etc.) and user
 documentation (guide to software and hardware that makes up the system)
 evaluation
 evaluate system with regards to efficiency, evaluate system with regards to ease of use,
 compare to user requirements etc. [7]

Page 6	Mark Scheme: Teachers' version	Syllabus	Paper
	GCE A/AS LEVEL – October/November 2009	9713	03

- 8 (a) **Any four points from:**
 send out questionnaires/surveys to target groups
 carry out personal interviewing
 carry out telephone surveys
 web sites – ask views and collect information on line
 store all the information on a database ...
 ... and later analyse the information
 produce a report showing results of surveys [4]
- (b) **Any four from:**
 previous results of research stored ...
 ... can cross match results and save time and money
 results from tests on certain drugs stored
 avoids need to repeat expensive tests
 can predict likely outcome of doing certain tests on drugs
 computer can automatically control and monitor mixing of ingredients
 computer model can be used to predict effects of new drug
 storage of analytical results/can check analysis against criteria
 do statistical analysis of results [4]
- 9 **Any seven points described from:**
 webcams to **capture** images
 microphones and loudspeakers to hear others
large computer screens to **see** captured images
 high speed internet connections/routers for data transmission
 high speed processor to produce good quality images/smooth motion
 compression software to reduce data transmitted
 communications software to establish link between sites/protocol
 sometimes sound/picture quality not good due to delay in signals
 requirement for high bandwidth to avoid video breakup
 time difference can be a problem
 link to server using password and ID
 software to cover security issues (hacking, etc.) [7]