MARK SCHEME for the October/November 2008 question paper

0418 INFORMATION TECHNOLOGY

0418/01   Paper 1 (Written), maximum raw mark 120

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.

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.

UNIVERSITY *of* CAMBRIDGE
International Examinations

1 **A** Desktop computer (1)
   B Laser printer (1)
   C PIN pad (1)
   D Microphone (1)
   E Laptop computer (1)   [5]

2 Floppy disc (1)
   Hard disc (1)   [2]

3 False (1)
   True (1)
   True (1)
   False (1)
   True (1)   [5]

4 Dot matrix printer   high quality high volume output (1)

   Laser printer   high quality low volume output (1)

   Inkjet printer   multimedia presentation (1)

   Monitor   very large high quality printouts (1)

   Graph plotter   continuous stationery (1)   [5]

5 **(a)** Magnetic tape (1)

   (b) Chip (1)

   (c) DVD ROM (1)

   (d) Barcode (1)   [4]

6 Right   90
   Forward   70
   Right   90
   Forward   60
   Penup
   Forward   80
   Pendown
   Forward   85
   Penup
   Right   90
   Forward   50
   Pendown
   Forward   20
   Right   90
   Forward   100

   (1 mark for each group of 3 statements)   [5]

7 **(a)** **(b)** **(c)** (1 mark each)
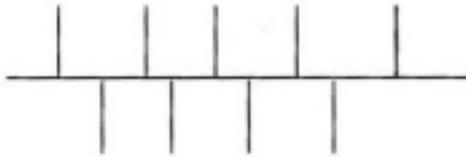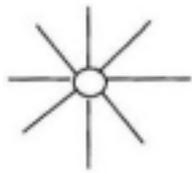
[3]

8 **Two** from:
Faster to arrive/to be delivered
Phone call is cheaper than a stamp
You don't have to leave your house to send email
Email can be read from any location
Replies to emails can be quicker
Easier (cheaper, quicker) to send same message to many people [2]

9 **(a)** Interview (1)
Can change script to suit circumstances/more likely to get truthful responses (1)
Observation (1)
Can gain broader overview of processes (1)
Examining documents (1)
Can follow data flow more easily/informs input/output format design (1)
Questionnaires (1)
Better for busy people/don't have to prearrange appointments (1) [8]

(b) Title (1)
Author's name (1)
Reference/Accession number/ISBN/Publisher/Picture of cover/Dewey number/genre/fiction or non-fiction/target age group/picture of author/date published/summary of contents/no. of copies

(2 marks for 4 items, 1 for 3 items, else 0)

Information fills the page AND is clearly a screen form (1)
Appropriate spacing for each field (1) [max. 5]

(c) **Three** from:
Field name
Field type
Field length
Key field
Validation check
Index
Input mask [3]

(d) Normal data (1)
Data which is acceptable/within the given range (1)
Abnormal data (1)
Data of the wrong type/outside the given range (1)
Extreme data (1)
Data at either end of the allowed range (1) [6]

(e) Three from:
Parallel running/implementation
Have to pay two sets of workers/takes a long time before system is fully implemented
Direct changeover
If unsuccessful lose all the data
Pilot running
If unsuccessful lose some data
Phased implementation
If unsuccessful lose some data [6]

(f) Three from:
The ease of use of the solution
The appropriateness of the solution
Comparison of the solution with the original task requirements
Identification of any limitations
Identification of any improvements which can be made to the system
Evaluation of the users' responses to the results of testing the system [3]

(g) Three from:
RSI – wrists
RSI – fingers
Headaches
Back problems
Sight problems [3]

10 Three from:
System used to read bank/credit cards
At ATM or EFTPOS systems
PIN is typed in using PIN PAD
Details on chip are read by chip reader [3]

11 Online (1)
Batch (1)
Online (1)
Batch (1) [4]

12 (a) E2 [1]

(b) Any cell in range A1:A6 OR A1:E1 [1]

(c) = C2 – B2 [1]

(d) Highlight D2   (1 for each line)
Click copy
Highlight D3:D6
Click paste
OR
Highlight D2
Using fill handle/little black cross/cross in bottom right hand corner of cell
Drag down to D6
OR
Highlight D2
Highlight D3:D6
Click on fill down   [max. 3]

(e) 6   [1]

(f) **Two** from:
Simulations
Mathematical models
Scientific models
Civil engineering models   [2]

(g) **Two** from:
Danger
Cost of building real thing
Time scale   [2]

13 **Six** from:
Input – questions asked by system/answers typed in/symptoms are typed in processing –
     expert system compares symptoms
     with those in the knowledge base
     using inference engine
     using rules base
     matches are found
Output – suggested/possible diagnoses   [6]

14 (a) **Three** from:
Humidity
Moisture
Temperature
pH
Light   [3]

(b) Sensors produce analogue data/signal (1)
Computers work in digital (1)   [2]

(c) Analogue to digital converter (1)   [1]

(d) **Two** from:
   Computer readings are more accurate
   Readings can be taken more frequently
   Readings can be taken any time of day or night
   Can produce graphs more quickly
   More reliable/readings taken at regular intervals   [2]

15 **(a)** **Three** from:
   Several people can take part in a conference regardless of where they are
   People are connected online
   Images of the members of conference appear on the screen
   Software is needed in each computer to operate the conference
   People who speak can be heard by all the other people in the conference   [3]

   (b) **Two** from:
   Do not have to pay for conference room/less expensive than hiring larger accommodation
   Do not have to pay employee travelling expenses
   Do not have to pay for hotel roams/overnight stays
   Conferences can be called at short notice   [2]

16 Technical (1)
    Technical (1)
    Technical (1)
    User (1)   [4]

17 **Five** from:
    DTP –
    Advantages
       Can get information to every household
    Disadvantages
       Need for physical distribution
       No sound
       No animation
       Printing costs

    Presentation –
    Advantages
       Sound
       Animation
       Interactive
    Disadvantages
       Library will need to have screen/computer
       Cost of screen/computer
       Not everyone will visit the library   [6]

    (Must be at least 1 advantage and 1 disadvantage or max 4
    +1 for reasoned conclusion)

18 **Seven** from:
   Advantages
      Less danger of mugging
      Don't have to waste time travelling to shops/banks/theatres etc.
      Disabled people don't have to travel/leave home
      Don't have to spend money on travelling expenses travelling (long distances to shops/banks/
      theatres)
      Greater choice of goods/seats
      Can shop when shops/bank when banks/book tickets when theatres are closed

   Disadvantages
      Lack of socialising/social contacts
      Customers must have a computer/Internet access/(basic) computer skills
      Hackers may intercept data and defraud customer
      Deprived of personal touch
      Phone bills can increase
      Without broadband other family members cannot use the phone
      Cannot see/feel goods in reality
      More vulnerable to phishing
      Lack of exercise

   (+1 for reasoned conclusion
   Max. 5 from either advantages or disadvantages)   [8]