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ASSESSMENT and QUALIFICATIONS ALLIANCE

General Certificate of Education

Computing 6510

CPT2 Principles of Hardware, Software and Applications

Mark Scheme

2008 examination – January series

Mark schemes are prepared by the Principal Examiner and considered, together with the relevant questions, by a panel of subject teachers. This mark scheme includes any amendments made at the standardisation meeting attended by all examiners and is the scheme which was used by them in this examination. The standardisation meeting ensures that the mark scheme covers the candidates' responses to questions and that every examiner understands and applies it in the same correct way. As preparation for the standardisation meeting each examiner analyses a number of candidates' scripts: alternative answers not already covered by the mark scheme are discussed at the meeting and legislated for. If, after this meeting, examiners encounter unusual answers which have not been discussed at the meeting they are required to refer these to the Principal Examiner.

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1 (a) Data storage not immediately/directly accessible to the CPU; 1
A Permanent / non-volatile data storage *or a description*
R an example, 'permanent', 'non-volatile'

1 (b) (I) Flash Memory; Compact; portable; direct access; Read/Write medium; **A** edited / updated **A** capacity specified; Max 2
A (External)Hard disk; large capacity/direct access/fast access/portable;
R DVD-R

1 (b) (ii) DVD-R; Ample capacity of DVD-R; Direct Access; Cannot be deleted / over-written; Can be played on a DVD player; Does not need to be on-line; Inexpensive; Easy to copy; **A** compact, offline, easy to post Max 2
R mag tape

1 (b) (iii) Hard disk; *if not given in (i)* Fast access; Needs to be on-line; Large capacity; Direct access; Max 2

2 An e-mail letter is delivered faster (A instantly) than using the ordinary mail; Max 3
A received faster, **R** faster to send
Recipient does not have to be at home to pick up e-mail / can pick up e-mails from any workstation connected to the Internet / from a mobile phone;
Reduced cost + reason / no need for printing / paper / envelope / stamp / cheaper than mailing abroad;
Less effort to send e-mail than conventional letter (*with reason*);
E-mail can be more secure + *because password protected / can be encrypted;*
Can attach files + *explanation of how this saves cost /effort* / *example*
Can send the same letter to more than one recipient without incurring extra cost/with less effort ; **A** simultaneously, at the same time, at once
Can arrange for an e-mail to be delivered after a specific date and time;
A easy to ask for an acknowledgement that it has been received / know that it has arrived;
A easy to forward with comments;
R one-word answers, 'does not get lost', 'free', 'environmentally friendly', 'instant reply', 'reduced cost', 'less effort', 'more secure'

3 (a) *Check digit* 2
An extra digit in a code / digit at the end of the code /Digit to check code is valid; **R** verification
Calculated from the preceding digits / characters;

3 (b) *Control total* 2
A meaningful total;

			Produced by summing the values of one field in all records being processed;	
3	(c)		*Parity Bit* Extra single bit; Set to 0 or 1 so that the total number of '1' bits odd or even; *Don't need both odd and even parity*	2
4	(a)	(i)	Interactive;	1
4	(a)	(ii)	Real Time;	1
4	(a)	(iii)	Batch;	1
4	(a)	(iv)	Network;	1
4	(b)	(i)	Batch;	1
4	(b)	(ii)	Network;	1
4	(b)	(iii)	Interactive;	1
4	(b)	(iv)	Real Time;	1
5	(a)	(i)	a (unique) competitor number / ID; **R** Primary key, 'CompetitorName / Name'	1
5	(a)	(ii)	check that competitor number exists in the file / table of competitors; **A** list box / existence check; **R** check digit, bar code, presence check, range check	1
5	(b)	(i)	a transmitting device fixed to the bike / competitor; and GPS / satellite;	2
5	(b)	(ii)	a receiver at the start and end; reading the transmitting device on the bike / competitor; transmitting the time to the system wirelessly / by satellite;	Max 2
5	(c)	(i)	*Uses as its input* the key field / primary key / unique identifier; **A** (*presumed*) field given in 5a (i) *to* calculate / generate / create the storage position/location / address of each record; **R** Assign, data , file, **A** implication of record	2
5	(c)	(ii)	To generate any of the available addresses in the file; **R** spaces To generate an even spread of addresses; **R** unique addresses To be fast to calculate / process / perform; **R** find To minimise collisions / synonyms; **R** no collisions	Max 2
6	(a)	(i)	1;	1
6	(a)	(ii)	2;	1

6	(a)	(iii)	16;	1
6	(b)		Calculating using a text / non-numeric value; /not using <u>absolute addressing</u> *(or implication)* **A** $ not used,	1
7	(a)		Each directory is a manageable size / easier to maintain; Allows identical program names to be used if stored in different directories; Improves organisation of files / directories can contain files of a similar type / be more organised; **R** Easier to organise Makes selective back-up easier; Easier to copy groups of files; **R** data, documents Easier to locate files / faster to locate files; **A** search, find, **R** navigate **A** folders, **R** documents Improved security; can restrict access to directories to certain users;	Max 2
7	(b)	(i)	\Budget.xls; **A** / for \	1
7	(b)	(ii)	\Club\Budget.xls;	1
7	(c)	(i)	*The right to set file status to:* Read only / Read; **A** View Read/Write / Change; **A** Edit, Modify Execute only / Execute; Delete authority / Delete; Write only (update only) / Write / Update; Hidden; No Access; Set sharing attributes of file/which users/user groups can access file/Shared; Alter / create / specify file rights / SUID (Set User ID); Full control / access	Max 3
7	(c)	(ii)	(File) type; (file) size; date of creation / of modification / of last access; purge date; owner / author; location of (start of) file on (disk); has it been archived;	Max 3
8			Any current or recently proposed national computer system; *(Actual name not required as long as database clearly identifiable.* Child Benefit database, Contact Point (proposed), Criminal Records Bureau database, National DNA database, Police National database, National Identity Register, (Identity & Passport Service) passport database, Inland Revenue database, Driver & Vehicle Licensing Agency (DVLA) database, NHS electronic patients record system	1 Max 3

Amount of personal data that is stored on computer systems;
Individuals may be unsure of exactly what data are stored about them / data may be inaccurate;
Concerns about who has the rights to view the data stored;
Computer systems can be insecure / example e.g. can be hacked;
Data can be manipulated / accessed / searched quickly / easily on computer systems;
Data on computer systems can be accessed far from the site where it is stored / remote access possible;
Concerns that data may be passed from one organisation to others;
Computerised records do not show when someone has broken in and stolen / corrupted the data. (In manual systems there are signs of forced locks etc.);
Data is easily collected and stored because computers can be networked;
The use of computer systems encourages more data to be stored;

9 (a) a collection of tables /more than one table; 1
//two or more linked tables / referencing other tables;

9 (b) (i) two (or more) attributes **R** keys which are jointly used to uniquely identify a record / tuple / row; 1

9 (b) (ii) because no one attribute can uniquely identify a record in this relation; 1
A field
// answer in context of Booking table

9 (c) (i) an attribute in one relation/table which (links to)/is a primary key attribute in another relation / table; **A** field 1

9 (c) (ii) CatOwnerID; 1

9 (d) (i) to speed up searching; **A** speed up access / queries 1

9 (d) (ii) CatOwnerID; 1

9 (d) (iii) data entry and editing (changes) may be slowed down; Max 2
/ large amount of processing required;
as the indices may need to be updated each time; **R** sorted

9 (e)

Field	CageNumber	CatName	Surname	ContactNumber
Table	Booking	Cat	CatOwner	CatOwner
Criteria	9			
	;	;	;	;

A[enter cage number]
or similar
Order unimportant ; **I** other fields if they don't inhibit the QBE ;
A If Ginger entered for criterion for Cat
Table e.g. Cat Table, Penalise once
Ignore anything written BELOW the grid