

Mark Scheme (Results)

November 2010

IGCSE

IGCSE Information and Communication Technology (4385/2H)

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General Marking Guidance

- All candidates must receive the same treatment. Examiners must mark the first candidate in exactly the same way as they mark the last.
- Mark schemes should be applied positively. Candidates must be rewarded for what they have shown they can do rather than penalised for omissions.
- Examiners should mark according to the mark scheme not according to their perception of where the grade boundaries may lie.
- There is no ceiling on achievement. All marks on the mark scheme should be used appropriately.
- All the marks on the mark scheme are designed to be awarded. Examiners should always award full marks if deserved, i.e. if the answer matches the mark scheme. Examiners should also be prepared to award zero marks if the candidate's response is not worthy of credit according to the mark scheme.
- Where some judgement is required, mark schemes will provide the principles by which marks will be awarded and exemplification may be limited.
- When examiners are in doubt regarding the application of the mark scheme to a candidate's response, the team leader must be consulted.
- Crossed out work should be marked UNLESS the candidate has replaced it with an alternative response.

| Question Number | Answer | Mark |
|-----------------|--|------|
| 1(a) | Hardware failure/Data corruption/Data loss/ Hardware theft | (2) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 1(b) | <p>Any three from:</p> <ul style="list-style-type: none"> • Size of files/amount of data to be backed (1) as this will determine the amount of storage required (1) • Choice of backup media (1) optical devices is faster and can hold more data than tape (1) (Accept any reasonable argument for using other types of media) • Storage of backup media (1) for security should be stored in a fireproof safe/off site etc (1) • Data recovery/system recovery (1) a planned recovery system with all roles defined will enable a company to quickly restore any lost data with minimum disruption (1) • Frequency of backups (1) this will be related to how often the data is changing and will decide if backups should be daily, weekly etc. (1) • Time of backups (1) the backup process can slow the system operation so should be timed to cause minimum disruption (1) • Management of backup (1) this should be the responsibility of a designated person to ensure the process of backup and restore runs smoothly <p>Max 6 marks</p> | (6) |

| Question Number | Answer | Mark |
|-----------------|---|------|
| 2(a)(i) | Co ordinates the input/output devices / Executes instructions | (1) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 2(a)(ii) | Makes all calculations and logical decisions | (1) |

| Question Number | Answer | Mark |
|-----------------|---|------|
| 2(a)(iii) | Provides immediate memory for holding data and programs | (1) |

| Question Number | Answer | Mark |
|-----------------|---|------|
| 2(b)(i) | Any three from: Start the computer / Provide user interface / Manage programs / Manage memory / Schedule jobs / configure devices / access the web / monitor pc performance / provide housekeeping services / control networks / manage security / error logging / transfers data to - from peripherals. | (3) |

| Question Number | Answer | Mark |
|-----------------|------------------------------|------|
| 2(b)(ii) | Command driven / Menu driven | (1) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 2(b)(iii) | No keywords / commands to remember WIMP controls are user friendly Compliance with the majority of commercial software packages Assistance for visually impaired etc is available | (2) |

| Question Number | Answer | Mark |
|-----------------|---|------|
| 3(a) | <p>Less threats of viruses (1) work is safer (1) Less threat of ideas being hacked (1) work is safer (1) Faster to work (1) no network traffic (1) Protect other computers in use (1) errors in new programmes could interfere with pc operations (1)</p> <p>Max 2 marks</p> | (2) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 3(b) | <p>Centralised backup system (1) data restoration is more efficient (1) Software will be cheaper(1) licence allows multiple users (1) Staff can be monitored (1) more efficient work progress Audit trails can be used (1) to track misuse of company facilities (1) Files can be shared (1) allows easier access to data (1) Hardware can be shared (e.g. printers) (1) therefore saves money (1)</p> <p>Max 4 marks</p> | (4) |

| Question Number | Answer | Mark |
|-----------------|---|------|
| 3(c)(i) | <p>Wireless interface card / implied network ready pc, wireless devices, wireless access points, wireless bridge. (all items must be wireless - any two 1m each)</p> | (2) |
| Question Number | Answer | Mark |
| 3(c)(ii) | <p>Network operating system / NIC drivers (1)</p> | (1) |

| Question Number | Answer | Mark |
|-----------------|---|------|
| 3(c)(iii) | <p>Network operating system - to set up the correct protocols/rules/enable communication (1) with different pcs on the network (1) NIC Driver - enables the pc to communicate (1) with the wireless network (1)</p> <p>Max 2 marks</p> | (2) |

| Question Number | Answer | Mark |
|-----------------|---|------|
| 4(a)(i) | Network correct (1) server indicated (1) at least two additional pcs shown (1) terminators shown (1) Max 3 marks | (3) |

| Question Number | Answer | Mark |
|-----------------|---|------|
| 4(a)(ii) | Only one path to each terminal (1) so if cable breaks whole network will stop working (1) | (2) |

| Question Number | Answer | Mark |
|-----------------|-----------|------|
| 4(b)(i) | Ring/Star | (1) |

| Question Number | Answer | Mark |
|-----------------|---|------|
| 4(b)(ii) | Ring - Terminals are connected in a circle (1) if there is a line break all computers stop working (1) Star - Each computer is connected to a central point (1) if a cable breaks only the computer connected to it will stop working (1) Max 2 marks | (2) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 5(a) | Typing web addresses (1) and go directly to the required site (1) Using hyperlinks/surfing (1) until item required is found (1) Use a search engine (1) enter key words (1) Max 4 marks | (4) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 5(b)(i) | Some possible answers are shown accept any valid example Information could be out of date (1) Information could be false (1) Site could be bogus (1) | (1) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 5(b)(ii) | Always check the date of publication (1) Is the organisation/individual concerned known (1)/does the site look professional (1) have you been redirected etc (1) | (2) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 6(a) | <pre> graph TD A[Valve Open] --> B[Level sensor = Full] B -- No --> A B -- Yes --> C[Valve Close] </pre> <p>Valve open and close (1) Level sensor full (1) Correct loop (1)</p> | (3) |

