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Primary Inputs

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Topic/Subject:

computer networks

Familiarity Level:

Intermediate

Learning Mode:

- Select...
- Lesson
- Quiz

Time Available (Minutes):

30

5 120

Additional Inputs

Preferred Language (Optional):

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Additional Instructions (Optional):

focus on types of topology

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Computer Networks Quiz (Intermediate Level) - 30 minutes

Section 1: Multiple Choice Questions (10 points, 5 questions)

Choose the correct answer for each question.

1. **What is the primary advantage of a star topology?** a) It is the most cost-effective option. b) It is the easiest to install and maintain. c) It provides the highest level of fault tolerance. d) It allows for the fastest data transfer speeds.

Correct answer: c) It provides the highest level of fault tolerance. **Feedback:** In a star topology, all devices are connected to a central hub or switch. If one device fails, the others remain unaffected, making it a fault-tolerant topology.

2. **Which type of topology is most commonly used in wireless networks?** a) Bus b) Ring c) Mesh d) Ad-hoc

Correct answer: d) Ad-hoc **Feedback:** Ad-hoc topology is commonly used in wireless networks, where devices connect directly to each other without a central hub or switch.

3. **What is the main disadvantage of a bus topology?** a) It is difficult to install and maintain. b) It is prone to signal degradation. c) It is vulnerable to a single point of failure. d) It is the most expensive option.

Correct answer: c) It is vulnerable to a single point of failure. **Feedback:** In a bus topology, all devices are connected to a single cable. If the cable fails, the entire network goes down.

4. **Which type of topology is most suitable for a small office network?** a) Ring b) Star c) Mesh d) Bus

Correct answer: b) Star **Feedback:** A star topology is suitable for small office networks, as it is easy to install and maintain, and provides a high level of fault tolerance.

5. **What is the primary advantage of a mesh topology?** a) It is the most cost-effective option. b) It provides the highest level of security. c) It allows for the fastest data transfer speeds. d) It provides multiple paths for data transmission.

Correct answer: d) It provides multiple paths for data transmission. **Feedback:** In a mesh topology, each device is connected to every other device, providing multiple paths for data transmission and making it a reliable option.

Section 2: True/False Questions (5 points, 5 questions)

Write T for True or F for False for each question.

1. **A ring topology is more fault-tolerant than a star topology.** (F) **Feedback:** A ring topology is less fault-tolerant than a star topology, as a single device failure can bring down the entire network.
2. **A mesh topology is the most expensive option.** (T) **Feedback:** A mesh topology is indeed the most expensive option, as it requires multiple connections between devices.
3. **A bus topology is suitable for large networks.** (F) **Feedback:** A bus topology is not suitable for large networks, as it is prone to signal degradation and vulnerable to a single point of failure.
4. **A star topology is the most commonly used topology.** (T) **Feedback:** A star topology is indeed the most commonly used topology, as it is easy to install and maintain, and provides a high level of fault tolerance.

5. **An ad-hoc topology is suitable for wired networks.** (F) **Feedback:** An ad-hoc topology is not suitable for wired networks, as it is commonly used in wireless networks where devices connect directly to each other.

Section 3: Short-Answer Questions (15 points, 3 questions)

Please answer each question in 1-2 paragraphs.

1. **Compare and contrast a star topology and a mesh topology.**

Answer should include: A star topology has a central hub or switch, while a mesh topology has multiple connections between devices. A star topology is easier to install and maintain, while a mesh topology provides multiple paths for data transmission.

2. **Explain the advantages and disadvantages of a ring topology.**

Answer should include: Advantages: A ring topology provides high-speed data transfer and is suitable for applications that require high-bandwidth. Disadvantages: A ring topology is less fault-tolerant, as a single device failure can bring down the entire network.

3. **Describe a scenario where a bus topology would be suitable.**

Answer should include: A bus topology would be suitable for a small network with a limited number of devices, such as a home network or a small office network. It is easy to install and maintain, but may not be suitable for large networks due to signal degradation and vulnerability to a single point of failure.

Grading:

- Multiple Choice Questions: 10 points
- True/False Questions: 5 points
- Short-Answer Questions: 15 points

Total: 30 points

Note: The quiz is designed to assess the learner's understanding of computer networks, with a focus on types of topology. The questions are tailored to an intermediate level learner and are meant to be completed within 30 minutes.