MARK SCHEME for the October/November 2014 series

9713 APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY

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.

Mark schemes should be read in conjunction with the question paper and the Principal Examiner Report for Teachers.

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1 **(a)**

It is the cheapest method of implementation	
If there is a fault with the new system the old system can still be used	✓
It is the fastest method of implementation	
You need two sets of workers	

[1]

(b)

If there is a fault with the new system the old system can still be used	
There is no need to train the workers	
The benefits of the new system are available immediately	✓
The new system does not require any documentation	

[1]

(c)

If there is a fault with the new system not all stores in the organisation would be affected	✓
If there is a fault with the new system none of the stores in the organisation would be affected	
It is a quicker method of implementation than direct changeover	
It is a cheaper method than direct changeover	

[1]

2

To provide the systems analyst with a detailed overview of the whole system	✓
So that user documentation does not have to be produced	
So that cashiers can troubleshoot simple problems	
To make sure the developed system matches the design	
So that the system can be evaluated	
To help when the system needs amending to eliminate errors	✓
So that programmers can fully understand the program code that has been used	✓
So that users can fully understand the system	
To help cashiers operate the POS terminals	
To refer to when the system needs further development or upgrading	✓

[4]

3 **Three** matched pairs from:

Test data
This column would contain test data values such as 40 and 20/description of test data

Expected results
This column would contain the calculation 20 + 40 = 60/description of expected results

Actual results
This column would contain the actual results of the test, in this case 60/description of actual results

Comment
This column would contain whether the test worked, in this case whether 60 was produced or not/description of a comment

Accept other column headings if feasible   **[6]**

4 **(a)** Matched pairs

Amendment   **[1]**
A customer's address/name is changed/customer buys something   **+[1]**

Deletion   **[1]**
A customer closes their account/dies   **+[1]**

Insertion   **[1]**
A new customer opens an account   **+[1]**

(b) **Six** from:

Magnetic disc has faster access than magnetic tape to data for reading from a file
Magnetic disc has faster access than magnetic tape to data for writing to a file
Fixed magnetic disc is not as portable as a magnetic tape, so not as effective for transaction file…
…if this is to be prepared off line
Data on a magnetic disc has direct access…
…so useful if data from master file is required quickly
Data on a magnetic tape requires serial access…
…but as all the data on the transaction file will be used this is not an issue

One mark is available for a reasoned conclusion   **[6]**

5 (a) Five from:

The relational database consists of two tables
A customer records table and a sales records table
The tables are linked to each other…
…using a key field
…for example the customer ID
This field is part of other table(s)
Data from one table combined with data from other table(s) when producing reports
Can select different fields from each table for output
SQL is used for queries and producing reports   **[5]**

(b) Three from:

Data is not repeated
Less storage capacity needed
Easier to expand the database
Data only needs to be amended once
Easier to produce reports with cross-tabular data
Data integrity is maintained
Hackers would find it more difficult to access data than if they were separate flat files   **[3]**

6 (a) Two matched points from:

Visual verification
Visually compare data on screen/printout with original/source document
Decide which version is correct if differences are spotted

Double data entry
Two people type in data/one person types in data twice
Computer compares two versions
Keyboard freezes/sound made/data flagged if differences occur
Decide which version is correct if differences are spotted   **[4]**

(b) Three from:

Verification checks that data is copied correctly from one medium to another
Verification checks that versions of data have been entered correctly
Verification does not check if data is correct or reasonable
Validation is used to check entered data is reasonable/acceptable   **[3]**

7 (a) Four from:

Camera – to inspect work

Welding gun – to weld parts of the car body together

Vacuum cup – to pick up parts of the body

Spray gun- to paint the car body **[4]**

(b) Four from:

A robot arm has greater accuracy/fewer errors than a human
There are lower running costs/no need to pay robots wages/lower utility costs
Work/work rate is of a consistent standard
The whole process can be continuous/24 hours a day 7 days a week…
…without having to stop at shift changeovers
It is a safer/less dangerous environment for humans/robots can work in harsh/hazardous conditions
Greater productivity **[4]**

8 (a) Three descriptions and three examples from:

Business – Advertises the whole company to make the company name familiar not just a single product or service

Example – advertising the WIMBA car company as a whole

Product – Advertising a specific/single product

Example – The new model of car

Service – Advertising of a service such as banking, insurance, education/a service the company provides (for its customers)

Example – car insurance **[6]**

(b) Four *descriptions* from:

Sound could be used in voiceovers/welcome from managing director
Soothing background music to create a comfortable feel for customers
Video of the car being manufactured/recordings of satisfied customers
Animation to demonstrate insurance services/animated 3D logo of the company
Hyperlinks to navigate between slides of different aspects of the company or cars/link to company's website
Navigation button to navigate between slides of different cars/different aspects of the company **[4]**

9 **Three** from:

Descriptions of:
Organising meeting times
Arranging workloads
Organising research and development projects
Project management **[3]**

10 (a) **Two** from:

Involves working the same number of hours as normal
Over a shorter number of days
Usually involves working 4½ days in a week/9 days out of 10 in a period of two weeks **[2]**

(b) **Two** from:

Can be very tired after working long hours
Have to get up earlier/work later most days
Spend less time with family on working days
Less leisure time on working days **[2]**

(c) **Two** from:

Difficult to arrange training/meeting times/working hours to suit all workers
Utilities may be more expensive as advertising department is working longer hours
Work needs to be carried out over the whole week but the employee is not always there **[2]**

11 (a) **Four** from:

Do not overload sockets
Only allow qualified electricians to install electrical equipment
Equipment should be checked regularly
Cabling should be tied up/trunked
Electrical equipment must be located away from water supplies
Do not take drinks near electrical equipment
Have several carbon dioxide fire extinguishers
Benching/work desks should be sturdy enough to take the weight of heavy equipment/do not allow heavy equipment to overhang **[4]**

(b) **Four** matched pairs from:

Measure
Get up and walk around every so often
Good quality seating that supports the back/sitting in an appropriate position
Height-adjustable seating
Focus on a distant object from time to time/improve the lighting in the room/have anti-glare screens
Use ergonometric/ergonomic keyboards
Height, position and distance from worker of screens/keyboards should be optimised

Health problem
Lower back pain
Problems with one's sight
RSI in the fingers
RSI in the wrists/carpal tunnel syndrome
Eye strain/headaches
Upper back/neck/shoulder pain/eyestrain/headaches   **[4]**

(c) **Five** from:

Interactive voice response (IVR) software deals with initial request
IVR provides options to customer
IVR provides automated services
If necessary phone call is directed to (appropriate operator)
Call can be queued
Caller's number is displayed to operator
Customer records, if available, displayed to operator   **[5]**