

BCS Level 4 Network Engineer

Sample Paper A

Record your surname / last / family name and initials on the answer sheet.

Sample paper only consisting of 40 questions in total across:

- 20 knowledge questions that include a range of question types such as multiple choice, multiple response, matching and fill in the blanks – 1 mark awarded for each question.
- 4 scenario-driven situational judgement assessments each with 5 questions designed to test knowledge, skills and behaviours that include a range of question types such as multiple choice, multiple response, matching and fill in the blanks and ordering question types – 1 mark awarded for each question.

A number of possible answers are given for each multiple-choice or multiple-response question, indicated by either **A B C D** or **E**. A number of other questions will require you to re-order a list, match items in separate lists or fill in the blanks. Your answers should be clearly indicated on the answer sheet.

Pass mark is 26/40

Distinction mark is: 34/40

Time allowed: 90 minutes

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This is a United Kingdom government-regulated qualification which is administered and approved by one or more of the following: Ofqual, Qualifications Wales, CCEA Regulation or SQA.

1 Circle the CORRECT items to complete the blank options in the following sentence.

Cat 6a cabling is (A) _____ and supports up to (B) _____ speeds for a distance of up to (C) _____ metres.

A shielded.
unshielded.

B 1Gbps.
10Gbps.

C 55m.
100m.

2 You have been asked to upgrade your wide area network routing. Select **one** attribute and **one** benefit of choosing a link-state routing protocol over a distance vector routing protocol.

A The router shares the knowledge of only their neighbour routers in the autonomous system.

B It requires less bandwidth.

C It converges faster.

D It uses Bellman-ford algorithm to calculate routes.

3 Your website runs on multiple servers. Some users are complaining of service denial, whilst others are working satisfactorily. What the **MOST LIKELY** cause?

A Round robin DNS is in use and a server has failed.

B Network connectivity to your data centre where the servers are hosted is down.

C The public cloud platform your servers run on is down.

D Your network is under a DDoS attack.

4 What is considered a disadvantage of a Type 1 hypervisor?

A Lack of scalability.

B Poor performance.

C Hardware has to be dedicated to a hypervisor.

D Poor security.

- 5 You have been asked to provide a platform for an application development team which allows them to focus on coding. Select the **BEST** option.
- A IaaS will provide maximum flexibility to the team.
 - B SaaS will minimise development needs.
 - C PaaS provides access to a software development platform and a suite of development tools.
 - D XaaS allows the development team to select from whatever features they need to develop code.
- 6 You have been asked to implement a protocol to automate the process of configuring devices on an IP network. Which **one** of the following would meet this need?
- A DNS.
 - B DHCP.
 - C Radius.
 - D Active directory.
- 7 A user has complained of connectivity issues. You log on and open a window to issue a CMD prompt. What approach could you take to analyse the issue and what would be a correct analysis of the output? Select **two** that apply.
- A Issue an IPConfig command. If this returns an IP address of 169.x.x.x., it means that the device is not receiving a valid IP address.
 - B Issue an IPConfig command. If this returns an IP address of 169.x.x.x., it means that an incorrect static IP address has been assigned.
 - C Issue the ping command followed by an IP address. The continuous ping returned by the command will test connectivity.
 - D Issue the ping command followed by an IP address and add -t. The continuous ping returned by the command will test connectivity.

8 You are designing a new network and need to include key functions to enable effective operations. Match the network server types to the functions that they provide.

	NETWORK FUNCTIONS:	DESCRIPTION:
A	DHCP.	[]
B	DNS.	[]
C	NAT.	[]
D	RADIUS.	[]

DESCRIPTIONS:

1. Networking protocol that provides centralized authentication, authorization, and accounting (AAA) management for users who connect and use a network service.
2. Responsible for converting the internal address to a public address that is used to access the internet.
3. Responsible for assigning IP addresses to hosts on the network.
4. Responsible for converting the Fully Qualified Domain Name (FQDN) to an IP address.

9 You have been asked to improve the security and performance of an existing Wi-Fi network. Select **two** options that may help.

- A Restore Wi-Fi devices to factory default to ensure all security options are enabled.
- B Upgrade the devices to use the WEP security protocol.
- C Implement guest VLAN to isolate corporate resources.
- D Implement monitoring to identify rogue access points.

