UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Advanced Subsidiary Level and GCE Advanced Level

MARK SCHEME for the May/June 2008 question paper

9713 APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY

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.

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International Examinations

1 (a) Descriptions of methodology or who is being targeted three from:
Observations
Questionnaires
Interviews
Examining documents [3]

(b) **Two** from:
File will be held in a sequential manner
To allow for serial access
Code allocated for credit (paying in slip)
Or debit (cheque)
Used to process all records one after the other
When updating customer accounts [2]

(c) **Two** from:
Files will be held in an indexed sequential manner
A separate table of indices will be stored
The index will allow for direct access
Needed when accessing individual records quickly
When a customer logs on to update/check account details
The records will be held sequentially to allow for serial access
When batch processing as above [2]

(d) **Two** from:
Modem/Router to connect to the system/Internet
Mouse to select options/services
Keyboard to type in username/password/amounts
Internet browser to connect to the service [2]

(e) **Four** from:
Bank details may be intercepted by hackers/description of spyware/key logging
Hackers would need to know username and password
Most systems are extremely difficult to hack into contrary to popular belief
Data is encrypted when being transmitted
Impossible to crack the encryption without a key
Customer perception could be a problem as it could lead to a reduction in the number of customers

One mark for a reasoned conclusion [4]

2 (a) **Four** from:
Increased unemployment for specific bank workers such as cheque processing workers/cashiers
Increased employment for technical staff
Some workers may have to/will have the opportunity – to go part time
There will be the opportunity to job share
There will be the opportunity for flexible working hours
Workers will need to have the ability to move from branch to branch
Workers may gain new skills [4]

(b) **Max. three** from:
Need to protect confidentiality of data/duty of confidence to prevent customer data being made public
Need to comply with data protection rules
Up to three examples from data protection act with examples why they are used
Responsibilities relating to passing on information from bank to other organisations to avoid customer being compromised

Max. three from:
Advantage of User id/passwords is that only authorised users have access to the data
Disadvantage of User id/passwords is that users can forget their passwords
Advantage of encryption is that unauthorised people will not understand the data
Disadvantage of encryption is that it is just possible to crack encryption codes
Advantage of duty of confidence requirement in employment contracts is it discourages workers from spreading personal data around
Disadvantage of duty of confidence requirement in employment contracts is that bank is relying on workers having sufficient integrity to abide by this
Advantage is that anonymised information is omitted wherever possible
Disadvantage of anonymised information is that some identifiable information may remain included
Advantage of firewall is that it prevents unauthorised computers/users from accessing the system
Disadvantage of firewall is that it slows down the performance of computers
General disadvantage of any of these is that it restricts individual access by authorised users [6]

3 (a) One **mark** for each item and one **mark** for each example of factors (maximum 5 marks for factors) Total 8 marks maximum.

Item	Factors: an example of how:
Specifying the required hardware and software	• the volume of data determines the choice of output devices • the order that data will be output affects the choice of storage devices
Designing data collection forms/screen layouts	• the user requirements influences the format • the output required from system influences the design • file structures affect the design
Designing report layouts/screen displays	• the content and presentation of report layouts/screen displays depend on the requirements of the users
Designing validation routines	• the form of input affects these • the file structure affects these
Designing the required data/ file structures/programming specifications	• the data structures/programming depend on the types of processing • the file structure depends on the input and output structures

[8]

(b) Master file

2 marks for 4 or more items
1 mark for 3 items
0 marks for less than 3 items
Name/address, tax history, National Insurance history, pay so far this year, holiday entitlement, pension contributions, rate of pay, tax code, job title, employee number

Transaction file

1 mark for worker's number **and** at least one of hours/days worked, bonus payments, holiday data, days sick [3]

(c) Four from:

Payslips with description of information included
Financial reports of payroll statistics
Exception reporting
Reports showing hours worked by individual
Report showing cost information by department or individual
Reports including the analysis of the turnover of employees together with detailed absence reports
Payments to employees automatically generated using BACS
Tax and NI payments automatically made direct to the Inland Revenue
Specification of money required by company for payment to workers/Inland Revenue [4]

(d) Three marks max. for descriptions and three marks max. for comparisons from:

