Lab 3

MATLAB Functions

① to get z transform

```
syms z n
a = ztrans(1116^n);
```

② to get inverse z transform

```
syms z n
B = iztrans(3*z/(z+1));
```

③ From Partial fraction form to rational form and V.V

[r,P,k] = residuez(a,b) → num, → den

[a,b] = residuez(r,P,k) → row vector

r, P: column vectors

$$\frac{r_1}{z-P_1} + \frac{r_2}{z-P_2} - - - + k_1 z + k_2$$

④ to get Poles & zeros

roots(num) → zeros

roots(den) → Poles

⑤ to Plot Poles & zeros

zplane(a,b)

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⑥ to get freq. response (H(z)) of a system

[h, w] = freqz(a, b, n)

[h] = freqz(a, b, w)

n :- no of evaluation Points

w :- angular freq. normalized from 0 : π

---

⑦ to transfer fun. from zeros & Poles

zp2tf(z, P, k)

↳ gain of the system

---

⑧ to get the time domain o/p of a system

y = filter(a, b, input)

---

⑨ generate impulse seq.

delta = impSeq(no, n1, n2)

↳ generate vector from n1 to n2 contains zeros except for n = no, the sample = 1

a = impseq(5, 0, 9)

↓

a = [0 0 0 0 0 1 0 0 0 0]

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