Version 1.0: 0605

ASSESSMENT and QUALIFICATIONS ALLIANCE

General Certificate of Education

Computing 5511/6511

CPT2 Principles of Hardware, Software and Applications

Mark Scheme

2005 examination - June 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**

1 *1 mark for up to 3 different types to max:* **3**

Spreadsheet;

Database;

*Source program in a programming language; **A** Pascal, Delphi, VB,…*

Executable program / object file;

Application program configuration file;

Resource file;

Data file;

Test file;

*Presentation; **A** slideshow*

***A** Sound / music file /wave / movie;*

A Image file / bitmap / jpeg / graphic;

A html files, web pages;

R extensions on their own, Brand names

3

2 *1 mark for up to 3 reasons in context to max:* *3*

An e-mail letter is delivered faster than using the ordinary mail;

Can send the same letter to more than one recipient without incurring extra cost/with less effort;

Do not have to be at home to pick up an e-mail;

Can arrange for an e-mail to be delivered after a specific date and time;

Reduced cost (with reason) / no need for printing / paper / envelope / stamp;

Less effort to send e-mail than conventional letter (with reason) ;
E-mail is more secure (because password protected);
Can attach files (with explanation of how it saves cost /effort);

A easy to ask for an acknowledgement that it has been received / know that it has arrived;

R one-word answers, does not get lost, free, environmentally friendly, instant reply

3

3a *1 mark for one **benefit** to each of (i), (ii), (iii) to max:* 3

3 a i UK Universities:

Economic – can charge realistic (i.e. more than for British students) fees to overseas students;

Economic – generate more revenue by enrolling more students;

Economic – they feel they need to as their competitors are /it threatens their client base;

Economic – ease with which material can be updated;

Economic – can expand without providing more buildings / reduced staffing because on-line;

R fewer lecturers

Economic / Social – world-wide publicity / respect;

Social – seen to be inclusive of e.g. people who cannot study full time;

3a ii Students:

Social – different time zones no problem – can study at any time of day;

Social – can continue the course even if they don't stay in one place long enough;

Economic – no travel or accommodation expenses / can live at home;

Economic – can fit study round other commitments such as work;

3a iii **Businesses:**

Economic – can attract and keep the best staff with the promise of further good qualifications;

Economic – More effective / skilled / knowledgeable / motivated workforce possible;

Economic – employees can apply their learning to their work immediately;

Economic – training of employees can be done at times convenient to the business;

3b Hardware*:* *1*

Modem / cable modem ;

ISDN line / ADSL Line ;

3b Software*:* *1*

Browser;

Communication software / dial-up software;

Online teaching software;

Discussion forum / bulletin board software;

Telnet / ftp software / remote access software;

5

R IE / Netscape etc.

4a *Security: 1 mark for each of 2 types to max:* 2

Natural hazards (fire, flood, earthquake, hardware failure, voltage surge);

Unauthorised access to data (hackers, misuse of passwords);

Damaging software (viruses, spyware);

Physical damage (accidental, deliberate)

Integrity: 1 mark for each of 2 reasons to max: 2

Error on data entry;

Program or hardware error corrupting a file /virus corrupting data;

Transmission errors;

Poor database design (duplicated info. which is not fully updated,) ;

4b i *1 mark for each of 2 practices to max:* 2

The number of attempted logins should be limited;

Equipment should be sited in a secure location;

Access restricted to authorised personnel / by passwords / by access rights / by privileges;

Terminals should not be left unattended / should be logged off at the end of the session / timed logouts/ use of keyboard lock;

Store back ups securely;

Have administration network not connected to academic network;

Use firewalls on networks;

Data should be encrypted;

Computer printout containing personal information should be shredded before disposal (it should not be used as scrap paper) /Redundant data should be wiped or overwritten;

4b ii *1 mark for each of 3 implications to max:* 3

DPA principles that can be mapped on to these implications given in brackets

Data recorded must be necessary for a given purpose / legal obligation / subject has given consent (Data must be relevant);

Students can request to see their data - so any comments must be able to be justified / fair / accurate (Data must be accurate / up-to-date);

Parents / students may be given a copy of the data to check) (Data must be accurate / up-to-date);

Irrelevant personal data must be destroyed when no longer needed;

Personal data must only be disclosed to third parties under certain specific conditions / with permission of the students (Not transferred to countries with less data protection);

Manual data is included under the Act;

Schools must register with the Information Commissioner / Date Protection Registrar;

A Data must be collected fairly and legally

5a *No. in stock = 1 byte;* *1*

6 + 36 + 5 + 1 = 48; *} **A** (storing nnnn and nn in binary)* *1*

*48*1000 = 48000 bytes;* *} 4+36+4+1=45; 45*1000=45000;* *1*

I extra space for 'overheads' if explained;

i.e. *1 mark for No in Stock*

1 mark for other three numbers added correctly

1 mark for multiplying by 1000

No working – max 2

Follow through

5b Field: *1*

PartNumber

//composite key of *PartNumber & SupplierID* - however indicated

Reason: *1*

Unique to each item;