Parallel running – involves running the old system alongside the new system
Is more expensive than direct changeover because two sets of workers have to be paid
If there is a problem with the new system still have the old system as a backup unlike direct changeover
It is a slower method of implementation than direct changeover

Phased implementation – involves implementing one part of the system at a time
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
It is a slower method of implementation than direct changeover

Pilot running – involves running new system in one branch of the organisation whilst old system still operates in other branches
Cheaper than parallel running as you don't employ two complete sets of workers
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
It is a slower method of implementation than direct changeover

Direct changeover – involves replacing the old system with the new system all in one go
Cheaper than parallel running as you don't have to employ two sets of workers
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
If there is a problem you don't have the old system to fall back on unlike other methods [6]

(e) **Four** from:
Test results are used to evaluate the new system
Expected results are compared with actual results
If there are differences refinements will be necessary
User is asked for his/her views on the new system
Results are used to identify limitations
Limitations are used to make improvements to the system
Final system compared with design [4]

4 (a) Must gain a mark for each of hardware and software to gain full marks

Six from:

Hardware:
A computer to process the calls **and** a telephone set/headset to speak with customers
A telecom switch to enable the WAN to receive telephone calls

Software:
Computer telephony integration software
CTI software is used to combine the data and voice input to the system
Calling-line information display such as caller's number/number dialled
Software enables on-screen phone control such as automatic answer, hang up, hold, conference
CTI software requires a dedicated telephony server
Software sends commands from a user's computer to a telephony server
Software directs phone call to appropriate operator
Database to hold records of calls/to provide link to stock/orders database
Database software to enable customer orders to be input to the main computer database [6]

(b) Must gain a mark for each of hardware and software to gain full marks

Six from:
Printer (laser or inkjet) to print out information for checking
Graphics tablet to input drawings/designs
Scanner to scan hard copy images for inclusion in website
Modem/Router for connecting to internet to upload/download web pages
Microphone to create voiceovers where necessary
Speakers to listen to sounds/voice/music to check accuracy/suitability
Video camera to make videos for including in website
Digital camera to take photographs for uploading to webpage
Web authoring package to create web site
Word-processing package for typing text/tables etc.
DTP for creating pages for website
Spreadsheet to create statistical tables/graphs for inclusion on the website
Database to create files of data for inclusion on the website
Communications software to connect to Internet
Web browser to see how the web site appears to users
Software for editing scanned/downloaded images [6]

(c) **Five** from:
Typing at a keyboard continuously can cause RSI in the fingers/wrist
Gripping a mouse and repetitive clicking can cause RSI in the fingers/wrist
Continual use of a computer can cause RSI to the elbow
Sitting in the same position all day can cause posture problems
Staring at a computer screen all day can cause problems with one's sight
Too many plugs connected to a socket can be a fire hazard
Bare wires can cause electrocution
Spilt drinks can cause electrocution
Heavy equipment falling off a desk can cause injury [5]

(d) **Six** from:
Computer/software organises meeting times
Software used to keep a record of appointments
Software provides alerts regarding imminent start of meetings
Software has a calendar function which can be used as a diary
Software advises when clashes occur
Arranging workload
Usage reports give a breakdown of the time required or spent on individual tasks
By allocating times for tasks realistically it is possible to ensure members of a team have equitable workloads
Software used to produce Gantt charts for graphically representing progress in projects
Description of construction project management
Software provides a critical path method of scheduling
Software contributes to the management of such projects by identifying project progress and providing daily and weekly planning [6]

5 **(a)** **Five** from:
Satnav system to find his way to the companies
A laptop/PDA/handheld computer for his appointments
A laptop/PDA/handheld computer/mobile phone for keeping phone numbers
Mobile phone to contact the company he was visiting when in traffic jams
An MP3 player for his music
A laptop to type up reports about his visits
Laptop + hotel phone + Internet connection to find out information about the company [5]

(b) **Four** from:
Satnav – more up to date maps/easier to locate route
PDA/handheld computer – quicker/easier to search for information
Mobile phone – can be used wherever you are/can send text messages
MP3 player – smaller than CD player/stores more tracks
Laptop – easier to edit/format text
Internet – easier/quicker to search for information
Such devices are more portable than other methods [4]