



# **Cambridge Technicals**

## **IT**

Unit 1: Fundamentals of IT

Level 3 Cambridge Technical Certificate/Diploma in IT  
**05838-05842, 05877**

## **Mark Scheme for January 2018**

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This mark scheme is published as an aid to teachers and students, to indicate the requirements of the examination. It shows the basis on which marks were awarded by examiners. It does not indicate the details of the discussions which took place at an examiners' meeting before marking commenced.

All examiners are instructed that alternative correct answers and unexpected approaches in candidates' scripts must be given marks that fairly reflect the relevant knowledge and skills demonstrated.

Mark schemes should be read in conjunction with the published question papers and the report on the examination.

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**Annotations*****Annotation***

Tick  
Cross  
Too vague  
Benefit of doubt  
Benefit of doubt not given  
L1  
L2  
L2  
REP  
NAQ  
Line through blank response

***Description***

Level 1  
Level 2  
Level 3  
Repetition  
Not answered question  
Learner has not attempted  
question/blank page

Question		Answer	Marks	Guidance
1	b	To manage the main functions and operations of the computer	1	
2	a	Quantum computers do not rely on binary logic.	1	
3	a	All devices on the network must be in line of sight.	1	
4	c	4	1	
5	c	There may be an increased security risk as the source code can be edited by others.	1	
6	d	The throughput of data is usually greater than a single processor system	1	
7			1	Award 1 mark to every candidate
8	d	Insufficient RAM	1	
9	c	Packet retransmission.	1	
10	c	Locking server room doors.	1	
11	d	"What is the security code needed to access the Web Server?"	1	
12	a	Packages do not need to be in line of sight of the reader to be identified.	1	
13	c	To protect data and information from being seen by unauthorised viewers.	1	
14	b	The data held in each bit on the hard disc is replaced with fresh data.	1	
15	a	Does not prevent an authorised user from using the system maliciously.	1	

Question		Answer	Marks	Guidance
16	(a)	<p>Two marks what it does e.g.</p> <p><b>Solid State Drive</b></p> <ul style="list-style-type: none"> <li>Used as (secondary) storage (1) to store work for future use (1)</li> <li>Store/save (1) data (1)</li> <li>Any other valid suggestion.</li> </ul> <p><b>Graphics Card</b></p> <ul style="list-style-type: none"> <li>Converts signals from terminal (1) so they can be displayed on a monitor (1)</li> <li>Enhance the visual display (1) for display on the monitor (1)</li> <li>Display (1) output (1)</li> <li>Any other valid suggestion.</li> </ul>	4	<p>Max 1 mark for each component for describing a characteristic of that component</p> <p>Must be a description of what it does, NOT a comparison with other technologies</p>
	(b)	<p>Two marks for each point and suitable expansion e.g.</p> <ul style="list-style-type: none"> <li>Connects devices together (1) over a small area (1)</li> <li>Can share data (1) to increase efficiency (1)</li> <li>Can share peripherals (1) to reduce cost (1)</li> <li>Increased security (1) as wireless can be easily intercepted (1).</li> <li>Increased throughput (1) as wired network has more bandwidth/than wireless (1).</li> <li>Increase performance (1) as each device connects using its own cable (1).</li> <li>Any other valid suggestion.</li> </ul>	4	<p>Answer could cover:</p> <p>Why use LAN as opposed to stand alone</p> <p>Why use LAN as opposed to wireless LAN</p> <p>Why use LAN as opposed to WAN</p> <p>Do NOT accept answers related to increased speed/quicker</p>

