



ASSESSMENT and
QUALIFICATIONS
ALLIANCE

Mark scheme January 2003

GCE

Computing

Unit CPT2

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Unit 2: Principles of Hardware, Software and Applications

The following notation is used in the mark scheme:

- ; means a single mark;
- / means alternative response;
- **A** means acceptable creditworthy answer;
- **R** means reject answer as not creditworthy;
- **I** means ignore;
- **BoD** means benefit of doubt

- | | | | | |
|----|-----|--|---|------------|
| 1. | (a) | Barcode reader//barcode scanner; | | 1 |
| | (b) | Why: To detect if data/code/number has been corrupted;
To check that data/code/number is valid/correct;
To check that bar code/data/number has been entered/read correctly;
To ensure integrity of data/code;
A To check that number is valid
R To check that data is plausible | max | 1 |
| | (c) | (i) | Optical Mark Reader;

A OMR scanner;
A OMR reader;
R OMR | 1 |
| | | (ii) | Processing delayed until all data have been <u>entered</u> ;
When processing begins it continues from beginning to end
without user interaction//Process data (run) without human interaction;
Program run in background;
R Examples | max |
| | | | Interaction =
intervention | 1 |
| | | | Total | 4 |

- | | | | | |
|----|-----|---|--------------|----------|
| 2. | (a) | International transfers span different time zones;
Messages may get lost otherwise;
Transfers may be batched for transfer overnight; | max | 1 |
| | (b) | To prevent fraud;
To prevent changes to the message going undetected;
To prevent changes to the content of the message;
To prevent message being understood or information gathered;
R To prevent a message being read ... | max | 1 |
| | (c) | N.B.Emphasis is on government monitoring banking transfers for something illegal
To make it possible for agents of the government to learn of money transfers made by criminals;
To make it possible for agents of the government to learn of money transfers made by terrorists;
R So government can monitor messages/e-mails. | max | 1 |
| | | | Total | 3 |
| | | | | |
| 3. | (a) | Computing systems can store vast amounts of data;
Computing systems can manipulate/access/search data quickly/easily;
Computing systems can give access to data far from the site where data are stored//remote access possible//computer systems can be insecure + justification;
Data is more easily shared because computers can be networked;
Computer systems encourage more information to be stored; | max | 3 |
| | (b) | Computer Misuse Act;
Copyright, Designs and Patents Act;
Health and Safety Act;
Data Protection Act 1998;
A Copyright Act//Patents Act;
R Design Act
R The revised Data Protection Act | | 2 |
| | | | Total | 5 |

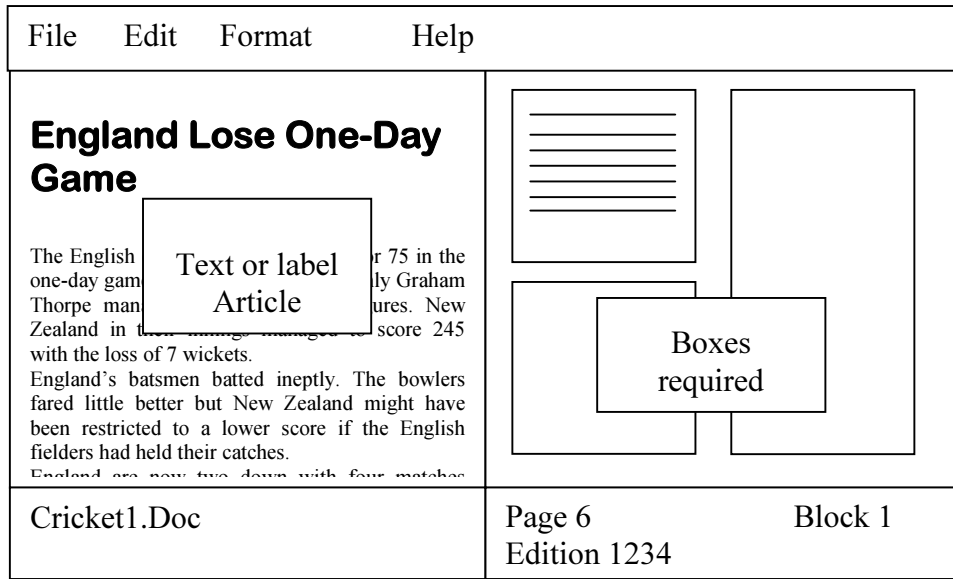
4. (a) (When two or more files)
contain common data;
it is possible that (in one file the common data is different because) updates;
do not take place simultaneously/not done to all; **3**
- (b) Only one copy of data kept;
Database software ensures that all copies of data updated before access is
allowed again;
Database controls data access; **max 1**
- (c) NB the word check is not required
Presence check/Required field check;
Uniqueness check;
List membership/Look-up list;
Range check;
Format check/Picture check;
Type check;
Existence (of a data item or record) check;
Field Length Check//Length check;
No Of Fields Check;
R Check digit
R Verification **max 2**
- Total 6**
5. (a) OS hides complexities of hardware from the user; **1**
- (b) Any three @ 1 each
Processor(s)/cpu(s);
Memory/IAS/Main memory;
Disk (space)/backing store; **A** Hard disk/drive //Floppy disk (drive)//Secondary
storage
I/O devices//peripherals; **R** examples
File space; **A** files **R** data
R programs **max 3**
- Total 4**

