# Mark Scheme

# June 2014

BTEC Level 1/Level 2 First in Information and Creative Technology (20562 E05)

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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 | Dim the screen backlight | (1) |

| Question Number | Answer | Mark |
|---|---|---|
| 2 | They enable designs to be viewed in detail<br>They allow drawings to be rotated in 3D | (2) |

| Question Number | Answer | Mark |
|---|---|---|
| 3 | Heat sink (1)<br>Fan (1) | (2) |

| Question Number | Answer | Mark |
|---|---|---|
| 4(a) | Registers | (1) |

| Question Number | Answer | Mark |
|---|---|---|
| 4(b) | To process program instructions | (1) |

| Question Number | Answer | Mark |
|---|---|---|
| 5 | Projector<br>Speaker | (2) |

| Question Number | Answer | Mark |
|---|---|---|
| 6(a) | Award **one** mark for any of the following:<br><br>• operating system<br>• utility (software/application) | (1) |

| Question Number | Answer | Mark |
|---|---|---|
| 6(b) | Award **one** mark for any of the following:<br><br>• Related data is grouped together<br>• Files are reassembled<br>• Data is reordered/rearranged (into sequential order)<br>• Data is placed nearer the 'start' of the disk/storage volume<br>• Sections/sectors of disk left empty between blocks of data are grouped/moved together (compaction)<br><br>**Accept any relevant wording/phrasing** | (1) |

| Question Number | Answer | Mark |
|---|---|---|
| 6(c) | Award **one** mark for any of the following:<br><br>• File access times will be reduced/accessing files will be faster<br>• Computer performance is improved<br>• Computer may boot more quickly<br><br>Do **not** accept 'faster' on its own.<br><br>**Accept any relevant wording/phrasing** | (1) |

| Question Number | Answer | Mark |
|---|---|---|
| 7(a) | Temperature sensor<br><br>**Accept sensor, thermistor.** | (1) |

| Question Number | Answer | Mark |
|---|---|---|
| 7(b) | They are the output devices of the system (1) that respond to instructions from the processor (1)<br><br>They will rotate/open/close the blinds (1) according to instructions from the processor (1)<br><br>**Accept any valid response.** | (2) |

| Question Number | Answer | Mark |
|---|---|---|
| 8 | 00100010 = 34<br>01000001 = 65 | (2) |

| Question Number | Answer | Mark |
|---|---|---|
| 9(a) | Product ID | (1) |

| Question Number | Answer | Mark |
|---|---|---|
| 9(b) | Tracking stock | (1) |

| Question Number | Answer | Mark |
|---|---|---|
| 10 | Award **one** mark for correct identification and **one** additional mark for appropriate expansion. Errors in the code/programming of the operating may be detected after release (1) security patches will fix these errors (to protect a user's data) (1) New programs/updated software may expose security flaws (in the operating system) (1) so patches are released to prevent these flaws from being attacked (by viruses/hackers) (1) Operating systems become more vulnerable over time (1) because they are exposed to a greater number of situations/users which identifies weakness/flaws in the security of the operating systems code (1) To protect the data on a computer system/keep data safe (1) from security weaknesses/flaws created by new/updated software/errors in software/compatibility issues (1) **Accept any valid response.** | (2) |

| Question Number | Answer | Mark |
|---|---|---|
| 11(a) | Fibre optic / optical fibre | (1) |

| Question Number | Answer | Mark |
|---|---|---|
| 11(b) | Award **one** mark for any of the following up to a maximum of **two** marks: <br><br>• Coaxial / Coax <br>• Unshielded twisted pair / UTP <br>• Shielded twisted pair / STP | (2) |

| Question Number | Answer | Mark |
|---|---|---|
| 12 | HTML editor = Updating a web page <br> Vector graphics software = Designing a logo <br> DTP package = Producing a magazine advert | (3) |

| Question Number | Answer | Mark |
|---|---|---|
| 13(a) | Award **one** mark for correct identification and **one** additional mark for appropriate expansion.<br><br>The computer responds to verbal command words (1) so there is no need to use a physical input device /for users unable to use a keyboard or other physical input device (1)<br><br>**Accept any valid response.** | (2) |

| Question Number | Answer | Mark |
|---|---|---|
| 13(b) | Award **one** mark for correct identification and **one** additional mark for appropriate expansion.<br><br>The screen reader interface provides verbal feedback (1) using speech synthesis/text to voice software/based on additional data such as alt text (1).<br><br>The screen reader interface provides tactile feedback (1) using a refreshable Braille display (1).<br><br>**Accept any valid response.** | (2) |

