# MARK SCHEME for the May/June 2011 question paper

# for the guidance of teachers

# 9691 COMPUTING

**9691/13**      Paper 1 (Written Paper), maximum raw mark 75

**1** **(a) (i)** – A device that allows data to be sent/entered to the computer

    **(ii)** – A device that will store data in the computer system (for later use)      [2]

  **(b)** – Keyboard/to allow cashier to input which film or number of tickets
     – Magnetic stripe reader/to input details of loyalty card
     – chip and pin reader/to input details of credit or debit card
     – pointing device/mouse to make a choice
     – touch screen to make a choice or press an onscreen button

    (2 per –, max 4)      [4]

  **(c)** – Screen output or soft copy/to allow customer to check tickets and prices as
      choices are input to system
     – Printout or hard copy/to produce tickets for customer
     – sound output/error or confirmation

    (2 per –, max 4)      [4]

  **(d) (i)** – Producing leaflets/flyers/brochures/posters
        – Using frames to divide up content/editing features/...
        – combining images and text      [2]

    **(ii)** – To write letters to suppliers/customers
        – Allows use of standard templates for documents/allows mail merge to send
          personalised letters to specific people      [2]

      *Don't accept same point in (i) and (ii)*

    **(iii)** – To keep accounts of the cinema/to keep records of tickets sold and dates
         sold/cumulative figures/salary details
        – Allows calculations to be carried out on numerical data
        – graphical representation of sales figures
        – financial modelling
        – automatic recalculation
        – lookups      [2]

**2** **(a)** – Manager must provide knowledge of...
     – and requirements of business as...
     – they are expert in how the business works.
     – Analyst provides knowledge of what is possible...
     – particularly within confines placed by manager/e.g. budget
     – If not properly defined analyst will solve the wrong problem
     – Manager's requirements and analyst's understanding must match

    (1 per –, max 4)      [4]

**(b) (i)** – Important to analyst to ensure that there is evidence that all objectives have been met
  – or will not be paid/ruin his reputation [2]

**(ii)** – Important to manager to ensure that there is evidence that all objectives have been met
  – or system may prove unsatisfactory in the future. [2]

**3 (a)** – Represented by a set of bits...
  – Unique to that character
  – The number of bits needed is equal to 1 byte/2 bytes
  – ASCII/Unicode is a common set

  (1 per –, max 2) [2]

**(b)** – Bits are used to store the correct binary representation of the integer
  – Leading zeroes included to complete required number of bits
  – Standard number of bits irrespective of size of integer
  – Concept of short and long integer dependent on sizes of integers
  – Two's complement used to represent numbers

  (1 per –, max 3) [3]

**(c)** – As a single bit/byte
  – a 0 or a 1/a byte of all 0s or all 1s [2]

  *Do not accept Y/N or True/False*

**4 (a)** – Detail is added to the end of the file [1]

**(b) (i)** – ID numbers are stored in an index…
  – in sequence
  – This allows a (binary search) to be carried out
  – To find the relevant ID number and a pointer to the data
  – possible to use multiple indexes

  (1 per –, max 3) *Accept a diagram* [3]

**(ii)** Either: – New ID compared to ID at bottom of index
  – If higher than last in index, then add to the end of the index
  – Else move last ID down one position and repeat from stage 1

  Or: – Add value to the end
  – Sort table

  (1 per –, max 2) [2]

**5 (a) (i)** – Contents of RAM can be altered/ROM cannot
– RAM is usually has a greater capacity than ROM
– Data held in ROM, after processing, can only be written to RAM
– RAM is volatile/ROM is non-volatile

(1 per –, max 2) [2]

**(ii)** – The boot-strap program/operating system/system data/BIOS
– It must be available when power is switched on/to boot up the system/so it can't be changed [2]

**(iii)** – e.g. A word processor document/user data
– User must be able to alter it
OR
– part of the software being used (application/operating system)
– the processor needs to fetch the instructions/can be replaced by another program at any time

(1 per –, max 2) [2]

**(b) (i)** – Processor works at high speed while peripherals are much slower

**(ii)** – use of buffer/temporary storage area
– Data transferred from primary memory to buffer (or vice versa)
– When buffer full, processor can carry on with other tasks
– Buffer is emptied to the peripheral
– interrupt ...
– is sent to processor...
– When buffer empty
– requesting more data to be sent to buffer.
– according to priorities

(1 per –, max 5) [5]

**6**

| A | B | C | D | OUT |
|---|---|---|---|---|
| 0 | 0 | 1 | 0 | 1 |
| 0 | 1 | 1 | 0 | 1 |
| 1 | 0 | 0 | 0 | 0 |
| 1 | 1 | 0 | 1 | 1 |

Mark points:
– Column C first two values
– Column C last two values
– Column D first two values
– Column D last two values
– OUT first two values
– OUT last two values [6]

**7  Colour**:
– Bright colours to attract young children
– Combinations of colours should allow for suitable contrasts
– Use of colours should be consistent e.g. ticks should be green
– reference to colour blindness/epilepsy

**Layout**
– The screen content should be placed consistently so that children are concentrating on their spelling
– Details like the score should be easily visible and always in the same place
– big buttons for ease of navigation
– large characters to make it easy to read
– Layout should be consistent with other software in the set (e.g. the arithmetic one)

**Content**
– The words used should be of the correct difficulty for the age group
– There must be some motivational factor like building a rocket each time an answer is correct
– Content should be kept to a minimum to allow concentration on the main aspect of the software
– relevant images

(1 per –, max 2 per section, max 6)                                                                 [6]


**8  (a)** – LAN over short distances/buildings/site // WAN geographically remote
– LAN uses own communication medium/WAN uses third party
– LAN more secure/WAN more open to attack

(1 per –, max 2)                                                                                   [2]


**(b) (i)** – Individual bits sent one after another/along single wire
– In one direction only                                                                        [2]

**(ii)** – Groups of bits sent together/along multiple wires
– in both directions, but only one at a time                                                   [2]


**(c)** – The bytes are sent as a block
– The bytes are added up before transmission (ignoring the carry out of the byte)
– The result is sent with the data and…
– compared with the result of the same calculation carried out after transmission

(1 per –, max 3)                                                                                   [3]

**9 (a)** – Multi-user allows many users to all use one computer
– Network links many computers <u>to share data and resources</u> [2]


**(b)** Batch
– Jobs/data collected together before processing
– e.g. payroll
– happens at a quiet time
– does not require human interaction
– requires a JCL to control the process
– results are not time sensitive

(1 per –, max 4) [4]