

```
In [ ]: import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import scipy
from scipy import signal
```

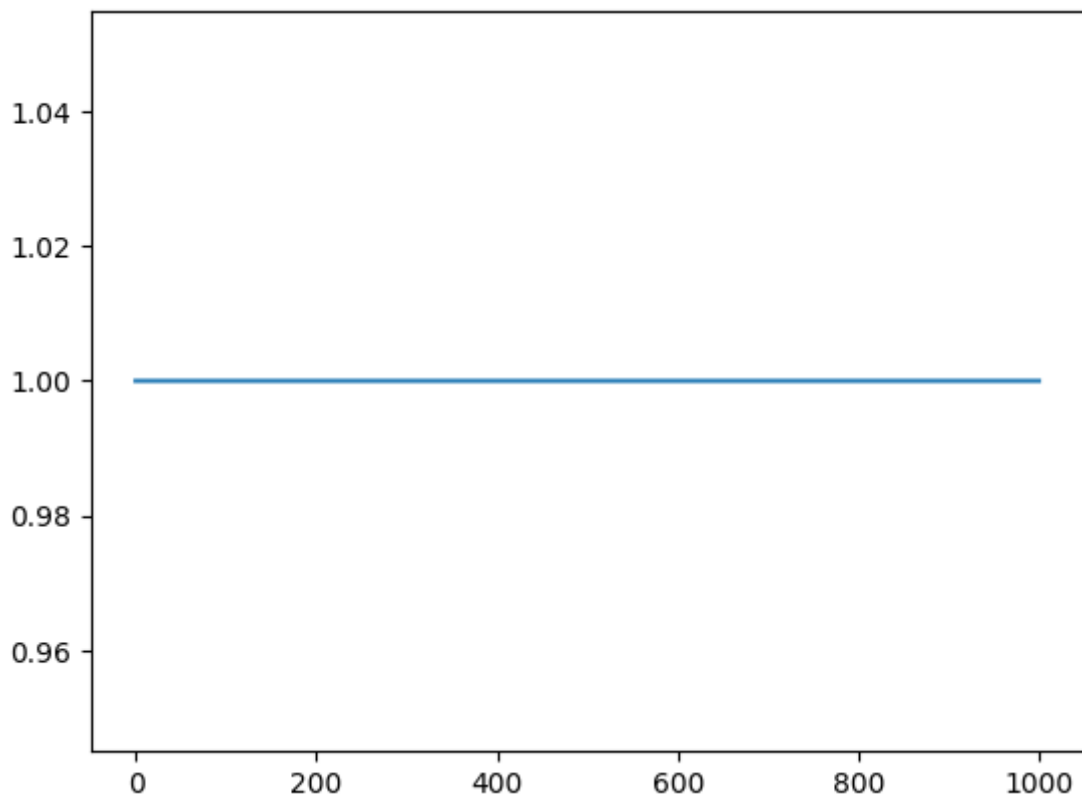
Question 2:A

```
In [ ]: freq = np.arange(0, 1000, 0.1)

#  $H(S) = 1$ 

H = np.ones(len(freq))
plt.plot(freq, H)
```

Out[]: [matplotlib.lines.Line2D at 0x242746025c8>]

