

TELECOMMUNICATIONS

Q1. Which of the following statements is true?

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

Q2. For an optical fibre system, mean power launched in fibre is -3 dB, cable fibre loss is 1.8 dB/Km, splice loss is 0.4 dB/Km, connector loss at transmitter and receiver is 1 dB and safety margin is 8 dB. If the receiver power required is -45 dB, what is the maximum possible length of the link?

- 7.5 Km
- 15 Km
- 22.5 Km
- 30 Km

Q3. Match the antennas with their applications and select the correct option.

A-Yagi antenna, B- Helical antenna , C- Parabolic reflector

1-Satellite tracking, 2-TV reception, 3-Directional transmission

- A1, B3, C2
- A1, B2, C3
- A2, B3, C1
- A2, B1, C3

Q4. A loss-less 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 maximum power is being delivered to the load, find the length of transmission line.

- 10 m
- 5 m
- 2.5 m
- 1.25 m

Q5. A 1m long wire carrying a current of 5 A is placed at an angle of 30° with magnetic field $B = 2 \text{ Wb/m}^2$. The magnitude and direction of force acting on it are _____.

- 5 N perpendicular to wire and B
- 10 N perpendicular to wire and B
- 5 N perpendicular to wire and 120° to B
- 10 N perpendicular to wire and 150° to B