Below you will find the assessment items as presented on the exam as well as the scoring rules associated with the item.

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1. Convert the binary number 10111010 into its hexadecimal equivalent. Select the correct answer from the list below.
   - 85
   - 90
   - BA
   - A1
   - B3
   - 1C

   Scoring Rule For: correctness of response
   - 2 points for Option 3
   - 0 points for any other option
   - Max Value = 2

2. Which of the following describe interframe spacing? (Choose two.)
   - the minimum interval, measured in bit-times, that any station must wait before sending another frame
   - the maximum interval, measured in bit-times, that any station must wait before sending another frame
   - the 96-bit payload padding inserted into a frame to achieve a legal frame size
   - the 96-bit frame padding transmitted between frames to achieve proper synchronization
   - the time allowed for slow stations to process a frame and prepare for the next frame
   - the maximum interval within which a station must send another frame to avoid being considered unreachable

   Scoring Rule For: correctness of response
   - Option 1 and Option 5 are correct.
   - 1 point for each correct option.
   - 0 points if more options are selected than required.
   - Max Value = 2

3. When a collision occurs in a network using CSMA/CD, how do hosts with data to transmit respond after the backoff period has expired?
   - The hosts return to a listen-before-transmit mode.
   - The hosts creating the collision have priority to send data.
   - The hosts creating the collision retransmit the last 16 frames.
   - The hosts extend their delay period to allow for rapid transmission.

   Scoring Rule For: correctness of response
   - 2 points for Option 1
   - 0 points for any other option
   - Max Value = 2

4. After an Ethernet collision, when the backoff algorithm is invoked, which device has priority to transmit data?
the device involved in the collision with the lowest MAC address
the device involved in the collision with the lowest IP address
any device in the collision domain whose backoff timer expires first
those that began transmitting at the same time

Scoring Rule For: correctness of response

<table>
<thead>
<tr>
<th>2 points for Option 3</th>
<th>0 points for any other option</th>
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<td>Max Value = 2</td>
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5 Which of the following is a drawback of the CSMA/CD access method?

- Collisions can decrease network performance.
- It is more complex than non-deterministic protocols.
- Deterministic media access protocols slow network performance.
- CSMA/CD LAN technologies are only available at slower speeds than other LAN technologies.

Scoring Rule For: correctness of response

<table>
<thead>
<tr>
<th>2 points for Option 1</th>
<th>0 points for any other option</th>
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6 Refer to the exhibit. The switch and workstation are administratively configured for full-duplex operation. Which statement accurately reflects the operation of this link?

- No collisions will occur on this link.
- Only one of the devices can transmit at a time.
- The switch will have priority for transmitting data.
- The devices will default back to half duplex if excessive collisions occur.

Scoring Rule For: correctness of response

<table>
<thead>
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<th>2 points for Option 1</th>
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7 Why do hosts on an Ethernet segment that experience a collision use a random delay before attempting to transmit a frame?

- A random delay is used to ensure a collision-free link.
- A random delay value for each device is assigned by the manufacturer.
- A standard delay value could not be agreed upon among networking device vendors.
- A random delay helps prevent the stations from experiencing another collision during the transmission.

Scoring Rule For: correctness of response

<table>
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<tr>
<th>2 points for Option 4</th>
<th>0 points for any other option</th>
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In the graphic, Host A has reached 50% completion in sending a 1 KB Ethernet frame to Host D when Host B wishes to transmit its own frame to Host C. What must Host B do?

- Host B can transmit immediately since it is connected on its own cable segment.
- Host B must wait to receive a CSMA transmission from the hub, to signal its turn.
- Host B must send a request signal to Host A by transmitting an interframe gap.
- Host B must wait until it is certain that Host A has completed sending its frame.

Scoring Rule For: correctness of response

- 2 points for Option 4
- 0 points for any other option

Max Value = 2

9 Ethernet operates at which layers of the OSI model? (Choose two.)

- Network layer
- Transport layer
- Physical layer
- Application layer
- Session layer
- Data-link layer

Scoring Rule For: correctness of response

- Option 3 and Option 6 are correct.
- 1 point for each correct option.
- 0 points if more options are selected than required.