10 What is the purpose of the transport layer in the TCP/IP model?

- A Allows access to network resources.
- B Provides a reliable process to process message delivery.
- C Moves packets from network to network.
- D Enables transmission of data from one device to another on the same network.

- 11 Select **two** techniques and best practices involved in network performance QoS.
- A Traffic classification and prioritisation to identify traffic that requires higher QoS.
 - B Engineer the one-way delay for voice traffic to be less than 50 milliseconds.
 - C Only place bandwidth guarantees on specific services.
 - D Use the service integration feature to consolidate all high priority traffic.

- 12 The type of firewall to be implemented for scanning, monitoring and controlling network, internet and local system access and operations to and from an application or service should be a(n) _____ firewall.

Select the CORRECT blank option.

- A Packet filtering.
- B Stateful inspection.
- C Network level firewall.
- D Application.

- 13 What are the potential causes of storage capacity issues? Select **two** that apply.

- A System failures causing large data dumps.
- B Limitations in the network bandwidth.
- C Insufficient capacity trend monitoring.
- D Storage capacity limitations within a specific public cloud region.

- 14 Which **two** of the following OSI model layers have the same functionality as a single layer in TCP/IP?

- A Data link.
- B Session.
- C Physical.
- D Transport.

- 15** Considering a network address of 149.70.0.0, what is the default subnet mask for this addressing scheme?
- A** 255.0.0.0
 - B** 255.255.0.0
 - C** 255.255.192.0
 - D** 255.255.255.0
- 16** Considering a network address of 149.70.0.0/26, how many subnets does this allow you to allocate using a modern router?
- A** 446.
 - B** 448.
 - C** 1022.
 - D** 1024.
- 17** Considering a network address of 150.25.0.0/26, how many hosts will each subnet support?
- A** 32.
 - B** 62.
 - C** 64.
 - D** 126.
- 18** Which **two** of the following statements about the usage and benefits of VLSM are TRUE?
- A** Variable length subnet masking can make routing more efficient.
 - B** Virtual loopback subnet mapping ensures correct address mapping of IP subnets for remote testing.
 - C** Variable length subnet masking makes more efficient use of the addressing schemes.
 - D** Variable limited subnet masking enables more flexible IP address space usage.

19 How **SHOULD** you solve a current DDoS attack?

- A** Install anti-virus software on the affected devices.
- B** Use IP address filtering to identify and block addresses generating the traffic.
- C** Create and execute a DDoS response plan.
- D** Educate the user community on types of threats and how to avoid them.

20 Match the types of security issues listed to their appropriate OSI layer.

	SECURITY ISSUE:	OSI LAYER:
A	Virus.	[]
B	DNS poisoning.	[]
C	Port taps.	[]
D	SSL hijacking.	[]

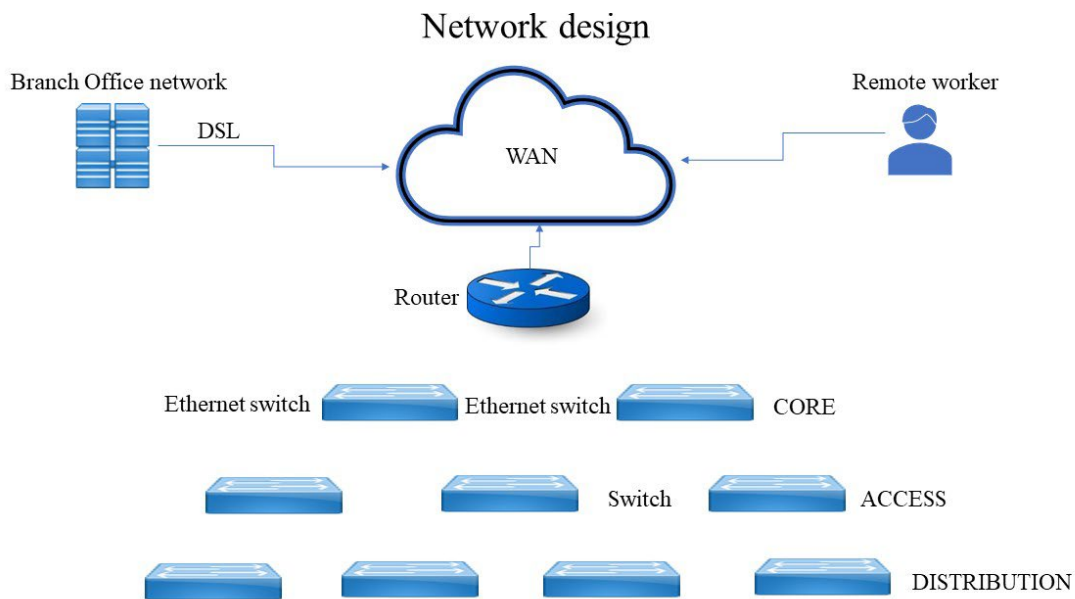
OSI LAYER:

1. Session.
2. Application.
3. Physical.
4. Network.

Scenario 1: Network Design

You have been assigned to make improvements to the network design which is displayed in the diagram, by adding additional functionality, resiliency or performance (for example, in the form of VoIP and adding Wi-Fi).

Over the last few years, more users have migrated away from the head office to work in local branches or from home. This is adding strain to the network performance and user experience.



- 21** You have been asked to introduce VoIP into this network. Select **three** relevant design considerations.
- A** Check application port numbers to verify voice and control traffic will be allowed through.
 - B** The make of handsets that will be used.
 - C** Evaluation of security considerations affecting voice traffic and applications.
 - D** If the distribution and core layers should be collapsed to reduce hop count and improve performance.
 - E** Design implications to ensure voice traffic receives the required quality of service.

- 22** You have been asked to add Wi-Fi to the main site. Which Wi-Fi standard would you recommend in order to gain maximum performance and reach?
- A** 802.11ac.
 - B** 802.11n.
 - C** 802.11af.
 - D** 802.11ah.
 - E** 802.11ab.
- 23** The branch network is distributed across the country and is experiencing performance problems due to a more distributed workforce being located in these offices. What may help improve performance? Select **two** that apply.
- A** Implement a MAN network.
 - B** Consider upgrading the WAN link to 3G to increase bandwidth to the branch.
 - C** Consider upgrading the WAN link to increase bandwidth to the branch.
 - D** Implement traffic filtering to limit non-corporate applications utilizing bandwidth.
 - E** Relocate the branch servers to head office.
- 24** More end users are now working from home, so the business wants to ensure company needs are met and the user receives a good experience whether at home or on the road. What are **two** benefits of implementing a virtual desktop solution?
- A** Improved security as data is not stored on user devices.
 - B** Device-independent.
 - C** No IT support is required.
 - D** Reduce infrastructure costs.
 - E** Network independent performance.
- 25** A worker at home has complained of intermittent quality when attending video conferencing calls. Which **two** of the below could resolve the issue?
- A** Checking the firewall rules to ensure the traffic is allowed through.
 - B** Upgrading the firmware on the campus switches to ensure they are working efficiently.
 - C** Checking the broadband service the user has purchased to ensure it provides adequate bandwidth.
 - D** Accessing the device remotely and run diagnostics to analyse traffic patterns and network performance.
 - E** Upgrading the broadband link to a higher speed.

Scenario 2: Network Support Engineer

You are a network support engineer working in a service desk providing support for a wide range of onsite and remote users with different levels of technical skills. Your role includes managing the network ticket queue, managing incidents in order of priority as well as handling small network-related projects when you are not on call duty.

- 26** You look at your ticket system and have a number of assigned tickets. In what order of priority would you investigate the following tickets?
- A** A user has requested access to a file on SharePoint to complete an internal training goal.
 - B** A user-generated ticket stating their access to the network is down. This is in danger of breaching SLA.
 - C** The monitoring system has indicated a disk has failed on a RAID system, currently non-performance impacting.
 - D** The monitoring system has alerted that a branch site router is no longer active.
 - E** A customer has raised a ticket to say that their network performance is not at its normal level.

Highest priority: 1, lowest priority: 5

1. []
2. []
3. []
4. []
5. []

- 27 An existing application developed and managed in-house and running on a physical server is reaching the end of its life. Put these upgrade options in order based on the level of abstraction from the underlying hardware each provides.
- A Migrate to an off-the-shelf application delivered as a service.
 - B Replace the existing server with updated physical hardware.
 - C Implement the application on a new server hosted in a public cloud.
 - D Implement the application on a PaaS service in the cloud.
 - E Implement the application on a virtual server housed in the company data centre.

