

## **MARK SCHEME for the October/November 2012 series**

### **9713 APPLIED ICT**

**9713/32**

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.

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

Cambridge will not enter into discussions about these mark schemes.

Cambridge is publishing the mark schemes for the October/November 2012 series for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level components and some Ordinary Level components.

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**1 (a) Any three from:**

Driver enters destination address  
 Satnav provides instructions/gives turn by turn for driver/calculates route to reach address  
 Satnav refreshes screen frequently  
 Informs when arriving at destination  
 Offers additional information such as delays/eta/can take into account traffic conditions  
 can show distance travelled  
 Relies on signal from satellites which can be blocked  
 OR  
 Uses Global Positioning System (GPS)  
 Satnav reads data from satellites  
 Use of data from (minimum) 3 satellites  
 Uses time stamps/codes from satellites  
 Maps stored on device  
 Calculates position, speed and direction  
 Generates display data to show on map  
 Loads voice files to state message

[3]

**(b) Two benefits and two drawbacks from:**

*Benefits:*

Traffic can be avoided with suggested alternative routing  
 ETA can be given  
 Multi destination routes can be optimised  
 Can have pre-planned route for drivers  
 Can be used to help track the progress/route of driver/car  
 Distance travelled by cars recorded for download into computers (servicing)  
 Gives more precise instructions for driving to destination  
 Could be used to attract customers as can be used in advertising  
 Can be used to help locate vehicle/customers if problem with car

*Drawbacks:*

Can be expensive to install and maintain/keep up to date  
 Must be able to detect enough satellites to operate  
 Sky scrapers/trees/buildings/tunnels/large structures can block satellite transmissions/signals  
 Units can fail leaving drivers without a plan  
 Drivers can become too reliant on the system  
 Customer may not know how to operate the device

[4]

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**2 (a)** Any **three** ways identified and a description from:-

Company data is located on a private network  
 ...restricted to members of the group  
 Distribution of company notices/bulletins  
 ...so all employees can access them/doesn't have to be sent out individually  
 Private email services can be used  
 ...this does not go out of company network  
 ...so is more secure  
 Employees can work on projects at same time  
 ...such as annual reports  
 Data transfer is usually faster on private system  
 ...files are received faster  
 Enables different type of system/smartphones to access information  
 ...as uses Internet protocols  
 Uses a web browser to access pages so no special software expense  
 ...users require ID and password to gain access  
 Is independent of the Internet  
 ...but holds less pages/information than the internet

[6]

**(b)** Any **two** features from:

Covers a large area/multinational networks  
 Enables geographically distant offices to access the intranet  
 ...allows intranets to be spread over different LANS  
 Consist of LANs connected  
 ...with routers and communications links  
 Uses various protocols to communicate over long distances  
 Different offices can co-operate on projects such as annual reports

[2]

**3** Any **four** points from:

Can access digital media stored on e.g. CDs, DVDs, Blu-ray, flash memory  
 Can access remotely stored digital media from e.g. the internet, media streamers, locally stored files  
 Can access analogue media  
 Has LEDs to display information  
 Can accept/use/play a range of audio/video formats  
 Provides a number of different sound and vision outputs for connection to other devices  
 Can use DRM to ensure media is protected from unauthorised use or copying/gives authorisation for playback  
 Can use several loudspeakers for surround/multi-channel sound  
 It usually has a remote control to e.g. adjust sound output format  
 Can have HD television for high-quality pictures  
 Can have 3-D television for greater realism in images  
 Can have a hard-disk recorder

[4]

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**4 (a) (i) Four** items identified and described from e.g.:

Cinema branch to go to the correct branch/cinema location  
Date to state when you want to go/define when tickets required  
Time of performance to state which performance you want to see/establish exactly when seats required  
Film title to which film you want to see  
Number of seats so that system can find a block of seats for Peter and group to sit together  
Credit card number for payment to be made immediately to secure tickets  
Address for security in using card  
Email address to provide receipt/ticket reference number/confirmation of tickets  
Name to identify the purchaser/match billing address/authorise payment/ to use as verification when collecting tickets  
Login details if Peter has an account with the cinema [4]

**(ii) Three** items from:

Transaction number/booking reference number  
Unique code for receiving/collecting tickets  
Receipt with price/cost details  
Contact details of cinema/ticket agent [3]

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

A clear message on the screen stating how transaction is safe  
Notice to state that digital certificates is not from the cinema site  
A padlock in the browser  
Use of HTTPS mode in URL  
The use of a password system to create account if required/ to use the card [3]

**(c) Any four** points from:

On-line processing of tickets  
Step-by-step processing of tickets  
Credit card used for booking placed into kiosk  
System asks for surname  
...as confirmation of ID  
Kiosk lists bookings made  
Correct booking selected  
Tickets printed out  
Receipt issued [4]

