

EITP30: Quiz 1 - 2021

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1. Who writes the LTE/NR technical specifications?
  - 3GPP
  - ITU
  - GSMA
2. An analog signal composed of two frequency components is sampled in a digital receiver. The components are orthogonal if:
  - Components of different frequencies are always orthogonal
  - It depends on the frequency difference, sampling rate and number of samples
  - It depends on the frequency difference and sampling rate
3. OFDM allows to?
  - Multiplex multiple complex symbols in the same time and frequency
  - Multiplex multiple complex symbols in different times and same frequency
  - Multiplex multiple complex symbols in the same time and different frequencies
4. A received signal has 1MHz bandwidth with total power 5mW, while the noise power spectral density is 1nW/Hz. The corresponding SNR is:
  - 10
  - 7dB
  - 3dB
5. The maximum FFT size in LTE is:
  - 1024
  - 2048
  - 4096
6. Apart from simplifying equalization of received OFDM signals, the Cyclic Prefix:
  - Mitigates the effect of channel delay spread
  - Mitigates interference between subcarriers (ICI)
  - Increases the throughput
7. PAPR in OFDM signals:
  - Requires to back-off (attenuate) the transmitted signal prior to amplification
  - Helps mitigate inter-symbol-interference
  - Is typically compensated at the receiver
8. What technology is used for LTE UL (uplink)?
  - OFDM
  - SC-FDMA
  - CDMA
9. What is the main purpose of standardization?
  - To test products before putting them on the market
  - To improve technology
  - To ensure interoperability between products from different companies
10. In an FDD cellular system?
  - Downlink and uplink share the same frequency but different times
  - Downlink and uplink operate at different frequencies and times
  - Downlink and uplink operate simultaneously using different frequencies