1. []
2. []
3. []
4. []
5. []

- 28 You have been informed that there is a major vulnerability identified in the software running on the switches. Which **one** of the following methods should the technician use to retrieve the updated firmware?

- A TFTP.
- B RDP.
- C Telnet.
- D SSH.
- E Remote desktop.

- 29 Users are complaining of poor performance and connectivity to the internet and between different subnets internally. What is the **LIKELY** cause and why?

- A The wireless network has reached capacity and is causing users to lose connectivity.
- B The server infrastructure requires a firmware upgrade so that it can handle the required sessions.
- C The router network is experiencing problems as it is responsible for routing packets to the internet and between different subnets.
- D An aggregation switch is experiencing problems and is no longer passing traffic.
- E The broadband line is down.

- 30** You have been asked to put together a small network design for a new site. Identify which layer of the OSI stack these network design considerations reside.

NETWORK DESIGN
CONSIDERATIONS:

OSI STACK LAYER:

- | | | |
|----------|--------------------------------|-----------------|
| A | MPTCP. | 1. Transport. |
| B | ICMP. | 2. Network. |
| C | RAID. | 3. Data link. |
| D | Spanning tree. | 4. Application. |
| E | Cloud-based disaster recovery. | 5. Physical. |

- A []
- B []
- C []
- D []
- E []

Scenario 3: Troubleshooting

You are employed as a network support engineer and your primary role is to troubleshoot and resolve network-related issues as they are escalated from the first line to the network specialist team you are in. You are expected to be able to resolve issues related to network performance following a structured approach as well as make recommendations for improvements to network performance to enhance resiliency, whilst maintaining or improving the user experience and ensuring company policies and regulatory requirements continue to be met.

- 31** You notice that an unexpected level of traffic is being generated from a number of servers. Upon investigation, you discover that these servers are querying a domain name which is associated with crypto mining. Which policy should you refer to when flagging this activity?
- A** Non-disclosure agreement.
 - B** Acceptable use policy.
 - C** Data Protection Act.
 - D** Software license agreement.
 - E** GDPR.

- 32** Users are reporting slow network performance. On investigation, you realise that the head office has many users all on the same subnet and propose an update to the network to resolve this. What would this device be?
- A** Domain server.
 - B** Layer 3 switch.
 - C** Layer 2 switch.
 - D** Bridge.
 - E** Firewall.
- 33** The VoIP phones run over the wireless network and users are complaining of poor call quality and calls dropping. You use command-line tools to verify the problem. What will you be trying to measure? Select **two** that apply.
- A** Interference.
 - B** Attenuation.
 - C** Packet loss.
 - D** Delay/latency.
 - E** QoS tags.
- 34** Users are reporting slow network performance. On investigation, you discover packet drops and high bandwidth utilisation on the network link back to the head office. What initial approaches **SHOULD** you take to resolve this? Select **two** options.
- A** Put in a request for a higher-capacity link.
 - B** Investigate any recent configuration changes that may impact the performance.
 - C** Use a network traffic analyser to identify high-traffic applications or IP addresses.
 - D** Implement VLANs to separate traffic.
 - E** Upgrade the router to a higher-performance version.

- 35 A user at head office has contacted the helpdesk to say that they cannot get access to files stored on the company OneDrive service. What is the **MOST LIKELY** cause for this?
- A An ISP or router failure has occurred which has stopped access to the remote storage service.
 - B The access authorisation is incorrectly configured.
 - C The cloud service provider is experiencing a system outage affecting access.
 - D The TCP/IP address of the user device is incorrectly configured.
 - E The user ID password needs to be reset.

Scenario 4: Security

You have just joined a new company that believes that its overall security approach leaves them vulnerable to attack. They have asked you to carry out an evaluation of their key security concerns and suggest some improvements.

