UNIVERSITY OF CAMBRIDGE INTERNATIONAL EXAMINATIONS

GCE Advanced Subsidiary Level and GCE Advanced Level

MARK SCHEME for the October/November 2010 question paper

for the guidance of teachers

9691 COMPUTING

9691/13   Paper 1 (Written Paper), maximum raw mark 90

This mark scheme is published as an aid to teachers and candidates, to indicate the requirements of the examination. It shows the basis on which Examiners were instructed to award marks. It does not indicate the details of the discussions that took place at an Examiners' meeting before marking began, which would have considered the acceptability of alternative answers.

Mark schemes must be read in conjunction with the question papers and the report on the examination.

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CIE is publishing the mark schemes for the October/November 2010 question papers for most IGCSE, GCE Advanced Level and Advanced Subsidiary Level syllabuses and some Ordinary Level syllabuses.

1 (a) -Deletes contents of a disk/marks tracks/sectors/marks the index

(b) -Reduces file size/by deleting redundant data/using spare codes for common words/allows
file to be transmitted faster/reduces storage space required   [2]

(c) -Supplied with a peripheral/converts OS commands into instructions that the peripheral will
understand/needs to be installed when new peripheral is found   [2]

(d) -Controls: Deleting/Copying/Moving/Saving/Storing/Opening/Sorting of files   [2]

2 (a) (i) -The code produced by the programmer…
-in high level language   [2]

(ii) -The code in binary/machine code/executable form
-produced by the compilation process   [2]

(b) (i) -Error in the grammar of the program

(ii) -Error in the design of the program   [2]

(c) (i) -Inputs to system chosen to represent normal, abnormal, extreme data
-Intended outcome is known
-Actual outcome can be compared with expected outcome   [2]
(1 per -, max 2)

(ii) -Almost final version of software...
-released to selected customers for testing...
-in real conditions.
(1 per -, max 2)   [2]

3 (a) (i) -Text/alpha/string/alphanumeric
-These are sets of characters not numbers   [2]
(ii) -Real/Currency
-There will be a fractional part to the value   [2]
(iii) -Boolean
-Only two possible values (yes/no)   [2]

(b) -Files (all the data on the stock) comprise...
-Records (all the data about a single item of stock) comprise...
-Fields (individual pieces of data in a record e.g. Price)
(1 mark only for hierarchy given without context)   [3]

4 (a) -The means of inputting queries to the system...
-and obtaining the results of the queries
-in human understandable form.
(1 per -, max 2)

(b) -A piece of software
-which applies the rules to the knowledge
-to obtain results to queries
(1 per -, max 2)   [2]

5 -Software queries the student details for...
-Taught by Ms.Ahmed...
-AND does geography
-Standard letter written containing...
-Fields that can be filled in…
-with data from student details
-Fields are filled in
-Personalised letters printed
(1 per -, max 6)   [6]

6 (a) Hardware:
Cable/NIC/Wireless card/Server
Software:
Network Operating System/Network versions of software
(2x Hardware + 1x Software)   [3]

(b) Mark points:
-Shape
-terminators
-Peripherals shown/central storage/server   [3]

(c) -Bytes are added together before transmission...
-ignoring overflow
-Result is check sum sent with data block
-Same calculation carried out on receipt
-Result compared with transmitted value, if different then error
(1 per -, max 4)   [4]

7   e.g.
```
COUNT=0
INPUT NAME
WHILE NAME < > 'xxx' DO
    PAY=HOURS=TAX=0
    INPUT HOURS
    PAY=HOURS * 2.85
    TAX= (PAY-80) *.2
    IF TAX > 0 THEN PAY=PAY-TAX
        ELSE TAX=0
    OUTPUT NAME, PAY, TAX
    COUNT=COUNT+1
    INPUT NAME
END WHILE
OUTPUT COUNT
END
```

Mark Points:
-Initialise counter
-While (or repeat) loop
-with correct condition
-Initialise variables
-Sensible variable names used
-Input hours inside loop
-calculate PAY
-calculate TAX
-Condition statement whether to pay tax
-Calculate pay after tax/set tax to 0
-Output name /pay/tax inside loop
-Input next name
-Count incremented inside loop
-Count output outside loop
(1 per -, max 10, accept points made on a flowchart)   [10]

8   **(i)**   -Customer's requirements for system/allows for contract between customer and analyst
                    -describes the expectations and those items which must be provided   [2]

        (ii)   -Describes how the system works/intended for the technician not the user
                    -e.g. program code/data structures/...   [2]

        (iii) -Explains how to use the software/intended for the user not the technician
                    -e.g. data to be input/FAQs/Error messages/...   [2]

9   **(a)** -Transducer around neck/under skin
                -Electric field through which cow passes reads value
                (Or other sensible method)   [2]

        (b) -Length check/format check…/ID number must have 6 digits
                -Character check/all the characters must be digits
                -Existence check/does ID number exist in system?
                -Check digit/arithmetic done on five of digits which should give sixth digit as the result.
                (2 per -, max 3 -, max 6)   [6]

10 (Note: the mark scheme uses examples in each case, other sensible answers are accep~~ted~~
   -Tabular/to show data in a highly structured way/feed levels/…
   -Printed reports/to allow the farmer to study the details of feed later
   -Sound/to sound alarm if same cow appears twice/cow does not eat feed
   -On screen image/showing which cow is at which feeder
   -Lights/to show which cows have finished being milked
   -Physical output/the feed delivered to the cows
   (2 per -, max 3-, max 6)   [6]

11 (a) -Touch sensitive screen
        -Because of dirt in cow shed making other forms of input difficult to maintain
        -Printer
        -to print hard copy reports on cows
        -USB flash memory
        -to store details of cow requirements and any changes made
        (1 per -, max 2-, max 4. Accept other hardware if justification made)   [4]

   (b) -Options listed...
        -from which choices are made
        -leading to other screens of options
        -Values are present and limited choices
        -Cow already identified
        -Use of touch screen peripheral
        (1 per -, max 4)   [4]

12 -Worry about being made redundant
    -Worry that they will not be able to cope with new system
    -New skills will mean better qualifications/more pay
    -Much of tedium of job taken over by new system
    -Farmer will be able to check up on their work through system
    -Deskilling
    (1 per -, max 5)   [5]