



BCS Level 4 Certificate in Network and Digital Communications Theory QAN 603/0703/1

Sample Paper A

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

Sample paper only. 40 multiple-choice questions – 1 mark awarded to each question. Mark only one answer for each question. There are no trick questions.

A number of possible answers are given for each question, indicated by either A. B. C. or D. Your answers should be clearly indicated on the answer sheet.

Pass mark is 26/40.

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- 1 Media Access Control (MAC) is part of which OSI layer?
- A Network.
 - B Physical.
 - C Data Link.
 - D Transport.
- 2 Which of the following standards covers Ethernet protocols?
- A 802.3
 - B 802.11
 - C 802.1
 - D 802.6
- 3 Which of the following would be the result of having a device on the network that is receiving data faster than it can handle, and how **COULD** it be prevented?
- A Contention and traffic policing.
 - B Bottle-neck and traffic shaping.
 - C Contention and traffic throttling.
 - D Dropped packets and rate throttling.
- 4 Which layer of the TCP/IP model encapsulates the IP Header?
- A Application.
 - B Transport.
 - C Network.
 - D Data Link.
- 5 Which of the following is a disadvantage of using the OSPF protocol?
- A Hierarchical protocol.
 - B Processor intensive.
 - C Uses multicasting.
 - D Single copy of routing information.

- 6** Which of the following is an advantage of using the OSPF protocol?
- A** Low link overhead.
 - B** Low processing requirement.
 - C** Path consistency.
 - D** Single copy of routing information.
- 7** Which of the following is an advantage of the TCP / IP network model?
- A** It supports different architectures.
 - B** It is simple to set up.
 - C** The data is encrypted.
 - D** It has a low overhead.
- 8** Which of the following is TRUE of traffic shaping?
- A** Buffers excess traffic.
 - B** Identified packets are dropped.
 - C** Limits the amount of data transferred.
 - D** Increases the speed of data transmission.
- 9** An ISP (Internet Service Provider) wants to differentiate customer packages by connection speed. Which method would achieve this?
- A** Bandwidth cap.
 - B** Traffic Policing.
 - C** Bandwidth throttling.
 - D** Traffic Shaping.
- 10** Which of the following statements is TRUE for using checksums when transmitting data?
- A** Allows correction of errors.
 - B** Verifies data integrity.
 - C** Verifies data authenticity.
 - D** Data is encrypted.

- 11 Why does contention in a network cause a slow response for users?
- A Networks are limited in the number of connections.
 - B Causes data packets to be dropped.
 - C Causes data to be corrupted.
 - D Data has to be retransmitted.
- 12 In which of the following scenarios would it be preferable to use static routing?
- A Where redundancy is a priority.
 - B Routing to a stub network.
 - C In a large constantly changing network.
 - D Routing to a WAN.
- 13 Which of the following is an advantage of static routing?
- A Scalability.
 - B Resilience.
 - C Low processor overhead.
 - D Easy to update.
- 14 Which of the following error control techniques **COULD** give a false-positive result?
- A Checksum.
 - B CRC.
 - C Parity.
 - D Redundancy.
- 15 Which of the following statements is **CORRECT**?
- A The Physical layer specifies the transmission method and the protocol used to transfer data.
 - B The Data layer specifies the operation of hubs and repeaters.
 - C The Physical layer determines the electrical connections and the Data layer defines flow control.
 - D Errors created in the Physical layer are detected in the Data layer.

- 16 Which of the following protocols is used for network management?
- A SMTP.
 - B TCP / IP.
 - C SNMP.
 - D UDP.
- 17 Which of the following failure modes **MOST LIKELY** occur at the Network layer?
- A Complete disconnection of system.
 - B Windowing failure caused by congestion.
 - C Hardware / firmware incompatibility.
 - D Link failure caused by network congestion.
- 18 Which of the following is an attribute of the UDP protocol?
- A Incorporates error correction.
 - B Creates reliable connections.
 - C Incorporates flow control.
 - D Does not retransmit.
- 19 Which of the following can prevent an unauthorised person from accessing the network by plugging into an open network port?
- A 802.1x.
 - B DHCP.
 - C 802.1q.
 - D NIDS.
- 20 Which of the following may cause a LAN to hang?
- A An Ethernet cable with both ends connected into the same switch.
 - B A fibre optic cable operating too close to a high-power electric motor.
 - C Network components continually running in a cooled room.
 - D Cat5e cables connecting network devices spaced 65 m apart.