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

A key is used to generate  
 ...scrambled data  
 ...that is meaningless and can be safely transmitted/cannot be understood if intercepted  
 Requires the key to decode  
 Can be broken if sufficient time is allowed  
 Longer the key the harder it is to break

[2]

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

Issued by a certificate authority  
 Trusted by both parties  
 As an attachment to an email  
 Verifies the identity of the sender  
 Recipient holds the public key to decode message

[2]

**(c)** Any **two** points from:

Use of password and user ID  
 Use of digital certificate  
 ...supplied to user  
 Can require the use of two techniques to gain access to system  
 Unique feature that only you have that identifies you e.g. a fingerprint/biometric feature/use of biometric data to identify unique individual  
 Unique knowledge that only you know that identifies you e.g. a security question  
 Unique object that only you own that identifies you e.g. a bank card

[2]

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**6 (a) Two from:**

Primary research is where the organisation itself obtains the data e.g. by carrying out surveys

Secondary research is where IMDC uses existing data such as from the internet or printed resources to find data [2]

**(b) Three ways identified and described:**

Focus groups

Selected people asked to provide information for the company such as their views on packaging

Personal interviews

Such as face to face in street

Where a series of questions are asked of the interviewee

CAPI (computer assisted personal interviewing) where a computer system is used

...sit in front of computer and answer on screen questions

...interviewer asks questions prompted by computer

Telephone survey

...using CATI (computer assisted telephone interviewing)

...basically call centres used in this technique

...computer dials phone numbers of target audience and then interview takes place using script

CAWI (computer aided web interviewing)/online surveys

...database of people willing to take part in research

...interviewee contacted by email

...customer logs on to web site and answers questions

...use pop ups/hot spot on selected web sites

...responds to popup/hot spot on a web page

...then answers questions

Research websites of other railway companies

Questionnaires given out

answers collected and analysed

Observation of drug actions/patients reactions to drugs

findings logged and analysed

[6]

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(c) (i) Supercomputer/mainframe computer [1]

(ii) **Three** points, with 1 mark available for an example, from:

Formulae would be created to represent the situation  
Variables would be adjusted to follow planned route  
Results would be output graphically  
Time scale could be altered  
one example from e.g. the reaction to a drug  
Use of what-if scenarios  
Use of goal seek

[3]

7 (a) Any **four** descriptions from:

Interviewing medical experts in the field of medicine under consideration/expert doctors to gather information  
Selecting relevant data to be included  
Data mining using previous research reports/the internet  
Sorting relevant diseases and symptoms from the data collected

[4]

(b) Any **two** descriptions from:

Patients symptoms relating to the disease/condition  
Patients previous illnesses/conditions/symptoms  
Any existing medications  
Gender of the patient  
Age of the patient  
Bodily factors e.g., weight/height/temperature/heart rate/blood pressure

[2]

(c) Any **two** descriptions from:

Output on screen display to show possible diagnosis and reasons  
Printout of conclusions to the doctor to refer to  
List of possible diagnosis for the doctor to consider  
Percentage probability for each diagnosis  
Reasons behind each diagnosis  
Suggested medication/treatments for the possible disease/condition

[2]

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**8** Any **six** comparisons from:

Off-the-shelf packages:

- Can be available quicker than purpose-written packages as they are readily available in the market place
- Costs is less than purpose-written packages
- Has been fully tested before launch unlike purpose-written packages
- There are forums to offer help and advice unlike with purpose-written packages
- Company provides help desk but slower response than purpose-written packages
- May offer more features than purpose-written packages
- Do not need to be customised unlike purpose-written packages
- Do not need to be adapted for use if circumstances change unlike purpose-written packages
- Can be quickly adapted to meet user's requirements [6]

**9 (a)** **Three** descriptions matched to the terms:

- CAI computer **provides** the teaching and assessment of the students work
- CBL computer system **supports** the teaching by an educator
- CAA computer system provides only **testing** of the students/provides feedback/assessments/uses ICT to record the results of assessments [3]

**(b) (i)** Any **three** benefits from:

- Trainees can repeat the section as many times as required to pass the test
- Students can work at their own pace and in their own time
- Assessment results are provided in a shorter time
- There is no need to pay trainers [3]

**(ii)** **Three** drawbacks from:

- No social interaction with a trainer
- System is unable to answer all questions from students
- Trainees could go off task
- Expensive to create and maintain
- Trainees might not be computer literate [3]

**10 (a)** Any **four** points from:

- The critical path can be generated from the data
- Gantt chart to plan out the stages
- The project can be broken down in to stages/tasks
- Key milestones identified
- Progress reports generated
- Warnings issued when milestones not met
- Report summarising cost totals generated
- Ensure that parallel tasks finish together
- Identify sequential tasks so that those required to finish before others start do so [4]



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(b) Any **two** descriptions from:

- Identifies those tasks that make up the critical path
- Eases management of task
- Better to work in modules
- As each element can be tested before release
- Allows allocation of resources (money/people)
- Can utilise calendars to show/arrange meetings

[2]