CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Advanced Subsidiary Level and GCE Advanced Level

MARK SCHEME for the May/June 2014 series

9713 APPLIED TECHNOLOGY AND COMMUNICATION TECHNOLOGY

9713/11   Paper 1 (Written A), maximum raw mark 80

CAMBRIDGE

1   (a)

Number of passengers	
A bar code number	✓
A flight number (consisting of two letters followed by three digits)	
Name of destination	

[1]

(b)

Number of passengers	
A bar code number	
A flight number (consisting of two letters followed by three digits)	✓
Name of destination	

[1]

(c)

Number of passengers	✓
A bar code number	
A flight number (consisting of two letters followed by three digits)	
Name of destination	

[1]

2

Live data is test data that has never been used before	
Abnormal data would be 500 passengers on a flight with 300 seats	✓
Live data is test data for which the results are already known	✓
Extreme data would be 300 passengers on a flight with 300 seats	✓
Extreme data is data of the wrong data type for the field concerned	
Normal data is data that is within a given range	✓
Abnormal data is data of the correct type for the field concerned	
All data that is not abnormal is extreme	
Testing will not indicate where improvements can be made	
Modules are never adjusted as a result of testing	

[4]

3 (a) **Three** from:

Using test results to evaluate the solution
Obtaining feedback from the user
(using the results of user feedback/test results) to identify limitations
Using knowledge of the limitations to make improvements
Discussing with managers whether new system has met original objectives   **[3]**

(b) Systems documentation – **one** mark
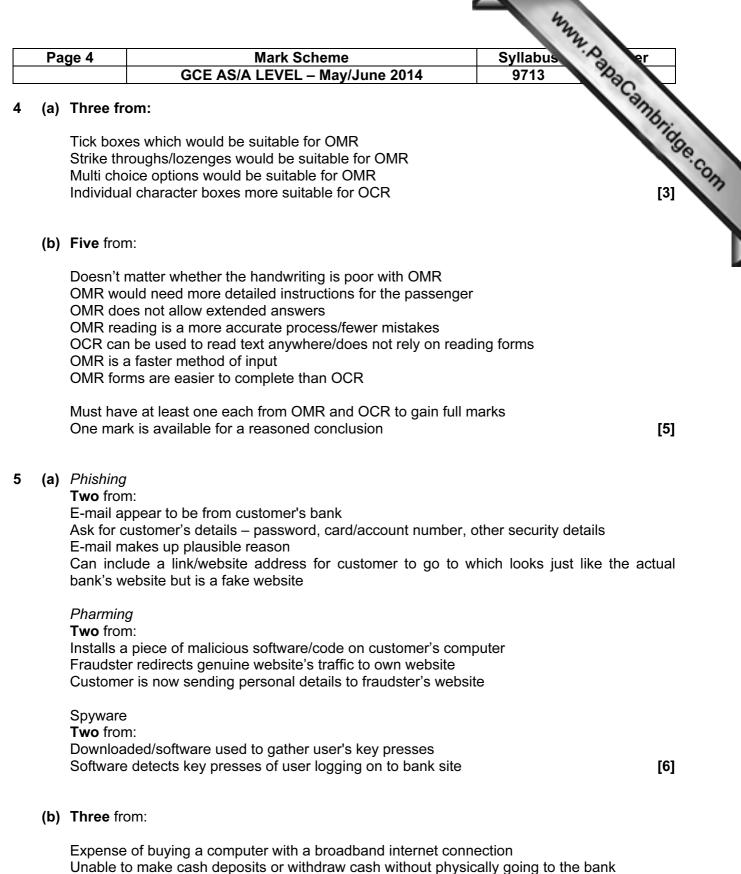
Two from:

The results of the systems analysis/dfd diagrams
What is expected of the system/purpose of the system
Overall design decisions such as the <u>choice of</u> hardware <u>and</u> software
Overall design decisions such as file, input and output structures
Test data/test plans so that systems analyst can see the results of these/test results
Systems flowcharts

Program documentation – **one** mark

Two from:

Description of the software/purpose of the software
Reasons for choosing those pieces of existing software that were used instead of the programmer having to write code
Input/output data formats
Program flowcharts/algorithm
Program listing – a complete copy of the code used with annotation explaining what each module of code does
Notes that will help any future programmer to make modifications to the system   **[6]**

4 (a) Three from:

Tick boxes which would be suitable for OMR
Strike throughs/lozenges would be suitable for OMR
Multi choice options would be suitable for OMR
Individual character boxes more suitable for OCR [3]

(b) Five from:

Doesn't matter whether the handwriting is poor with OMR
OMR would need more detailed instructions for the passenger
OMR does not allow extended answers
OMR reading is a more accurate process/fewer mistakes
OCR can be used to read text anywhere/does not rely on reading forms
OMR is a faster method of input
OMR forms are easier to complete than OCR

Must have at least one each from OMR and OCR to gain full marks
One mark is available for a reasoned conclusion [5]

5 (a) *Phishing*
Two from:
E-mail appear to be from customer's bank
Ask for customer's details – password, card/account number, other security details
E-mail makes up plausible reason
Can include a link/website address for customer to go to which looks just like the actual bank's website but is a fake website

Pharming
Two from:
Installs a piece of malicious software/code on customer's computer
Fraudster redirects genuine website's traffic to own website
Customer is now sending personal details to fraudster's website

Spyware
Two from:
Downloaded/software used to gather user's key presses
Software detects key presses of user logging on to bank site [6]