5c i Description is a fixed length field, but data will frequently be less than the space allowed; 1

5c ii Use a variable length field for Description; 1

A dynamic field length BoD

5c iii *Slower / more complex to access a particular record;* *1*

// Processing software more difficult to design;

// Less easy to predict the size of the file;

// Cannot be updated in situ;

8

6ai *Interactive;* 1

6 a ii *Network;* 1

6bi A partition of a physical drive / hard disk; 1

6b ii **Reason:** ***1***

Easier to organise files / to simplify naming of large numbers of files;

// Different types of work can be held in different partitions;

// Increase security as access to a logical drive can be restricted;

Example - any reasonable: 1

e.g. User areas on one logical drive, system files on another;

If eg is a good eg of use of a logical drive then can be given without reason

6c i *1 mark for valid OS, 1 mark for valid constraint in that OS* 2

Correct rule + correct OS = 2,

possible or NE rule + correct OS = 1,

No rule or incorrect rule + any OS =0

Rule: Filename <= 8 chars / extension <= 3 chars /**No spaces allowed;**

OS: **DOS;**

// *Rule:* <= 255 chars / NOT ?,* /,\, |,<,> **A** one e.g. here **;**

OS: **Windows;**

//*Rule:* <=31 chars;

OS: **Mac;**

//R*ule:* Case sensitive / Only special chars permitted : period, underscore, hyphen***;***

OS: **Unix / Linux;**

6c ii H:\GU15\2DLDAY.doc 1

6d **Device:** ***1***

Digital Camera /Scanner; *A* ***Mobile phone***

Method:

download into computer/save in picture format; *1*

Insert / import into document; *1*
***A** copy (cut) & paste;*
Possible O/S for scanning process to 1 mark

11

7a i Collection of tables / Linked tables; 1

7 a ii Relationships are modelled by shared (common) attributes; *BoD field*
//primary key & foreign key; 1

7bi Not necessarily unique; 1

7b ii TownName 1

7b iii To speed up searching 1

7b iv They slow down data entry / editing; **A** system 1
because indices have to be updated each time a record is
added / deleted; 1
A Indices take up more space;

7c i *Suitable input method* 1
Mousepad / trackpad built into a desk;
/ Touch sensitive screen;
R keyboard, mouse, anything not fixed.

7 c ii *Software Feature:* 1
Drop down menus /Index;
Zoom feature / Thumbnails which expand on click
Hotspots/Hyperlink /Navigation Bar / Tabbed pages /Forward and back icons;
Ability to enter details to narrow down search;
R Scroll bar

7 c iii *1 mark for each of 2 requirements: (Must be in context)* 2
Access to help screen;
Ability to zoom in / large text for partially sighted / choice of text size;
Ability to have instructions in other languages;
Careful choice of colours;
Ease of navigation;

Other points if justified (not *clear instructions*);

11

8a *1 mark for up to 2 points to max:* 2

A standard outline / set format (for a style / type of document);

For the text, graphics and / or formatting;

Into which data are inserted at appropriate places;

R implication of mail merge

8b *1 mark for up to 3 settings for this page to max:* 3

Page size / orientation / margins;

Font type / size / highlighting;

Line / paragraph spacing;

Tabs / alignment / columns / indentation;

Question numbering style;

Particular text in specified location (e.g. Turn over);

Page Numbering; **A** Page numbers

Borders

A Style definition / Header & Footer*; but not given in addition to breakdown of settings*

R individual details e.g 9 **5**

9 a i A transaction file contains details of what has happened over the last period / since the last time the master file was updated;

// A transient set of changes to be made to the master file + e.g.; 1

9 a ii A master file contains the fixed information and the up-to-date variable information relating to the subject; 1

9b i *Master Payroll file - 1 mark for each of 2 fields to max:* 2

Employee Name:
NI Number;
Bank details;
Rate of Pay;
Tax Code;
Amount earned this tax year;
Tax paid to date this tax year;
NI paid to date this tax year;
Address;
Department / location;

		Allowances / Deductions Date of Birth R next of kin,			
9 b ii		*Transaction file - 1 mark for up to 2 fields to max:* Employee ID; Date; week no.; Hours worked / clock in / clock out time (this week; **A** day)	2		
9c	(i)	Produce payslip;	1		
	(ii)	Weekly; **A daily if day in** 9b ii	1		
	(iii)	Sequential order on EmployeeID / same as Master File;	1		
	(iv)	So the master file can be updated in one pass;		1	
		A **Reduce processing time + good explanation**			**10**

TOTAL 65