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# IoT Fundamental: Connecting Things

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Grades

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|---|---|
| **Started on** | Saturday, 26 November 2022, 6:57 PM |
| **State** | Finished |
| **Completed on** | Saturday, 26 November 2022, 7:01 PM |
| **Time taken** | 4 mins 50 secs |
| **Marks** | 32.00/32.00 |
| **Grade** | **100.00** out of 100.00 |

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Messages

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Calendar

Question **1**

Correct

Mark 2.00 out of 2.00

What are two protocols developed by the Wi-Fi Alliance to secure wireless networks? (Choose two.)

Select one or more:

✓   WPA                                                                                    ✔

802.1x

✓   WPA2                                                                                   ✔

LoRaWAN

IPsec

Refer to curriculum topic: 4.1.2
Wireless communications are inherently insecure and require encryption to protect the data being transmitted. The Wi-Fi Alliance developed WPA and WPA2 as protocols to secure wireless networks. WPA is the older of the two protocols and considered vulnerable to hacking attacks, and therefore WPA2 is recommended.

The correct answers are: WPA, WPA2

Question **2**

Correct

Mark 2.00 out of 2.00

Which type of payment model is typically used to purchase cloud services?

Select one:

◯  annual subscription fee

◯  lump-sum payment in advance

◉  pay-as-you-go system                                                            ✔

◯  calculation based on bandwidth

Refer to curriculum topic: 4.2.1
Cloud services are usually provided as a pay-as-you-go service much like a utility.

The correct answer is: pay-as-you-go system

Question **3**

Correct

Mark 2.00 out of 2.00

What is the role of routing on data networks?

Select one:
- ⊙ to determine the best paths for packets through the network                            ✔
- ○ to provide a physical channel for packets to travel through the network
- ○ to ensure availability of services and resources on the network
- ○ to provide an architecture for data exchange

Refer to curriculum topic: 4.1.1
On a network, packets must travel between source and destination along one of many paths. Routing is used on the network to calculate which path is the best path for packets to take.

The correct answer is: to determine the best paths for packets through the network

Question **4**

Correct

Mark 2.00 out of 2.00

What are three characteristics that distinguish big data from data? (Choose three.)

Select one or more:
- ☑ amount of data being transported and stored                                           ✔
- ☑ rate at which data is generated                                                        ✔
- ☑ type of data that is generated                                                         ✔
- ☐ where the data is stored
- ☐ how the data is collected
- ☐ who is authorized to access the data

Refer to curriculum topic: 4.2.2
Big data is characterized by the three Vs of big data: volume, which is the amount of data generated; velocity, which is the rate at which data is generated; and variety, which is the type of data generated.

The correct answers are: amount of data being transported and stored, rate at which data is generated, type of data that is generated

Question **5**

Correct

Mark 2.00 out of 2.00

Match the type of media with the transmission technology.

| fiber optic cable | pulses of light | ✔ |
| copper wires | electrical impulses | ✔ |
| wireless | radio waves | ✔ |

Refer to curriculum topic: 4.1.1

The correct answer is: fiber optic cable → pulses of light, copper wires → electrical impulses, wireless → radio waves

Question **6**

Correct

Mark 2.00 out of 2.00

What is the goal of fog computing?

Select one:

○ to store all data on a single server for processing

○ to send data immediately to the cloud for secure storage

◉ to analyze data as close to the source as possible                          ✔

○ to permanently store data on the local device

Refer to curriculum topic: 4.2.1
The fog computing model involves real-time analysis of data as close to where it is created as possible.

The correct answer is: to analyze data as close to the source as possible

Question **7**

Correct

Mark 2.00 out of 2.00

Which wireless technology can be used to provide a metropolitan area with up to 100 Mbps of bandwidth?

Select one:

○ Bluetooth

◉ 5G                                                                              ✔

○ LoRaWAN

○ ZigBee

Refer to curriculum topic: 4.1.2
5G is a fifth generation cellular-based technology for transferring data over large geographic areas. 5G provides high bandwidth and is capable of data rates of 100 Mbps.

The correct answer is: 5G

Question **8**

Correct

Mark 2.00 out of 2.00

Which cloud service provides an app development platform and a backend service for apps?

Select one:

◉ Built.io                                                                       ✔

○ Zapier

○ IFTTT

○ ZigBee

Refer to curriculum topic: 4.2.1
Built.io is a cloud service that is an app development program and is a useful resource for IoT systems that require a mobile app.

