[13] Consider the binary (two state = +1 or -1) sequence: $\{s_i,\ 0 \le i \le 5\} = \{+1, +1,\ +1, -1, -1, -1\}$.

(a) Compute the signal energy $\mathcal{E}_S$. [1 pt]

(b) Design the matched processor (*Find only the coefficients of the linear processor*). [1 pt]

(c) Compute the matched processor output V_1 when the received signal is $\{s_i\}$. [1 pt]

(d) Compute the matched processor output V_2 when the received signal is the complementary signal of $\{s_i\}$. [1 pts]

(e) Design an orthogonal signal of $\{s_i\}$, and compute the matched processor output V_3 when the received signal is the orthogonal signal. [2 pts]

(a) $\mathcal{E}_S = \sum_{i=0}^{5} s_i^2 = 1+1+1+1+1+1 = 6$ 이다.

(b) ~~V_1~~

(c) $V_1 = \sum_{i=0}^{5} c_i x_i = \sum_{i=0}^{5} s_i^2 = 6$ 이다.

$x_i = s_i$.

(d) Complementary signal =

$V_2 = \sum_{i=0}^{5} c_i x_i = -\sum_{i=0}^{5} s_i^2 = -6$ 이다.

$x_i = -s_i$

(e) Orthogonal signal = $\{s_i',\ 0 \le i \le 5\} = \{+1, +1, +1, +1, +1, +1\}$.

~~$\{s_i$ 구하는 법~~

$V_3 = \sum_{i=0}^{5} c_i x_i = \sum_{i=0}^{5} s_i \cdot s_i' = (+1)(+1)+(+1)(+1)+(+1)(+1)+(-1)(+1)+(-1)(+1)+(-1)(+1)$

$= 0$ 이다.

[Bonus Problem] Cloud Computing 의 개념과 장점을 아는대로 쓰시오. [4 pts]

[개념] (200 자 이내)

[장점] (250 자 이내)