
APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY

9713/12

Paper 1 Written A

October/November 2016

MARK SCHEME

Maximum Mark: 80

Published

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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Page 2	Mark Scheme	Syllabus	Paper
	Cambridge International AS/A Level – October/November 2016	9713	12

1 (a) **Four from:**

Fixed hard disk drive used to store software/OS/students' work
 Portable hard disk drive used to transport large files between home and college/to make backup copies of files
 Magnetic tape cartridge readers used to store backup of course work/software by college network manager
 DVD writer/reader to store videos of coursework
 CD writer/reader used to store audio of student's work
 DVD/CD writer/reader to make permanent backup copies of files/to transport coursework between home and college/to import files/software to system
 Memory stick/pen drive/flash drive/disk/memory card to make backup copies of files/to transport coursework between home and college
 Solid State Drive used to store software/student's work

[4]

(b) (i) Spreadsheet:

Two from:

To enter/store weather data/readings taken (over the course of the month)...
 ...such as rainfall, temperature against time
 To produce graphs of weather data...
 ...such as rainfall, temperature against time
 To perform automatic calculations on weather data...
 ... to produce mean values of rainfall/temperature/calculate range of temperatures
 To model weather data...
 ...to produce predictions of future weather patterns

[2]

(ii) Database:

Two from:

To enter/store weather readings taken (over the course of the month)...
 ...such as rainfall, temperature against time
 To manipulate the data into groups...
 ...such as days of sunshine exceeding certain number of hours/rainfall less than a certain amount
 To create filters/queries to produce reports on weather readings...
 ...such as days in the month with no rainfall
 To produce graphs of weather data.....
 ...such as rainfall, temperature against time
 To perform automatic calculations on weather data...
 ... to produce mean values of rainfall/temperature/calculate range of temperatures
 To produce summaries...
 ...such as the wettest week of the month/warmest week of the month

[2]

(iii) Web browser:

Two from:

To allow Didier to search the internet for weather data...
 ...to find images to paste into his coursework...
 ...so that his readings can be compared with existing data
 Allows him to access his email account...
 ...so that he can send weather data to college/home via email

[2]

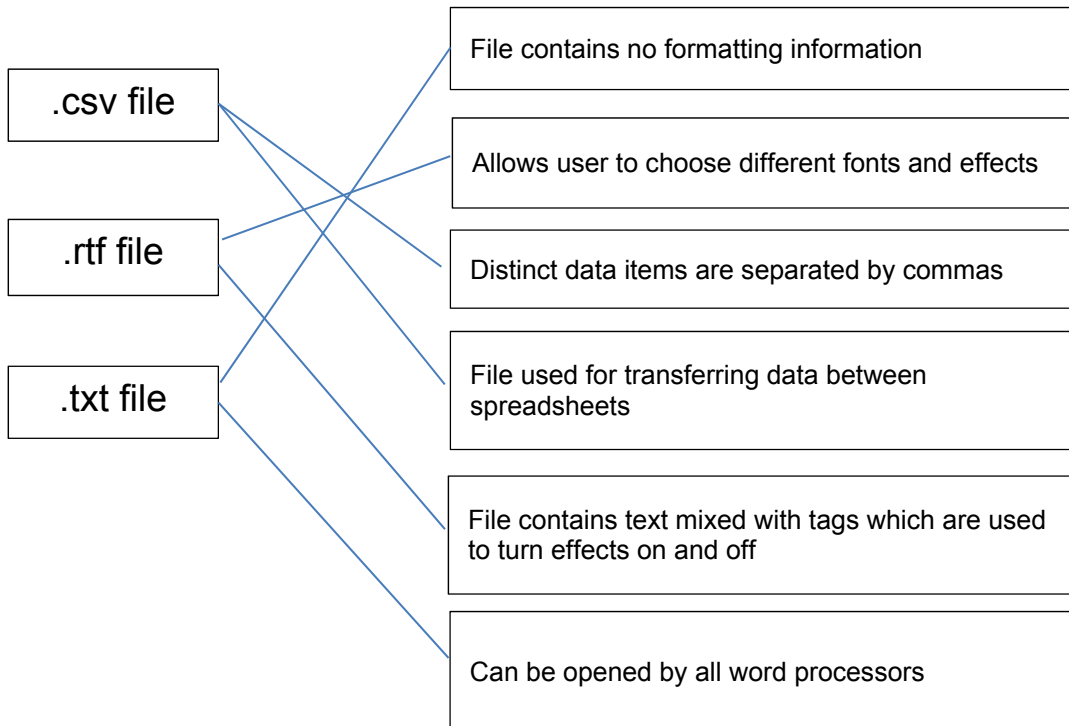
Page 3	Mark Scheme	Syllabus	Paper
	Cambridge International AS/A Level – October/November 2016	9713	12

(c) Six from:

