

MARK SCHEME for the May/June 2008 question paper

**9713 APPLIED INFORMATION AND
COMMUNICATION TECHNOLOGY**

9713/03

Paper 3 (Written B), maximum raw mark 80

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 (a) Any **four** points from:
 It is a continuous process
 Sensors collect patient information/vital signs
 Analogue signal from sensors needs to be converted by ADC to digital signal
 Computer files contain acceptable data ranges
 If data is outside acceptable range ...
 ... Computer/microprocessor signals alarm e.g. trace goes red
 If not then continue to monitor [4]
- (b) Any **three** points from:
 Gives 24/7 cover qualified e.g. leaving nurses free to deal with other matters/lower costs using microprocessor rather than nurses
 Humans can misinterpret signs/microprocessor can detect small changes
 Can be programmed to monitor specific areas
 Rapid response to any problems
 Can monitor several parameters at once
 Need for fewer highly trained staff
 Can be linked into auto administration of drugs
 More accurate measurements than a human
 More reliable results than a human [3]
- (c) Any **four** points from:
 Doctor enters answers to a series of computer questions
 Knowledge base/fact base compared/searched using inference engine ...
 ... and rules/rule base
 Output produced giving % probability of diagnosis
 Doctor taken through a series of logical steps [4]
- (d) Any **three** points from:
 (Max of 2 marks for advantages and max of 2 marks for disadvantages)
 Reduces time taken to diagnose an illness
 Need for fewer skilled staff qualified ...
 More accurate than a consultant
 Reduced chance of errors helps the doctor make a diagnosis
 Portable systems can be used anywhere
 Emotionally separates the doctor from the patient
- Expensive to set up e.g. collect data/create program
 Extensive training for doctor on how to use system needed
 Needs to be kept up to date at all times
 Requires work station in all offices ...
 ... therefore potential security risks [3]

Page 3	Mark Scheme	Syllabus	Paper
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- 2 (a) Any **six** points from:
 Previous results of research work stored ...
 ... can X-match results and save time and money
 Results from tests on certain drugs stored
 Avoids need to repeat expensive tests
 Can predict likely outcome of doing certain tests on drugs
 Computers can automatically control and monitor mixing of ingredients
 Storage of analysis results/can check analysis results against specification
 Do statistical analysis of results
 A description of collaborative research
 Requirement for super computer due to amount of processing
 Administering drug trials – feedback and monitoring
 Modelling human system and testing drugs in this way [6]
- (b) Any **two** from:
 Use of spreadsheets to do ...
 Use of expert systems to do ...
 Take into account company costs (price based on % profit level)
 Goal seeking [2]
- (c) Any **four** points from:
 Gantt chart shows all stages/tasks to be done
 Gantt chart shows the critical path(s)
 Gantt chart shows key project milestones
 Gantt chart also shows:
 number of days to do tasks
 progress on tasks as % complete
 progress vs expected time to do work
 how tasks are all linked together
 Allows emailing of tasks/project info to others automatically
 Can use www/intranet to post or download project information
 Allows use of PERT charts
 Alert can be sent if target not met
 Allows use of resource graphs [4]
- 3 (a) Any **five** points from:
 Can work at own speed
 Can work when you want
 Can re-run sections
 Can come back any time they want/pause training at any point
 Get immediate performance feedback
 Immediate assessment made
 Can include multimedia elements
 No need for teacher/classroom ∴ cost saving
 Easy to keep up to date/amend
 Can be tailored to exact requirements [5]
- (b) Any **three** points from:
 Difficult to monitor any malpractice/work rates
 Little student/student or student/teacher interaction
 Very specific training/doesn't allow discussions of novel situations
 Can be expensive to produce CAL initially
 Student can be distracted by ... e.g. browsing emails/games [3]

