

1. Which of the following layer in LoRa protocol stack is based on proprietary technology?

- a) PHY
- b) MAC
- c) Network
- d) Application



2. Duty cycle limit end devices to

- a) Save the energy cost of network servers
- b) Save the energy cost of application servers
- c) Save the energy cost of gateways
- d) **Increase the capacity of LoRa networks**

3. LoRa gateways can decode the signals even if the received power is below the noise floor because

- a) LoRa gateways are produced from novel materials with exceptional electromagnetic properties
- b) LoRa uses ultra-wide bandwidth channels
- c) **LoRa spreads the power over all frequencies within the channel bandwidth as well as transmits the symbol over a long duration**
- d) LoRa uses high transmission power

4. For a 500kHz channel, the frequency sweeping speed of a LoRa transmitter configured with SF=7 can exceed

- a) **1 GHz/s**
- b) 2 GHz/s
- c) 3 GHz/s
- d) 4 GHz/s

5. For a 125kHz channel, a LoRa transmitter configured with SF=8 can send

- a) ~1024 sym/s
- b) ~512 sym/s
- c) **~488 sym/s**
- d) ~390 sym/s

6. Which of the following statements is incorrect?

- a) Header is optional in LoRa packets
- b) CRC is optional in LoRa packets
- c) **LoRa gateways are responsible for medium access control**
- d) LoRa network server is responsible for medium access control
- e) None of these

7. Which of the following statements is correct?

- a) Each LoRa chirp represents one or more symbols
- b) Upchirps and downchirps are mixed in a given LoRa payload
- c) **LoRa preamble consists of upchirps and downchirps**
- d) In LoRa chirps, frequency increases exponentially
- e) LoRa chirps always use the lowest frequency of the channel

8. If SF is downgraded from 7 to 6,

- a) Symbol duration is increased by a factor of 2
- b) **Symbol duration is decreased by a factor of 4**
- c) Data rate is increased by a factor of 2
- d) Data rate is increased by a factor of 4
- e) Frequency sweeping speed is increased by a factor of 2

9. If SF is upgraded from 7 to 10,

- a) **Symbol duration is increased by a factor of 8**
- b) Power consumption of the client device is reduced significantly
- c) Message air-time is reduced significantly
- d) Data rate is increased by a factor of 8
- e) Data rate is decreased by a factor of 8

10. If there are three gateways within the range of a LoRa device,

- a) Only the gateway closest to the device would process the packets transmitted by the device
- b) **All three gateways would process the packet received from the device**
- c) All three gateways would transmit the ACK packets to this device
- d) Only the gateway farthest from the device would transmit an ACK packet for this device
- e) The gateways would coordinate to decide which gateway should act as the real gateway at any given time

End of W8 Quiz