

Question	Answer				Marks
1	(✓)	Switch (✓)	Router (✓)		4
	Connects a LAN to a WAN		✓		
	Broadcasts data to all connected devices	✓			
	Connects two LANs		✓		
	Selects which device to send data to	✓			

Question	Answer	Mark
2(a)	Two from: Hypertext Transfer Protocol Secure Set of communication rules Used when transferring data across the internet Uses encryption/SSL/TLS	2
2(b)	Two from: Uniform Resource Locator Resource/website address Used by web browsers To access/link web pages/retrieve files	2

Question	Answer	Marks
3(a)	Four from: Purchase the hardware Purchase/download the software Set up the hardware Configure all the hardware Load the software onto the computers Purchase network licences Set up staff privileges Purchase a hub/switch Allocate/set IP addresses Install network cards Set up file/printer sharing Set up the users	4
3(b)	Three from: A router receives/sends data packets Routers inspect the data packets received Checks the destination IP address Checks the IP address using the stored routing table It uses a routing table which lists all the different routes to other networks Data packet is sent to the appropriate/next switch/router Uses the MAC address to send to correct computer/device Uses the IP address to work out the best/quickest route	3

Question	Answer	Marks
3(a)	Four from: Laptops transmit data by radio waves to a wireless transmitter/Wireless Access Point The Wireless Access Point converts these radio waves into data and passes it to the switch... ... data transmitted to the destination computer Explanation of handshaking Explanation of authentication using Wireless security key Explanation of obtaining an IP address from the network	4

Question	Answer	desktop computer	tablet computer	smartwatch
A computer made up of separate units		✓		
Is an example of wearable technology				✓
A portable device that allows text to be typed relatively easily			✓	
Most easily used for fitness and health monitoring by runners				✓

Question	Answer	Mark
5	Four from: Bluetooth sends and receives radio waves Enable Bluetooth Bluetooth searches for the other devices Pairs the two devices Devices automatically detect and connect to each other Used for short distances Randomly picks channels to use one of 79 channels can be used Uses spread spectrum frequency hopping Constantly change the channels to stop interference with other communication systems Used for low-bandwidth applications, e.g. streaming music Used when the speed of transmission is not critical Bluetooth can be used to create a secure Wireless Personal Area Network	4

6	<p>Three from with an expansion, for example: Material found on the internet can be found elsewhere People can make their own decisions on what they read on the internet... ...reduces their freedom The internet is international... ...therefore there could be problems liaising with other police forces A new police force would need to be set up... ...costing, a lot of money The laws regarding the use of the internet are not consistent... ...different law in states/countries It goes against freedom of speech/human rights... ...comments could be blocked Individual police forces/multi-country police... ...internet is policed locally What is classed as illegal; may be different in other countries... ...therefore difficult to police Some medical websites could be classed as illegal... ...but could be legal elsewhere/could be classed as pornography The mass of information increases daily... ...therefore difficult to check People tend to be anonymous... ...therefore difficult to find the culprits</p>
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Question	Answer	Marks
7	<p>Four from: People no longer have to do manual tasks therefore more time to do other things To go out of the house when food is being cooked/washing is being done Can control the devices remotely Greater sense of security with automated burglar alarms Use of smart fridges can lead to a healthy diet More time with the family Can do leisure activities when it is convenient Can do their shopping convenient to them Can set timers for washing/cooking</p>	4

8	<p>Three from: Video-conferencing provides real-time two-way audio/video communication whereas web-conferencing can be either two-way or a webcast Video-conferencing tends to be via the internet whereas web-conferencing uses a phone or VOIP Video-conferencing requires specialised equipment on both ends for a successful connection whereas web-conferencing uses a computer Video-conferencing participants use a shared microphone and speakers whereas web-conferencing participants sit at their own computers Sound quality on video-conferencing is poorer than web-conferencing</p>	3
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Question	Answer	Marks										
8	<p>Ways of minimising the health issue</p> <table border="1"> <thead> <tr> <th>Health issue</th> <th>Health issue</th> </tr> </thead> <tbody> <tr> <td>Use ergonomic keyboards.</td> <td>RSI</td> </tr> <tr> <td>Use fully adjustable chairs to give correct posture.</td> <td>Backache</td> </tr> <tr> <td>Change to LCD screens from CRT screens.</td> <td>Eye strain</td> </tr> <tr> <td>Have the monitor at the correct height.</td> <td>Neck-ache</td> </tr> </tbody> </table>	Health issue	Health issue	Use ergonomic keyboards.	RSI	Use fully adjustable chairs to give correct posture.	Backache	Change to LCD screens from CRT screens.	Eye strain	Have the monitor at the correct height.	Neck-ache	4
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Question	Answer	Mark
9(a)	Part-time	1
9(b)	Flexible working	1
9(c)	Job-sharing	1
9(d)	Compressed hours	1

Question	Answer	Marks
10(a)	<p>Damage to fingers and wrists – 1 mark</p> <p>One from: Caused by continuous use of a keyboard Caused by repetitive clicking of a mouse button</p>	2
10(b)	<p>Three from: Use an ergonomic keyboard Use an ergonomic mouse Use a wrist rest/use a mouse rest Use voice-activated software Take regular breaks Maintain correct posture of arms</p>	3