

Mark Scheme (Results) Summer 2008

GCE

GCE O Computing (7105/01)

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) | <ul style="list-style-type: none"> •to protect against illegal distribution of Software • making copies without permission (allow stop copying) • to protect the interest of software developers/manufactures/owners • to prevent software being altered/changed/edited <p><i>Accept any sensible interpretation of these phrases</i></p> | (2) |
| 1(b) | <ul style="list-style-type: none"> • buy one copy of the software for each pc (1) or it might be cheaper to buy a licence (1) that will allow the software to be used on more than one PC, ensure the company has a valid license/check with vendors(1) company policy not to copy licenced software(1) (1) prevent access to source disk, no CD writes/no copying to any format provided (1) <p><i>Accept any 3</i></p> | (3) |

| Question Number | Answer | Mark |
|-----------------|---|------|
| 2(a) | <p>Any two from</p> <ul style="list-style-type: none"> • Passwords • login codes • biometric scans(not DNA) • firewalls • data encryption • etc <p><i>allow one physical method</i></p> | (2) |
| 2(b) | <ul style="list-style-type: none"> • Users can be given access rights/levels/privaleges (1) that would prevent them looking at confidential data (1) • Computers can be programmed to allow access to particular data from certain terminals (1) • File passwords known by certain people(1) <p><i>any 2 valid points or one point explained</i></p> | (2) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 3(a) | <ul style="list-style-type: none"> • Allow 2 marks for biographical details • 1 mark for financial field • 2 marks for user-friendly features (Lists/radio buttons/navigation buttons)/on screen help features/title • 1 mark - looks like data entry screen/does not contain features for a paper form | (6) |
| 3(b) | <p>Any 4 points from</p> <p>NOT developing the system</p> <ul style="list-style-type: none"> • Design the system • Supervise programmers/write code • costs/budget the design and development stage • highlights the risks associated with the system development • ensures the system initially operates as it was designed to • ensures the system is reliable when operational/ongoing • valid documentation • Maintenance of software | (4) |
| 3(c)(i) | <ul style="list-style-type: none"> • hacking • Virus • malware • for theft of data/money/redirection of goods/malicious vandalism (1) | (1) |
| 3(c)(ii) | <ul style="list-style-type: none"> • Hacking prevented by use of firewalls (1) rules/settings prevent illegal access. Encryption stops files being understood (1) • Malicious vandalism (viruses etc) use antivirus software (1) to isolate/destroy any deliberate/accidental threat (1) • Limited access suppliers file (1) only authorised suppliers will receive payment (1) | (2) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 4(a)(i) | <ul style="list-style-type: none"> • LAN is confined to the (hospital)premises/building/site/small geographical area | (1) |
| 4(a)(ii) | <ul style="list-style-type: none"> • to call up a patient record • check stock in the pharmacy • write a prescription • messaging • Share information | (1) |
| 4(b)(i) | <ul style="list-style-type: none"> • WAN is linked to other hospitals in different cities/countries • Uses telecomms to link LANs <p>(Not large geographical area)</p> | (1) |
| 4(b)(ii) | <ul style="list-style-type: none"> • send an e-mail to another hospital/call up a patient record from another hospital/order drugs from the supplier etc (1m) | (1) |
| 4(c)(i) | <ul style="list-style-type: none"> • a private computer network that uses internet protocols(1) • an internal website that cannot be accessed by those outside the organisation (1m) | (1) |
| 4(c)(ii) | <ul style="list-style-type: none"> • viewing stored data • Exchanging information • Checking stock/patients records • To look at the hospital message board for information • look at the menu in the restaurant • for hospital social events for staff • etc | (3) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 5(a) | <ul style="list-style-type: none"> • Design • Testing • Evaluation <p>Any order acceptable- if more than three answers accept the first three only</p> | (3) |
| 5(b) | <p>Not research methods</p> <ul style="list-style-type: none"> • Specify the problem from the users point of view • restate the problem from the analysts viewpoint/produce a feasibility study/report <ul style="list-style-type: none"> • Produce a diagram/flowchart of the system • state any available software • justify final choice for software <p><i>any three valid points</i></p> | (3) |
| 5(c) | <ul style="list-style-type: none"> • Method of implementation <ul style="list-style-type: none"> • Software installation checks • How existing files will be changed • How will data be entered eg key or OCR etc • Staff training details • Maintenance of new system <p><i>any three points (3)</i></p> | (3) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 6(a) | <ul style="list-style-type: none"> Record locking is used (1) if one booth is processing a seat number (1) another booth cannot access that record until the sale is finished (1) | (3) |
| 6(b)(i) | <ul style="list-style-type: none"> Card has magnetic stripe/microchip/ holding details of the supporter (1) <p>or</p> <ul style="list-style-type: none"> Barcode containing a reference number | (1) |
| 6(b)(ii) | <ul style="list-style-type: none"> Card is scanned/swiped at booth through a card reader (1) Previous visit details obtained from computer to calculate discount (1) | (2) |

| Question Number | Answer | Mark |
|----------------------------------|---|-----------|
| 7(a) | <ul style="list-style-type: none"> Monitoring patient's heartbeat Temperature blood pressure | (1) |
| 7(b) | <ul style="list-style-type: none"> a sensor of some kind to physically detect the quantity being measured (1) <p>(If a sensor is named in (c) allow the mark here)</p> | (1) |
| 7(c) | <p>Any suitable diagram showing</p> <ul style="list-style-type: none"> sensor ADC Computer (for data storage) not cpu | (3) |
| Total Marks for Section A | | 50 |