| Question Number | Answer | Mark |
|-----------------|---|------|
| 6(b) | <p>Temp of water is measured by sensor (1) Comparison made with stored value(1) if too high heater turned off (1) if too low heater turned on (1) Process continues to maintain preset value (1)</p> <p>Max 4 marks</p> | (4) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 7(a) | <p>Incorrect address (1) customer will not receive goods (1) Incorrect card details (1) wrong customer will be charged (1) Incorrect despatch code (1) order cannot be traced (1) Incorrect item code (1) goods out of stock / wrong goods sent (1) Accept any reasonable data error (1) + consequence (1)</p> | (2) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 7(b) | <ul style="list-style-type: none"> • Proof reading the document (1) directly compares the data input with the source document (1) • Double entry (1) two people enter the same data, will only be accepted if both sets match (1) • Print out the data (1) then check the printed copy with the original document (1) | (4) |

| Question Number | Answer | Mark |
|-----------------|---|------|
| 8(a) | <ul style="list-style-type: none"> • URL needs to be unique to the business (1) it is essential to make sure nobody else is using it (1) • Should be easy to remember (1) Customers/clients can easily return to site (1) • Should be linked to the business (1) Customers can recognise site easily (1) | (4) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 8(b) | <ul style="list-style-type: none"> • Key words (1) placed in HTML script will be picked up by search engines (1) • Pop up boxes/adverts (1) placed on other sites will attract customers (1) • Use of cookies (1) tracking surfers interests to send them details (1) • E-mail (1) mail shots to customers who have already visited their site (1) • Join a web ring (1) site will be viewed by customers looking for similar sites (1) | (6) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 9(a) | Ergonomic key boards (1) to reduce effects of RSI (1) Desk space (1) allow for use of wrist supports (1) Low flicker screens/anti-glare screens (1) reduce eye strain / headaches (1) Adjustable monitors (1) to reduce neck problems (1) Adjustable chairs (1) to give full support to posture (1) Any other suitable workstation feature + expansion) | (4) |

| Question Number | Answer | Mark |
|-----------------|---|------|
| 9(b) | <ul style="list-style-type: none"> Managers should ensure the work load for the employee is varied (1) so that too much time is not spent entering data (1) Data entry clerks should have regular eye checkups (1) this should be at the company expense (1) Blinds should be fitted to windows/adequate lighting (1) this will help to alleviate eye strain from screen glare (1) (Any other acceptable answer related to work practice plus expansion) | (4) |

| Question Number | Answer | Mark |
|-----------------|------------|------|
| 10(a) | Student ID | (1) |

| Question Number | Answer | Mark |
|-----------------|------------|------|
| 10(b) | Student ID | (1) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 10(c) | Data is entered twice (1) waste of data entry time (1) Same data is stored twice (1) wastes memory / storage Takes longer to load/save/search for records (1) Both must be amended at the same time (1) to avoid inconsistencies (1) Max 4 marks | (4) |

| Question Number | Answer | Mark |
|-----------------|---|------|
| 11(a)(i) | Deliberate deletion of company data. (1) Deliberate introduction of a virus by an employee (1) | (1) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 11(a)(ii) | Loss of important company data (1) Corruption of company files / loss of data (1) | (1) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 11(a)(iii) | <ul style="list-style-type: none"> • Use of physical security to restrict access to computers (locks / swipe cards etc) (1) cards only issued to those allowed access (1) • Using read/write protection (1) this will prevent the deletion of data (1) • Use up to date antivirus software (1) this will detect and isolate viruses preventing any further action (1) | (2) |

| Question Number | Answer | Mark |
|-----------------|---|------|
| 11(b)(i) | Hacking from outside the organisation (1) Virus/malware sent by e-mail (1) | (1) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 11(b)(ii) | Confidential data can be stolen/destroyed (1) Financial fraud can occur (1) | (1) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 11(b)(iii) | Set up a firewall (1) this will prevent outsiders access the company server (1) Employee training / awareness raising (1) to look out for unsolicited e-mails/use of antivirus software (1) | (2) |

| Question Number | Answer | Mark |
|-----------------|---|------|
| 12(a) | Using sensors to collect/read data automatically (1) and using a computer to store and process the data automatically (1) | (2) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 12(b) | No missed readings(automatic process), accurate readings- no humans involved, faster data processing, can be cheaper as there are no wages, readings taken at exactly the right time , can save energy and power by transmitting once a day- therefore more efficient (any two points one mark each) | (4) |

| Question Number | Answer | Mark |
|-----------------|---|------|
| 12(c)(i) | Diagram contains: <ul style="list-style-type: none"> • Suitable sensor (1), • Microprocessor (1) • Storage/pc shown (1) • Wireless/satellite link (1) • Base station (1) Max 4 marks | (4) |

| Question Number | Answer | Mark |
|-----------------|---|------|
| 12(c)(ii) | Data can shown in graphs and charts (1) this will make comparisons and trends easier to follow (1) Models can be created (1) this will allow predictions for the future to be obtained (1) Easier calculations of averages etc(1) This will be automatic with no human error (1) Max 2 marks | (2) |

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