

Sample Problems for the eighth Quiz

1. For an FM signal $s(t)$ with message $m(t)$, fill the below blanks:

$$s(t) = A_c \cos \left(2\pi \int_0^t f_i(\tau) d\tau \right) \quad (1)$$

$$= A_c \cos \left(2\pi \int_0^t \text{_____} d\tau \right) \quad (2)$$

2. You should know how to determine frequency deviation Δf and the modulation index β of FM signal.
3. An FM signal for a single-tone message signal is applied to a frequency multiplier. Are the frequency deviation and the modulation index of the FM signal at the output of the multiplier different from those of the FM signal at the input of the multiplier?
4. Carson's rule.
5. The derivation of the power spectrum density of signal-tone FM signal will not be tested in the coming quiz but will be possibly tested in the midterm.