

A-Level Computer Science

Name: _____ Score: _____

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

- ☐ sharing one printer between many computers
- ☐ backing up everyone's files once on a server
- ☐ communicating by email and video call
- ☐ making each computer slower

Tick every correct option.

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

- ☐ only that device is cut off; the others keep working
- ☐ the whole network goes down
- ☐ traffic reroutes around it automatically
- ☐ the switch must be replaced

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

- ☐ the WWW is a service (web pages) that runs over the internet
- ☐ they are exactly the same thing
- ☐ the internet runs over the WWW
- ☐ the WWW replaced the internet

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

- ☐ the protocol
- ☐ the domain name
- ☐ the path
- ☐ the IP address

5. Which best describes a LAN?

- ☐ a network over a small area, usually owned by one organisation, with high speed
- ☐ a network spanning the whole country
- ☐ the global internet
- ☐ a network with no cables at all

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

- ☐ A sends it to the switch, which forwards it only down B's cable

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

- ☐ it covers a single site or building
- ☐ the hardware is owned by the organisation
- ☐ it runs over infrastructure leased from a telecom company
- ☐ data rates are high and latency low

Tick every correct option.

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

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

- ☐ names are easier for people to remember than numbers
- ☐ a site can move to a new server without changing its name
- ☐ it makes the page download faster
- ☐ no single server needs to hold every name

Tick every correct option.

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

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

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

9. **MAC**

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

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

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