Sample Questions

Telecommunications Engineering

1. Identify the correct statement.

a. DSB-SC modulation is used for broadcast purposes.
b. Bandwidth required for SSB-SC is half of that required for VSB.
c. At high power levels, conventional AM is easier to generate than SSB-SC wave.
d. SSB and DSB-SC are linear modulation schemes whereas VSB and SSB-SC are non-linear.

2. The modulation schemes used in GSM and CDMA mobile communication are _____ respectively.

a. GMSK and BPSK
b. QPSK and BPSK
c. GMSK and QPSK
d. M-ary PSK and GMSK

3. Which of the following errors may occur in delta modulation when the modulating input signal is changing at a very slow rate?

a. Slope-overload
b. Under-sampling
c. Granular noise
d. Both 1 and 2

4. When critical magnetic field is applied along the axis of a cylindrical cavity magnetron, then the electrons will _____.

a. traverse a straight-line path from cathode to anode
b. traverse a slightly curved path terminating on anode
c. traverse a curved path just grazing on anode surface and terminates back on the cathode
d. traverse a curved path terminating on cathode, without touching the anode surface

5. Match the antennas with their applications and select the correct option.

A-Yagi antenna, B-Parabolic reflector, C-Helical antenna, D-Microstrip Patch antenna
1-Satellite tracking, 2-TV reception, 3-Mobile Phones, 4-Directional transmission

a. A2, B3, C1, D4
b. A4, B2, C3, D1
c. A2, B4, C1, D3
d. A2, B1, C3, D4

6. A lossless transmission line having a characteristic impedance of 40 ohm is terminated in an 80 ohm load. The line is excited by a 15 MHz source, having an internal resistance of 40 ohm. If it is known that the maximum power is being delivered to the load, find the length of the transmission line.

a. 2.5 m
b. 5.5 m
c. 1.25 m
d. 10 m

7. A lightning conductor on top of a building is made into a pointed spike because _____.

a. charge per unit area becomes very high for lightning to discharge
b. to prevent flow of charge from the lightning conductor
c. to prevent accumulation of charged particles
d. all of the above

8. Following components are used to measure the output power of a travelling wave amplifier

1. A low-pass/high-pass filter.
2. A low power attenuator.
3. A directional coupler with matched load.
4. Power meter.

Identify the correct sequence of the connection of these components.

a. 1,3,4,2
b. 2,1,4,3
c. 1,3,2,4
d. 2,3,1,4

9. A 2 m long wire carrying a current of 10 A is placed at an angle of 60° with magnetic field B = 4 Wb/ m^2. The magnitude and direction of force acting on it are _____.

a. 40 sqrt 3 N perpendicular to wire and B
b. 40 N perpendicular to wire and B
c. 40 sqrt 3 N perpendicular to wire and 150° to B
d. 40 N perpendicular to wire and 180° to B