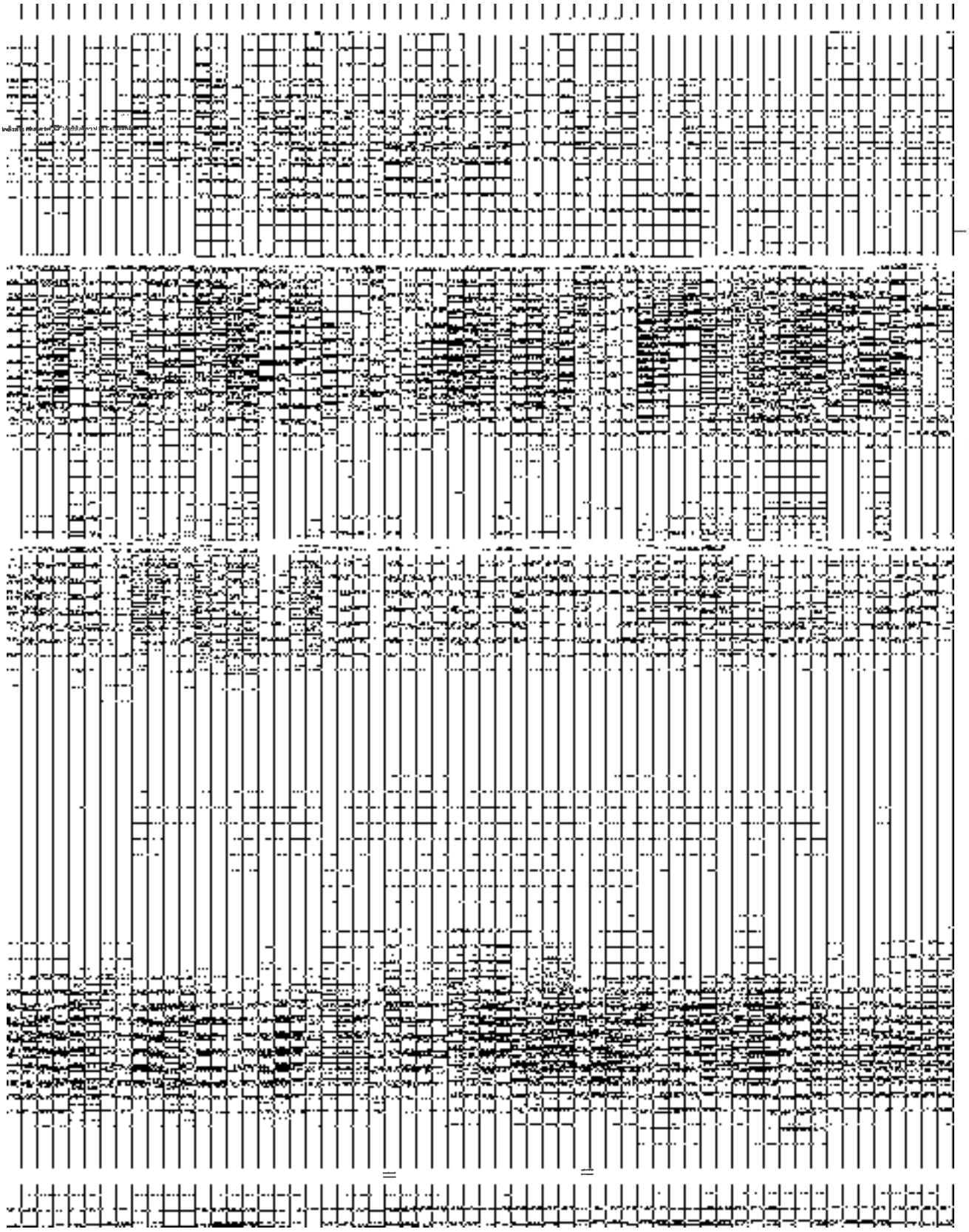

15	Obtain the Fourier series for the function $f(x) = x - x^2$ in the interval [-π,π].Hence show that $\frac{\pi^2}{12} = \frac{1}{1^2} - \frac{1}{2^2} + \frac{1}{3^2} - \frac{1}{4^2} + \ldots\ldots\ldots\ldots$ [10]	CO3	L4
	OR		
16	Find the half-range Fourier Cosine series of the function f(x) given by [10] $f(x) = \begin{cases} x, & for\ 0 < x < \pi/2 \\ \pi - x, & for\ \pi/2 < x < \pi \end{cases}$	CO3	L3
17	Find Fourier transform of $e^{-a\|x\|}$(a>0) and hence $\int_0^\infty \frac{\cos px}{a^2+p^2} dp = \frac{\pi}{2a} e^{-a\|x\|}$ [10]	CO4	L3
	OR		
18	Find the Fourier sine transform of f(x)= x: for 0<x<1 [10] = 2-x : for 1<x<2 = 0 : for x>2	CO4	L3
19	Find $z^{-1}[\frac{z}{(z-a)}]^3$ using convolution theorem and deduce that $z^{-1}[\frac{z}{(z-1)}]^3 = \frac{(n+1)(n+2)}{2}$ [10]	CO5	L3
	OR		
20	Solve $y_{n+2} - 6y_{n+1} + 8y_n = 2^n + 6n$ using z-transforms. [10]	CO5	L3