CAMBRIDGE INTERNATIONAL EXAMINATIONS

International General Certificate of Secondary Education

MARK SCHEME FOR the June 2002 question papers

0420, 0421, 7010 COMPUTER STUDIES
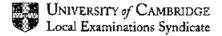
0420, 0421, 7010/1   Paper 1, maximum raw mark 100

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All Examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes must be read in conjunction with the question papers and the *Report on the Examination*.

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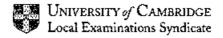INTERNATIONAL EXAMINATIONS

JUNE 2002

INTERNATIONAL GCSE

MARK SCHEME

MAXIMUM MARK: 90

SYLLABUS/COMPONENT : 0420/1, 0421/1, 7010/1

COMPUTER STUDIES

UNIVERSITY *of* CAMBRIDGE
Local Examinations Syndicate

Computer Studies 0420/0421/7010 Paper 1 June 2002 Mark Scheme

1   Generally, one mark for each valid point. Two examples gain two marks.

     (a) *multimedia*
     software that combines more than one medium
     e.g. sound, graphics, video, used in presentations   [2]

     (b) *array*
     set of storage locations
     referenced by a single identifier,
     e.g. FRED(20), SAM(3,5)   [2]

     (c) *de-skilling*
     skilled/semi-skilled labour
     replaced by microprocessor controlled systems
     e.g. manufacturing   [2]

     (d) *expert system*
     program
     behaves in the same way as a human expert
     e.g. medical diagnosis, oil refining   [2]

     (e) *verification*
     checking data at the input stage
     by comparing copies
     e.g. repeating the keyboard operations   [2]

2   Any **two** from eg
     Digital images from scanner and printed
     Imported into DTP software
     Scanning by OCR and converted into text   [2]

Computer Studies 0420/0421/7010 Paper 1 June 2002 Mark Scheme

3   (a) **Two** advantages from e.g.
        no need for paperwork
        no delay connected with paperwork
        no clearing process
        no need for cheques/cash   {2}

    (b)   **Two** disadvantages from e.g.
        money withdrawn straight away so loss of interest
        debit card details may be obtained illegally/card fraud
        criminals may monitor transactions/hacking can occur
        more money spent on security   [2]

4   **(a)**   **Two** advantages from e.g.
        H L instructions similar to English
        H L are easy to understand
        easy to correct errors/test
        problem orientated
        portable   [2]

    (b)   Compiler converts whole program to object code in one go/with all
        errors reported   [1]
        Interpreter converts each instruction then carries it out/until first error

        [1]

Computer Studies 0420/0421/7010 Paper 1 June 2002 Mark Scheme

5   (a)   Any three from eg.

handles job control	file management
input control	spooling
output control	multitasking
handle interrupts	utility tasks
load files/software / runs software	checking passwords / codes
error reports	interface

log use
accounting
batch processing
memory management   [3]

   (b)   Any two from eg
re run old master file with old transaction file
      load backup copies
follow disaster recovery plan   [2]

6   (a)   For each part any one from
(i) temperature sensor, humidity sensor
(ii) heater, cooler/fan, humidifier   [2]

   (b)   Any two from
Compare against pre-set values
output signals make changes to conditions in museum
which affect input signals   [2]

   (c)   correct conditions are constantly maintained/works 24 hrs a day
no need to worry about items in museum deteriorating
no need to employ anybody   [1]

Computer Studies 0420/0421/7010 Paper 1 June 2002 Mark Scheme

7 (a) Any two ways from e.g.
        put continent lines/contours on
        decode
        animated pictures of temperature variation
        animated pictures of cloud movement
        addition of colours on images
        sharpen the image   [2]

   (b) Any two from e.g.
        more complete picture of the weather is obtained
        amount of cloud cover can be calculated
        can predict weather if wind direction is known
        no need to install similar equipment at sites on earth
        can see storms and hurricane movement faster
        can see storms and hurricane movement over a wider area

                                                             [2]

8 (a) Award one mark each for correct line
        Down 40
        Right 90
        Backward 20   [3]
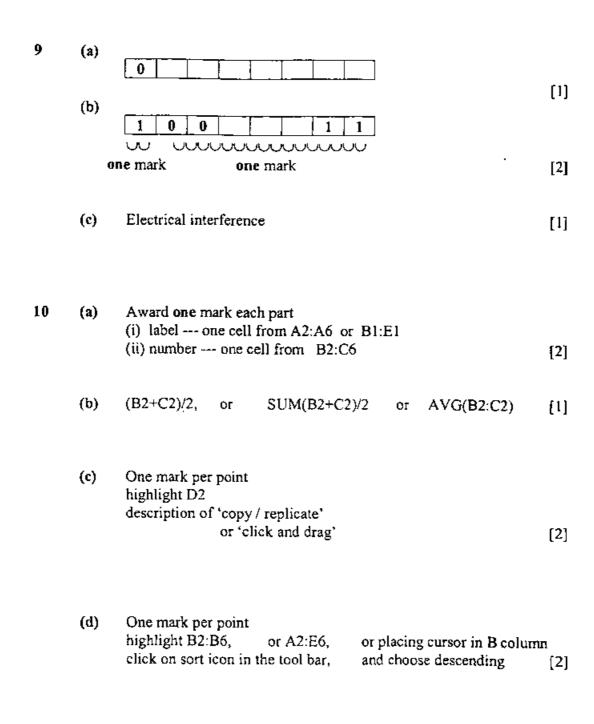
   (b) Award one mark each correct line in correct position