Section B

| Question Number | Answer | Mark |
|-----------------|--|------|
| 8(a)(i) | <ul style="list-style-type: none"> • Inspection of documents | (1) |
| 8(a)(ii) | <ul style="list-style-type: none"> • Not observation as is not possible in a yearly event(1) • Not questionnaires as they are inappropriate when staff can be spoken to / have been interviewed (1) | (2) |
| 8(b) | <p>Answers may include</p> <ul style="list-style-type: none"> • Pupil details • Scoring method/points system • number / names of events • number of events allowed per pupil • Staff looking after events • current records / record holders. <p><i>1 mark for each reasonable piece of information to a max of 3.</i></p> | (3) |

| Question Number | Answer | | | | Mark |
|-----------------|-------------------------------------|------------|--------------|--|------|
| 9 | Field name | Data type | Field length | Reason | (12) |
| | pupilID | numeric | 7 | 4 digits identify the year, 3 more digits allow for 999 pupils per year. | |
| | eventname | text | 14 -18 | Example given is 14, but could give a longer example | |
| | class | text | 2 | Case study says year plus one letter, largest is e.g. 6B | |
| | place | numeric | 1 | 1, 2 or 3, used for calculations or Max entry = 8 | |
| | record | Text /memo | 100 | Given in case study | |
| | <i>1 mark for each correct cell</i> | | | | |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 10(a) | <ul style="list-style-type: none"> • If place > 0, then points = 4 - place else points = 0 <p><i>1 mark per correct line Max of 3</i></p> <p>Or</p> <ul style="list-style-type: none"> If place = 3 then points =1, if place =2 then points = 2, if place =1 then points =3, else points/endif = 0 <p><i>4 sections 3 marks</i> <i>3 sections 2 marks</i> <i>2 sections 1 mark</i></p> | (3) |
| 10(b) | <ul style="list-style-type: none"> • Search on class field, for required 1B • Search on points / place field, for > 0 • Sort by name • Sort by place / points • any sensible sort | (4) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 11(a) | <ul style="list-style-type: none"> • Year identification • 5 students in rows • 5 events in columns • Way to add each pupil's points <ul style="list-style-type: none"> • At end of each pupil row • Way to add pupils' points in a class <ul style="list-style-type: none"> • In a suitable position, for each class | (6) |
| 11(b) | <ul style="list-style-type: none"> • COUNT (1) • COUNTBLANK (1) • COUNTA (1) • COUNTIF (1) <p>Used with an IF statement</p> <ul style="list-style-type: none"> • To give message if >3 cells have an X (2) • Accept a well explained description of an IF function <p><i>Not SUM or any other mathematical method, cells only have Xs in them.</i></p> | (3) |

| Question Number | Answer | Mark |
|-----------------|--|------|
| 12(a) | <p>Answers may include</p> <ul style="list-style-type: none"> • Easier to search sort/query (1), so that reports can be made(1) • Easier to enter data / validate / navigate(1) so less likely to make mistakes(1) • Can hold large text entries(1) for details of records (1) <p><i>Up to 2 marks for one expanded answer. Allow other appropriate suggestions</i></p> | (2) |
| 12(b) | <p>Answers may include:</p> <ul style="list-style-type: none"> • Easier to make calculations (1) individual points of events per pupil / of overall winners (1) • Easier to view whole classes years(1) one year to a sheet(1) <p><i>Up to 2 marks for one expanded answer. Allow other appropriate suggestions.</i></p> | (2) |

| Question Number | Answer | Mark |
|---------------------------|--|------|
| 13(a) | <p>Diagram / notes should include:</p> <ul style="list-style-type: none"> • Microphone / sound sensor • ADC on microphone OR I.R • Link to laptop from microphone AND I.R • Infra red sensor • Laptop • Signal from microphone detected by microprocessor / software / laptop (starts time) • Break of beam stops/sends signal • Break / loss of signal triggers time measurement • Measurement logged / recorded <p><i>Max 8 marks. Max 5 if no diagram.</i></p> | (8) |
| 13(b) | <p>Reason:</p> <ul style="list-style-type: none"> • Two runners finish together (1) Only one break of I.R. beam (1) <p>Solution:</p> <ul style="list-style-type: none"> • Manual method e.g. staff press a button (1) As each runner crosses line (1) <p>OR plausible description of alternative method</p> | (4) |
| Total Marks for section B | | 50 |
| Total marks for paper | | 100 |