

# **Cambridge International Examinations**

Cambridge International Advanced Subsidiary and Advanced Level

#### APPLIED INFORMATION AND COMMUNICATION TECHNOLOGY

9713/11

Paper 1 Written A October/November 2016

MARK SCHEME
Maximum Mark: 80



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## 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...

[2]

- ... 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

### (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

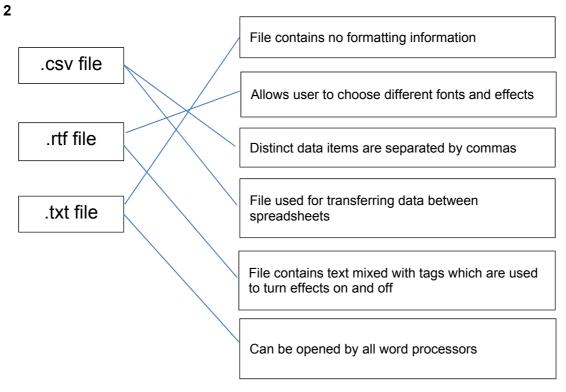
[2]

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# (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]



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]

age 4	1	Mark Scheme	Syllabus	Paper
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(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 re The outside bars are used to inform the computer when the barcod and in which direction it is being read	•	l stops
	(ii)	Two from:		[2
		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		
	(iii)	Six from:		[2
		Rate at which barcodes are read can provide management informat performance of checkout workers  Data can be used to provide automatic stock control/keeps accurat 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 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	e records o	f stock
(b)	Six	from:		
	The Bot	rallel running: e old and new systems are run at the same time th the chip and pin payment system and the contactless system are intactless system has no bugs	run togethei	[' until the ['
	The	ect changeover: e new system replaces the old system immediately the chip and pin machines are removed in one go and the new conta talled ready for the store to open the following day	actless syste	[' em is ['
	The	ot running e new system is run in one branch of the organisation e contactless system is used in only one supermarket until it has bee ng rolled out to other supermarkets	n fully teste	[' d/before ['

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## (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 <u>future reference</u> 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

Must have at least one of each to gain full marks

[4]

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## (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 trackerballs/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 <u>combined</u> and no individual is identified [1]

Data Protection legislation:

Legally binding <u>rules/laws</u> 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]

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## (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

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# (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]