The correct answer is: Built.io

Question **9**

Correct

Mark 2.00 out of 2.00

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What measure should be taken to secure IoT devices?

Select one:

○ install self-encrypting hard drives

○ disconnect from the Internet

○ keep firmware updated                                                                               ✔

○ implement the security through obscurity model

Refer to curriculum topic: 4.2.4
IoT devices are typically too small and inexpensive to run complex security algorithms. This makes the devices vulnerable to security threats. To mitigate these threats, the firmware on the devices should be upgraded to the latest version.

The correct answer is: keep firmware updated

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Question **10**

Correct

Mark 2.00 out of 2.00

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Match the network component category with the description.

| media | physical channel to carry messages | ✔ |
| services | network applications | ✔ |
| end devices | source or destination of a message | ✔ |
| intermediate devices | determine best path for packets | ✔ |

Refer to curriculum topic: 4.1.1

The correct answer is: media → physical channel to carry messages, services → network applications, end devices → source or destination of a message, intermediate devices → determine best path for packets

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Question **11**

Correct

Mark 2.00 out of 2.00

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What is data in motion?

Select one:

○ value extracted from data while it is being generated                                               ✔

○ data stored in mobile devices

○ data generated by an IoT device that is moving

○ data transferred from an IoT device to the cloud

Refer to curriculum topic: 4.2.2
The term data in motion refers to the process of extracting value from data while it is being generated. It is considered in motion because it may or may not eventually be stored.

The correct answer is: value extracted from data while it is being generated

Question **12**

Correct

Mark 2.00 out of 2.00

Match the wireless technology with the description.

| LoRaWAN | uses a gateway to relay messages between end-devices and a central network server | ✔ |
| ZigBee | popular in IoT applications such as home automation | ✔ |
| 4G/5G | cellular-based technology for transferring data over large geographic areas | ✔ |

Refer to curriculum topic: 4.1.2

The correct answer is: LoRaWAN → uses a gateway to relay messages between end-devices and a central network server, ZigBee → popular in IoT applications such as home automation, 4G/5G → cellular-based technology for transferring data over large geographic areas

Question **13**

Correct

Mark 2.00 out of 2.00

Which wireless technology has low-power and data rate requirements making it popular in home automation applications?

Select one:

○ LoRaWAN

○ 5G

○ Wi-Fi

◉ ZigBee                                                       ✔

Refer to curriculum topic: 4.1.2
ZigBee is an IEEE 802.15.4 wireless standard designed for creating personal-area networks. Low energy, power, and data rate requirements make Zigbee a popular protocol for connecting home automation devices.

The correct answer is: ZigBee

Question **14**

Correct

Mark 2.00 out of 2.00

Which pillar of the Cisco IoT System allows data to be analyzed and managed at the location where it is generated?

Select one:

○ data analytics

◉ fog computing                                                      ✔

○ network connectivity

○ application enhancement platform

Refer to curriculum topic: 5.1.1
The Cisco IoT System consists of six pillars to describe foundational elements, (1) network connectivity, (2) fog computing, (3) security (cyber and physical), (4) data analytics, (5) management and automation, and (6) an application enablement platform. The fog computing pillar covers software and hardware that extends IoT applications to the network edge.

The correct answer is: fog computing

Question **15**

Correct

Mark 2.00 out of 2.00

What are rules governing communication between network devices?

Select one:

◯ processes

◯ protocols ✔

◯ services

◯ architectures

Refer to curriculum topic: 4.1.1
Before devices on a network can communicate to each other, they must agree on a common set of communication rules. These rules are called protocols.

The correct answer is: protocols

Question **16**

Correct

Mark 2.00 out of 2.00

Which statement is an accurate description of 4G and 5G wireless technologies?

Select one:

◯ Both 4G and 5G technologies use a low-energy, low-power, low-data rate for wireless personal-area networks.

◯ They require a wireless WAN connection to power constricted devices.

◯ They are both cellular-based technologies for covering large geographic areas. ✔

◯ They both require a 2.4 GHz short-range radio frequency band for industrial, scientific, and medical applications.

Refer to curriculum topic: 4.1.2
4G and 5G are fourth and fifth generation cellular-based technologies for transferring data over large geographic areas. Both provide high bandwidth and are capable of supporting voice, mobile Internet access, video calling, and high-definition mobile TV.

The correct answer is: They are both cellular-based technologies for covering large geographic areas.

◄ Chapter 4 Terms and Concepts Practice

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