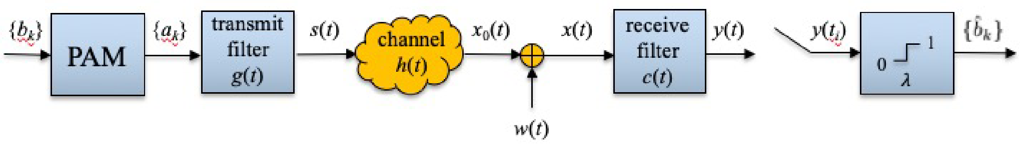
Sample Problems for the 11th Quiz

Name:________________ Student ID:________________ Score:____________



With $w(t) = 0$, we obtain from the above diagram that for sequence transmission,

$$y(iT_b) = \sum_{k=-\infty}^{\infty} a_k\, p(iT_b - kT_b),$$

where $p(t) = g(t) \star h(t) \star c(t)$.

1. (25%) Which $p(t)$ below guarantees no ISI?

   (a) $p(kT_b) = \begin{cases} k, & k \in \{1\} \\ 0, & \text{otherwise} \end{cases}$ (b) $p(kT_b) = \begin{cases} k, & k \in \{1,2\} \\ 0, & \text{otherwise} \end{cases}$ (c) $p(kT_b) = \begin{cases} k, & k \in \{1,2,3\} \\ 0, & \text{otherwise} \end{cases}$

   Solution. (a)

2. (25%) Which one equals $y(iT_b)$ in Problem 1(a).

   (a) a_{i-1}
   (b) $a_{i-1} + 2a_{i-2}$
   (c) $a_{i-1} + 2a_{i-2} + 3a_{i-3}$

   Solution. (a)

3. (25%) Which one equals $y(iT_b)$ in Problem 1(b).

   (a) a_{i-1}
   (b) $a_{i-1} + 2a_{i-2}$
   (c) $a_{i-1} + 2a_{i-2} + 3a_{i-3}$

   Solution. (b)

4. (25%) Which one equals $y(iT_b)$ in Problem 1(c).

   (a) a_{i-1}
   (b) $a_{i-1} + 2a_{i-2}$
   (c) $a_{i-1} + 2a_{i-2} + 3a_{i-3}$

   Solution. (c)