

MARK SCHEME for the May/June 2007 question paper

9691 COMPUTING

9691/01

Paper 1 (Written Paper 1), maximum raw mark 90

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.

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- 1 – Storage that allows reading of professionally produced material (CD ROM drive, DVD)/ necessary to input game instructions to her hard drive/Joystick/gamespad/.../to play the game.
– Memory stick (floppy disk, CDRW)/to save her half finished work and transport it to a different machine
– (Colour) printer/Inkjet/Bubble jet/to produce hard copy of her work to hand in.
– Network Card/Modem and phone line/Broadband, ADSL, ISDN/to allow access to internet to facilitate use of e-mail/Webcam/Microphone and speakers/to allow conversation and vision.
(2 per –, 1 for peripheral, 1 for explanation, max 8) [8]
- 2 a) – The user is far slower than the processor in making decisions
– The peripherals are slower than the processor
– This means that the processor has to wait
(1 per –, max 2) [2]
- b) Any suitable for batch processing. E.g. Utility bills/bank statements... [1]
- c) – Data is prepared off-line/input at speed of peripheral
– User is not provided direct access to processor/user is offline
– Processor services more than 1 peripheral
– Carried out at off-peak times so that processor time not so important
(1 per –, max 2) [2]
- 3 a) – Commissioner is the expert in the field of the problem while the analyst is the expert in what is possible with a computer.
– Need to ensure that both understand the scale of the solution planned...
– otherwise a different problem may be solved.
(1 per –, max 2) [2]
- b) – Interview/interviewee can think about responses/interviewer can alter questions
– Questionnaire/large number of people’s views can be included in short time
– Existing documentation/see all the necessary inputs and outputs required for the system/obtain ideas for the formatting.
– Observation/obtain an unvarnished view of what goes on in present solution.
(1 per method, 1 for suitable advantage, max 2 methods, max 4) [4]
- c) (i) – Ensures that all users’ requirements have been met
(ii) – Acts as a contract/makes sure analyst is paid. [2]
- d) – Adjustments in one stage of process may affect inputs necessary to that stage
– Requirements may alter as design becomes apparent
– Final stage for any system is obsolescence, therefore new version needs to be produced.
(1 per –, max 2) [2]

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- 4 a) (i) – Deletes everything on surface of disk
– Divides surface of disk into smaller areas...
– to allow for storage/recovery of data items.
(1 per –, max 2) [2]
- (ii) – Scans the files on a computer system/received files...
– to detect viruses...
– and remove viruses when they have been detected.
(1 per –, max 2) [2]
- b) – Provides security measures (passwords/user IDs)/to protect files from unauthorised access/identify user/identify user rights
– Provides an HCI/to allow communication with user
– Controls the hardware/to allow data to travel from one part of the system to another.
– Provides translators/so that software can be converted into form useable by the computer.
– Manages interrupts/handling requests from external units and prioritising needs.
– Manages memory/to ensure data is stored in correct part of memory/can be retrieved correctly
– Schedules processing/using scheduling techniques
(2 per –, max 4) [4]
- 5 a) – Ensuring that data input matches data collected
– Done by double entry/onscreen techniques. [2]
- b) – Any sensible application needing data to be accurate e.g. inputting details of bank cheques.
– e.g. because whole application based on accuracy/bank needs to be trusted [2]
- 6 a) 7, 0, 4, (Must be in correct order. If > 3 answers, mark first 3 and deduct 1 for error) [3]
- b) e.g. 4, 6, 3, 7, 1, /Answer is not a whole number
0, /Can algorithm cope with no input
4, -6, 3, 7, 1 /Can algorithm cope with negative numbers
4, 6, 6, 6, 6, /Can algorithm cope with equal values for B and C
(1 for sensible data with reason, max 3) [3]

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- 7 – Social sites/chat rooms/...give a new type of social circle
Inappropriate sites...
– generally inappropriate like pornography
– Specifically inappropriate to that society
– Danger to structure of society because other views shown...
– e.g. Hollywood type movies/Make-up/Consumer goods
– Easy access to consumer goods damaging local traders
– Everything available on Internet so no need to go out
– Work can be sent through Internet...
– changing work practices like socialising
– Religion undermined because...
– exposes people to new, contradictory views
(1 per –, max 7) [7]
- 8 a) – The file is all the details of all the cars, it comprises...
– a number of records, each containing data about a car
– Each item of data in a record is called a field e.g. price. [3]
- b) – The records are of a predetermined size because...
– each field is of a fixed size. [2]
- c) – Colour: Characters/Text/String/alphanumeric
– Engine size: Integer/Real
– Air Con: Boolean
– Price: Currency/Real/integer [4]
- 9 a) (i) – Set of application programs...
– appropriate to many areas
– with associated documentation,
(1 per –, max 2) [2]
- (ii) – Parts of package can share data/communicate with others
– Common layout makes use/training easier
– Includes additional facilities which allow complex tasks to be performed
(1 per –, max 2) [2]
- b) – File of records of car sales...
– searched for date = required date
– Standard form of letter exists...
– with fields identified...
– which are completed with reference to data on data fields.
– Takes data from customer file
– Finished letters are then printed ready for sending.
(1 per –, max 2 if not related to car servicing, max 5) [5]

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- 10 a)** – Geographic distribution
– Hardware used for communication
(1 per –, max 1) [1]
- b) (i)** – Bit rate is the number of bits transferred in a given time period
Word processing uses text files requiring...
– non time sensitive transfer of data...
– meaning a small/low bit rate is acceptable.
– Video is time sensitive...
– meaning a large/high bit rate is necessary.
(1 per –, max 4) [4]
- (ii)** – Touch sensitive screen...
– showing list of options...
– which call up other lists of options
– limited number of options means ease for user and..
– security for system
(1 per –, max 3) [3]
- c)** – RSI/ergonomic hardware/regular breaks
– eyestrain/correctly positioned monitor/anti glare screen/regular breaks
– radiation/use low radiation monitor/limit time spent at terminal
– Other aches/adjustable chair
(2 per –, 1 for issue, 1 for measure (only give breaks once), max 2–, max 4) [4]
- 11** – Digital (video) camera used to capture photographs (video)...
– Downloaded (via USB port) to hard drive
– or photographs are scanned in
– Photo editing software/Digital video editor used to prepare images
– Photographs compressed using JPEG
– Video compressed using MPEG
– Parity/Checksum used to check for errors in transmission.
(1 per –, max 5) [5]
- 12 a)** – Indexed sequential uses indexes of keys
– Random access file uses key as input to an algorithm. [2]
- b) (i)** – Algorithm uses all 6 digits.
– Algorithm has approximately 10,000 outcomes/Modular division by 10,000 [2]
- (ii)** – Any 2 which hash to same address [1]
- (iii)** – Values that collide are stored serially...
– after end of file/in a bucket
– Marker applied to correct address to signify further values
- OR** – Original address contains pointer...
– which is head of linked list of items...
– which hash to same value.
- OR** – Locations are searched serially
– until free location found
– value inserted at free location
(1 per –, max 1 method, max 2) [2]