

**MARK SCHEME for the October/November 2011 question paper  
for the guidance of teachers**

**9713 APPLIED ICT**

**9713/13**

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, which would have considered the acceptability of alternative answers.

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- 1 (a) **Two** from:  
Continuous process control  
Used in processes which appear to be unending  
Paper machine would have continuous output of paper onto rolls  
Manufacturing processes are used to produce very large quantities of product per year [2]
- (b) (i) **Three** from:  
Type up/edit story using word processor/DTP  
Type up story using laptop  
Import images from digital camera/phone  
Edit images using picture editing software  
If using laptop, connect Laptop to Internet using mobile phone/WIFI hotspot/dongle  
Email story to editor's office [3]
- (ii) **Two** from:  
Editorial staff (collect and) edit the stories to remove mistakes  
Page layout of the newspaper is created...  
...typesetting/fonts and font size chosen  
Proofread for accuracy. [2]
- (c) (i) **Two** from:  
Electronic signals are used to send the pages up to a satellite  
Which transmits the signal to the printing plant  
Signal is received by the antenna/receiver...  
...and passed over to Computer-to-Plate equipment [2]
- (ii) **Two** from:  
The digital signal is changed to a laser beam  
A new plate is created  
The plate is then loaded on to the printing press [2]
- 2 (a) **Two** from:  
Is performed by the computer asking questions and recording responses  
A total mark is calculated/given by the computer  
The teacher and student are informed of the scores by the computer system  
Computer offers no suggestions for improvement [2]
- (b) **Two** from:  
The computer asks questions and records responses  
Computer uses responses to specific questions...  
...to form a judgement on specific progress  
The program normally outputs areas for improvement [2]

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- 3 Five from:**
- Agree a date and time
  - Send a reminder shortly before start...  
...including access to password/PIN
  - Ensure webcam, microphone, speakers ready
  - Carry out tests on microphone and speakers/headphones
  - Adjust webcam so teacher can be seen
  - Log on to the system/Internet
  - Ensure video conferencing software/internet connection is running properly/installed
  - Create room(s)/environment
  - Enter virtual room
  - Communicate by speaking into a microphone
  - Looking at the webcam
  - Load/examine/share documents using appropriate software
  - Discuss modifications or additions to the documents
  - Use keyboard/mouse to physically make the amendments
- [5]

- 4 two from:**
- Files will be held in an indexed sequential manner
  - Table of indexes is stored
  - The index will allow for direct access...  
...needed when accessing individual worker records quickly
  - When a worker's details are required by human resources staff
  - The records will be held sequentially to allow for serial access...  
...used to process all records one after the other
  - When producing payslips
- [4]

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5 (a) Five from:

- Using collected information/results of observation to see exactly what job each worker is doing
- Jasbir will have interviewed payroll workers/manager to find their requirements
- Will have used the DFD to come to a conclusion about the user/system requirements
- From user requirements he will have produced a requirements specification...
  - ...list of the features of the system that is required
- Identify general requirements such as what the user wants the overall system to do
- Identify specific requirements
- Example of specific requirements
- Results of examining documents will help identify required hardware/software
- Results of observation will help identify required hardware/software

[5]

(b) One mark for each item and one mark for each example of factors

Item – Specifying the required hardware and software

Factor – **one** from:

- the volume of data determines the choice of output devices + example
- the order that data will be output affects the choice of storage devices + example
- choice of software may depend on size of organisation + example
- choice of software will be influenced by required output

Item – Designing data collection forms/screen layouts

Factor – **one** from:

- the user requirements influences the format + example
- the output required from system influences the design + example
- file structures affect the design + example

Item – Designing report layouts/screen displays

Factor –

- the content and presentation of report layouts/screen displays depend on the requirements of the users + example

Item – Designing validation routines

Factor – **one** from:

- the form of input affects these + example
- the file structure affects these + example

Item – Designing the required data/file structures/programming specifications

Factor – **one** from:

- the data structures/programming depend on the types of processing + example
- the file structure depends on the input and output structures + example

[8]

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(c) **One** mark for each description and **one** mark for each advantage

Parallel running – involves running the old system alongside the new system.

Advantage – **One** from:

- If there is a problem with the new system still have the old system as a backup unlike direct changeover
- Workers can be trained gradually unlike direct changeover

Phased implementation – involves implementing one part of the new system whilst other parts continue using old system

Advantage – **One** from:

- Cheaper than parallel running as you don't employ two complete sets of workers
- If there is a problem with the new system still have bulk of old system to fall back on unlike direct changeover.
- Workers can be trained gradually unlike direct changeover

Pilot running – involves running new system in one branch of the organisation whilst old system still operates in other branches

Advantage – **One** from:

- Cheaper than parallel running as you don't employ two complete sets of workers (if not mentioned before)
- If there is a problem with the new system it only affects one branch unlike other methods
- Other branches can learn from the mistakes made in first branch to have the new system unlike other methods

Direct changeover – involves replacing the old system with the new system all in one go.