Max Value = 2

10 What does the IEEE 802.2 standard represent in Ethernet technologies?

- MAC sublayer
- Physical layer
- Logical Link Control sublayer
- Network layer

Scoring Rule For: correctness of response

- 2 points for Option 3
- 0 points for any other option

Max Value = 2

11 Which statements correctly describe MAC addresses? (Choose three.)

- dynamically assigned
- copied into RAM during system startup
- layer 3 address
- contains a 3 byte OUI
- 6 bytes long
- 32 bits long
Refer to the exhibit. Host_A is attempting to contact Server_B. Which statements correctly describe the addressing Host_A will generate in the process? (Choose two.)

- A packet with the destination IP of Router_B.
- A frame with the destination MAC address of Switch_A.
- A packet with the destination IP of Router_A.
- A frame with the destination MAC address of Router_A.
- A packet with the destination IP of Server_B.
- A frame with the destination MAC address of Server_B.

Scoring Rule For: correctness of response
Option 4 and Option 5 are correct.
1 point for each correct option.
0 points if more options are selected than required.
Max Value = 2

13 Host A has an IP address of 172.16.225.93 and a mask of 255.255.248.0. Host A needs to communicate with a new host whose IP is 172.16.231.78. Host A performs the ANDing operation on the destination address. What two things will occur? (Choose two.)

- Host A will change the destination IP to the IP of the nearest router and forward the packet.
- Host A will broadcast an ARP request for the MAC of its default gateway.
- A result of 172.16.225.0 will be obtained.
- Host A will broadcast an ARP request for the MAC of the destination host.
- A result of 172.16.224.0 will be obtained.
- A result of 172.16.225.255 will be obtained.

Scoring Rule For: correctness of response
Option 4 and Option 5 are correct.
1 point for each correct option.
0 points if more options are selected than required.
Max Value = 2

14 Which two features make switches preferable to hubs in Ethernet-based networks? (Choose two.)
15 Ethernet operates at which layer of the TCP/IP network model?

- application
- physical
- transport
- internet
- data link
- network access

Scoring Rule For: correctness of response

Option 2 and Option 5 are correct.
1 point for each correct option.
0 points if more options are selected than required.

Max Value = 2

16 What are three functions of the upper data link sublayer in the OSI model? (Choose three.)

- recognizes streams of bits
- identifies the network layer protocol
- makes the connection with the upper layers
- identifies the source and destination applications
- insulates network layer protocols from changes in physical equipment
- determines the source of a transmission when multiple devices are transmitting

Scoring Rule For: correctness of response

Option 2, Option 3, and Option 5 are correct.
1 point for each correct option.
0 points if more options are selected than required.

Max Value = 3

17 What three primary functions does data link layer encapsulation provide? (Choose three.)

- addressing
- error detection
- frame delimiting
- port identification
- path determination
- IP address resolution

Scoring Rule For: correctness of response

Option 1, Option 2, and Option 3 are correct.
1 point for each correct option.
0 points if more options are selected than required.

Max Value = 3
18. What are the two most commonly used media types in Ethernet networks today? (Choose two.)
- coaxial thicknet
- copper UTP
- coaxial thinnet
- optical fiber
- shielded twisted pair

Scoring Rule For: correctness of response
Option 2 and Option 4 are correct. 1 point for each correct option. 0 points if more options are selected than required.

Max Value = 2

19. Refer to the exhibit. Which option correctly matches the frame field type with the contents that frame field includes?
- header field - preamble and stop frame
- data field - network layer packet
- data field - physical addressing
- trailer field - FCS and SoF

Scoring Rule For: correctness of response
2 points for Option 2 0 points for any other option

Max Value = 2

20. What is the primary purpose of ARP?
- translate URLs to IP addresses
- resolve IPv4 addresses to MAC addresses
- provide dynamic IP configuration to network devices
- convert internal private addresses to external public addresses

Scoring Rule For: correctness of response
2 points for Option 2 0 points for any other option

Max Value = 2