CAMBRIDGE INTERNATIONAL EXAMINATIONS

General Certificate of Education Advanced Subsidiary and Advanced Level

MARK SCHEME FOR the November 2002 question papers

9691 COMPUTING

9691/01 Paper 1, maximum raw mark 90

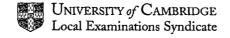**9691/02** Paper 2, Practical Tasks, maximum raw mark 60

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UNIVERSITY *of* CAMBRIDGE
Local Examinations Syndicate

CAMBRIDGE
INTERNATIONAL EXAMINATIONS

NOVEMBER 2002

GCE ADVANCED SUBSIDIARY AND ADVANCED LEVEL

MARK SCHEME

MAXIMUM MARK : 90

SYLLABUS/COMPONENT : 9691/01

COMPUTING

1. a) (i)-Pre written/readily available software
   (ii)-Software written for a specific application. (2)
   b) -Pre tested
   -Fewer bugs
   -Cheaper because development costs are shared
   -Training available
   -Ready immediately
   -User groups often available.
   -May not always do precisely what is required.
   (1 per -, max 4) (4)

2.a) (i)-Data processed together at some non sensitive time
   (ii)-Data processed at time of input/input processed quickly enough to effect the next input. (2)
   b) (i)-e.g. payroll
   -large quantities of data/data requires similar processing
   (ii) e.g. Computer control
   -Need for action based on sensor input. (4)

3.a) (i)4,6,8,10 (1)
   (ii)4,6,8,10,12 (1)
   b) Any sensible modification for either. (2)

4. a) Candidate number   2/4 (1) bytes(1)
        name   10/30 (1)
   Number of subjects   1   (1)
   Gender   1   (1)
   Date of birth   6/8   (1)
        Total   18/44 bytes
        *200 (1)   3600/8800
        +10% (1)   3960/7680
        /1024 (1)   3.9/7.5 Kbytes
   (Max 6) (6)
   b) -Nothing but floppy disk
   -because of the size of the file. (2)

5.a) (i)-Source code is the code written in hll/written by programmer.
   (ii)-Object code is in executable form.
   -The translator turns the source code into the object code. (3)
   b) When translator finds
   -wrong (reserved) words
   -wrong syntax in instruction construction
   -wrong use of variables
   messages are produced for user. (2)

6.a) -Time slices
-round robin
-giving each terminal processor time
-Use of flags
-Mention of polling
(1 per -, max 3)   (3)

b) -On-line system which implies...
-up to date records, meaning...
-that they must be held/amended centrally
-Any record can be queried from any terminal.
(1 per -, max 3)   (3)

7. a) -Size of array calculated
-Location of array decided...
-according to data type/size
-Locations reserved
-Array named in look up table.
-Size of array stored in table
-Lower bound of array stored in table
-Upper bound of array stored in table
-Data type stored in table
-Address of first element stored in table.
(1 per -, max 4)   (4)

b) -Index set to 0
-Array(index) searched
-If = Item then 'found'
-Else increment index and repeat
-Until found or error report.
(1 per -, max 4)   (4)

8.   -Text file...
-small amount of data...
-not time sensitive transmission.
-Video file...
-Large amount of data
-which must be transmitted in a standard time frame.
(1 per -, max 4)
-Different volumes per second...
-mean that different transfer rates are appropriate...
-some applications cannot be run without a high bit rate.
(1 per -, max 2)   (6)

9. a) -The software is appropriate to many applications within a skill area.   (1)
b) -e.g. Control of a robot on a production line.
-This is a one-off application.   (2)

10. e.g.
    -Baud rate...
    -so that processors are sending/receiving at the same speed/data would become confused otherwise.
    -Parity...
    -must either be odd or even/otherwise correct data would not be accepted.
    -Echoing back...
    -If one device expects echoing and the other doesn't there will be a freeze while one waits.

    (6)

11. -Data flow diagrams/system flow charts...
    -show the way that data enters and leaves the system and...
    -the storage locations of different data...
    -and how the data relates to each other during processing.
    -Jackson Structure Diagram
    -shows how the solution can be split into modules...
    -using the top down approach...
    -and showing the links between the modules.
    (1 per -, max 3 per type, max 6)

    (6)

12. a) -Passive system is one where the information is not altered.
       -e.g. a quote is obtained from a database which remains unchanged during the enquiry.
       -Interactive system is one where the information is altered by the user.
       -e.g. Customer makes a payment, record must be altered to reflect this.   (4)
    b) -Individual should be able to see data held about them...
       -to be able to check that data is correct.
       -Individual should have right of appeal to third party
       -organisation may disagree with their request.
       -Data should be relevant
       -The storing of irrelevant data is only useful if for some unpublished reason.
       -Data should not be held longer than necessary...
       -when bill paid there is no longer any reason for details of account to be kept.
       -Data should not be passed on to other users..
       -in order to protect privacy
       -Data should only be used for original purpose..
       -in order to protect user from use that is not acceptable.
       (1 per -, max 3 points, max 6)

       (6)

13. -Restricts access to computer system
    -Helps customer to determine what they want...
    -because choices are given at each stage.
    -Example fits a tree structure for the information.
    -Easy to operate/suits a touch screen.
    -Easy to test
    -Results are predictable
    (1 per -, max 4)

    (4)

14. -Digital camera
    -takes electronic image...
    -fed into laptop (portable) computer.
    -Area of improvement airbrushed out
    -replaced by images taken from a library of products
    -Dimensions and colours can be altered.
    -Final result printed out for customer.
    -Mark available for comment about hard copy/storage facilities
    (1 per -, max 6) (6)

15. User:
  a) -Explanation of software aimed at person who uses the system.
  b) -Installation instructions
    -Input methods
    -Example outputs
    -Examples of valid input
    -Error message explanations.
    Technical:
  a) -Used by computer literate to maintain the system
  b) -Program coding
    -Variables used
    -Data structure details
    -Detailed algorithms.
    (1 per -, max 3 per type, max 6) (6)

TOTAL(90)