Question	Answer	Marks	Guidance
(c)	One from e.g. <ul style="list-style-type: none"> <li>• Fingerprint/Face/Iris/Retina/Voice Recognition (1)</li> <li>• Any other valid suggestion</li> </ul>	1	
(d)	Up to <b>two</b> marks for each of <b>three</b> explanations e.g. <p><b>Advantages</b></p> <ul style="list-style-type: none"> <li>• If password is compromised (1) someone else still can't access the system (1) (without also having the biometric (1))</li> <li>• Increases security (1) as staff can't share each other's password (1) as they still need the biometric to gain access (1)</li> <li>• Can verify that the staff member (1) really is who they claim to be (1)</li> <li>• Any other valid suggestion.</li> </ul> <p><b>Disadvantages</b></p> <ul style="list-style-type: none"> <li>• Biometrics can be unreliable (1) so staff may resent the increased security (1)</li> <li>• As technology develops (1) some biometrics become easier to forge (1)</li> <li>• Concern if compromised (1) as biometric can't be changed (1)</li> <li>• Affected by the environment (1) e.g. wet fingers difficult to scan (1)</li> <li>• Disabled people may be excluded (1) may not have the relevant biometric characteristic (1)</li> <li>• Individual may not want to give their biometric (1) as they use isn't proportionate (1)</li> <li>• Any other valid suggestion.</li> </ul>	6	Allow examples, such as technologies seen in mobile telephones and computer systems. <p>Do NOT accept answers relating to the use of a biometric on its own (e.g. simpler/quicker to log in as no username/password needed)</p> <p>Do NOT accept answers relating to cost/setup time as the biometric device is already present.</p>

Question		Answer	Marks	Guidance
17	(a)	<p>Up to <b>two</b> marks for each of <b>three</b> explanations e.g.</p> <p><b>Advantages</b></p> <ul style="list-style-type: none"> <li>• Detail of problem (1) can be expressed clearly (1).</li> <li>• Will have a written record (1) so can refer to it if issue occurs again (1).</li> <li>• Will get a reply with a ticket number (1) so simple to chase up issue (1).</li> <li>• Attachments/screen shots can be sent (1) so problem is better understood/to visually explain the problem (1)</li> <li>• Emails can be sent to more than one person (1) so more people know about the problem (1)</li> <li>• Can get on with other tasks (1) so not waiting for response (1)</li> <li>• Any other valid suggestion.</li> </ul> <p><b>Disadvantages</b></p> <ul style="list-style-type: none"> <li>• If computer is broken/internet down (1) then you can't send an email (1).</li> <li>• Issue may be complex (1) so difficult to explain in an email (1).</li> <li>• Could be sent to the wrong person (1) so you won't get support (1)</li> <li>• Any other valid suggestion.</li> </ul>	6	Do not accept answers related to email is free or being quicker

Question	Answer	Marks	Guidance
(b)	<p>Two marks for each description, max four e.g.</p> <ul style="list-style-type: none"> <li>• Identify the problem (1) by asking user a series of questions about the issue (1).</li> <li>• Establish a theory (1) about the cause of the problem (1).</li> <li>• Test the theory (1) to see if the issue is identified (1).</li> <li>• Create a plan (1) to follow (1).</li> <li>• Check the system is working (1) after implementing the plan (1).</li> <li>• Document finding (1) for future reference (1).</li> <li>• Any other valid suggestion.</li> </ul>	4	<p>Allow examples of real troubleshooting techniques e.g.</p> <ul style="list-style-type: none"> <li>• Restart the computer (1) by switching it off and on (1)</li> <li>• Check cables/power (1) to ensure they are connected (1)</li> <li>• Check the manual (1) for common faults/look up error codes (1)</li> <li>• Check logs/event viewer (other tools) (1) to see if any error messages are displayed (1)</li> <li>• Run self-tests (1) to perform diagnosis (1)</li> </ul>
(c)	<p>Up to <b>four</b> marks for an explanation e.g.</p> <ul style="list-style-type: none"> <li>• Staff can demonstrate knowledge (1) of a technical area (1) which makes others confident (1) that staff know what they are doing (1).</li> <li>• Progress Jewellers can be confident (1) that staff have been trained (1) and have experience (1) at the required level for the certification (1).</li> <li>• Any other valid suggestion.</li> </ul>	4	Max 3 marks without reference to Progress Jewellers