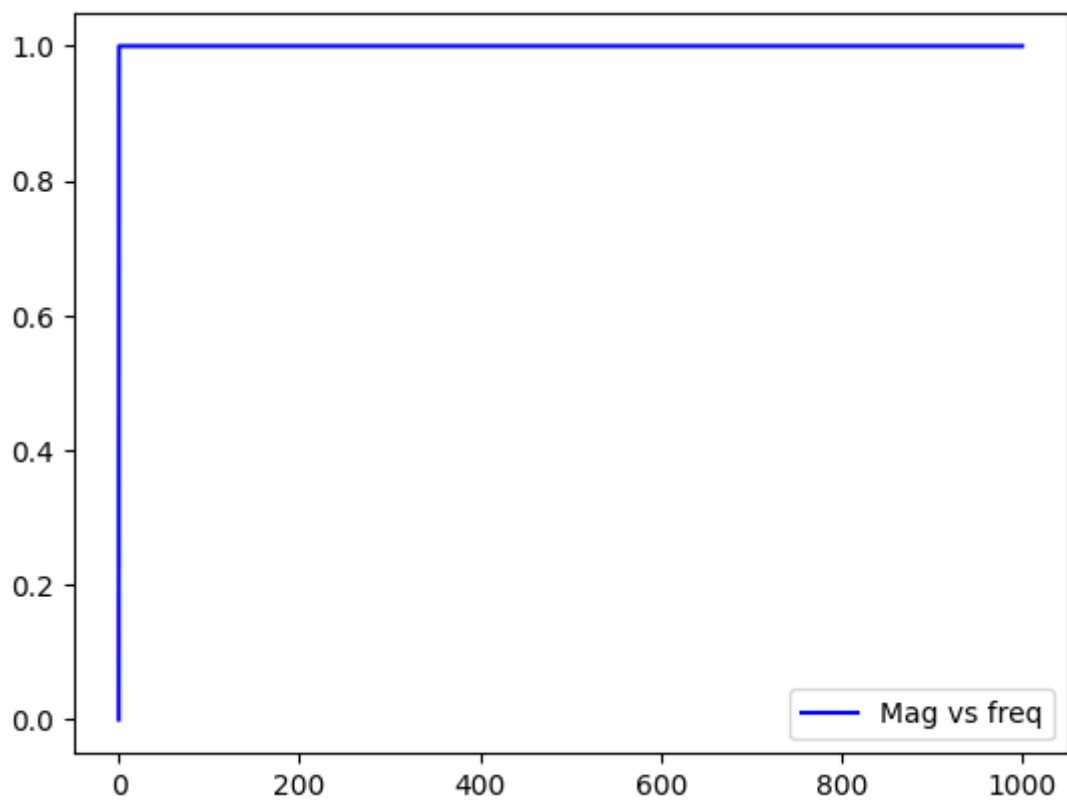


Question 2: B

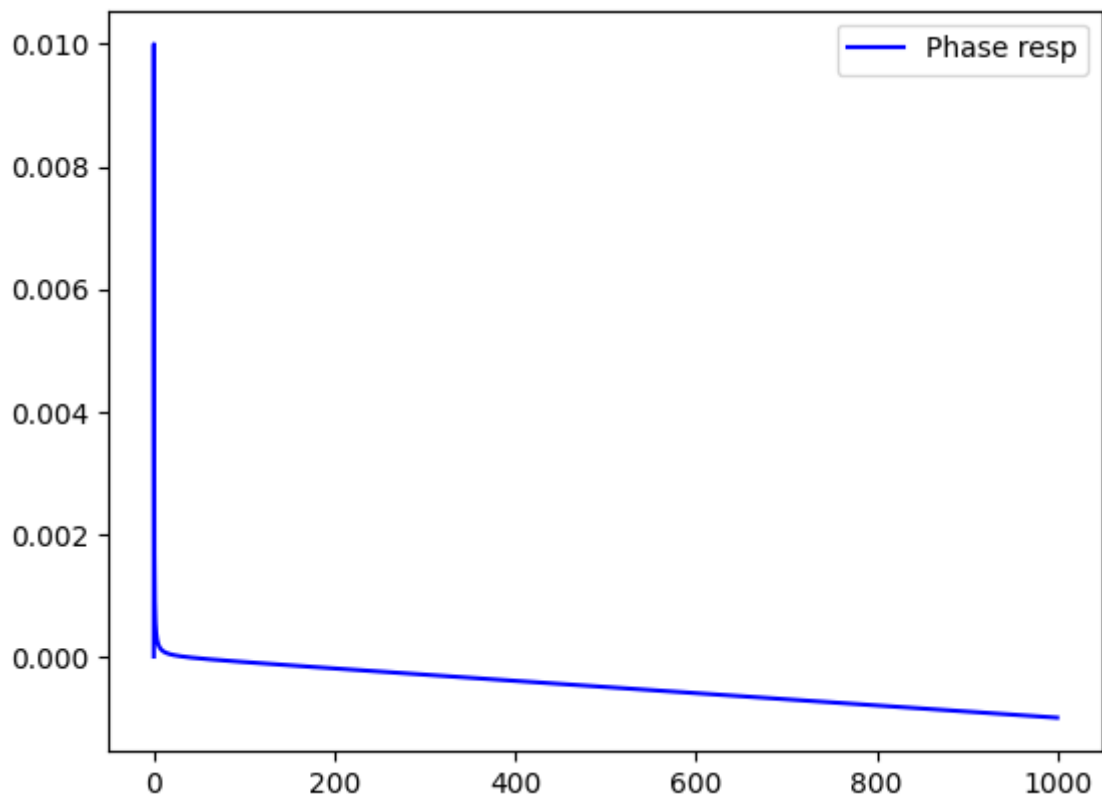
```
In [ ]: #  $H(S) = S / (S + 1/1000 + S^2 * 10^{-6})$ 
#  $R_{out} = 1000 \text{ Ohm}$ 
#  $C1 = 10^{-6} \text{ F}$ 
#  $L1 = 1 \text{ mH}$ 

freq = np.arange(0, 1000, 0.1)
s = None
_h = []
for i in freq:
    s = 1j*i
    h_s = s / (s + 1/1000 + s*s*10**-6)
    _h.append(h_s)
_h = np.array(_h)
```

```
In [ ]: plt.figure()  
plt.plot(freq, abs(_h), "b", label="Mag vs freq")  
plt.legend()  
plt.show()
```



```
In [ ]: plt.plot(freq, np.angle(_h), "b", label="Phase resp")  
plt.legend()  
plt.show()
```



In []: