1. Select **all** the genuine benefits of using a network.

   ☐ communicating by email and video call

   ☐ backing up everyone's files once on a server

   ☐ making each computer slower

   ☐ sharing one printer between many computers

   Tick every correct option.

2. In a star topology, what happens if one device's cable fails?

   ☐ the switch must be replaced

   ☐ traffic reroutes around it automatically

   ☐ the whole network goes down

   ☐ only that device is cut off; the others keep working

3. What is the relationship between the internet and the World Wide Web?

   ☐ the internet runs over the WWW

   ☐ the WWW is a service (web pages) that runs over the internet

   ☐ they are exactly the same thing

   ☐ the WWW replaced the internet

4. In 'https://www.example.com/about/contact.html', what is 'https'?

   ☐ the path

   ☐ the protocol

   ☐ the IP address

   ☐ the domain name

5. Which best describes a LAN?

   ☐ a network with no cables, using only satellite links

   ☐ a network over a small area, usually owned by one organisation, with high speed

   ☐ a network spanning a whole country, using leased lines

   ☐ the global internet, connecting networks worldwide

6. In a star topology, how does a packet get from PC A to PC B?

   ☐ A puts it on a shared cable and every PC reads it

   ☐ it is passed from PC to PC around a ring until it reaches B

   ☐ A broadcasts it by radio to all PCs

7. How many bits are in an IPv4 address?

   _____ bits

8. Why does the web use DNS rather than having users type IP addresses? Select **all** that apply.

   ☐ a site can move to a new server without changing its name

   ☐ no single server needs to hold every name

   ☐ it makes the page download faster

   ☐ names are easier for people to remember than numbers

   Tick every correct option.

9. Which of these are characteristics of a LAN? Select **all** that apply.

   ☐ the hardware is owned by the organisation

   ☐ it runs over infrastructure leased from a telecom company

   ☐ it covers a single site or building

   ☐ data rates are high and latency low

   Tick every correct option.

10. A NIC's unique, fixed 48-bit hardware address is called its _____ address.

    _____

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1. **communicating by email and video call; backing up everyone's files once on a server; sharing one printer between many computers**

   Sharing resources, central backup, and communication are all benefits. Networks do not make computers slower.

2. **only that device is cut off; the others keep working**

   Each device has its own link to the central switch, so one cable failing affects only that device. (If the switch fails, all go down.)

3. **the WWW is a service (web pages) that runs over the internet**

   The internet is the global network; the WWW is one service on it (hyperlinked documents). Email and file transfer are other internet services.

4. **the protocol**

   'https' is the protocol; 'www.example.com' is the domain name; '/about/contact.html' is the path.

5. **a network over a small area, usually owned by one organisation, with high speed**

   A LAN covers a small area (home/office/school), is usually organisation-owned, and is fast with low latency. A WAN covers a large area.

6. **A sends it to the switch, which forwards it only down B's cable**

   The switch reads the destination MAC address and forwards to one port, which is why other pairs can talk at the same time.

7. **32 bits**

   IPv4 is 32-bit (four numbers 0–255). IPv6 is 128-bit.

8. **a site can move to a new server without changing its name; no single server needs to hold every name; names are easier for people to remember than numbers**

   DNS is about names, flexibility and distribution. The lookup adds a few milliseconds; it does not speed up the page itself.

9. **the hardware is owned by the organisation; it covers a single site or building; data rates are high and latency low**

   Leased telecom infrastructure is the mark of a WAN. A LAN is small, owned and fast.

10. **MAC**

    The MAC address is burned into the network interface card. (DHCP hands out IP addresses, which can change.)

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