- 36 The company does **NOT** have a comprehensive approach to firewall implementation which you need to discuss. Select the appropriate firewall you **SHOULD** implement for each purpose.
- A To protect an application by filtering and monitoring incoming and outgoing traffic between a web application and the internet, a _____ firewall would be used.
 - B To use routing technology to determine packets which are allowed to pass and which will be denied access to the private network transparently to users, a _____ firewall would be used.
 - C To have a firewall with additional features in place such as application awareness and control, integrated intrusion prevention, and cloud-delivered threat intelligence, a _____ firewall would be used.
 - D To monitor the full state of active network connections, a _____ firewall would be used.
 - E To protect networks based on static information, such as source and destination, a _____ firewall would be used.

Blank options: next-gen, stateless, web application, stateful, network

- 37 You suggest that the company implements a system to enable users to log on once and access all permitted applications. What is the security method that **BEST** describes this approach?
- A MFA.
 - B Single sign on.
 - C Cross-account keys.
 - D Group policy.
 - E Inheritance.
- 38 Which of these protocols establishes a secure session that can be initiated by a browser?
- A PPTP.
 - B TLS.
 - C SSL VPN.
 - D IPsec.
 - E PTP.
- 39 The company backup system is described as unreliable, working sometimes when run but not all of the time. Choose the **MOST LIKELY** areas to start your investigations for potential issues. Select **three** that apply.
- A The system operators are not following policy and running the backups to schedule.
 - B Target backup system disks are old and unreliable.
 - C Target backup volumes are full and no lifecycle policy is in place.
 - D The system trying to write the data has the wrong permissions.
 - E The network connectivity between the main and backup devices is unreliable.

- 40** There has been a recent malware attack which has now been managed successfully but the company wants to avoid a repeat of this. What **three** areas **SHOULD** you create initiatives for?
- A** Improving user knowledge on potential malware infection and how to avoid it.
 - B** Carry out an audit of all data to ensure that it is encrypted at rest.
 - C** Evaluate tools on the market or features of existing solutions that can monitor for potential malware.
 - D** Complete an audit of all file permissions to ensure that only the appropriate people have access to stored data.
 - E** Increase the level of expertise and knowledge of existing tools and how they could have been applied to avoid the malware getting through.

End of Paper

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Sample Paper Answer Sheet

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BCS Level 4 Network Engineer Answer Key and Rationale

Question	Answer	Explanation / Rationale	Syllabus Section
1	A – shielded B – 10Gbps C – 100m	According to the cabling standards, Cat 6a only supports shielded cables. It will run at speeds of up to 10Gbps. Cat 6 is limited at this speed to 55m but Cat 6a will run at this speed for 100m.	1.1
2	A and C	The two identified features describe a link-state routing protocol. The router sharing the knowledge of only their neighbour routers in the autonomous system is an attribute, whilst converging faster is a benefit. Compared to a distance vector protocol, link-state routing protocol uses more bandwidth, so this would not be an attribute or a benefit. The algorithm used is Dijkstra and RIP is a distance vector protocol - example Link state include IS-IS and OSPF.	2.9
3	A	Issues affecting connectivity to the data centre or the public cloud platform will affect all users. Similarly, a DDoS attack will overload the entire environment causing issues to all users. In a DNS round robin implementation, a failed server may still be sent user requests, causing some users to connect normally and others denied service. This is therefore the most likely cause.	5.6
4	C	Type 1 Hypervisor runs directly on the hardware, which avoids security issues from an OS and has direct access to the hardware which, in turn, improves performance. The main disadvantage is that the hypervisor sits directly on top of the hardware no other OS or apps can be run on the hardware.	3.1
5	C	An IaaS solution will require maintenance of the underlying OS, so would not allow the developers to focus solely on code. SaaS means using an off-the-shelf application that has already been developed so is not suitable. XaaS is a generic term to describe any IT function delivered as a service and is not a specific service. The correct answer is therefore PaaS, which supplies a platform with a managed OS and developer toolkit.	3.2
6	B	This is the standard definition of DHCP - the others are examples of other network server functions.	3.7

