

## KNOWLEDGE PROBE 4: INTRODUCTION TO WIRELESS TECHNOLOGY Modulation and Multiplexing

### Learning Objectives

1. Explain basic modulation.
  2. Distinguish between multiplexing methods.
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1. Baseband signals cannot be connected directly to an antenna for transmission.
    - a. True
    - b. False
  2. What is the name of the signal that is modified by the baseband signal for modulated transmission?
    - a. Carrier
    - b. Modulating signal
    - c. Radio signal
    - d. Subcarrier
  3. Which of the following is NOT a way that a signal can be modulated?
    - a. Amplitude
    - b. Frequency
    - c. Phase
    - d. Time
  4. PM produces FM.
    - a. True
    - b. False
  5. What is the binary version of FM called?
    - a. ASK
    - b. FSK
    - c. OOK
    - d. PSK
  6. The combination of ASK and PSK is known as
    - a. APK
    - b. PAK
    - c. QAM
    - d. QPSK



7. Which of the following does multiplexing permit?
  - a. Half duplexing
  - b. Multiple users can share the same equipment
  - c. Sharing of spectrum space
  - d. Two or more signals may be transmitted concurrently in the same bandwidth
  
8. Frequency multiplexing is when
  - a. All signals are added together in the same bandwidth
  - b. All signals modulate the same carrier but at different times
  - c. One signal rides on another
  - d. Signals are rapidly switched between frequencies
  
9. Time division multiplexing is used with
  - a. Digital signals
  - b. Slow analog signals
  - c. Video signals
  - d. Voice signals
  
10. How are analog signals transmitted in TDM?
  - a. A wider bandwidth is needed
  - b. They are first modulated
  - c. They cannot be transmitted.
  - d. They must be digitized by an ADC first
  
11. How are FDM signals recovered?
  - a. Using a time interleaved switch
  - b. With a band pass filter
  - c. With a high frequency amplifier
  - d. With a modulator
  
12. What is the name of the circuit that recovers multiplexed signals?
  - a. Demodulator
  - b. Demultiplexer
  - c. Modulator
  - d. Multiplexer