- Type a specific URL into the address bar
- Click on hyperlink from a relevant webpage
- Use a search engine (to make a query)...
- ...type in 'climate'/'weather' into the search engine
- Use Boolean operators to narrow down /widen his search
- Use speech marks to narrow down his search
- Use wildcards to narrow down his search

[6]

2



- 6 lines correct give 4 marks.
- 5 lines correct give 3 marks
- 3 or 4 lines correct give 2 marks
- 1 or 2 lines correct give 1 mark
- 0 lines correct give 0 marks

[4]

Page 4	Mark Scheme	Syllabus	Paper
	Cambridge International AS/A Level – October/November 2016	9713	12

3 (a) (i) *Two from:*

Combinations of the different widths stand for different digits
 There are a specific number of different widths used
 Pairs of bars and the associated gaps between them are used to represent the digits
 The outside bars are used to inform the computer when the barcode starts and stops
 and in which direction it is being read

[2]

(ii) *Two from:*

Represent the ID number of the item being scanned
 Allows the details of the item to be found in the stock database
 Necessary in case the bar code will not read properly

[2]

(iii) *Six from:*

Data can be used to provide itemised receipt for customer
 Rate at which barcodes are read can provide management information about
 performance of checkout workers
 Data can be used to provide automatic stock control/keeps accurate records of stock
 levels
 Provides up to date number of items in stock
 Provides information of popularity or otherwise of stock items
 Provides advice about ordering
 Can be used to automatically trigger orders for some stock items
 Product number is looked up in stock file/checks if product exists in database
 Price is read from product number in stock file/displayed on screen
 Name/description of product is read from stock file/displayed on screen
 Reduces number in stock by quantity purchased

[6]

(b) *Six from:*

Parallel running:

The old and new systems are run at the same time [1]
 Both the chip and pin payment system and the contactless system are run together until the
 contactless system has no bugs [1]

Direct changeover:

The new system replaces the old system immediately [1]
 All the chip and pin machines are removed in one go and the new contactless system is
 installed ready for the store to open the following day [1]

Pilot running

The new system is run in one branch of the organisation [1]
 The contactless system is used in only one supermarket until it has been fully tested/before
 being rolled out to other supermarkets [1]

Page 5	Mark Scheme	Syllabus	Paper
	Cambridge International AS/A Level – October/November 2016	9713	12

(c) **Four from:**

The users will not be familiar with the new technology and must therefore be given instructions

User documentation is less time consuming/expensive than Rosef training them

The staff will need to be able to give assistance to customers and explain how to use it

Staff may need to consult FAQs/documentation if they/customers have problems

The documentation is permanently available meaning that Rosef will not need to be consulted every time a problem occurs

The documentation will include a troubleshooting guide for future reference

May need to be able to restart the system if there is a system crash

4 (a) **Four from:**

Benefits:

Can compare products and prices at their leisure

Can shop at a convenient time for them/24/7

Customers can shop at their favourite store even when they live far away

Customers don't have to spend time travelling to shop

Customers don't have to spend money travelling to shop

Disabled customers will find it easier than travelling to shop

There will be a greater choice of goods

Don't have to spend time queuing

Drawbacks:

Disabled people may have problems navigating through screens

Customers who do not have a credit/debit card will not be able to use online shopping

Security concerns about data transmitted over internet such as hacking, phishing, pharming, spyware, viruses, malware (must have two)

Description of phishing

Description of pharming

Can order goods and they don't get delivered

Goods are not to the same standard as those ordered/wrong goods delivered/substitute goods delivered

Can't check the standard of goods before buying/can't be sure the goods are in stock

May be hidden costs such as delivery charges

Description of viruses

Expense of buying a computer with a broadband internet connection/must have a reliable electricity supply/basic computer skills

[4]

Must have at least one of each to gain full marks

Page 6	Mark Scheme	Syllabus	Paper
	Cambridge International AS/A Level – October/November 2016	9713	12

(b) (i) *Three from:*

Headaches– ensure that monitor is at the correct height/distance/position/focus on distant objects from time to time/take regular breaks and walk around/use screen filter

Eyesight problems- ensure that monitor is at the correct height/distance/position/focus on distant objects from time to time/take regular breaks and walk around/use screen filter

RSI – carpal tunnel syndrome – ensure that regular finger exercises are practised/take regular breaks/use wrist supports/use trackballs/ergonomic keyboard

RSI – cubital tunnel syndrome – keep forearms horizontal when using keyboard/take regular breaks/place arms at your side straight down from time to time

Back/neck problems – maintain good posture/sit in a straight backed chair/sit in a height adjustable chair/ensure that monitor is at the correct height

Deep vein thrombosis – take regular breaks and walk around [3]

(ii) *Aggregated information:*

In the reports data is combined and no individual is identified [1]

Data Protection legislation:

Legally binding rules/laws governing the use of personal data [1]

Duty of confidence:

Workers must not disclose/share personal/customer data to a third party [1]

5 (a) *Six from:*

Patient's condition is monitored using microprocessor/computer and sensors

Sensors/computers used to monitor blood pressure, pulse rate, body temperature, Oxygen level in blood, blood sugar (must mention at least two)

Sensors feed back body functions to the microprocessor/computer

Readings can be taken at predetermined time intervals

Computer is pre-set with the normal range of values

Computer is (constantly) comparing the data fed back by the sensors...

