UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Advanced Subsidiary Level and GCE Advanced Level

MARK SCHEME for the October/November 2008 question paper

9713 APPLIED ICT

9713/01　　　　Paper 1 (Written A), 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.

All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

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 2008 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

1 (a) **Three** from:
Open word processor/DTP
Type up story on laptop
Import images from digital camera/phone
Connect laptop to internet
Connect to internet using mobile phone/WIFI hotspot/hotel connection
Email story to editor's office   [3]

   (b) **Two** from:
Layout of every page is designed
Appropriate font and font size chosen
Format chosen/leading/kerning/widows and orphans
A digital "printer's file" is created for the entire document
Transfer printers file by burning a CD/or over a network
Film negatives are produced from digital files
Light is allowed to pass through the film negatives to expose the printing plate
The image is transferred from the negative to the plate   [2]

   (c) **Three** from:
Using satellite equipment
(Electronic) Signals are used to send the pages (up to satellite)
Which broadcasts the signal to each printing plant
Signal is received by the antenna and passed over to Computer-to-Plate equipment
The digital signal is changed to a laser beam
A new plate is created
The plate is then loaded on to the printing press   [3]

2 (a) **Four** from, customer data must be:
Kept secure
Fairly and lawfully processed
Processed for limited purposes
Adequate, relevant and not excessive
Accurate and up to date
Not kept longer than necessary
Processed in accordance with the individual's rights
Not transferred to countries outside that country unless it has adequate protection for the
individual interests of the individual or another person   [4]

   (b) **Three** from:
Employees, who are not supposed to, could see the information
Data might be inaccurate/not up to date and e.g. products could be sent to the wrong
address
It could be possible to build up detailed files on people without their knowledge or permission
Data could be sold to other companies without the data subject's permission
Data could be used for purposes other than those it was collected for   [3]

(c) **Six** from:
Increased unemployment for some existing workers
Increased employment for technical staff
Some checkout operators will have a more menial role – in the warehouse
Some checkout operators will be promoted as office staff
Increased employment for van drivers
Some workers may have to/will have the opportunity – to go part time
There will be the opportunity to job share
There will be flexible working hours
Technical staff/technicians may be able to work from home
Some workers will need to be retrained   [6]

3 (a) **Four** from:
The robot stores the process in its memory
Light sensor detects presence of hardware
Processor initiates process
Motors move arm into position
Grabber is used to hold hardware
Microprocessor uses data from pressure sensor to ensure grip is not too tight
Motors move arm to lift weight onto lorry
The robot uses sensors to make sure it moves just the right amount   [4]

(b) **Four** from:
After initial expenditure it's cheaper to operate robots/lower running costs compared to
paying a human
They can work for long periods of time on one task
They work continuously as they don't strike/take holidays/have shift changes
Health issues reduced for workers
Safety issues reduced for workers
Can lift heavier objects than a human/more than one human may be needed to lift a box
Greater accuracy than humans
Consistent standard as they don't get tired   [4]

(c) **Two** from:
Sensors are needed to monitor temperature (continuously)
Microprocessor compares the temperature with a preset value/range
Depending on result microprocessor causes the fan motor to speed up or slow down/fan
motor switched on or off   [2]

4 (a) **Three** from descriptions of:
Test each module
Using live data/normal data/data which is acceptable/valid
Using data outside the range/wrong type/either end of the range
Test whole system/use students to test CAL system   [3]

(b) **Six** from:
The teacher is in control of the whole learning process
Computers make lessons more interesting/entertaining
Computers make lessons more varied
Internet allows students to investigate ideas
Internet allows students to carry out research
Neatness of students work makes it easier for teacher to mark
Students can work at own pace
Teacher can use internet for lesson planning
Teacher can use internet in lessons to control learning outcomes
ICT provides more interactive learning environment
ICT resources can help students with special needs
Teachers have more varied teaching aids
Teachers can use computer based tests
Teachers can use spreadsheets to record test scores
Easier to compare class/students performance
Tests can be computer-marked
Computers can provide feedback on tests   [6]

