



Video Solution on Website:-

<https://physicsaholics.com/home/courseDetails/63>

Video Solution on YouTube:-

<https://youtu.be/NH9dQzdNb2Y>

Written Solution on Website:-

<https://physicsaholics.com/note/notesDetails/22>

- Q 1. If a carrier wave of 1000 kHz is used to carry the signal, the length of transmitting antenna will be equal to –
- (a) 3 m
(b) 30 m
(c) 300 m
(d) 3000 m
- Q 2. If the maximum and minimum voltage of an AM wave are V_{max} and V_{min} respectively then modulation factor –
- (a) $m = \frac{V_{max}}{V_{max} + V_{min}}$
(b) $m = \frac{V_{min}}{V_{max} + V_{min}}$
(c) $m = \frac{V_{max} + V_{min}}{V_{max} - V_{min}}$
(d) $m = \frac{V_{max} - V_{min}}{V_{max} + V_{min}}$
- Q 3. Fraction of total power carried by side bands is given by –
- (a) $\frac{P_S}{P_T} = m^2$
(b) $\frac{P_S}{P_T} = \frac{1}{m^2}$
(c) $\frac{P_S}{P_T} = \frac{2+m^2}{m^2}$
(d) $\frac{P_S}{P_T} = \frac{m^2}{2+m^2}$
- Q 4. For a carrier frequency of 100 kHz and a modulating frequency of 5 kHz what is the width of AM transmission -
- (a) 5 kHz
(b) 10 kHz
(c) 20 kHz
(d) 200 kHz
- Q 5. A radar has a power of 1 kW and is operating at a frequency of 10 GHz. It is located on a mountain top of height 500 m. The maximum distance upto which it can detect object located on the surface of the earth (Radius of earth = 6.4×10^6 m) is
- (a) 16 km
(b) 40 km
(c) 64 km
(d) 80 km
- Q 6. **Statement I:** sky wave cannot be observed on moon.
Statement II: Atmosphere of variable refractive index is required for propagation of sky wave.



- (a) Statement-1 is true, Statement-2 is true; Statement-2 is the correct explanation of Statement-1.
(b) Statement-1 is true, Statement-2 is true; Statement-2 is not correct explanation of Statement-1.
(c) Statement-1 is false, Statement-2 is true.
(d) Statement-1 is true, Statement-2 is false.
- Q 7. In an amplitude modulated wave for audio frequency of 500 cycles/second, the appropriate carrier frequency will be
(a) 50 cycle/sec
(b) 100 cycle/sec
(c) 500 cycle/sec
(d) 50000 cycle/sec
- Q 8. The velocity of electromagnetic waves in a nonmagnetic dielectric medium $\epsilon_r = 4$ is
(a) 3×10^8 m/s
(b) 1.5×10^8 m/s
(c) 6×10^8 m/s
(d) 7.5×10^8 m/s
- Q 9. The TV transmission tower in Delhi has a height of 240 m. The distance up to which the broadcast can be received, (taking the radius of earth to be 6.4×10^6 m) is –
(a) 100 km
(b) 60 km
(c) 55 km
(d) 50 km
- Q 10. A diode detector is used to detect an amplitude modulated wave of 60% modulation by using a condenser of capacity 250 pico farad in parallel with a load resistance 100 kilo ohm. Find the maximum modulated frequency which could be detected by it
(a) 10.62 MHz
(b) 10.62 kHz
(c) 5.31 MHz
(d) 5.31 kHz
- Q 11. Sinusoidal carrier voltage of frequency 1.5 MHz and amplitude 50 V is amplitude modulated by sinusoidal voltage of frequency 10 kHz producing 50% modulation. The lower and upper side-band frequencies in kHz are
(a) 1490, 1510
(b) 1510, 1490
(c) $\frac{1}{1490}$, $\frac{1}{1510}$
(d) $\frac{1}{1510}$, $\frac{1}{1490}$



Answer Key

Q.1) c	Q.2) d	Q.3) d	Q.4) b	Q.5) d
Q.6) a	Q.7) d	Q.8) b	Q.9) c	Q.10) b
Q.11) a				

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