

**MARK SCHEME for the May/June 2012 question paper  
for the guidance of teachers**

**9713 APPLIED ICT**

**9713/33**

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, which would have considered the acceptability of alternative answers.

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**1 (a) Four from**

- Product ID – a unique identifier
- Supplier code – for re-ordering purposes
- Product description/name/type – to display on till/receipt
- Item price/discount – to use on till/sales
- Supplier/cost price – for accounts/records
- Product weight – for legal purposes/customer information
- Expiration/sell by date – for stock management purposes
- Number in stock – for management purposes
- Re-order level – trigger for re-order
- Re-order quantity – quantity to re-order
- Date of last order/when last order placed

[4]

**(b) Three from**

- Automatic re-ordering from supplier
  - when stock reaches re-order level
- No one required to place price labels on goods
  - as held in stock database
- Trends can be identified
  - such as best selling products
- More accurate monitoring of stock levels
  - due to automatic updating of stock database

[6]

**(c) Any three benefits described from:**

- Customers are served in less time
  - due to scanners being faster than manual entry
- Till operators are monitored
  - providing Kamran with performance figures
- Accurate addition of/correct prices given in customer bills
  - fewer customer complaints/greater customer satisfaction
  - errors identified more easily/less time spent on re-checking bills
- No one required to place prices on goods
  - as held in stock database
- Fewer staff required for shelf-stacking/monitoring required
  - reduced wage bill/more profit
- Trends can be identified
  - such as best-selling products
- Required storage space for the shop reduced
  - as less slow-selling stock needs to be stored
- Trends in number of shoppers can be identified
  - to enable Kamran to schedule till operators
- How quickly/slowly items are selling due to comparison of dates with last order

[6]

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- 2 (a) Three advantages from:  
 No need for cabling – lowers installation costs  
 No wires to trip over **and** make desk cluttered  
 Easy to install new computers as no new cables needed  
 May cost less than cables to install  
 Only need to upgrade the access point when new protocols introduced/no need to upgrade cabling in future
- [3]

- (b) **Three disadvantages** from:  
 Lower bandwidth compared to copper wire/fibre optic  
 Easier to intercept data transmission than with cables **from a distance**/no need to break into cable  
 Limited capacity for one access point  
 Range is shorter than cable  
 Connection can be more intermittent/slower data transfer c.f. use of cables
- [3]

- (c) **Three items** description and uses from:  
Wireless NIC that fits into computer with an aerial – this receives and transmits radio waves to the access point/ translates radio signal into data with correct protocol
- Access point – a radio device linked to the server which transmits data to an area/controls access to server with table lookup
- Wireless router which allows the network to access the Internet/acts as an access point/connects LAN to WAN
- [6]

- (d) **URL:**  
 Uniform Resource Locator  
 Is the address of the resource to download/view
- HTML:**  
 Hyper Text Mark up Language  
 used to combine text, images, multimedia into a webpage/for display in pages in a web browser
- [4]

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- (e) **Two** from:
- FTP/File transfer Protocol  
used for downloading files using the Internet
  - HTTP/HyperText Transfer Protocol  
is the request protocol to view web pages
  - HTTPS/HyperText Transfer Protocol Secure  
is the request protocol to view secure webpages
  - SSH/secure shell  
secure data transfer over e.g. internet via a secure channel
  - TCP/transmission control protocol  
used to transmit/route data over the network
  - UDP/user datagram protocol  
used in basic network data communication/without hand-shaking/for time-sensitive applications such as video/voice
  - Telnet  
control of remote systems/data transfer

[4]

- 3 **Five** descriptions from:
- Light sensor – to measure level of light received
  - Anemometer/motion detector – to measure wind speed
  - Temperature sensor – to measure air/water/ground temperature
  - Humidity sensor – to measure amount of water vapour in the air
  - Rain gauge using bucket and float linked to potentiometer or force sensor – to measure rainfall
  - pH sensor – to measure acid/alkali level of e.g. water
  - O<sub>2</sub> sensor – to measure oxygen level in air/water
  - CO<sub>2</sub> sensor – to measure carbon dioxide level in air/water

[5]

- 4 (a) **Four** from:
- Collects data from experts
  - Decides what data is relevant
  - Enters data into knowledge base
  - Designs and creates knowledge base
  - Undertakes data mining
  - Edits knowledge base
  - Designs and creates the rules base

[4]

- (b) **Four** from:
- Uses the data input for reasoning
  - Links to the knowledge base
  - Links to rules base/matches rules that apply to current question
  - Selects applicable rules
  - Applies applicable rules
  - Uses forward/backward chaining to reason/arrive at solutions
  - Passes on next question to user

[4]

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- 5 (a)** Any **four** points plus prevention from:
- Take control of the site
    - Prevented by firewall
  - Delete information on web site
    - Prevented by access rights to web pages
  - Insert virus onto site
    - Up to date antivirus software used on traffic to site
  - Add spyware/key loggers to site to capture details of user
    - Use firewall to trap such traffic/anti-spyware
  - Access details of registered users
    - Keep in a secure server away from web site files/encrypt
    - Use firewall
      - To restrict traffic
- [8]**
- (b) Five** from:
- Hyperlinks could be used to download files with text or images
  - Using pdf format to save download times
  - Thumbnails could be used to enable download of images in larger size
  - Video files could be accessed using hot spots
  - Web page design program used to add these features
  - Sound in background could be included
- [5]**
- 6 (a) Three** from:
- Using formulae and variables to allow changes to be demonstrated
  - Can produce a total cost of the project
  - Enabling 'what if' changes to be made
    - such as using different materials
    - using different contractors
    - using different locations
    - using different time frames
  - Production of charts/graphs for presentation
- [3]**
- (b) Three** from:
- Can provide 2D drawings for presentation
  - 3D views can be created from 2D drawings
  - Could provide a fly by animation/rotation of the building
  - Generate a listing of materials and costs
  - CAD vector graphics enables large scale zooming/view from different angles
    - for effect in presentation
  - Shading/fills can be changed to show different finishes
  - Model can be tested/modified before it is produced
- [3]**

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**7 (a) Two from:**

- (i) Joe can book at any time of day without leaving house  
He can search for a show  
He can find the ticket office and select his space for disabled people  
He can pay using e-commerce
- (ii) Joe can research jobs using www  
He can undertake online training to obtain a job  
He can work from home  
He can design his own web site to attract employers  
He can write letters/emails for jobs
- (iii) He can research health matters/use online diagnostic systems  
He can buy medicines online  
He can book appointments online with health professionals  
He can email for advice  
He can join forums for his disability

[6]

**(b) Three problems described and solutions from:**

- Unauthorised users take control of site  
prevented by firewall
- Delete information on web site  
prevented by access rights to web pages
- Insert virus onto site  
up to date antivirus software used on traffic to site
- Add spyware to site to ensnare users  
use firewall to trap such traffic/anti-spyware
- Access details of registered users  
keep in a secure server away from web site files
- Fake goods/false sellers on site  
seller ratings and guarantees
- Data could be intercepted  
encryption technique
- Users/buyers can become addicted to online auctions, take up too much time/restrict time available for other activities/spend too much money so get into debt  
Reduce time spent/have a strict spending limit/block online auction sites/take up other leisuretime activities

[6]