Question	Answer	Explanation / Rationale	Syllabus Section
7	A and D	The two correct answers represent valid commands and expected outcomes.	5.12
8	A3, B4, C2 and D1	DHCP - Responsible for assigning IP addresses to hosts on the network. DNS - Responsible for converting the Fully Qualified Domain Name (FQDN) to an IP address. NAT - Responsible for converting the internal address to a public address that is used to access the internet. RADIUS - Networking protocol that provides centralized authentication, authorization, and accounting (AAA) management for users who connect and use a network service.	3.7
9	C and D	Wi-Fi devices are typically shipped with poor security such as default passwords, so would not be a good choice. WEP is a legacy security protocol which has been superseded by better alternatives. Separating traffic out with a guest VLAN will improve both performance and security. Rogue WAPs can be added to a network which can create potential security risks so having a monitoring system looking out and alerting on this would help security.	6.1
10	B	Each layer in the TCP/IP model has a defined function - the transport layer is responsible for ensuring reliable process-to-process message delivery typically using TCP or UDP.	1.7
11	A and C	One-way delay of 50 milliseconds is too restrictive even for voice, typically guidance is that this should be kept to below 150 milliseconds. Service integration is not a valid feature. Selecting the key traffic, implementing QoS to prioritise this traffic and not allocating guarantees to all traffic types are the correct answers.	4.1
12	D	This is the standard definition of an application firewall.	1.5
13	A and C	Backup failure and bandwidth limitations shouldn't directly affect storage capacity. The public cloud is highly unlikely to run out of capacity, system failures creating dumps or similar large files can cause issues with capacity, and likewise, a general increase in storage usage without appropriate trend analysis can cause issues.	4.4

Question	Answer	Explanation / Rationale	Syllabus Section
14	A and C	These two are equivalent to the TCP/IP network access layer. Transport and network map across. OSI app, presentation and session map to the TCP/IP application layer.	1.6
15	B	This is a Class B address based on being in the range of 128-191, which uses the first two octets for address and the second two for hosts.	2.4
16	D	To work out the subnet address space and how many bits are used, we need to know how many are allocated to the class address. In this case, 1st 2 octets are Class B addresses (16), so 10 bits are allocated to the subnet (/26-16). The answer is $2^{10} = 1024$.	2.6
17	B	6 bits allocated to hosts = $2^6 = 64$. The first and last are not available as they represent broadcast and subnet so the answer is 62.	2.5
18	A and C	Variable length subnet masking enables more efficient use of IP address space by increasing flexibility in the subnet mask being used for different networks, and through aggregation and well-designed range allocation can provide efficiencies in the routing table.	2.7
19	B	Distributed denial of service attack aims to crash a network, server or system by flooding it with fake traffic. Creating a response plan and implementing a strategy for AV and malware are preventative measures that should be done ahead of time. Likewise, any education of users on the importance of keeping these up to date. In the event of a live DDoS attack, one approach is to identify and block the sources of traffic at the IP address layer.	6.1
20	A2 B4 C3 D1	These are all examples of types of security issues and what vulnerabilities they exploit at different OSI layers. Virus – Application DNS poisoning - Network Port taps - Physical SSL hijacking - Session	6.1
21	A, C and E	Adding voice to an IP network requires consideration of how the traffic will be prioritised and have the required bandwidth to meet QoS needs, and be allowed through. Migration from a traditional to a VoIP network introduces potential security attack vectors.	4.1

Question	Answer	Explanation / Rationale	Syllabus Section
22	A	'ab' is not a real standard. 'af' is valid but it works in a different spectrum. 'n' is an older standard. 'ah' is used to extend range at lower speeds. 'ac' is the most popular standard today.	1.4
23	C and D	The branch network is described as national, so a MAN (Metropolitan Area Network) will not be suitable. 3G links will typically be lower b/w than xDSL. Relocating the branch servers would increase network traffic. If higher-speed links are available it can be an option to increase speeds, the other approach is to limit what traffic is allowed on the network to ensure corporate apps have priority.	2.1
24	A and B	VDI solutions create virtual desktops that can be centrally managed by IT, with all data retained off the user devices. This can enhance security and provide independence of the type of device being used by the user. It requires reliable network connectivity and if an unmanaged solution (VDI) is deployed rather than a managed service (DaaS) there are upfront i/f costs and IT skills to acquire to implement and manage.	3.3
25	C and D	The traffic is getting through so there won't be a firewall rule causing issues and the campus switches are not causing issues for other users so unlikely to be the cause. Any link upgrade will have to be authorised and may not be necessary until the analysis has been carried out. The correct course of action is therefore to verify what speed the BB link is meant to be; too slow and video traffic won't work, then login to the device to check its status, run speed tests to check the BB speed is what it should be and to look at historical traffic patterns to try to isolate the cause(s).	4.2
26	1 D 2 B 3 E 4 A 5 C	Order of priority: 1D - Branch access completely down will affect multiple users and applications. 2B - Single users are affected but SLAs are important to meet if possible. 3E - Single user affected but may be impacting business application and user experience. 4A - User request has no time limit and is not affecting the ability to carry out their role so will be a lower priority. 5C - A raid disk failure should not be affecting performance or service availability so can be swapped out when time permits.	5.3

