

SNS COLLEGE OF ENGINEERING Coimbatore - 641 107



TOPIC 1: Introduction to Z transforms

$$Z = \text{Transforms 4 Different Equ:}$$

$$UNIT - \chi$$

$$Ta - \text{requists :.}$$

$$I = (1+x)^{-1} = 1 - x + x^{2} - x^{3} + \dots + \frac{1}{2} |x| < 1$$

$$2, \quad (1+x)^{-1} = 1 + x + x^{2} + x^{3} + \dots + \frac{1}{2} |x| < 1$$

$$3, \quad (1-x)^{-2} = 1 + 2x + 3x^{2} + \dots + \frac{1}{2} |x| > 1$$

$$3, \quad (1-x)^{-2} = 1 + 2x + 3x^{2} + 1x^{3} + \dots + \frac{1}{2} |x| > 1$$

$$3, \quad (1+x)^{-2} = 1 - 2x + 3x^{2} - 1x^{3} + \dots + \frac{1}{2} |x| > 1$$

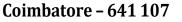
$$4, \quad (1+x)^{-2} = 1 - 2x + 3x^{2} - 1x^{3} + \dots + \frac{1}{2} |x| > 1$$

$$5, \quad e^{x} = 1 + \frac{x}{1!} + \frac{x^{2}}{x!} + \dots + \frac{1}{2} |x| > 1$$

$$6, \quad \log(1-x)^{-1} = x + \frac{x}{2} + \frac{x}{3} + \dots + \frac{1}{2} + \frac{1}{3} + \dots + \frac{1}{2} + \frac{1}{3} + \frac{1}{3} + \dots + \frac{1}{2} + \frac{1}{3} + \frac{1}{3} + \dots + \frac{1}{2} + \frac{1}{3} + \frac{1}{3} + \frac{1}{3} + \dots + \frac{1}{2} + \frac{1}{3} +$$



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UNIT Step twitten of Z-transform u(k): {1,1,1....}= {1, k ≥ pun Unit Impulse function A discrete unit impulse function is defined by. S(K): §1,0,0....] = §0; k=0 K = 0 Partial traction $\frac{1}{(ax+b)(cx+a)} = \frac{A}{(ax+b)} + \frac{B}{(cx+a)}$ $\frac{1}{ax^2+bx+c} = \frac{Ax+B}{ax^2+bx+c}$ 2, (not fractized) $\frac{1}{(ax+b)^{3}} = \frac{A}{(ax+b)} + \frac{B}{(ax+b)^{2}} + \frac{c}{(a+b)^{3}}$ $\frac{1}{(ax+b)^{3}} = \frac{A}{(ax+b)^{2}} + \frac{C}{(ax+b)^{2}} + \frac{c}{(a+b)^{3}}$ $\frac{1}{(ax+b)^{3}} = \frac{A}{(ax+b)^{2}} + \frac{C}{(ax+b)^{2}} + \frac{C}{(ax+b)^{3}}$ $\frac{1}{(ax+b)^{3}} = \frac{A}{(ax+b)^{3}} + \frac{C}{(ax+b)^{2}} + \frac{C}{(ax+b)^{3}} + \frac{C}{(ax+b)^{3}}$ $\frac{1}{(ax+b)^{3}} = \frac{A}{(ax+b)^{3}} + \frac{C}{(ax+b)^{3}} + \frac{C}{$ 3 and tin)=0 defined for n=0,1,2.... for n20, then its Z-transform is



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where, z is an orbitary complex number . Definition: Z - transform for discrete values of (t) I) $\{ \{t,t\} \} \}$ is a function defined for discrete value of (t) where, t=nT $2\{\{t,t\} \} \} = F(T) = \sum_{n=0}^{\infty} \frac{1}{n} (nT) = \sum_{n=0}^{n} \frac{1}{n} (nT)$ relignis dias defined as, $z \int f(t)^2 = F(z) = \sum_{n=0}^{\infty} F(nT) z^n$