

EITP30: Quiz 2  
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1. The subcarrier spacing in LTE is:
  - 50kHz
  - 75kHz
  - 15kHz
2. The duration of the first OFDM symbol in an LTE slot is:
  - 66.7 $\mu$ s
  - 71.4 $\mu$ s
  - 71.8 $\mu$ s
3. The extended cyclic prefix in the LTE standard allows:
  - To have more time to transmit user data
  - To add protection against extensive delay spread like in large cells
  - To have reduced sampling frequency
4. The size of a resource block in LTE is?
  - 84 resource elements
  - 72 resource elements
  - It depends on the cyclic prefix
5. The maximum number of resource blocks (RBs) in a 20MHz LTE carrier is?
  - 84
  - 110
  - 150
6. A half-duplex device in an FDD cell:
  - Can transmit and receive at the same time using different frequencies
  - Can be replaced by a TDD device, because it can transmit and receive at different times
  - Does not need a duplex filter to operate correctly
7. In a TDD cell:
  - Switching from DL to UL shall be done instantaneously
  - Half of the frame is used for DL transmission and the other half for UL
  - A sub-frame is allocated to DL or UL depending on the selected configuration
8. Applying Transmit Diversity with 2 antennas:
  - Allows transmission of two information layers (two different streams of data)
  - Allows transmission of the same information through two antennas
  - Allows the radiated power to be focused in a predetermined direction
9. Precoding:
  - Is part of the encoding process
  - Is used in multi-antenna systems
  - Maps modulated complex symbols to layers
10. The number of layers:
  - Is limited by the rank of the channel matrix
  - Is always constant during the time a certain UE is within a cell
  - Does not influence the throughput