UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Advanced Subsidiary Level and GCE Advanced Level

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

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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]**

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