**信號與系統 Signals and Systems**

**Mat-Lab HW4**

鄭宇彥

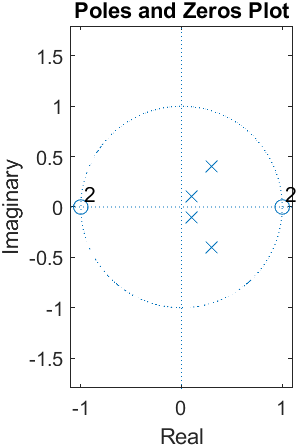
B12901035

電機系大一

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**Questions**

(a)

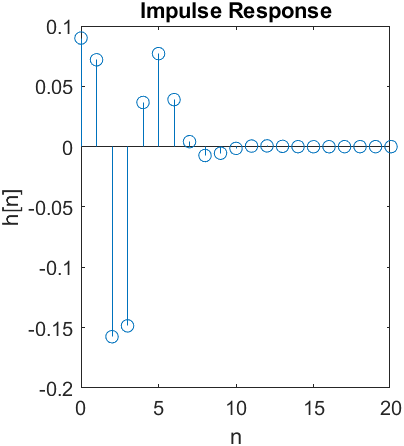


Zeros: -2, +2

Poles: 0.1+j, 0.1-j, 0.3+0.4j, 0.3-0.4j

The ROC of H(z): |z|>0.5 (causal and stable system)

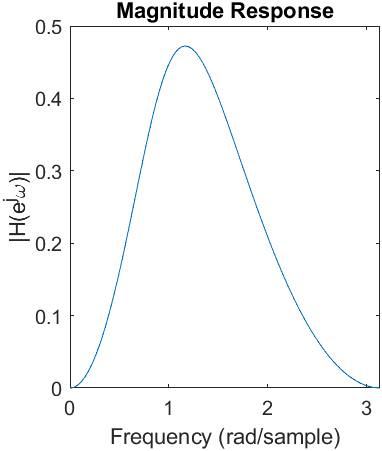
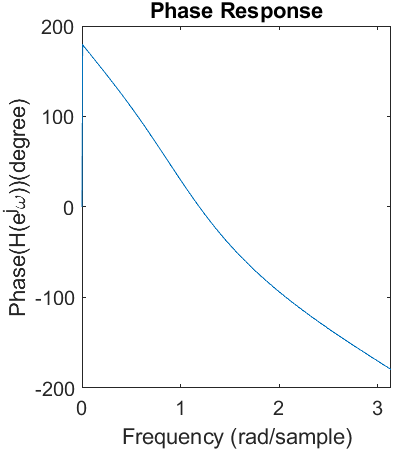
(b)



Meaning of r and p: After the partial fraction expansion, the coefficient vectors of the following terms:

Meaning of k: the coefficients of the nonpositive power series of z

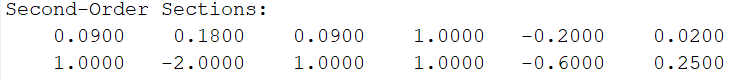
(c)