| Question Number | Answer | Mark |
|---|---|---|
| 14 | Award **one** mark for correct identification and **one** additional mark for appropriate expansion.<br><br>It is a buffer (1) which matches the speed of the read/write and I/O interface (of the hard disk) (1)<br><br>Stores data that might be used next (Read-ahead/read-behind) (1) so that data processing is faster/quicker (1)<br><br>Accept 'speed matching' as identification of a use for 1 mark.<br><br>**Accept any valid response.** | (2) |

| Question Number | Answer | Mark |
|---|---|---|
| 15 | Award **one** mark for correct identification and **one** additional mark for appropriate expansion.<br><br>More reliable/ consistent input/output times (1) as they contain no mechanical/moving parts (1)<br><br>Predictable life span (1) because it doesn't use mechanical/magnetic read/write heads (1)<br><br>Enhances battery life/ can be used for longer (1) as they require limited power/cooling/ (1)<br><br>No defragmentation is required (1) because access times from all parts of the disk are the same (1).<br><br>Quieter operation (1) as the drive does not contain moving parts (1)<br><br>More durable (1) because it's less likely to be damaged by shock/movement/vibration (1)<br><br>**Accept any valid response.** | (4) |

| Question Number | Answer | Mark |
|---|---|---|
| 16(a) | When output is audio/music<br><br>Accept examples of sound converted from digital to analogue (e.g. VoIP/speakers)<br><br>**Accept any valid response.** | (1) |

| Question Number | Answer | Mark |
|---|---|---|
| 16(b) | Award **one** mark for correct identification and **one** additional mark for appropriate expansion.<br><br>Digital data is processed as on/off (switches) (1) which matches binary numbers/can be represented as 0 or 1 (1)<br><br>Binary converts numbers to 0/1 (1) because computer data is processed as either on/off states<br><br>Binary allows data to be represented as 0/1 (1) so that it's in a format that the computer understands/can read (1)<br><br>**Accept any valid response.** | (2) |

| Question Number | Answer | Mark |
|---|---|---|
| 17 | Award **one** mark for correct identification and **one** additional mark for appropriate expansion.<br><br>Makes it possible for a computer to boot itself (1) because it ensures that the BIOS will always be available/more stable/ROM will not be damaged by disc failures (1)<br><br>ROM is non-volatile (1) so the hardware settings are kept when power is switched off (1).<br><br>ROM chips can be set as the default boot address (1) so the computer can find the start-up instructions/hardware settings when the power is switched on (1)<br><br>**Accept any valid response** | (2) |

| Question Number | Indicative content | Mark |
|---|---|---|
| 18 | Does the OS support the types and specifications of hardware platform used in to carry out various functions such as office tasks and CAD work.<br><br>Version of operating systems (e.g. 32bit vs 64 bit) – The office may have older or mobile hardware that might not support the use of 64 bit operating systems. CAD software is likely to be used which requires high levels of RAM therefore 64bit would be appropriate for these machines.<br><br>Deployment – the ease of deployment and the media required to install the OS may have an impact on the choice of OS. Does the OS come as a ready made 'image' or does the OS need to be built as a series of packages (such as some linux distributions) building the OS from source packages would provide a more efficient/ bespoke system but would be time consuming and may be require specialist knowledge.<br><br>Maintenance/technical support – Technical knowledge/support required to support and maintain the operating system. Management of features included such as user permissions and support.<br><br>User requirements/business needs — investigate staff needs and opinions on current systems and identify improvements that can be made.<br><br>Accessibility features — level of customisation required to suit current and future staff needs.<br><br>Compatibility with preferred applications such as CAD software and Office applications.<br><br>Compatibility with customers' and other consultants' software to support data exchange, common file types and collaborative working. | |
|  |  | (8) |

| | Cost of licensing — software licenses will be required, these may be single user or multi-user network agreements. Open source software may be considered to help reduce costs

Cost of retraining staff — the latest version of the OS may present a very different interface that will require practice and training and will affect productivity in the short term.

Disruption arising from set up and extent of any down time.

The need to back up any data and safeguard ongoing projects.

Effectiveness of security features including anti-malware and firewalls. | |

| Level | Descriptor |
|---|---|
| 0<br>0 marks | No rewardable material |
| 1<br>1-3 marks | A few key points identified, **or** one point described in some detail. The answer is likely to be in the form of a list. Only one viewpoint considered. Points made will be superficial/generic and not applied/directly linked to the situation in the question. |
| 2<br>4-6 marks | Some points identified, **or** a few key points described. Consideration of more than one viewpoint but there may be more emphasis on one of them. The answer may be unbalanced. Most points made will be relevant to the situation in the question, but the link may not always be clear. |
| 3<br>7-8 marks | Range of points described, **or** a few key points explained in depth. All sides of the case are considered and the answer is well-balanced, giving weight to all viewpoints. The majority of points made will be relevant and there will be a clear link to the situation in the question. |