Question	Answer	Marks	Guidance						
(d)	<p>Two marks for suitable point and expansion e.g.</p> <ul style="list-style-type: none"> <li>• Staff must be dressed appropriately (1) for the situation they are working in (1).</li> <li>• Staff should show a positive attitude (1) so that others will know they are doing their job properly (1).</li> <li>• Any other valid suggestion.</li> </ul>	2	<p>Allow the opposite. Spec points are: dress (i.e. appropriate clothing depending on situation) presentation (i.e. personal grooming, appearance etc.) attitude (i.e. can-do attitude, responsive)</p>						
18*	<p><b>Indicative content:</b></p> <p>Reasons for using both a file server and a mail server. e.g.</p> <p>File server</p> <ul style="list-style-type: none"> <li>• Stores files and folders</li> <li>• Shares files with other staff members</li> <li>• Can provide printing also</li> <li>• Access control</li> </ul> <p>Mail server</p> <ul style="list-style-type: none"> <li>• Provides inbound and outbound mail flow</li> <li>• Delivered mail to the correct user</li> <li>• Can be used for anti spam</li> <li>• Holds company address book</li> <li>• Connects to other mail servers using common protocols</li> </ul> <p>Both</p> <ul style="list-style-type: none"> <li>• Each have their own role</li> <li>• Data should be kept separate</li> <li>• Mail server will normally have access to internet</li> <li>• File server doesn't need access to internet</li> <li>• More secure by splitting up roles</li> </ul>	10	<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 10%; text-align: center; vertical-align: top;">7-10</td> <td style="width: 5%; text-align: center; vertical-align: top;">3</td> <td style="padding: 5px;"> <p>The learner has <b>explained</b> the purpose of a fileserver <b>and</b> a mail server. The learner has also provided an explanation of reason(s) why <b>both</b> would be used in the <b>context</b> provided.</p> <p>At the bottom of the mark band, the reason(s) why both would be used may be implied.</p> <p>Subject specific terminology and knowledge will be clearly used to support and inform the explanations.</p> </td> </tr> <tr> <td style="text-align: center; vertical-align: top;">4-6</td> <td style="text-align: center; vertical-align: top;">2</td> <td style="padding: 5px;"> <p>The learner has <b>described</b> the purpose of a fileserver <b>and/or</b> mail server. The learner has also provided a description of why <b>either</b> would be used, for the most part linking their answer to the context provided.</p> <p>At the bottom of the mark band, the learner may describe just the purpose of a fileserver or a mail server.</p> <p>Some subject specific terminology and knowledge will be used.</p> </td> </tr> </table>	7-10	3	<p>The learner has <b>explained</b> the purpose of a fileserver <b>and</b> a mail server. The learner has also provided an explanation of reason(s) why <b>both</b> would be used in the <b>context</b> provided.</p> <p>At the bottom of the mark band, the reason(s) why both would be used may be implied.</p> <p>Subject specific terminology and knowledge will be clearly used to support and inform the explanations.</p>	4-6	2	<p>The learner has <b>described</b> the purpose of a fileserver <b>and/or</b> mail server. The learner has also provided a description of why <b>either</b> would be used, for the most part linking their answer to the context provided.</p> <p>At the bottom of the mark band, the learner may describe just the purpose of a fileserver or a mail server.</p> <p>Some subject specific terminology and knowledge will be used.</p>
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Question			Answer	Marks	Guidance		
					1-3	1	<p>The learner has <b>identified</b> points about either type of server.</p> <p>At the bottom of the mark band, a single point about either server type may be given.</p> <p>Subject specific terminology may be limited or missing.</p>
					0		Nothing worthy of credit.

Question		Answer	Marks	Guidance
19	(a)	<p><b>One</b> mark for identification of hardware, <b>one</b> mark for description e.g.</p> <ul style="list-style-type: none"> <li>• Router (1<sup>st</sup>) routes packets/traffic/data between networks/provides ports to connect lines to (1).</li> <li>• Modem (1st) converts analogue signals to digital signals/connects to ADSL line (1).</li> <li>• CSU/DSU (1st) provides termination of carrier's line (1).</li> <li>• Firewall (1st) provides filtering of traffic entering/leaving network (1).</li> <li>• Any other valid suggestion.</li> </ul>	4	<p>Must identify the hardware (1st) before description can be awarded</p> <p>CSU – Channel Service Unit, DSU – Data Service Unit</p> <p>Do NOT accept: Cables Network Card/NIC Hub Switch</p>
	(b)	<p><b>One</b> mark (1<sup>st</sup>) for threat and max <b>two</b> for suitable description e.g.</p> <ul style="list-style-type: none"> <li>• Phishing (1st) trying to obtain personal information (1) by faking email from trusted site (1).</li> <li>• Hacking (1st) attempts to break into computer system (1) by a malicious person (1).</li> <li>• Virus (1st) malicious software program (1) that replicates itself (1).</li> <li>• Trojan (1st) software that pretends to do one task (1) but carries out a malicious task in the background (1).</li> <li>• Interception (1st) data can be taken (1) whilst in transit over the WAN (1).</li> <li>• Data theft (1<sup>st</sup>) data can be stolen (1) whilst in transit over the WAN.</li> </ul>	3	<p>Must identify the threat (1<sup>st</sup>) before description can be awarded.</p>

