Problem Related to AM

Problem 1

- An audio frequency signal $10\sin2\pi500t$ is used to amplitude modulate a carrier of $50\sin2\pi10^5t$. Calculate

1. Modulation index (m, n, µ)

2. Sideband Frequencies.

3. Amplitude of each side-band frequencies.

4. Bandwidth required.

5. Total power delivered to a load of 600Ω.

6. Transmission efficiency.

Answers

1. 0.2
2. USB=100.5kHz and LSB=99.5kHz
3. 5V
4. 1kHz
5. 2.125W
6. 1.96%

Problem 2

- The output signal from an AM modulator is:

S(t)=5cos(1800πt)+20cos(2000πt)+5cos(2200πt).

Find

a. Modulation Index

b. Carrier Power

Answers

- m=0.5
- Carrier Power=200W