

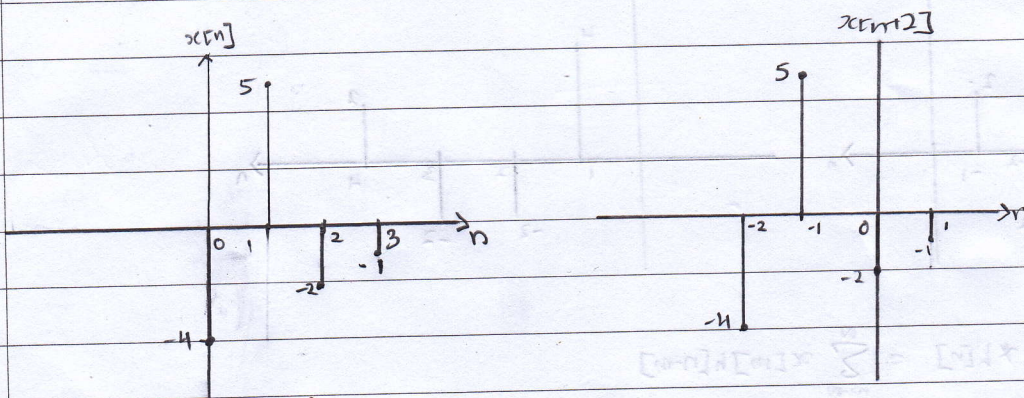
Q2a) $x[n]$ & $y[n]$ \rightarrow cross correlated $z[k] = R_{xy}[k] \rightarrow$ output. $x[n] = [-4 \ 5 \ -2 \ -1]$ for $n=0$ to 3 , $x[n]=0$ otherwise. $y[n] = x[n-3] = [-4 \ 5 \ -2 \ -1]$ for $n=3$ to 6 , $y[n]=0$ otherwise.

$$E_{x1} = \sum_{n=-\infty}^{\infty} |x[n]|^2$$

$$= (-4)^2 + (5)^2 + (-2)^2 + (-1)^2$$

$$= 46$$

b)



$$c) \quad z[k] = R_{xy}[k] = \sum_{n=-\infty}^{\infty} x[n] y^*[n+k]$$

	-4	-3	-2	-1	0	1	2	3	4	5	6	
$x[n]$					-4	5	-2	-1				
$y[n]$								-4	5	-2	-1	$R_{xy}[0] = 4$
$y[n+1]$							-4	5	-2	-1		$R_{xy}[1] = 3$
$y[n+2]$						-4	5	-2	-1			$R_{xy}[2] = -28$
$y[n+3]$					-4	5	-2	-1				$R_{xy}[3] = 46$
$y[n+4]$				-4	5	-2	-1					$R_{xy}[4] = -28$
$y[n+5]$			-4	5	-2	-1						$R_{xy}[5] = 3$
$y[n+6]$		-4	5	-2	-1							$R_{xy}[6] = 4$

$$z[k] = R_{xy}[k] = \sum_{n=-\infty}^{\infty} |z[k]|^2$$

$$= 4^2 + 3^2 + (-28)^2 + 46^2 + (-28)^2 + 3^2 + 4^2$$

$$= 3734$$