

# Mark Scheme (Results)

Autumn 2016

BTEC Level 1/Level 2 First in Information  
and Creative Technology (20562\_E01)

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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 judgment 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	Tablet computer	(1)

Question Number	Answer	Mark
2	Analogue (left box) Digital (right box)	(2)

Question Number	Answer	Mark
3	magnetic strip reader/stripe reader/card reader /scales.  <b>Do not accept reader by itself.</b>	(2)

Question Number	Answer	Mark
4(a)	Integer	(1)

Question Number	Answer	Mark
4(b)	Array	(1)

Question Number	Answer	Mark
5	Memory Video card	(2)

Question Number	Answer	Mark
6(a)	Award <b>one</b> mark for any of the following up to a maximum of <b>two</b> marks: <ul style="list-style-type: none"> <li>• RAM/random access memory</li> <li>• ROM/read only memory</li> <li>• Cache.</li> </ul>	(2)

Question Number	Answer	Mark
6(b)	Award <b>one</b> mark for any of the following: <ul style="list-style-type: none"> <li>• editable</li> <li>• changeable</li> <li>• rewritable</li> <li>• non-volatile</li> <li>• data will not be lost if power is off.</li> </ul>	(1)

Question Number	Answer	Mark
7(a)	<p>Award <b>one</b> mark for any of the following:</p> <ul style="list-style-type: none"> <li>• training (staff)</li> <li>• set-up/installation/data migration</li> <li>• upgrade of software that isn't compatible with new operating system</li> <li>• upgrade/replacement of older hardware that isn't capable of running new OS.</li> </ul>	(1)

Question Number	Answer	Mark
7(b)	<p>Award <b>one</b> mark for correct identification of factor and <b>one</b> additional mark for appropriate expansion.</p> <p>Compatibility with existing applications/hardware (1) so that you do not have to upgrade hardware/software (1).</p> <p>Compatibility with existing data systems (1) to avoid losing important information/data (1)</p> <p>Features of the operating system (1) so it can be used for the tasks that the business needs (1)</p> <p>Reliability of the operating system (1) a new OS may have bugs which would make it unstable (which would affect the business) (1)</p> <p>Avoid disruption of upgrades (1) so that ongoing work can still be accessed (1).</p> <p>Security features included (1) to protect business data against viruses/unauthorised access (1).</p> <p>Accessibility features included (1) to suit current staff needs (1).</p> <p>Back up procedures (1) ensure all current data and settings can be migrated to new system to avoid data loss/disruption of staff work (1).</p> <p>Compatibility with customer systems (1) to avoid staff having to save/export files to different formats when sharing things with customers (1).</p> <p>Staff training (1) as staff may not know how to use the new operating system (1)</p> <p><b>Do not accept compatibility on its own</b></p>	(2)

Question Number	Answer	Mark
8	<p>Programming language (top box)</p> <p>Machine code (bottom box)</p>	(2)

Question Number	Answer	Mark
9(a)	Producing a magazine advert	(1)

Question Number	Answer	Mark
9(b)	The user interface will be similar between applications	(1)

Question Number	Answer	Mark
10	<p>Award <b>one</b> mark for correct identification and <b>one</b> additional mark for appropriate expansion.</p> <p>(larger RAM capacity) allows more data to be loaded into memory at one time (1) which reduces the amount of time spent waiting for data to be loaded from storage (1)</p> <p>Higher memory clock cycles (1) mean data can be loaded into RAM and then processed more quickly (reducing delay/lag) (1)</p> <p>The GPU/CPU can access data in RAM more quickly than storage (1) higher specification RAM will reduce the time waiting for data to load (1).</p> <p><b>Accept any other relevant wording/phrasing.</b></p>	(2)

Question Number	Answer	Mark
11(a)	<p>Award <b>one</b> mark for any of the following:</p> <ul style="list-style-type: none"> <li>• Reduces lag when running more than one program</li> <li>• runs multiple instructions/calculations at the same time</li> <li>• provides simultaneous processing of two or more instructions/calculations.</li> </ul> <p><b>Accept any other relevant wording/phrasing.</b></p>	(1)

Question Number	Answer	Mark
11(b)	<p>Cache (size/number)</p> <p>Clock speed</p> <p>Number of threads</p> <p>Heat dispersal</p> <p>Power consumption/Power saving settings</p>	(2)

Question Number	Answer	Mark
12(a)	5	(1)

Question Number	Answer	Mark
12(b)	00000111	(1)

Question Number	Answer	Mark
12(c)	8 bits	(1)

Question Number	Answer	Mark
13	<p>Award <b>one</b> mark for correct identification and <b>one</b> additional mark for appropriate expansion up to a maximum of <b>four</b> marks.</p> <p>Data and operating system can be placed on different drives (1) keeping data safer if one drive fails (1)</p> <p>The operating system/programs could be installed on the SSD (1) which should make the PC boot/load programs more quickly (1)</p> <p>Data can be stored on a separate drive (1) which would allow it to be removed and placed in a different computer (1)</p> <p>The HDD offers larger amount of storage (1) compared to an SSD of the same price (1)</p> <p>Data can be stored on both drives (1) allowing for redundancy if one breaks (1)</p> <p><b>Accept any other relevant wording/phrasing.</b></p>	(4)



