

## MARK SCHEME for the October/November 2008 question paper

<b>9713 APPLIED ICT</b> 9713/01      Paper 1 (Written A), maximum raw mark 80
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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.

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- 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]

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**(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]

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**(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]

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**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]

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**(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]