Homework assignments for chapter 6、7、8:

6.5(a),6.23,6.27(a)(b)(c)(d),7.1,7.2,7.3(a)(b)(c)(d),7.6,8.1,8.3,8.22

Discussion problem assignment:

第一题:

1. (12 points) Consider the system illustrated in Figure 1, if we know $h_1(t)=\delta(t)-\frac{\sin 4\pi t}{\pi t}$ and $h_2(t)=\frac{d}{dt}\left(\frac{\sin \pi t}{\pi t}\right)$. Suppose the input $x(t)=\frac{\sin 2\pi t}{\pi t}$, sketch the spectrum of $r_1(t), r_2(t)$ and $y(t)$.

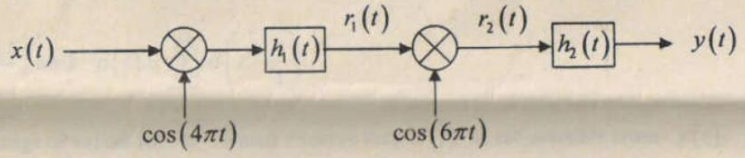
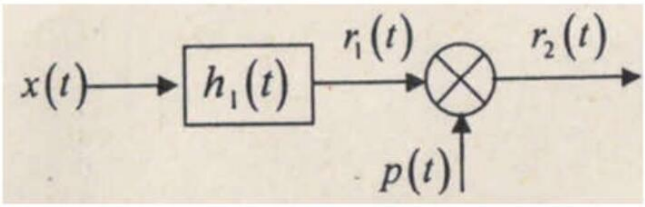


Figure 1

1. Consider the system shown in the figure with input $x(t)$ and impulse train sampling signal $p(t)$ with $T = 0.1$, plus



$$x(t)=\left(\frac{\sin(10\pi t)}{\pi t}\right)^2$$

$$h_1(t)=\frac{\sin(10\pi t)}{\pi t}$$

Determine and sketch the spectrum of signal $r_1(t)$, $r_2(t)$

2. For the following two bandlimited signals,

$X_1(j\omega)=0$, for $|\omega|>200\pi$ $\quad$ $X_2(j\omega)=0$, for $|\omega|>500\pi$

Let $y(t)=x_1(3t+4)\times x_2(t/2-2)$ be the signal to be sampled, find the maximum sampling period T for y(t) to be recoverable from samples.