

## 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.
- 2.5 m
  - 5.5 m
  - 1.25 m
  - 10 m
7. Following components are used to measure the output power of a travelling wave amplifier
- A low-pass/high-pass filter.
  - A low power attenuator.
  - A directional coupler with matched load.
  - Power meter.
8. A 2 m long wire carrying a current of 10 A is placed at an angle of  $60^\circ$  with magnetic field  $B = 4 \text{ Wb/m}^2$ . The magnitude and direction of force acting on it are \_\_\_\_\_.
- $40\sqrt{3}$  N perpendicular to wire and B
  - 40 N perpendicular to wire and B
  - $40\sqrt{3}$  N perpendicular to wire and  $150^\circ$  to B
  - 40 N perpendicular to wire and  $180^\circ$  to B
9. A lightning conductor on top of a building is made into a pointed spike because \_\_\_\_\_.
- charge per unit area becomes very high for lightning to discharge
  - to prevent flow of charge from the lightning conductor
  - to prevent accumulation of charged particles
  - all of the above