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- 4 (a)** Any **four** points from:
(Max of 3 marks for customer adv and max of 3 marks for retailer adv)
Much wider choice of CD available
If live in small town, have access to all music
No need to travel to store (saves money and time)
Less expensive since savings passed on to the customer
Operates at any time of day and ...
Use of search engine to find ...
Some people do not like going shopping
Safer to use the Internet because ... e.g. no chance of mugging
- No need to have a large store which will lower prices
Larger buying public (e.g. overseas customers) which leads to
Increased sales
Can latch on to customer trends (promos etc.)
Better discounts for larger orders
Can sell cheaper due to lower overheads increasing profits
Larger customer base leads to bulk purchasing – lowers costs
Enables “just in time”, qualified ... e.g. no build up in stock [4]
- (b)** Any **five** points from:
Shopping basket to show purchases
Link to secure website for purchase
A description of a ‘wish list’
Login leading to account
Additional languages option
Order history feature
Hyperlinks to music related sites e.g. NME
Feature to submit reviews of tracks
“When customers bought X, they also bought Y” facility
Search facility for artist/title
Drop down boxes to choose music categories (etc.)
Help facility
Currency conversion
Data/sales confirmation by email
Saved customer details/customised pages/email registration
Ability to track status of orders
Ability to listen to tracks/see video clips of artists
Recognise customer as soon as they log onto web site
Animation
Hyperlinks to related sites [5]
- (c)** Any **five** points from:
The bar code is read
Stock file holds details of item sold
Record found on stock file using key fields/bar code number
Number of items in stock reduced by 1 for each item sold
If number in stock \leq re-order level ...
... automatic order sent out
When new stock arrives
Stock levels of that item increased accordingly
Automatic print out of stock levels [5]

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- (d) Any **three** points from:
- Customer orders trigger a need to restock
 - Computer sends order to supplier
 - Supplies are ordered
 - To arrive at the warehouse as required e.g. within 48 hours
 - As required for selling/distribution
 - Could be sent direct to customer
 - Avoids need for large stores
 - Reduces cost by not having a lot of unsold items on shelves
- [3]

- 5 (a) Any **five** points from:
- Send out questionnaires/surveys to target groups
 - Research what competitors are doing
 - Description of personal interview
 - Description of telephone surveys
 - Customer uses a web site to complete questionnaire
 - Description of how customer using web site is prompted to fill in questionnaire
 - Monitor sales of items from the shops
 - Store all the information on databases ...
 - ... and later analyse the information
 - Produce report showing results of the surveys
- [5]

- (b) Any **four** points from:
- Ability to download music straight to a computer
 - Plug and play devices/ease of USB port
 - Music downloaded to MP3 players
 - Reduced size of hard discs leading to smaller players
 - Increased capacity of storage media (flash memory or HD) holding more tracks
 - Improved compression techniques reducing size of files
 - Reduced size of batteries leading to smaller devices
 - Increased battery capacity leading to longer play time
 - Description of CODEC
 - Improvements to user interaction with hardware via HMI
 - Broadband enables much more downloading of music files
 - Most modern music is already held in a digital format
 - Solid state memory leads to more robust players
 - Use of hard drives to store music rather than CDs
 - Home entertainment system that combines TV, etc.
 - Generations of all digital music
- [4]

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- 6 (a) Any **five** points from each item:
- Computer telephony integration (CTI) software
used to combine the data and voice input to the system
 - Third party call control software
allows any computer in network to control any phone in the system
 - Inbound calling handling software
routing engine to ensure customers routed to correct “expert”
 - Script system
control on screen information for operators
 - Predictive dialling
auto dials next number on client list
- [5]
- (b) Any **four** points from:
- Computer software provides the script
 - Prompts operator to ask appropriate questions
 - Leads onto suitable advice provided
 - Can give access to technical help
 - Can provide access to product stock file (to tell customer if item in stock)
 - Can provide operator with (email) link to higher technical level/moving off script
 - Stores customer file information/can display customer file information
- [4]
- (c) Any **three** points – covering what device and who benefits from it – from:
- Touch screen with menus operated by head wands by ...
 - Foot operated devices for pointing by ...
 - Speech synthesis for dumb operators
 - Microphones for physically handicapped to communicate
 - Large tracker ball devices for physically handicapped to navigate
 - Special keyboards/concept keyboards for physically handicapped to select options
 - Software magnifier for visually impaired
- [3]
- 7 Any **eight** points from:
- Expansion of the provision of broadband
 - Price of computers has fallen dramatically over the last few years
 - Improved search engines
 - Faster operating systems/software allow multimedia
 - Large memory capacities (hard drives, DVD, ...) ...
 - ... allow large files to be downloaded and stored
 - Wireless connections to share Internet service
 - Other devices (e.g. mobiles, digital boxes, portable music players ...)
 - Introduction of online services expanded its use e.g. remote photo storage
 - Social networking such as chat/personal web space
 - Greater capacity of Internet backbone
 - Increase in:
 - Operating system development – faster data processing
 - More multimedia content posted on WWW
 - Web authoring software improved making its easier to create own web site
 - Online banking
 - Online shopping
 - Online auctions
 - Music downloads
 - Movie/TV programme downloads
 - Video conferencing using Internet
 - VoIP
 - Businesses using WANs
- [8]