Name Azeem Pinjari

	Z-Transform Roll no: 5021152  Roll no: 5021152  Batch: 3 Branch: 7-T.  FR. CONCEICAO RODRIGUES INSTITUTE OF TECHNOLOGY, VASHI
501:1-0)	
	By definition. - (-3) = 3 <sup>3</sup> : 1
•	7(-3)=33:1
	f(-2) = 3 <sup>-2</sup> = 1
	32
	P(-1) = 3" = 1 3
	f(c) = 3° = 1
Property Comments	f(1) = 31 = 3
-2	$f(2) = 3^2 = 9$ $f(3) = 3^3 = 27$ $f(4) = 3^4 = 81$
	The sequence whose kth team is 3' is
	{1,1,1,1,3,9,27,11} For -3 ≤ k ≤ 4
	27 9 3
C 10 (1)	$f(k) = \int 2^k  K < 0$
Soln:1.b)	$\frac{k}{3}$ $k \ge 0$
	Fox K <o:< td=""></o:<>
	f(k) = 2k f(-3) = 2-3 = 1 = 1
	1(-3) - 23 8
	$f(-2) = 2^{-2} = 1 = 1$
	2 4
	f(-1) = 2 = 1
	f(c) = 2° = 3 1
	(11)= 3'=3
	100 = 32 = 9
	The sequence is given by
	5 4 2
-11	

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Sol 1.0) \{-6, -2, -1, 1, 3, 4, 7, 9, 10, ...\}

f(0) = -1

f(1) = 1

f(2) = 3

f(3) = 4

f(4) = 7

f(6) = 9

f(6) = 9

f(6) = 6

Sol 1.0) For a sequence f(k), The Z-transform is defined as:

f(k) = \frac{2}{5} f(k)
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Sol 2.D	f(k) = 3-6,-6,0,2,43
	Bu definition.
	= 28 f(k) 3 = 5 f(k) = -k
	K=-00
	$=$ $\stackrel{?}{\leq} f(k) - k$
Garage Control	k=-2
	= -622-52+0+22=2+ 42-2
	$\frac{2\{f(k)\}}{z} = -6z^2 - 6z + 2 + 4$ $z = z^2$
	$Z Z^2$
	748-
Sol":22)	$f(k) = \{2^{\circ}, 2^{1}, 2^{2}, \}$
	$\mathcal{C}(k) = 2^k \text{ where } k \ge 0$
	By delinitions $ Z \{ f(k) \}^2 = \int_{k=-\infty}^{\infty} f(k) z^{-k} $
19	2 { F(k) } = \$ F(k) z^k
	and the second s
,:	$= \mathcal{L}(k)z^{-k}$
	K=C
	$= 2^{k} 2^{k} - k$
	k=0
	$= \frac{1+2+2+2+}{2} +$
	$= 1  \text{where}  \frac{ 2  < 1}{ z }$
	- 2
	Z { f(k) } = Z where   z1>2
	Z-2
Sc1":2.3)	$f(k) = 6^k$ where $k \ge 0$
	By definition, $= \frac{2}{5} f(k) = \frac{2}{5} f(k) z^{-k}$
	$\frac{1}{2} \left\{ f(k) \right\} = \frac{2}{5} \left\{ f(k) \right\} = \frac{1}{5}$
	k=-00
	$= \mathcal{E} f(k) z^{-k}$
	K=C
11	

$$= 1 + \frac{5}{2} + \frac{5^{2}}{2^{3}} + \frac{5^{3}}{2^{3}} + \dots$$

$$= \frac{1}{1 - \frac{6}{2}} \quad \text{where } |\frac{5}{2}| < 1$$

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 $=\frac{1}{1-\frac{1}{2}}$  where  $|\frac{1}{z}|<1$ 

	FR. CONCEICAD RODRIGUES INSTITUTE OF TECHNOLOGY, VASHI
	290(k)3 = 2 where 12/21
	2-1
2.5	
- Sct (3.2)	S(K) = 1 fox K = C
	By definition,
	$\frac{3g}{25} \frac{definition}{s} = \frac{3}{5} \frac{S(k)z^{-k}}{s}$
	K=-00
	= \$ S(k) z - k + S(Q)
	$k=-\infty$ $k=1$
	75S(D}=1
2 500	$f(k) = \infty$ where $0 \le k \le n$
Sc1.3.3)	Bu deligition
	1756(k) 3 = 5 P(D) 7-k
	$k = -\infty$
	= = f(k)z-k+ = f(k)-k
	- 3 "(kz-k
	K=0
	= 1 + "C, + "C2 + "C3 +
	$Z$ $Z^2$ $Z^3$
	$731(R)3 = (1+1)^n + z plane except at$
	7.0
( , , , )	3f(k) = k3k for k>0
Scr.3.0	Ru definition
	9781(K) 8= = P(K)7-K
	K=00
	$=$ $=$ $f(k)_{z}^{-k}$
	L=C

$$= 0 + \frac{3}{2} + \frac{18}{2^{2}} + \frac{81}{2^{3}} + \dots$$

$$= \frac{3}{2} \left\{ 1 + \frac{6}{2} + \frac{27}{2^{2}} + \dots^{3} \right\}$$

$$= \frac{3}{2} \left\{ 1 - \frac{3}{2} \right\}^{2} \quad \text{where } \left| \frac{3}{2} \right| < 1$$

$$= \frac{3}{2} \left( 1 - \frac{3}{2} \right)^{2}$$

$$= \frac{3}{2} \left( \frac{2 - 3}{2 - 3} \right)^{2}$$

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	FR. CONCEICAO RODRIGUES INSTITUTE OF TECHNOLOGY, VASHI
	$= -(-1-5-5^2-5^3)$
	$= -(-1-5-5^2-5^3)$ $= 2z^2 6z^3$
,	$= \frac{1}{1} + (5/z) + (5/z)^{2} + (5/z)^{3}$ $= \frac{1}{1} + (5/z) + (5/z)^{2} + (5/z)^{3}$ $= \frac{1}{1} + (5/z) + (5/z)^{2} + (5/z)^{3}$
	1! 2! 3!
	$= e^{5/2}   uhere   5  \times 1$
	121
	$ZSU(k)^2 = e^{5/2}$ where $ z  > 5$
Sc/: 3.0	l(k) = 1 lax k < 0
and the same of	$f(k) = \frac{1}{3} f_{CX} k(0)$
	by definition
-	by definition $-2\S f(k)\S = \S f(k) \gamma^{-k}$
	K=-00 00
	$= \mathcal{L}(k)_{2}^{-k} + \mathcal{L}(k)_{7}^{-k}$
-	$k=-\infty$ $k=0$
	$=$ $\frac{3}{3}$ $\frac{3}{7}$ $k$
	K=1
	$=3z+3^2-2+3^3-3+$
1 "	$=32(1+32+3^2z^2+)$
	= 3z where 13z1<1
	1-32
	786(k)= 32 where 1/<1
	1-3z 3
501:4.1)	$f(k) = a^{lk}$
	$f(k) = S a^{-k}  for  k < 0$
	$f(k) = \sum_{\alpha} a^{-k} f(\alpha) + k < 0$ $(a^k) f(\alpha) \neq 0$
	By definition,
	$-28f(R)=26f(R)z^{-1}$
	k= -00
	$= 5 f(k)z^{-k} + f(k)z^{-k}$
-	K=-00
	•

$$= \sum_{k=0}^{\infty} a^{k}z^{-k} + \sum_{k=0}^{\infty} a^{k}z^{-k}$$

$$= \sum_{k=1}^{\infty} a^{k}z^{k} + \sum_{k=0}^{\infty} a^{k}z^{-k}$$

$$= (az + a^{2}z^{2} + a^{3}z^{3} + ...) + (\mu_{2} + \frac{a^{2}}{z^{2}} + ...)$$

$$= az(1 + az + a^{2}z^{2} + ...) + (1 + \frac{a}{2} + \frac{a^{2}}{z^{2}} + ...)$$

$$= \frac{az}{1 - az} + \frac{1}{1 - \frac{a}{2}}$$

$$= \frac{az}{1 - az} + \frac{z}{z - a} \quad \text{where } |az| < 1$$

$$z\{N(k)^{2} = \frac{az}{1 - az} + \frac{z}{z - a} \quad \text{where } |a| < |z| < 1$$

$$z\{N(k)^{2} = \frac{az}{1 - az} + \frac{z}{z - a} \quad \text{where } |a| < |z| < 1$$

$$= \sum_{j=0}^{\infty} x^{j} f(x) z^{-k}$$

$$= \sum_{j=0}^{\infty} x^{j} f(x) z^{-$$

	FR. CONCEICAO RODRIGUES INSTITUTE OF TECHNOLOGY, VASHI
201:1.50	P(K) = CF costrak Por K 20
olinaalinaaliliksi kaliini tii veriny ina	by definition
	238(K) = = = P(K) z *
uraya walani u fahilasa di Ancioni dipe.	K = -00
	= 2 1002-1
mannagenskrivanski et arcibrakki (	KFO
	- 2 choskexxxx
	K=C
MATERIAL DE PROPERTIE DE LA COMPANSION D	= = CK (Cx/2 C-1K) +-K
	$K=C$ $\left(\begin{array}{cccccccccccccccccccccccccccccccccccc$
	$= \leq c k_e \kappa_z k_z + \leq c k_e - \kappa_z k_z - k_z$
manufacture ( a constructive de la constructive de	$F = 0 \qquad 2 \qquad k = 0 \qquad 2$ $= 11 \leq (Ce^{4})^{k} + \leq (Ce^{-4})^{k}$
	= 1/5   - 5   - 6   5
	2121-ce 5 21-ce 55
	2 ( Z-cex Z-cex)
	= 15 z(z-cex)+z(z-cex)?
-	22 (z-cex)(z-cex)
	= 15 22-CZE-x+2-7CEX 2
	2 L Z2-CZEZCE-+C-S
	$= 1522^2 - CZ(e^4 + e^4)$
	= 15 222-cz(e*+e*) 2 2 \ 22+c2-cz(e*+e*) \
	= 1 S 2z2 - 2czcoshz ? 2 Z z2+c2-2czcoshz)
	2 2 Z2+c2-2czcoshx)
	791(K)3 = 22-czcoshu where 1217(C) 22+02-2czcoshu and 1217(C)
	z2+c2-2czcosha and 121>1ce
-	
11	