UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Advanced Subsidiary Level and GCE Advanced Level

MARK SCHEME for the May/June 2009 question paper

for the guidance of teachers

9713 APPLIED INFORMATION & COMMUNICATION TECHNOLOGY

9713/03 Paper 3 (Written B), 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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UNIVERSITY of CAMBRIDGE
International Examinations

1 (a) Any **five** points from:
send out questionnaires/surveys to **target groups**
carry out personal interviewing in shop/street
carry out telephone/email surveys of **target groups**
… using a computer based script
web sites/pop-ups – ask views/collect information online
monitor sales of items from shops
research results – competitors/academics/consumer trends
target groups log on to discussion board (i.e. forum) to give their opinions
input results from questionnaires using ICT e.g. OMR reader
store all the information on a database …
… and *(later)* analyse the information
produce a report showing results of surveys

Do not penalise more than **once** for not using the scenario [5]

(b) **One** mark for each design item + **one** mark for description:
specify what hardware is needed…
… volumes of data handled will determine the choice of hardware
specify what software is needed…
… web shop features will determine the choice of software
design the validation rules…
… form of input and file structures will determine validation tests
design the file structures…
… will be determined by what is stored, type of data, etc.
design of DFD…
… showing the flow of data through the system
design report layouts…
… e.g. customer receipt, stock report
design backup system…
… routines/hardware required [6]

(c) **One** mark for describing each strategy + **one** mark for reason related to the scenario
parallel running…
… to enable both systems to operate together and integrate both/there is a back-up system if the new one fails
pilot scheme…
… this enables one area/shops change to new scheme/until new system proven
phased implementation…
… (one area is changed over and) gradually spreads throughout the company [4]

2 **(a)** Any **six** points that relate to a music web site from:
shopping basket/list of purchases
secure buying when using a credit card
"when customers bought X, they also bought Y" facility
search facility for artist/title/genre
e-voucher purchase/gift option for someone else
wish list
suggestions for user based on previous purchases
order history/ability to track status of orders
delivery options
ability to listen to tracks/see video clips
reviews of albums/films/books and listing of tracks
recognise customer as soon as they log on/saved customer details/customised pages
option to select different languages/currency conversion
links to other music sites/genres
news page e.g. new releases [6]

(b) Any **four** points from:
ability to send an email with query
frequently answered questions (FAQ) section
online help chat/email system
telephone call centre
operators provided with a script to assist customer
drop down boxes with helpful hints/automatic advice
help wizards
company contact details for snail mail/to visit [4]

3 Any **three** with the identification and the expansion from:
worsens the digital divide… due to some people not having ICT resources
changing job patterns in high street shops… fewer customers on high street/more ICT based jobs/fewer unskilled jobs
identity theft… deleting/amending/distributing personal details
open to computer fraud… money taken from credit cards/goods intercepted from online order details/hacking into systems
more addictive… easy to spend too much
lack of socialising/exercise/try before you buy… plus expansion [6]

4 Any **four** points from:
(Gannt charts) show all stages/tasks to be done
(Gannt charts) show the critical paths(s)
(Gannt charts) show key project milestones
(Gannt charts) also show:
– number of days to do tasks
– progress on tasks as % complete
– progress versus expected time to do work
– how tasks are all linked together
– how financial targets are being met
allows emailing of tasks/project information to others automatically/post to website or download project information
allows use of PERT charts
allows use of resource graphs [4]

5 (a) (i) Any **two** points from:
thin layer of powder sprayed from ink jet spray head
machine repeats process building up layer after layer to form object
it uses slicing (tomographic) technology
places a binder/glue during the layering process
can use plaster or ceramic in powder form [2]

(ii) can handle/see components (before expensive tooling up)
less expensive than making a model by conventional methods
can test model (before expensive tooling up) [2]

(b) **One** mark for device + **one** mark for reason:
graph plotter
– produce large scale drawings on paper
– very accurate drawings on paper to any scale
large screen
– to allow development of new designs/products
– allows enlargement of components
– allows use of light pens (etc.)
second monitor
– to show commands [4]

6 (a) Any **two** points from:
computer files can be updated in real time
can be set up at short notice to overcome crises
regular meetings become viable
initial hardware costs are offset by savings in travel costs
safety aspects – no risk of kidnapping/terrorism
no travelling time required away from office hence more productive [2]

(b) Any **five** points from:
increase in terrorist attacks has driven the need for video conferencing
faster communication/broadband connections
wider availability of high speed links
companies have tended to become global
faster processors in computers now allow for jerk-free images
multi-screen technology
general improvements in technology has lowered costs/improved image quality [5]

7 **(i)** hubs

used to connect computers to server/computer
not very efficient network device
sends data to all linked devices
may amplify received signal
works at MAC level [2]

(ii) routers

gateway device
links LANs to make a WAN
includes a firewall
directs packets according to their IP address
stores list of connected devices
redirects packets to correct switch/hub
translates protocols (between networks) [2]

(iii) switches

an advancement on a hub
directs the data stream only to the addressed device
prevents congestion on segment of network
uses a list of device addresses
redirects 'ack' packet directly to sending computer
works at MAC level

(iv) telnet

is a protocol (internet)
used to gain access to another users computer/remote access to server
used to transfer/access data
requires a password login id
lacks security
uses TCP/IP protocol (as a lower level) [2]

8 **(a)** Any **two** points from:

system produces most efficient route
company can save fuel/less wear and tear on vehicles
company will know nearest driver in case of urgent pickup
drivers save time in planning journey/driving hours
able to give customers better predicted delivery times
can be uploaded to a SatNav [2]

(b) Any **five** points from:

gather information from maps, drivers, etc.
key information in to the knowledge base
knowledge base contains information about routes (e.g. distance between locations)
create the rules base which stores relationships between locations etc.
create the inference engine which does the logic processing
determine the input data/method required
test the system with known current routes
GPS route data added to knowledge base
develop validation rules
determine the output/means required when new or better routes found, update the system/upload new road information e.g. roadworks
feedback on success of route after each journey [5]

9 (a) Any **four** points from:
set up a web site to promote the business
send emails (automatically) to customer base
producing hard copy advertisements using DTP
advertising on large screen display e.g. football ground live display
popups on web sites
advertising/links on other web sites/Pixel Advertising
buy email distribution lists
producing podcasts
create blogs/twitters
production of adverts for (cable/Digital) tv ... [4]

(b) Any **four** points from:
to target appropriate customers
create standard document using fields from customer database using customer data base as the data source
query the data base for appropriate customers
use of mail merge wizards
when merged each document is personal to that customer
also use mail merge facilities to address envelopes/create labels [4]

10 (a) Any **two** points from:
information is specific to company that are not in the public domain e.g. sales figures, social events, company news announcement
personnel directory with telephone numbers, email address
stop staff using the internet for their own purposes
control pages uploaded/downloaded on server
access to templates/common files
book video conferencing suite/meeting rooms [2]

(b) Any **five** points from:
firewalls to monitor/stop unauthorised traffic
encryption of sensitive data to fulfil legal requirements
user ids/password/biometric device to establish user access rights
anti-spam software uses filtering to automatically delete junk mail/reduce unnecessary traffic on network
anti pop up software denies unwanted sites
anti-spyware software stopping cookies/keylogging
anti-adware software to stop unwanted material

Note: mention of internet security suite merits just one mark unless broken down into components [5]