6. NB Nothing but : acceptable. Ignore =, etc in front of answers.
- (a) $\sum(B8 : K8)$;;; 3
- (b) L4 * A\$19 or L4 * \$A\$19 or \$L4*\$A\$19;;; **R** × 3
 Sum(L4*A\$19) is one mark for * and one mark for A\$19
- (c) M9 + M16 (\$ in front of M, 9 and 16 is OK)
- or $\sum(M4 : M8) + \sum(M11 : M15)$ (\$ in front of M, 4, 8,11,15 is OK)
 or $(L9 * A19) + (L16 * A20)$ or $\sum(M9, M16)$;;; (\$ in front of all is OK)
 NB $\sum(M9 + M16)$ is one mark for + and one mark for M16 only 3
- If candidate uses an alternative symbol to \$ then it must be specifically tied to absolute addressing, e.g. by a key or reference otherwise penalise once**

Total 9

7. (a) (i) Network; 1
- (ii) Interactive; 1
- (b) (i) EditionId;
 Or
 Date; **max** 1
- (ii) Date; (If EditionId used in (i))
 EditionId; (If Date used in (i)) **max** 1
- (iii) EditionId; 1
- (iv) $\frac{1}{\text{EditionId, PageNo, BlockNo}}$;;; **R** FilePathName
 Unique or equivalent; 3
- (c) (i) N:\Reporter1\Cricket1.Doc; A / and omission of digit 1
- (ii) Removed from on-line storage; 1
- (iii) Magnetic tape/DAT tape;
 Magnetic cartridge;
 DVD-R;
 DVD-RW;
 DVD-RAM;
Several CD-Rs;
Several CD-RWs;
R Hard drive/disk //Removeable hard disk
R CD/CD-ROM, **R** Tape, **R** Memory sticks and flip disks **max** 1

7 cont (d)



- Left panel containing selected article;
- Right panel + blocks;
- Method for showing how much of block is filled;
- Indication of current word-processed file;
- Indication of current page+ edition+block ;

Menu = File + Edit/Tools/Functions/Commands + Format + help; **max** **5**

- (e) Enlarge/Stretch;
- Reduce/Shrink;
- Crop or an accurate equivalent;
- Airbrush/Rubber;
- Filter;
- Change resolution;
- Rotate;
- Change colours/greyscale;
- Distort;
- Flip;
- Zoom;
- R** Cut out required bits, **R** Cut, Paste, **R** Adjust contrast/brightness
- R** Moving image

max **2**

Total **18**

- | | | | | |
|----|-----|-------|---|---------------------|
| 8. | (a) | (i) | Sequence of characters organised on a line-by-line basis; | 1 |
| | | (ii) | Text editor; A Editor
Word processor;
R Proprietary names
R DTP package | max 1 |
| | | (iii) | Scanner;
R Optical Character Reader, OCR
A OCR scanner | 1 |
| | (b) | (i) | Any two @ one each
<u>Ordered on some field</u> ; R ordered on its own
To access the nth record the preceding n-1 records must be read first;
Access must start from the beginning of the file;
Direct access not possible; | max 2 |
| | | (ii) | EnglishWord//WordInEnglish;
FrenchWord//WordInFrench;
R plurals and anything else | 2 |
| | (c) | (i) | Number of record where word-pair should be stored;
Position of record where word-pair should be stored;
Address of record where word-pair should be stored; A Location in place of address
Position in File C where word-pair is stored/written; | max 1 |
| | | (ii) | Because there are only 150 records in File C;
To limit addresses to 0-149; | max 1 |
| | | (iii) | Any two @ one each
Quick to compute;
Generates all available addresses;
Generates only in-range addresses;
Avoids/minimises collisions;
All addresses are equally likely to be generated;
Produces a random spread of addresses;
Should be able to deal with collisions; | max 2 |

- (d) **NB** Emphasis is on steps computer program must follow
 If candidate answers in prose, steps must be clear, e.g. steps comma separated and each begins with a verb where appropriate. Watch out for regurgitation of stem!
 Numbered steps acceptable

Open file;
 Input/Read English word from keyboard;
 Hash English word/Apply hashing function to English word;
 Read record from file at location specified by hash function;
 If Record English word matches supplied English word;

Then Display French equivalent; Else Display no equivalent available;	}	Dependent on If being correct
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Alternative:

Open file;
 Input/Read English word from keyboard;
 Read records in turn from beginning of file;
 If English word matches supplied English word;
 Then Display French equivalent; (Must have If correct to get this mark)
 Until match found or end of file reached;
 If Not present
 Then Display no equivalent available;

max **5**

Total **16**