.....to these pre-set values

If any data is outside the pre-set range the computer (sends a signal to) sound an alarm/increase dose of a drug

Data readings are stored on computer system for doctors to use later when visiting recovering patients

[6]

Page 7	Mark Scheme	Syllabus	Paper
	Cambridge International AS/A Level – October/November 2016	9713	12

(b) Two matched pairs from:

Graphical/numerical output of patient's readings/condition...

...can be seen/give an indication of condition from a distance so nurse can glance at each patient monitor quickly

Hard copy printout of results/patient's condition over a specific period...

...to allow doctor to analyse changes in condition after the event/shows trends/can be taken away for later checking

Buzzer/Sound/light alarm...

...in order to instantly attract attention if patient change may need immediate action/to alert doctors/nurses if preset values exceeded

Heart monitor beeping...

...regular beeping to indicate normal heart beat/continuous beeping to alert doctors/nurses to problem

[4]

6 (a) Three matched pairs from:

Job sharing – Two (or more) workers doing the job of one worker (working full time)

Allows workers to accept other commitments/can spend more time with family

Part time working – Working a limited number of hours/ working less than the normal working hours of a full time employee

Allows workers to accept other commitments/can spend more time with family

Flexible working hours – Workers choose the time of day they want to work (but work the same number of hours every week)

Can organise their working lives to suit their personal needs/Can choose to work off peak hours as travelling to work outside peak times is easier and cheaper/If workers stay late to finish a job, they can take time off at a later date/If the job requires great concentration, it can be done at quiet times of day

Compressed hours – Working for same number of hours as a normal working week but over fewer days

Earn the same amount of money but work fewer days/They can have long weekends by finishing early on Fridays or not working Fridays/Travel to work fewer days so less time spent travelling/Travel to work fewer days so less money spent travelling

[6]

(b) Six from:

Calculates the final wage after applying a bonus for each worker

Multiplies the number of hours worked/B2 by the pay per hour/C2...

... and adds the bonus to be paid

VLOOKUP is used to search the lookup table of bonuses/check which bonus is to be paid/in the range G2 to G4/I4...

...until a match to the value in cell D2 is found...

...the resulting value is added

Needs to be an exact match because of the 'FALSE' part of the formula

The '3' instructs that when a match is made then the appropriate value is read from the third column of the lookup table

Contents of E2 = 377

[6]

Page 8	Mark Scheme	Syllabus	Paper
	Cambridge International AS/A Level – October/November 2016	9713	12

(c) **Eight from:**

Website created/produced using web authoring software
 A cheap form of advertising nationally and internationally/can advertise to a very large audience
 More expensive initially to have own website – web designer has to be employed
 Can produce a website to own specification
 Website has more features than most other forms
 Has range of multimedia – sound, video/animation, (text, images)
 Can have hyperlinks to other sites/pages
 Can advertise on other people's websites
 Cheaper than using own site
 Banners/pop ups/pop unders can be used
 Pop-up grabs user's attention
 Can upset users who then do not shop there in future
 Users have pop-up blocking software which doesn't allow pop-ups to appear
 Can use pop-unders which are not removed by pop-up blocking
 Can advertise their name by getting it included in an online directory

(Multimedia) presentations/slide show used on purpose-built display monitors...
 ...placed in strategic locations
 The presentation/slide show is produced using presentation software
 Has range of multimedia – sound, video/animation, (text, images)
 Other features e.g. slide transition effects, special text effects, image transition
 Always on while mall or store is open
 The user cannot switch it off
 Quicker to update than an internet site or television commercial

Flyers created using DTP software/word processing software
 Used by individuals or small businesses
 Used to advertise in the local community therefore have limited impact
 Can be produced using own PCs and printers
 For larger print runs have to take to the printers – increased costs
 Quick to produce
 DTP allows character shapes, variety of patterns, colours
 Can be distributed to target audience
 Limited to local audiences

Posters produced using word-processing/desktop-publishing/presentation software
 Due to size have to be printed by professional printers – expensive
 More usually, presentation because of ability to use very large paper sizes
 Limited exposure due to position of site/static display
 Posters are more eye catching than fliers
 Can be placed in strategic positions

E-mail to customers
 Use of attachments may dissuade customers from reading the advertisement
 Customers may treat it as junk mail and so not read it
 Specific customers can be targeted
 Attachment can be created easily using DTP
 DTP allows character shapes, variety of patterns, colours
 Can be sent to world wide audience
 Easy to create an email and mailmerge

Must have more than one method to gain full marks

[8]