NAME: RITORAJ BANERJEE

SUBJECT: SIGNALS & SYSTEM

ROLL No: 18101106040

ASSIGNMENT No. 2

DEPARTMENT OF INFORMATION TECHNOLOGY

JALPAIGURI GOVERNMENT ENGINEERING COLLEGE

Q.1) Calculate continuous convolution,

$$x(t) = 4t^2 + 3t + 5 \ ;$$
$$y(t) = 2t^2 + 3t + 2 \ ;$$

ANSWER:-

$$x(t) = 4t^2 + 3t + 5 \ ; \qquad y(t) = 2t^2 + 3t + 2 \ ;$$

			$4t^2$	$3t$	5	
2	$3t$	$2t^2$	$2t^2$			$= 8t^4$
	2	$3t$				
		2	$3t$	$2t^2$		$= 12t^3 + 6t^3 = 18t^3$
			2	$3t$	$2t^2$	$= 8t^2 + 9t^2 + 10t^2$ $= 27t^2$
				2	$3t$	$= 6t + 15t = 21t$
					2	$= 10$

$$z(t) = x(t) * y(t)$$
$$z(t) = 8t^4 + 18t^3 + 27t^2 + 21t + 10$$

Q.2) Find Discrete Convolution of ,

$x(n) = \{2, 3, -1, -2\}$;

$h(n) = \{4, -1, -2, 3\}$;

ANSWER :-

$x(n) = \{2, 3, -1, -2\}$;

$h(n) = \{4, -1, -2, 3\}$;

	2	3	-1	-2
4	8	12	-4	-8
-1	-2	-3	1	2
-2	-4	-6	2	4
3	6	9	-3	-6

$y(n) = x(n) * h(n)$;

$\Rightarrow y(n) = \{8, 10, -11, -7, 13, 1, -6\}$;