



Hands-on Internet of Things Specialization

IoT Networking

Week 1 & 2

Question 1:

According to a recent study, roughly what percentage of “smart” devices are vulnerable?

87%

Question 2:

What is the maximum amount of failures that a ring topology with n nodes tolerate before it is possible for the network to have 2 connected components?

1

Question 3:

All interfaces of one device use the same MAC address.

False

Question 4:

What is the order you encapsulate data in OSI?
Note: L's are layers - so L3 means layer 3

L2(L3(L4(x)))



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Question 5:

What's the main purpose of a TTL field in an IPv4 header?

To mitigate routing loops.

Question 6:

Devices on different IP subnets are commonly configured on the same VLAN

False

Question 7:

Which layer encodes the VLAN tag?

Ethernet

Question 8:

Why does Ethernet benefit from a spanning tree protocol?

It removes loops that could occur when each node broadcasts a data packet.



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Question 9:

What is the purpose of DHCP?

To assign configuration information to end hosts, including IP addresses.

Question 10:

What is the purpose of ARP?

To look up the MAC address associated with an IP address.

Question 11:

What is a response code for in HTTP?

To indicate the status of a server or type of request.

Question 12:

What are "sockets" in the context of network programming?

An API used to allow the application to communicate via the network.



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Question 13:

What sockets function call is used to perform a DNS lookup?

gethostbyname()

Question 14:

When a host sends a TCP data packet to a host outside the local subnet (multiple IP-level hops away), which of the following pieces of information does it need to put in the packet?

The MAC address of the default gateway.
The TCP port of the application running at the final destination.
The IP address of the final destination.

Question 15:

When constructing a typical moderate-to-large-scale network deployment, such as in a smart building or smart city, what technologies would be deployed where?

IP core, Ethernet access, Zigbee/Wifi to devices.

Question 16:

Where are sockets implemented?

Within a library and set of system calls.