- 21 What is the CORRECT method used to stop users streaming content and affecting network performance?
- A Create a security policy.
 - B Optimising network topology.
 - C Bandwidth throttling.
 - D Implementing network policies.
- 22 Which of the following is the CORRECT definition of dynamic routing?
- A A network technique where routers select paths according to real-time changes.
 - B A network techniques where network routes are determined by routing tables.
 - C A network technique where routing is directed from a central point.
 - D A network technique that uses a fixed set of alternative routes.
- 23 Which of the following is TRUE when comparing dynamic to static routing?
- A Dynamic routing is harder to configure.
 - B Static routing easily scales.
 - C Static routing adapts to changes in the network.
 - D Dynamic routing is less secure.
- 24 Which of the following does **NOT** apply to both OSPFv3 and OSPFv2?
- A Uses a level-2 hierarchy.
 - B Uses LSA protocol packet types.
 - C Supports multiple instances on a link.
 - D Uses P2MP interface types.
- 25 Which of the following is the CORRECT definition of bandwidth?
- A The maximum bit rate across a communication path.
 - B The maximum data throughput of a communication path.
 - C The average rate of successful data transfer.
 - D The amount of data transferred in a prescribed time.

- 26** Which of the following OSI layers detects errors occurring on the physical media?
- A** Data Link.
 - B** Network.
 - C** Transport.
 - D** Physical.
- 27** Which of the following statements is TRUE?
- A** The Physical layer specifies connector layouts, the data link layer defines the transmission mode.
 - B** The Physical layer provides node-to-node transfer, the transport layer defines the specification of the data connection.
 - C** The Physical layer defines network topology, the data link layer defines the transmission of frames.
 - D** The Physical layer specifies connector layouts, the transport layer defines the protocol for flow control.
- 28** Which of the following describes the effect of contention on network performance?
- A** Increases speed of connections.
 - B** Increases data retransmissions.
 - C** Causes data loss.
 - D** Latency is increased.
- 29** Which of the following is highest priority when implementing traffic control?
- A** Increase connection speed.
 - B** Increase security.
 - C** Reduce data latency.
 - D** Detect data errors.

30 The Application layer in the TCP / IP model is equivalent to which **three** layers in the OSI model?

- a) Data link layer.
- b) Application layer.
- c) Transport layer.
- d) Session layer.
- e) Presentation layer.

A a, b and e only.

B b, d and e only.

C a, c and d only.

D b, c and e only.

31 Which of the following differentiates RIPv2 over RIP?

A RIPv2 is a classful routing protocol.

B RIPv2 supports IPv6 networking.

C RIPv2 has an increased Hop count of 16.

D RIPv2 uses Multicast to propagate the routing table.

32 Which of the following is **MOST LIKELY** to be caused by system failure?

A Legal action.

B Misconfiguration.

C Congestion.

D Link failure.

33 Which of the following error correction methods is **MOST** suitable for a one-way communication channels?

A Checksum.

B Forward error correction.

C Block error correction.

D Feedback error control.

- 34 Ping can be used to verify which OSI layer?
- A Network.
 - B Internet.
 - C Session.
 - D Application.
- 35 What is the name of the procedure that is used by TCP before transmitting data?
- A Datagram exchange.
 - B DNS query and response.
 - C Three-way handshake.
 - D Negotiation of parameters.
- 36 When securely transferring data over a network, which of the following protocols would be **MOST** appropriate?
- A SMTP.
 - B SNMP.
 - C FTP.
 - D HTTPS.
- 37 Address Resolution Protocol (ARP) is used for which purpose by a router?
- A Converts a host's domain name to an IP address.
 - B Discover a MAC address if only the IP address is known.
 - C To convert the router's IP address to a MAC address.
 - D To convert the router's MAC address to an IP address.
- 38 Error control that requests re-transmission of data is called what?
- A Parity error control.
 - B Cyclic Redundancy Check
 - C Feedback error control.
 - D Block error correction.

- 39** An administrator notices that one of the interfaces of a router is 'administratively down'. What **COULD** cause this?
- A** A command has been deliberately issued to close that interface.
 - B** A DoS ARP attack has been launched by an attacker against the router.
 - C** The router's power supply has failed or there has been a power cut.
 - D** The router's routing table had become full and is being rebuilt.
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- 40** The SLIP protocol is designed to work over which of the following connections?
- A** Serial ports.
 - B** Ethernet.
 - C** WiFi.
 - D** Fibre optic.

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