یا لطیف

رضا دیشه پز
۹۸۱۴۳۰۲

امتحان شماره ۲ مخابرات
اعوجاج فاز ✓ | اعوجاج دامنه ✓

#2 $H(f) =$

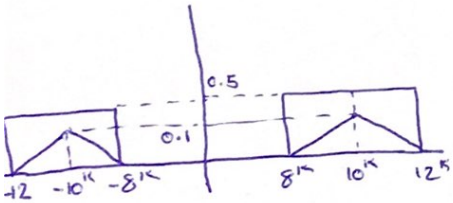
		اعوجاج دامنه	اعوجاج فاز
$f e^{-j5\pi f^2}$	$0 < \lvert f \rvert < 400000$ Hz	✓	✓
✓ $3e^{-j10\pi f}$	$400000 < \lvert f \rvert < 404000$	✗	✗
$10e^{-j(20\pi f + \frac{\pi}{10})}$	$404000 < \lvert f \rvert < 416000$	✗	✓
✓ $3e^{-j10\pi f}$	$416000 < \lvert f \rvert < 424000$ Hz	✗	✗
$10e^{-j10\pi f^2}$	$424000 < \lvert f \rvert < 436000$	✗	✓
✓ $3e^{-j10\pi f}$	$436000 < \lvert f \rvert < 440000$	✗	✗
0	other		

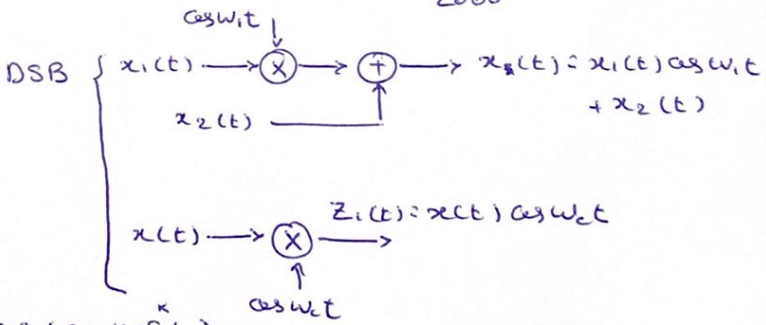
باندهای بدون اعوجاج:

$$\begin{cases} 3e^{-j10\pi f} & 400^K < \lvert f \rvert < 404^K \\ 3e^{-j10\pi f} & 416^K < \lvert f \rvert < 424^K \\ 3e^{-j10\pi f} & 436^K < \lvert f \rvert < 440^K \end{cases}$$

$$x_1(t) = 4000\,\mathrm{sinc}(4000t)\cos(20000\pi t) \xleftrightarrow{F} \bar{X}_1(f) = \frac{1}{2}\prod\left(\frac{f \pm 10000}{4000}\right)$$

$$x_2(t) = 400\,\mathrm{sinc}^2(2000t)\cos(20000t) \xleftrightarrow{F} \bar{X}_2(f) = \frac{1}{10}\wedge\left(\frac{f \pm 10000}{2000}\right)$$

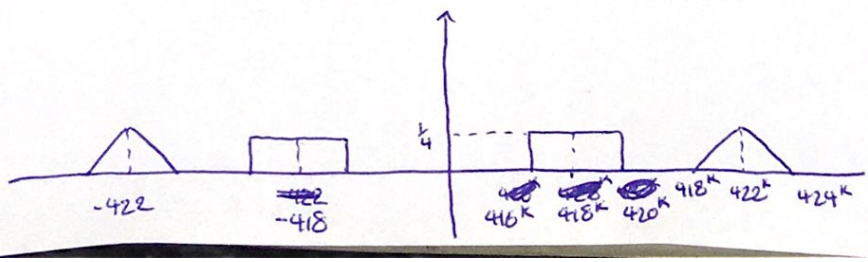




$$w_1 = 2\pi f_1 \xrightarrow{f_1 = 408} x_1(t)\cdot\cos(2\pi 408^K t)$$

$$w_2 = 2\pi f_2 \xrightarrow{f_2 = 412} x_2(t)\cdot\cos(2\pi \cdot 412^K t)$$

$$\Rightarrow z_1(t) = x_1(t) + x_2(t)$$



$\Rightarrow z_1(t) = x_1(t)\cos(2\pi \cdot 408t) + x_2(t)\cdot\cos(2\pi \cdot 412t)$

$z_1(t) = x_1(t)\cos(816\pi t) + x_2(t)\cos(824\pi t)$

$z_2(t) = 3z_1(t-5) = 3x_1(t-5)\cdot\cos(816\pi(t-5)) + x_2(t-5)\cdot\cos(824(t-5))$

$= 3x_1(t-5)\cos(816\pi t) + x_2(t-5)\cos(824\pi t)$