(c) Systems documentation – **one** mark
Two from:
Results of systems analysis
What is expected of the system
Overall design decisions
Test plan and test data
Systems flowcharts

Program documentation – **one** mark
Two from:
Description of the software
Purpose of the software
Input/output data formats
File structures
Program flowcharts/algorithm
Program listing
Notes to assist future modifications   [6]

(d) Magnetic disc – **one** mark
Four from:
Files will be held in an indexed sequential manner
The index will allow for direct access
Needed when accessing individual student records quickly
When a student's details are required by a teacher
The records will be held sequentially to allow for serial access
Used to process all records one after the other when producing class lists [5]

5 (a) **Five** from:
   DVD-RAM
   - 5 to 10 Gb memory/not as great as Blu-ray but larger than some memory sticks
   - Used for recording videos and computer data
   - Limited size means limited HD video use

   Blu-ray
   - Capacities of 25Gb, 50Gb and 100Gb/largest storage capacity of the three
   - Used for storing films 25Gb equates to 2 hrs HDTV, 13hrs standard definition TV
   - It is possible to playback video on a disc while simultaneously recording HD video
   - Can be used for storage of PC data

   Memory sticks/pen drives
   - Can store up to many Gb
   - Used to transport files and backup data from computer to computer

   Reasoned conclusion – **one** mark   [6]

   (b) **Six** from:
   Phone conferencing
   Everyone agrees a time
   The conference is booked
   At the agreed time everyone dials a common number
   Enters a PIN to join conference
   Everyone can hear but not see everyone else
   Need a touchtone phone
   Phones may be connected to a bridge

   Video conferencing
   Need computer, headset/microphone, (speakers), video/web cam
   Everyone logs onto internet
   Run video conferencing software
   Everyone can see and hear everyone else   [6]

   (c) **Three** from:
   Appointments are easier to organise
   Reminders of appointments can be set automatically
   Makes it easier to retrieve/phone client phone numbers
   Use project development software to keep plan of action for each client
   Can spread out appointments throughout the week
   Can keep in touch with clients/other workers using email
   Can normally access emails wherever they are   [3]

(d) Six from:

Benefits for firm

Don't have to spend so much on air conditioning/heating

Don't have to rent or build large offices/can build or rent smaller offices

Don't have to pay travelling expenses for conferences (video conferences will be used)

Greater income from:

Increased productivity due to more content workforce

Improved motivation

Skills retention

Flexible staffing

Improved customer service.

Benefits for accountants

Don't have to spend money on fuel/transport travelling to work

Time is not wasted travelling/more free time because of less travelling

Don't have the stress of travelling to work in rush hour

Can spend more time with their family/can arrange their work schedule to suit themselves

Drawbacks for accountants

Miss the personal contact with colleagues/more difficult to discuss ideas with colleagues

Home based telework is inappropriate for some people

Many homes are not well equipped for some kinds of telework

Drawbacks for firm

Difficult to keep track of projects/workers

Have to subsidise workers computers

Some companies have management systems and cultures that are not (yet) well adapted to the flexibility

Not all tasks are best performed in a self managing environment

Reasoned conclusion – **one** mark [7]

(e) Three from:

They could advertise on the internet using a website

They could use a large screen multimedia presentation

They could get posters printed

Produce their own flyers

They could use emails

Three from:

Customers would have to have a computer and be connected to the internet to see websites/ don't need to for presentations/posters/flyers

Large initial cost for website/can be expensive to maintain/low cost for other methods

Can't be certain everybody in a particular area would see advertising unless using flyers

Posters/presentations can only be seen in a limited number of places

Flyers might seem old fashioned/presentations/websites create better impression with customers

Flyers/posters are not interactive, presentations/websites have multimedia features

Websites and presentations are easier to update as you don't have to reprint a lot of copies

A much wider area/potential customer base is covered by using a website

Emails may be mistaken for spam

Reasoned conclusion – **one** mark [7]