(b) Three from:

Expense of buying a computer with a broadband internet connection
Unable to make cash deposits or withdraw cash without physically going to the bank
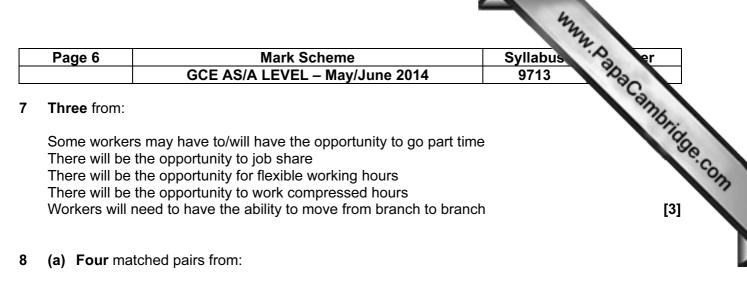or to an ATM
May not like it that the bank is not providing the 'personal touch'
May mismanage accounts as it is so easy to transfer money from one account to another [3]

(c) Three from:

Save costs as don't have to rent so many high street premises
Employ fewer staff <u>therefore less paid in staff wages</u>
Save costs of printing/sending statements
Lower running costs, fewer branches so less electricity, heating and lighting
Because of lower costs can offer higher rates of interest for savers and lower rates
of interest for borrowers…
…these rates attract more customers
Less likelihood of the bank being robbed
Less money is spent as there are fewer security staff   **[3]**

6 (a) *Anonymised information*:
Information about individuals without mentioning the person by name   **[1]**

Aggregated information:
Personal details of individuals are <u>combined</u> to provide information without naming
those individuals   **[1]**

(b) Two from

Can identify the number of customers from a specific area
Can identify the number of customers who have overdrafts
Can identify the number of customers who have deposits greater than a certain sum   **[2]**

(c) Five from:

Information must be kept secure
Must abide by data protection rules
Employees must not share any customer data with anybody outside the organisation
Employees should sign a confidentiality agreement/have a duty of confidence
Employees should have a duty of fidelity
Information about an individual should not be passed from one organisation to
another without permission of the individual   **[5]**

7   **Three** from:

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
There will be the opportunity to work compressed hours
Workers will need to have the ability to move from branch to branch   [3]

8   (a) **Four** matched pairs from:

Conditional formatting
Cells are coloured differently to indicate acceptable progress or otherwise

Graphs/charts
<u>Comparison</u> of student's chart with target grades/class average/previous scores/gradient
of the graph shows whether there is improvement or not

Calculate average score of student
<u>Comparison</u> of student's score with average/comparison of student's score with target
grades

Maximum function
Could see which was highest mark and when

Minimum function
Could see which was lowest mark and when

Sorting/filtering
To produce a rank order of students + reason – for the purpose of grading/setting/to list
best/worst performing students/students achieving a particular mark range/grade so that
these students can be set suitable targets

Goal seek
Could see what test results required to achieve satisfactory average   [8]

(b) **Three** from:

Results will be calculated more quickly/graphs produced more quickly
Results will be displayed more neatly
Results will be calculated more accurately
Validation can be incorporated
Results can be exported directly into a report/document
Easier to manipulate data
Easier to edit data/errors
Focus on specific areas more easily   **[3]**

(c) **Three** from:

Import/insert data from spreadsheet
Copy and paste chart from spreadsheet
Link to data/spreadsheet
Mailmerge to insert grades/marks/name of student   **[3]**

(d) **Two** from:

Inkjet unsuitable for bulk printing
Don't have to keep changing cartridges like an inkjet
Faster to print multiple copies than inkjet or dot matrix
Dot matrix quality is not good enough   **[2]**

9 (a) **Three** from:

Don't have to spend so much on utilities
Increased productivity due to more content workforce/improved motivation
More likely to retain staff so don't have to spend money on retraining
Lower costs as can rent smaller/fewer offices
Don't have to pay travelling expenses for conferences
Less need for land for car parking space so some land could be sold off   **[3]**

(b) **Three** from:

Time is not wasted travelling/ more free time because of less travelling
Can spend more time with their family/can arrange their work schedule to suit themselves
Don't have to live close to the company so can live in area of their choice
Don't have to spend money on fuel/transport travelling to work
Don't have the stress of travelling to work in rush hour
If the payroll worker is disabled it's easier for him/her as he/she doesn't have to travel **[3]**

10 (a) With no thought given to the order/data has not been sorted/stored in the order they are added **[1]**

(b) **Three** from:
Data is collected together in a transaction file
In the course of the week
It is processed in one go with the master file
To produce payslips (usually overnight)
Without human intervention **[3]**

11 Six from:

The transaction file is sorted in the same order as the master file
Sorted on employee number
First record in the transaction file read
Reads first record in the old master file
These two records are compared
If records don't match computer writes master file record to new master file
If it matches transaction is carried out

Then
If transaction relates to calculation of pay:
Computer calculates the pay
Using rate of pay from master file
Using hours worked from transaction file
Computer calculates the income tax/insurance/pension contributions
Computer subtracts this from total pay
Processed record is written to master file
Process is repeated until end of old master file

If transaction relates to deletion, amendment or insertion:
If deletion or amendment old master file record not written to file
If amendment/insertion data in transaction file written to master file
Process is repeated until end of old master file
Remaining records of the transaction file are added to the master file **[6]**