CAMBRIDGE INTERNATIONAL EXAMINATIONS

MARK SCHEME FOR the June 2002 question papers

9691 COMPUTING

9691/1   Paper 1, maximum raw mark 90

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UNIVERSITY of CAMBRIDGE
Local Examinations Syndicate

CAMBRIDGE

INTERNATIONAL EXAMINATIONS

JUNE 2002

MARK SCHEME

MAXIMUM MARK : 90

SYLLABUS/COMPONENT : 9691/1

COMPUTING

9691/01 Mark Scheme June 2002

1. a) (i)-Devices linked by linear cable.
      (ii)-Devices linked by cable in completed loop.
      (iii)-Terminals linked to central hub.   (3)

   b) (i)-Simple to set up.
      (ii)-Can continue with a break in the network cable.
      (iii)-New stations may be added/deleted/damaged without affecting the others/data more secure/no risk of collision.   (3)

2.   -Bar code read (or equivalent)
      -by laser scanner
      -Code is validated
      -sensible example of validation
      -Code is used to identify item record on the file
      -Price read from file
      -with item description
      -displayed at EPOS terminal/printed on receipt
      -No. in stock is decremented
      -test to see if order should be made.
      -automatic order created/output produced for manager.
      (1 per -, max 8)   (8)

3.   Three different pairs of data, ie different tests. For example:
      2,3 to test that the system works using standard data.
      2,-2 to test the effect of different signs.
      -2,-3 to test the effect of two negatives, will the algorithm distinguish according to signed value or magnitude.
      2,2 to test the effect of both inputs being the same.
      Two numbers with very small(fractional)difference/to test the degree of accuracy of the program.
      (3 x 2 marks for three tests)   (6)

4. a) -ROM is non volatile/read only...
      -RAM is volatile/read write.   (2)

   b) -ROM stores the bootstrap...
      -because the bootstrap must be present when the computer is switched on.
      -RAM stores user files...
      -because they need frequent amendment.
      -RAM stores programs
      -when being executed
      -Operating System
      -to allow use of different ones.   (4)

5.a) Input:
 -Touch screen...
 -the hardware is protected from the elements/protected from vandalism.
 Output:
 -Monitor screen...
 -to clearly show choices
 -(Low quality) printer...
 -to allow passengers to take away details.
 Communications:
 -Cabling...
 -to allow data to be accessed by terminals.
 -Network card...
 -to identify terminals in communications.
 Storage:
 -Central hard drive
 -to store large amounts of data which will need editing.
 (Max two per type, max 8) (8)

 b) (i)-Choices offered to the user...
 -restricted in number...
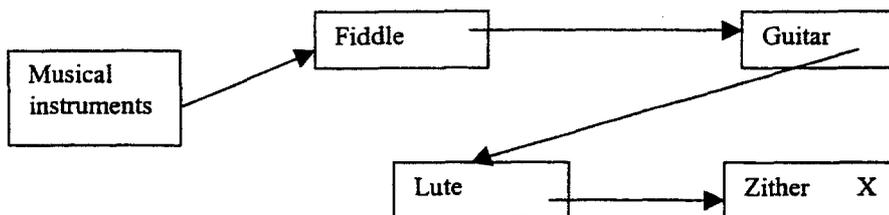 -leading to further menus.
 (1 per -, max 2) (2)

 (ii)-Easy to use (even by non computer users)
 -Simple to administer (bus changes...)
 -Can be made to fit the data structure (use of a tree)
 (1 per -, max 2) (2)

6. a)

 Mark points:
 -Head of list table with entry.
 -Order of instruments
 -Pointers.
 -Null pointer.

 b) Any form including prose.
 Mark points:
 -H of L table
 -Follow pointers
 -At each node compare value with Lute until...
 -either found, report...
 -follow pointer to data
 -or null value, report error...
 -past l in alphabet, report error.
 (1 per -, max 4) Answer equally good if held in array. (4)

7. Any four from:
Is the solution technically possible?/must ensure that the hardware requirements can be met.
How much will the solution cost?/Is the solution economic to produce?
What extra costs are there above the costs of the original system?/Is the solution economic to run?
What are the effects going to be on human beings?/Are the changes to the workforce justified?
How good are the present workforce with computers?/Is there a skilled workforce available?
Will the customers notice?/Will it effect the profile of the business?
Will the increase in business cover the costs?/Will the profits increase?
Will the solution create legal problems?/Is data covered by data protection legislation?
2 marks each, one for the basic point and one for full explanation. (8)

8. a) -Circuit involves setting up the route before the message is sent.
-Packet involves sending the message in segments of equal size, each of which finds its own route to the destination. (2)

   b) -Circuit means that the message does not have to be reassembled.
-Packet means that the message is almost impossible to intercept/The network is not dedicated to the transmission of one message. (2)

9. -Different requirements of application areas...
-one requires all data to be accessed in some order...
-because it is necessary to ensure that none is missed
-The other requires direct access...
-to allow for immediate response to telephone request.
(1 per -, max 4) (4)

10. Answer should be in form of a diagram with these mark points:
-Initial index with (1 or 2 digits)
-Further indexes
-Leading to data block
-Held sequentially.
(1 per -, max 3) (3)

11. -Back-ups taken regularly...
-archive at wider intervals.
-Back-up copies whole file...
-archive redundant records/files.
-Back-up used as security in case original is corrupted...
-archive is used to free space on storage (in case access is required in the future.)
(1 per -, max 4) (4)

12.a) -Format check...
-to ensure entry is digits point digit digit.
-Character check...
-all inputs should be digits or a point.
-Range check...
-less than a max value for consumer bills.
(1 per -, max 4) (4)

3

b) -Extra digit...
   -added to digits in account number in order to check entry.
   -Weighting
   -Summation
   -Modular division
   -Remainder used.
   -Result compared with check digit.
   (1 per -, max 4)   (4)

13. -Long periods of immobility...
    -causing back strain/muscle problems
    -Long periods staring at screen...
    -causing dry eye/eye strain.
    -Effect on eyes of radiation from the screen.
    -Continual use of same muscle groups...
    -RSI
    -Move around regularly.
    -Use ergonomic chair
    -natural keyboards
    -Use anti glare screen.
    -Wrist pads
    (1 per -, max 7)   (7)

14. -Condition driven report
    -operational level...
    -automatic reporting of some parameter that has been breached.
    -E.g. outstanding account reported to elicit production of letter to customer.
    -Strategic level report...
    -Implies that report is collation of data, to be used to inform decision making
    -E.g. Volume of outstanding accounts to enable a decision to be made as to appropriate
    level of penalties to be used.   (6)

                                                        TOTAL   (90)