



# Hands-on Internet of Things Specialization

IoT Cloud

Week 1 & 2

## Question 1:

What is the advantage of using a slotted chassis design for a router?

**Improved fault-tolerance due to hot-swappable cards.**

## Question 2:

Which of the following functionality does a NAT device perform?

**"Translates" addresses, for example from public to private address space**

## Question 3:

Which of the following functionality does a Firewall device perform?

**Filters traffic, for example through via Access Control Lists (ACLs)**

## Question 4:

Which of the following device types forwards and performs lookups at layer 4?

**None of the options are correct**





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## Question 5:

Which of the following functionality does a Transcoder device perform?

**Performs translation (e.g., downsampling) on data contained in the packet**

## Question 6:

In the Healthcare network example we went over, what was a key purpose of using all those VLANs?

**To keep adversaries and malware out of critical data.**

## Question 7:

You just got a job at Comcast working on their new machineQ Enterprise IoT service. In an effort to improve service for customers, they are asking you to deploy firewall/IDS/IPS technology into their network. Their initial test deployment will focus on smaller customers getting service through their broadband access network. Where would you deploy these technologies and why?

- **Hub (layer 2 termination)**
- **Headend (layer 3 termination)**

## Question 8:

Where do routing protocols run within a router architecture?

**Router CPU**





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## Question 9:

What is the component in a router that moves packets from the input queue to the output queue?

**Backplane**

## Question 10:

What component within a router is responsible for storing forwarding tables?

**SRAM**

## Question 11:

What is a swappable physical port of a router called

**SFP**

## Question 12:

What is the physical casing of the router called?

**Chassis**

## Question 13:

What is the purpose of the router's console port?

**To enable configuration of the router.**





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## Question 14:

Routing protocols run in the \_\_\_\_\_ of the router.

**Control Plane**

## Question 15:

What effect would excessive head-of-line blocking have on a switch's performance?

- **Longer queues.**
- **Slower packet processing time.**

## Question 16:

Why are packets fragmented into fixed-size cells within routers?

**To simplify hardware design of the backplane.**

## Question 17:

Suppose you have a router with 24 1Gbps ports connected across a 5Gbit backplane. Queue-to-backplane bandwidth is 0.8Gbps. You want to provision for any 8 ports being fully utilized. What part of your router comprises the performance bottleneck?

**Backplane, by 1.4Gbps.**





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## Question 18:

Suppose you have a router with 24 1Gbps ports connected across a 5Gbit backplane. Queue-to-backplane bandwidth is 0.8Gbps. You want to provision for any 8 ports being fully utilized. Given the bottleneck of this router, what components could you reduce bandwidth of, to save costs?

**Backplane**

## Question 19:

What is an advantage of input-queued over output-queued device architectures?

**Enables a slower backplane to be used.**

## Question 20:

Which of the following statements are true?

**Routing takes place in the control plane, forwarding takes place in the data plane.**