Advantage – **One** from:

- Cheaper than parallel running as you don't have to employ two sets of workers (if not mentioned before)
- Quicker as there is no delay waiting for bugs to be fixed unlike other methods
- benefits of the new system become apparent immediately unlike other methods

[8]

(d) **Four** from:

- Compare actual test results with expected results
- Discuss with managers how successful the new system has been in meeting the original objectives/requirements specification.
- Get information about how easy the system is to use (questionnaires/interviews)
- See if the users have accepted/are happy to work with new system (observation)
- Observe how long it takes to complete a certain task
- Record any extensions to the system that users have said they would like

[4]

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6 (a) **Two** from:  
Hacker can only get hold of three characters in one go  
Hacker might need to know the whole password to get into account  
Will probably be different three characters asked for at next log in  
Hackers would need to intercept password several times to get into account  
Reduces chances of keylogging software detecting password  
Helps to identify pharming/phishing which ask for whole password [2]

(b) **Four** from:  
Type in user ID or username  
Asked for security information.  
Type in section of password  
Type in favourite place/mother's maiden name/date of birth  
Description of use of personal PIN reader  
Page will have a list of the customer's accounts and account numbers  
Click on account  
Click on transfer money  
Click on account/type in account number to transfer money to  
Type in amount  
Select date of transfer  
Click confirm [4]

(c) **Six** from:  
Increased employment for technical staff/programmers  
Some workers have had to/ had the opportunity to go part time  
Flexible working hours may have been made available  
May be able to work compressed hours  
Technical staff may be able to work from home  
Some workers needed to retrain  
Managers could have been relocated  
Cashiers have had to develop adaptability to move from branch to branch [6]

(d) **three** from:  
There is no need to spend money on transport going to and from the local branch  
Saves time going to the bank/queuing  
He can bank at any time of day or night  
You can bank anywhere in the world providing you have internet access.  
He could ask for a loan over the Internet without being embarrassed  
Interest rates on savings accounts tend to be higher  
He doesn't have to worry about whether the mail will get their bill payments to companies on time  
There is less likelihood of robbery and no likelihood of violence  
Disabled people don't have to leave house [3]

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- (e) **Five** from:
- Expense of buying a computer with a broadband internet connection
  - Security concerns about data transmitted over internet such as hacking, phishing, pharming, spyware, viruses, malware
  - Risk that hackers may intercept data and take money from the customer's account
  - May not like it that the bank is not providing the 'personal touch'
  - May mismanage accounts as it is so easy to transfer money from one account to another
  - Unable to make cash deposits or withdraw cash without physically going to the bank or to an ATM
  - Description of phishing
  - Description of pharming
  - Description of viruses
- [5]

- (f) **Three** from:
- The two workers can have different skills, knowledge and experience
  - Getting the skills of two workers for the price of one
  - Working fewer hours may be fresher and more productive
  - When the business is particularly busy can get the two workers to work together
  - It doesn't matter that at less busy times neither is working
  - If one worker is ill or on holiday, part of the job still gets done/other worker can be invited to cover
  - May mean that workers stay with the business since they might leave if they had to work full time
  - No need to (spend money on) train(ing) a new person
  - Fewer redundancy payments needed
- [3]

- (g) **three** from:
- Money may need to be spent on providing an extra desk or additional equipment
  - May be extra training costs associated with training both workers
  - Difficult to arrange training/meeting times/working hours to suit all workers
  - May be difficult to maintain communication between workers
  - May be difficult to maintain continuity
  - Problem may occur which only worker who is not there can solve
- [3]

- 7 (a) **two** from:
- Sequential – activities cannot take place until others have happened
  - Parallel – activities are independent of each other
- [2]

- (b) **Three** from:
- Tasks are arranged on Gantt chart so that the parallel tasks finish at the same time
  - Tasks are arranged on Gantt chart so that sequential tasks start when previous task completed
  - Blocks of days for each task are shaded in
  - Headings are dates
  - Identifies the critical path
  - Can identify when it would be sensible to hold meetings
  - Shows key dates/start and finish dates,
  - Indicates which tasks have to be completed before the next task can begin
  - Can help to identify who is available to work on a specific task
- [3]