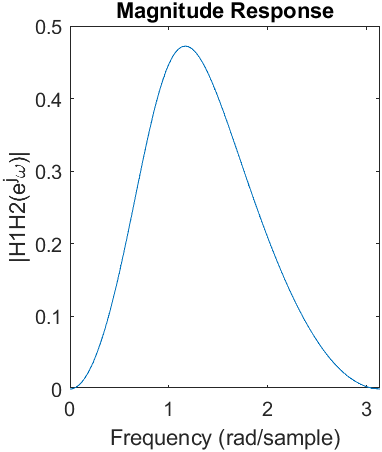
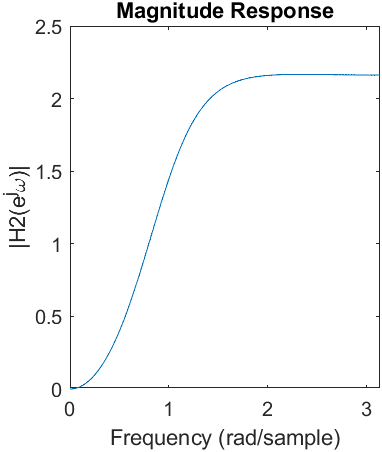
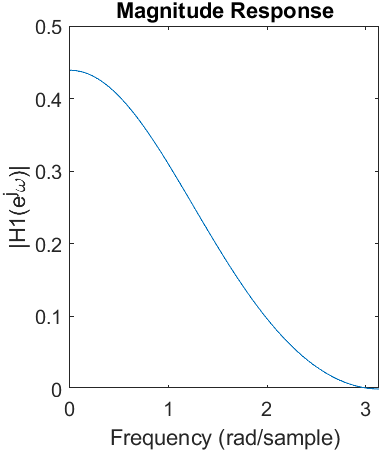
When , the magnitude and phase of transfer function H

(d)

sos matrix:



(e)

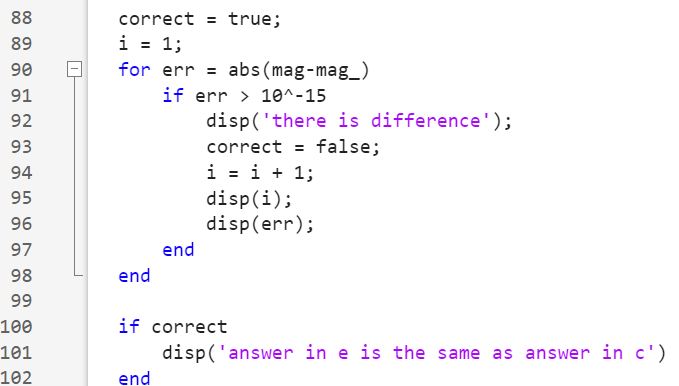


By observation, the magnitude of H1H2 is the same as that of H in (c)

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Actually, there is slight difference, but by the verifying code, I determine that they are almost the same.

Code: (88-102) , take the acceptable error as 10^-15

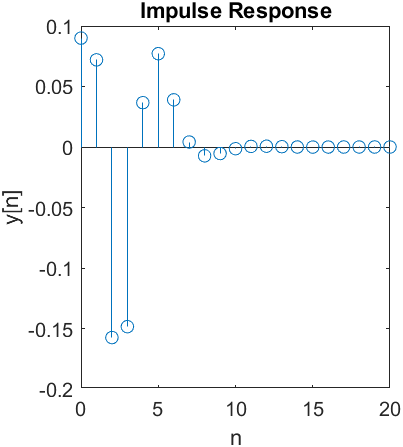


Result:



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(f)

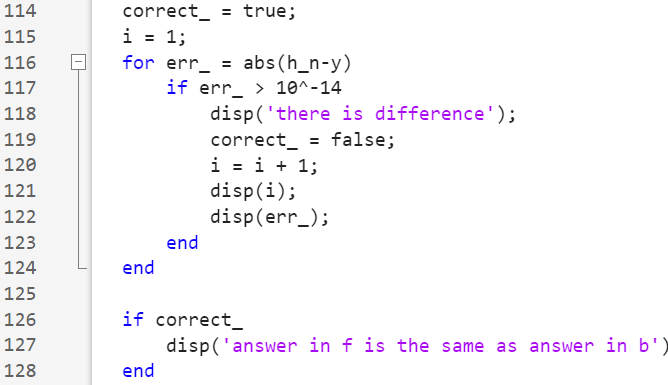


By observation, the impulse response y[n] is the same as h[n] in (b)

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Actually, there is slight difference, but by the verifying code, I determine that they are almost the same.

Code: (114-128) , take the acceptable error as 10^-14



Result:

