



General Certificate of Education

Computing 5511/6511

CPT2 Principles of Hardware, Software and Applications

Mark Scheme

2006 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.

It must be stressed that a mark scheme is a working document, in many cases further developed and expanded on the basis of candidates' reactions to a particular paper. Assumptions about future mark schemes on the basis of one year's document should be avoided; whilst the guiding principles of assessment remain constant, details will change, depending on the content of a particular examination paper.

Instructions to examiners

The following forms of notation should be used on candidates' scripts:

- **Ticks** - To indicate what is accepted as correct or creditworthy, placed in the body of the answer, and on diagrams;
- **Underscoring** – To identify errors/irrelevance in written answers;
- **Crosses** – to indicate a wrong answer;
- **Brief comments** – placed in at suitable points in the body of the text to amplify the marking;
- **BoD** – means benefit of the doubt and is used where the candidate's answer has been given a mark on the balance of probabilities that the candidate's answer has met the requirements of the mark scheme even though it could be interpreted differently;
- **NE** – means not enough and is applied to an answer that falls short of what is required;
- **O/S** – means outside the mark scheme. The candidate's answer is creditworthy but the answer does not match any of the answers on the mark scheme for the particular question. Nevertheless a mark is awarded;
- **C/F** – means carried forward. This arises when a candidate offers an answer which is not creditworthy in one question but is creditworthy in a later question. The mark is carried forward to the question which is creditworthy;
- **C/B** – means carried back. This is similar to a carry forward but the mark is carried back to an earlier question.
- **T/O** – means talked out. The candidate's answer is contradictory.
- **F/T** – means followed through. If the candidate made a mistake in the earlier part of an answer, mark the answer using the correct method on their answer from the earlier part.

The following notation is used in the mark scheme

- **;** - means a single mark;
- **A.** - means an acceptable creditworthy answer;
- **R.** – means reject answer as not creditworthy.
- **I** – ignore
- **/** - means alternative word or subphrase
- **//** - means alternative answer

- 1a barcode reader / wand / scanner; 1
If 2 answers given – TO
- 1bi less chance of error / greater accuracy; BOD 'No Error' 1
// scanning by device faster;
A Quicker (*allow in this case*)
R harder to forge
- 1bii the bars can be read up-side-down/ has vertical symmetry; 1 3
A can be read even if not in perfect condition;
- 2 A non-volatile / stores a permanent copy / not lost when computer switched off;
storage medium;
that is not directly accessible to the processor / outside main memory; 2
- (b) cache memory 1 3

3a

i. patient's temperature	Sensor / thermistor; A keyboard <i>Must be connected to a computer</i>
ii. picture of a skin problem	digital camera; A webcam; mobile phone <i>if explained</i>
iii. interview with a psychiatrist	Webcam / microphone; A keyboard; mobile phone <i>if explained</i> ; video camera <i>connected to computer</i> ;

3

R confusion with NHS Database

- 3b(i) access to expert opinion (that would not be possible otherwise); 1
Implication of 'immediate consultation'
- (ii) do not need a specialist consultant in every health area; 1
//doctor(GP) can be more aware of the patient's condition ;
//eliminates waste - outpatient clinics used by those who really need them, (while
patients who can, are treated by their own doctor;
A Reduce waiting lists;
R Saving costs without explanation
R can see more patients in the same time
- (iii) access to expert opinion that might not be possible otherwise; (*if not given*)
// can result in better/speedier diagnosis/treatment;
// save (time / cost of) travel to distant hospital ;
// not always easy to get to hospital (on public transport);
//more relaxed in the local doctor's surgery; 1 6
R any suggestion that they are being treated from home

- 4a *Any 2 items @ 1 mark each* 2
 Advertisements, brochures, business cards, catalogues, flyers, forms, letterhead stationery, newsletters, newspapers, invitations, reports, posters, magazines, certificates, leaflets;;
R letters, CV, memo, book
- 4b *Any 2 reasonable aspects @ 1 mark each* 2
 character spacing/ kerning;
 measurements (cm / inches);
 page orientation;
 colour scheme / background colour;
 alignment of text(rotated);
 paragraph alignment(L, R, Centered)
 columns;
 margins;
 border (style);
 content of header/footer;
 paper / page size;
 print page order;
 line spacing;
 image format e.g. text wrap / watermark / transparency; 4

- 5 Any 3 organisations + 1 item of data each to max

6

Each item must be different

National Blood Service	blood type / group date of birth date of donation Number of donations	:: ::
supermarket	national insurance number bank account number bank sort code Salary / wages / hourly rate tax code next of kin Employee ID / number Job title DoB Gender	:: ::
Bank	account number password PIN R income Balance e-mail address	:: ::
Inland Revenue	national insurance number tax code Employer name Employer PAYE reference A Employer Address	:: ::
DHSS / DfES	date of leaving full time education	:: ::
A Level Board	Candidate number, (Centre number) A 1 field of AS results (subject, grade, raw mark, UMS, date of award) Gender	:: ::

- 6a When the same data item is held in two (or more) separate files /tables; 1
 and has different values in the two files; 1
 /is updated in one file but not in the other;
 e.g. CustomerName / CustomerAddress /CustomerPostCode 1
 /ProductID /Description / Price;
Example mark depends on explanation
- b *One point to max* 1
 Tables would be normalised / linked by key fields / in relationship;
 all duplication non-redundant /remove duplicated data / any data item would be held only once;
- c *Any 2 advantages @ 1 mark each* 2
 a single query can extract data from different tables (to find out which goods sell well)
 /complex queries possible;
 validation controls built-in to a database / support for validation control
 better in a database than a flat file;
 easier to add additional features as needed;
 Easier to update / less to do when sale being made / data only inputted once;
 less storage space wasted;
 could produce reports / invoices automatically; 6
- 7 (a) *Any 3 reasons @ 1 each* 3
 Ability to present data in a clear and organised fashion;
 Ease of generating graphs;
 Use of Formulae / Functions /calculations;
 Library of functions;
 Macros can be written to automate regular tasks;
 Can import data from other packages;
 Can reference other worksheets / workbooks;
 Many datasets are tabular by nature;
- R ‘What if’ facility**
- (b) (i) Column B Descending 2
 (ii) Column A Ascending 2
 A Mark/50, Name in place of A, B
Must get correct column for Order
- (c) (i) So that when the formula is copied down, the cell
 references \$E\$3 and \$E\$2 remain unchanged ;
 1
- (ii) =IF(B5<\$E\$3,"F",IF(B5<\$E\$2,"P","D")); 1
 (iii) D; 1
 F; 1 11

- 8a *Any 2 reasons @ 1 mark each* 2
 to prevent unauthorised users understanding any intercepted data;
 to prevent the message being altered;
 to identify authentic users;

- (b) (i) MIULTR2ENAA001E*LCMW5TU*EO***SP*R2* ; 1
 (ii)

S	O	R	R	Y
*	-	*	P	R
I	O	R	*	A
P	P	O	I	N
T	M	E	N	T
*	W	I	T	H
*	C	O	P	S

SORRY*-*PRIOR*APPOINTMENT*WITH*COPS; 1 4
if wrong method used, penalise once.
alternative (ii) if quote mark included:
 ‘*copsorry*-*prior*appointment*with

- 9 C /The Health and Safety (Display Screen Equipment) Regulations 1992
 D /The Data Protection Act (1998)
 A /The Copyright, Design and Patents Act (1988)
 E /The Regulation of Investigatory Powers Act (2000) 4 4
If two answers given – mark wrong

- 10a *Any 3 characteristics @ 1 mark each* 3
 Data entered off line;
 Processing delayed until all data entered;
 Processes (jobs) put in queue and processed in turn;
 Once started, process continues from beginning to end/No interaction between user and computer;
 Process controlled by instructions written in JCL;
 There is an acceptable time delay between data input and final output;

- b
- (i) A hash total is a meaningless batch total (one calculated on a field that would not normally be used in a calculation), but a control total is a meaningful batch total; 1
- (ii) *Any 3 points @ 1 mark each* 3
 For each record in the batch;
 the contents of a numerical field are totalled initially / manually;
 Total entered onto batch header;
 Total re-calculated and checked at stages during processing);
- (iii) *Control. Total payable /total cost /p&p;*
 A quantity 1
 Hash. Page Number/ Telephone number / Item number ; 1 9
 A price

11(a)		So the resulting password will not be easy to guess /Harder to hack; R general security - TV	1	
(b)	1	Convert each character to a numeric equivalent; A password		
	2	Perform some arithmetic on the number string; A. concat, algorithm, example of arithmetic, R. Process number, Translate		
	3	Reduce/Map arithmetic result onto two-byte integer range //example of mapping; <i>NB must be two bytes</i> R. To give a byte no.	3	4
12	1 mark per statement in logical order to max		5	5

While not EOF;

Compare record IDs;

If no match copy record to NewHelpers;

Go to next record;

Close both files;

Rename NewHelpers;

// Copy records up to Leaving HelperID to NewHelpers;

Skip this record;

Copy rest of records to NewHelpers;

Close both files;

Rename NewHelpers;