        Initialise counter
        loop
        call procedure
        stop condition   [3]

Computer Studies 0420/0421/7010 Paper 1 June 2002 Mark Scheme

9 **(a)**

```
| 0 |   |   |   |   |   |   |   |
```
[1]

(b)

```
| 1 | 0 | 0 |   |   |   | 1 | 1 |
```
  one mark   one mark   [2]

(c) Electrical interference   [1]

10 **(a)** Award one mark each part
(i) label --- one cell from A2:A6 or B1:E1
(ii) number --- one cell from B2:C6   [2]

(b) (B2+C2)/2, or SUM(B2+C2)/2 or AVG(B2:C2)   [1]

(c) One mark per point
highlight D2
description of 'copy / replicate'
            or 'click and drag'   [2]

(d) One mark per point
highlight B2:B6,   or A2:E6,   or placing cursor in B column
click on sort icon in the tool bar,   and choose descending   [2]

(e) A1:D6 award one mark only
A1:A6 and D1:D6   award two marks   [2]

Computer Studies 0420/0421/7010 Paper 1 June 2002 Mark Scheme

11 (a) One mark each
DATA TYPE --- text, text, number, text, number/currency

FIELD SIZE ---- 6,   2,   2,   8 - 30,   3 - 10   [2]

(b) Any two from
save storage space
less errors on input
faster input   [2]

(c) Any two from eg.
days
customer reference number
holiday reference number   [2]

(d) (i)
BK0042   BK0043   BK0046   BK0050
〰〰〰   〰〰〰〰〰〰〰〰〰〰〰〰
one mark   one mark   [2]

(ii) (NIGHTS > 7) AND (PRICE ($) ≥ 450)

.. one mark...   ....one mark..........   [2]

(e) Processing--   check on file
record booking   [2]

Output-----   receipt/itinerary
print booking/ticket details   [1]

Computer Studies 0420/0421/7010 Paper 1 June 2002 Mark Scheme

12   (a) Award **one** mark each point

          convert digital signals to analogue signals
          to send down the telephone line   [2]

    (b) Award **one** mark each point
          check user ID
          check password
          check voice print
          check electronic signature   [2]

    (c) Any **three** from
          news
          on-line shopping
          finance
          down loading software   [3]

    (d) Award **one** mark each point
          correct description of what the Internet does
          1000's of computer networks linked together world wide
          Data on any one network is accessible by a computer on
                                 any other network   [2]

13   (a) One mark per point:
          fact finding methods (award one mark for each method stated)
          produce data flow diagrams/descriptions
          existing systems flow charts   [3]

    (b) Award one mark each point
          written specially for that purpose/customised
          no extra unwanted features
          quicker to modify/make changes   [2]

Computer Studies 0420/0421/7010 Paper 1 June 2002 Mark Scheme

(c) Any two from eg
     standard/normal
     extreme
     abnormal/erroneous   [2]

(d) Any two from eg
     description of what part in the system does
     systems flow charts
     data flow diagrams
     screen layouts
     user interface design
     test plan   [2]

14   (a) Any one from
          blood pressure
          pulse/heart rate
          temperature
          blood sugar level
          rate of flow   [1]

(b)   Award one mark each point
       convert to digital
       input data is compared
       with pre set limits
       adjustment   [3]

(c)   Any one from
       medication/drug
       graph
       alarm   [1]

Computer Studies 0420/0421/7010 Paper 1 June 2002 Mark Scheme

15   (a)   Any **three** from eg
processed fairly and lawfully
processed for limited purposes
kept no longer than needed
kept secure
not transferred to other countries without protection   [3]

      (b)   Any **two** from eg
job loss
blackmail
not getting a job
adverse publicity
struck off   [2]

16   Award one mark for each correct step in the algorithm

number of sales = 0, number of refunds = 0 - **one** mark

Input money - **one** mark

Input sale/refund - **one** mark

IF..sale.. THEN – add money to total amount of money
              number of sales = number of sales + 1   **one** mark

       ELSE   subtract money from total amount of money
              number of refunds = number of refunds + 1   **one** mark

Loop

Output – number of sales, number of refunds, total amount of money   **one** mark

Error output - **one** mark   [6]