Question Number	Answer	Mark
14	<p>Award <b>one</b> mark for correct identification of advantage and <b>one</b> additional mark for appropriate expansion.</p> <p>Device drivers provide the communication link between the hardware and the operating system (1) and translate the instructions/data into a format that can be handled by the hardware device (1).</p> <p>Allow peripherals/hardware to work on different computer systems (1) by translating the commands (from the computer) in to the format the device understands (1)</p> <p>Provides the commands to control the device (1) so programs/OS don't have to be programmed with all the commands for all devices (1)</p> <p><b>Accept any other relevant response that covers:</b></p> <ul style="list-style-type: none"> <li>• <b>communication link</b></li> <li>• <b>translation process.</b></li> </ul>	(2)

Question Number	Answer	Mark
15(a)	<p>Award <b>one</b> mark for correct identification and <b>one</b> additional mark for appropriate expansion.</p> <p>Set the name/data type of a variable/constant (1) so that it can be referred to/called in another part of the program (1).</p> <p>Request a suitable space in memory (1) so that the variable/constant has an address (1).</p> <p>Initialise a variable with a value (1) for use later in the program (1).</p>	(2)

Question Number	Answer	Mark
15(b)	<p>Award <b>one</b> mark for correct identification and <b>one</b> additional mark for appropriate expansion.</p> <p>Programmers use sub-routines to save time/to avoid rewriting code (1) because it enables programmers to save a bank of code (1).</p> <p>Saves having to rewrite code/code only has to be written once (1) for tasks that are performed many times in a program (1)</p> <p>To avoid errors (1) because tested code can be reused (1).</p> <p>Self-contained (1) therefore errors more readily identified (1).</p> <p>Can be collected as libraries (1) which will allow developers to share code (1).</p>	(2)

Question Number	Answer	Mark
16(a)	Personal area network/PAN	(1)

Question Number	Answer	Mark
16(b)	<p>Award <b>one</b> mark for correct identification of advantage and <b>one</b> additional mark for appropriate expansion.</p> <p>A Bluetooth connection is low power (1) so it is ideal for battery-powered devices (1).</p> <p>Reduced interference (1) because objects such as microwaves do not affect Bluetooth transmissions (1).</p> <p>No line of sight is necessary (1) because each device can transmit around obstacles, between rooms, etc. (1).</p> <p>It is a connection used by many different devices (1) so the same peripheral (e.g. headset) can be used with other devices (1).</p>	(2)

Question Number	Answer	Mark
17	<p>Award <b>one</b> mark for correct identification of reason and <b>one</b> additional mark for appropriate expansion.</p> <p>Reliability (1) because the library functions will have been pre-tested/proven to work as required/free of bugs (1).</p> <p>Code will run efficiently (1) because it will be written to conform to standards/conventions (1).</p> <p>Reduced development time (1) because sections of the code are written/tested by others (1).</p> <p><b>Accept any other relevant wording/phrasing.</b> <b>Do not accept quicker on its own</b></p>	(2)

Question Number	Indicative content	Mark
18	<p><b>Benefits</b></p> <p>Data sharing/efficient: the data can be shared easily so that other team members can access it. e.g. Database management system for client/customer details so that everyone can access.</p> <p>Resource sharing: cost saving of sharing expensive peripherals such as colour printers. Sharing of single broadband connection. Use of internet and email can be controlled and monitored.</p> <p>Centralised software management: all the software can be loaded on a file server. Regulates version control, updates and licensing. Allows responsibility for software management to be designated.</p> <p>Centralised hosted software: the software used can be hosted on a central server allowing users to access the software; this allows business to purchase less expensive user terminals.</p> <p>Data security and management: administrators able to manage critical business data. Ensure that data is backed up regularly; anti-virus and firewalls are updated and implement security measures to control who can read or change critical information.</p> <p>Internal communication: Improve use of internal communication through provision of a greater range of methods of communicating (locally hosted noticeboards/forums, instant messaging/chat etc.) allowing staff to use methods that suit their way of working or the task they are performing. The manager may be monitor staff to ensure acceptable usage of the network.</p> <p>Hosting communication methods internally allows communications to be archived for auditing or monitored.</p> <p><b>Drawbacks</b></p> <p>Expensive to install: cables, network hardware and software are expensive, and the installation may require the services of a technician.</p> <p>Data security: if implemented properly, greatly improved data security, but a poorly secured network puts critical data at risk, exposing it to the potential problems associated with unauthorised access.</p> <p>Communication monitoring/Privacy: Staff may not be</p>	(8)

	<p>comfortable being monitored</p> <p>Cables may break, file server may fail: results in the loss of access to data.</p> <p>Virus infections: if one workstation gets infected the viruses could spread because of the interconnectivity of workstations.</p> <p>Additional staff may have to be employed to run/maintain the network adding additional costs to the company.</p> <p>Time/cost needed to train the staff on how to use the network to share files and work collaboratively.</p>	
Level	Descriptor	
0 0 marks	No rewardable material.	
1 1-3 marks	A few key points identified, <b>or</b> 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 4-6 marks	Some points identified, <b>or</b> a few key points described. The answer is unbalanced. Most points made will be relevant to the situation in the question, but the link will not always be clear.	
3 7-8 marks	Range of points described, <b>or</b> 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.	