Question	Answer	Marks	Guidance												
20*	<p>Answers should be reasons WHY bespoke software is used, so should focus on advantages/benefits.</p> <p><b>Indicative content</b></p> <ul style="list-style-type: none"> <li>• Off the shelf unlikely to have all necessary features</li> <li>• Jewellery retail has specific needs</li> <li>• Bespoke software can be written to support these needs</li> <li>• Progress Jewellers can adapt the software as and when needed to meet the changing needs of the business</li> <li>• Competitive advantage</li> </ul>	10	<table border="1"> <tr> <td>7-10</td> <td>3</td> <td> <p>The learner has <b>explained</b> why Progress Jewellers would use bespoke software to manage its jewellery business.</p> <p>Explanations will be in context</p> <p>Subject specific terminology and knowledge will be clearly used to support and inform the explanations.</p> </td> </tr> <tr> <td>4-6</td> <td>2</td> <td> <p>The learner has <b>described</b> how Progress Jewellers would use bespoke software to manage its jewellery business. May not be in context.</p> <p>At the bottom of the mark band, the learner may describe a single reason.</p> <p>Some subject specific terminology and knowledge will be used.</p> </td> </tr> <tr> <td>1-3</td> <td>1</td> <td> <p>The learner has <b>identified</b> points about how Progress Jewellers would use bespoke software.</p> <p>At the bottom of the mark band, a single point may be identified.</p> <p>Subject specific terminology may be limited or missing.</p> </td> </tr> <tr> <td>0</td> <td></td> <td>Nothing worthy of credit.</td> </tr> </table>	7-10	3	<p>The learner has <b>explained</b> why Progress Jewellers would use bespoke software to manage its jewellery business.</p> <p>Explanations will be in context</p> <p>Subject specific terminology and knowledge will be clearly used to support and inform the explanations.</p>	4-6	2	<p>The learner has <b>described</b> how Progress Jewellers would use bespoke software to manage its jewellery business. May not be in context.</p> <p>At the bottom of the mark band, the learner may describe a single reason.</p> <p>Some subject specific terminology and knowledge will be used.</p>	1-3	1	<p>The learner has <b>identified</b> points about how Progress Jewellers would use bespoke software.</p> <p>At the bottom of the mark band, a single point may be identified.</p> <p>Subject specific terminology may be limited or missing.</p>	0		Nothing worthy of credit.
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0		Nothing worthy of credit.													

Question			Answer	Marks	Guidance
21	(a)	i	One mark for: <ul style="list-style-type: none"> <li>Virtualisation (1).</li> </ul>	1	Correct answer only.
		ii	Up to <b>two</b> marks for each of <b>three</b> explanations e.g.  <b>Advantages</b> <ul style="list-style-type: none"> <li>Multiple workloads can be ran on one physical box (1) making more efficient use of the hardware (1).</li> <li>Can reduce costs (1) as workloads can be consolidated (1).</li> <li>Less cabling needed (1) reduces complexity (1)</li> <li>Improved disaster recovery/backup (1) as virtual machines are just a collection of files (1).</li> <li>Reduced power consumption (1) as less physical hardware needed (1)</li> <li>Any other valid suggestion.</li> </ul> <b>Disadvantages</b> <ul style="list-style-type: none"> <li>Added complexity (1) means more technical staff needed (1).</li> <li>If physical hardware breaks (1) multiple servers can go offline (1).</li> <li>Easier to steal machines (1) as they are just a collection of files (1).</li> <li>Any other valid suggestion.</li> </ul>	6	

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