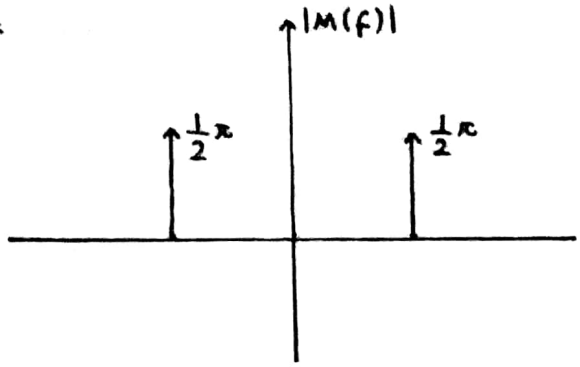
Bir $m(t)$ sinyalinin FM modülasyonuna tabi tutulduğunu varsayınız ve alıcıda alınan sinyal aşağıdaki biçimde olsun;

$$s(t) = \cos\left[2\pi f_c t - \frac{1}{2\pi 100} k_f \cos(2\pi f_m t)\right]$$

a) $-\frac{1}{2\pi 100} k_f \cos(2\pi f_m t) = 2\pi k_f \int_0^t m(\tau)\,d\tau$

$\frac{1}{2\pi 100} k_f 2\pi f_m \sin(2\pi f_m t) = 2\pi k_f m(t)$ $\quad m(t) = \frac{f_m}{2\pi 100} \sin(2\pi f_m t)$

b) $f_m = 100$ Hz



c) $B_c = 2(\beta+1) \cdot f_m$ $\quad f_m = 100\text{Hz}$ $\quad k_f = 1000$

$B_c = 2\left(\frac{k_{fa}}{f_m} + 1\right) f_m$

$B_c = 2\left(\frac{1000 \cdot \frac{\pi}{2}}{100} + 1\right) 100$

$B_c = 3341.6$