

**University Diploma Programs
Electronic Equipment Maintenance
EET-029: Introduction to Communications
Quiz # 4**

Name: _____ **ID #:** _____

1. Indicate the false statement regarding the Armstrong modulation system:
 - (a) The system is basically phase, not frequency, modulation
 - (b) AFC is not needed, as a crystal oscillator is used
 - (c) Frequency multiplication must be used
 - (d) Equalization is unnecessary

2. An FM signal with a modulation index m_f passed through a frequency tripler. The wave in the output of the tripler will have a modulation index of:
 - (a) $m_f / 3$
 - (b) m_f
 - (c) $3 m_f$
 - (d) $9 m_f$

3. Since noise phase-modulates the FM wave, as the noise sideband frequency approaches the carrier frequency, the noise amplitude:
 - (a) Remains constant
 - (b) Is decreased
 - (c) Is increased
 - (d) Is equalized

4. One of the following is an indirect way of generating FM. This is the:
 - (a) Reactance FET modulator
 - (b) Varactor diode modulator
 - (c) Armstrong modulator
 - (d) Reactance bipolar transistor modulator

5. In an FM stereo multiplex transmission, the:
 - (a) Sum signal modulates the 19 kHz subcarrier
 - (b) Difference signal modulates the 19 kHz subcarrier
 - (c) Difference signal modulates the 38 kHz subcarrier
 - (d) Difference signal modulates the 67 kHz subcarrier

6. Indicate which of the following statements about the advantage of the phase discriminator over the slope detector is false:
 - (a) Much easier alignment
 - (b) Better linearity
 - (c) Greater limiting
 - (d) Fewer tuned circuits

7. Show which of the following statements about the amplitude limiter is untrue:
 - (a) The circuit is always biased in class C, by virtue of the leak-type bias
 - (b) When the input increases past the threshold of limiting, the gain decreases to keep the output constant
 - (c) The output must be tuned
 - (d) Leak-type bias must be used.

8. A pre-emphasis circuit provides extra noise immunity by:
 - (a) Boosting the bass frequencies
 - (b) Amplifying the higher audio frequencies
 - (c) Preamplifying the whole audio band
 - (d) Converting the phase modulation to FM.