Question	Answer	Explanation / Rationale	Syllabus Section
27	Order: 1 A 2 D 3 C 4 E 5 B	With a 3rd party app, there is little control over feature availability or development, but maximum pricing flexibility and minimal IT support are required. A PasS solution allows the application to be managed by the company, the underlying service includes DB, middleware, etc, so requires less IT support but is limited to the options available from the provider. The simplest solution is to buy new hardware but has the biggest upfront cost and limited flexibility. Running on a virtual environment in-house provides a level of flexibility in deployment.	3.2
28	A	TFTP is the standard method for downloading and installing a new software image. Telnet and SSH simply provide access and a remote desktop is not relevant to this requirement.	5.14
29	C	If the issues are isolated to a specific application, users connecting via wireless, or only those connected to the same aggregation switch, then these would be logical places to start. The description is of general connectivity issues at layer 3 which points to a routing issue. If the broadband line was completely down, the network should still be able to route between subnets.	1.3
30	A1 B2 C5 D3 E4	These are all examples of well-known options for implementing resiliency into a network. Cloud-based disaster recovery enables a complete replication of an application environment so is considered application-level.	5.1
31	B	Non-disclosure agreement, the Data Protection Act and GDPR all relate to data protection and usage. Software licence agreement is relevant to the application running on the server. Acceptable use policy defines what resources can be used according to company policy which this clearly violates.	6.2
32	B	Layer 3 switch combines the functionality of a switch and a router. The resolution to the issue described is to separate the traffic into multiple VLANs or subnets but also route between them so that all users can still communicate.	1.2
33	C and D	Latency and packet loss will give a clear view of where if any packets are being dropped and packet delay will adversely affect perceived voice quality.	4.2

Question	Answer	Explanation / Rationale	Syllabus Section
34	B and C	Implementing VLANs will not help with issues related to the WAN link. Carrying out upgrades to the link or the router without investigating the cause may waste investment without understanding the issue - if trend analysis shows a gradual increase in traffic over time, then this would justify an upgrade potentially, but this is not an initial option.	4.3
35	B	A failure of the cloud service or site network access would be expected to generate multiple user complaints, so unlikely to be the cause of an isolated issue. The user is not complaining about access to the general network or to their own device, so the problem is unlikely to be related to network addressing or their user ID password. The most likely cause is that the user does not have the appropriate permission for access to the file or drive that they are trying to access.	5.10
36	See explanation	<p>A. To protect an application by filtering and monitoring incoming and outgoing traffic between a web application and the internet, a web application firewall would be used.</p> <p>B. To use routing technology to determine packets which are allowed to pass and which will be denied access to the private network transparently to users, a network firewall would be used.</p> <p>C. To have a firewall with additional features in place such as application awareness and control, integrated intrusion prevention, and cloud-delivered threat intelligence, a next-gen firewall would be used.</p> <p>D. To monitor the full state of active network connections, a stateful firewall would be used.</p> <p>E. To protect networks based on static information, such as source and destination, a stateless firewall would be used.</p>	1.5
37	B	SSO is the term that best describes this function.	6.3
38	C	This is a description of the functionality provided by SSL VPN.	6.2
39	B, C and E	If the system manages to complete backups sometimes, it is unlikely to be a problem with permissions. Backups should be automated but if not, the description of the problem is that completion is unreliable once started. The most likely issues will be connectivity between devices which can vary over time with resource constraints, or the target backup system itself.	6.5

Question	Answer	Explanation / Rationale	Syllabus Section
40	A, C and E	Malware has little to do with file system access or whether data is encrypted although it may help mitigate the issue if a malware attack occurs. Educating users not to open attachments from unknown sources or click on links, and evaluating and correct implementation of tools designed to protect and recover from malware are the best first steps to take.	6.6

End of Paper