2CJ4 LAB Report
Set 5

April 12, 2021
Yichen Lu (400247938)
Cooperate with:
Cheng Fei (400228518)
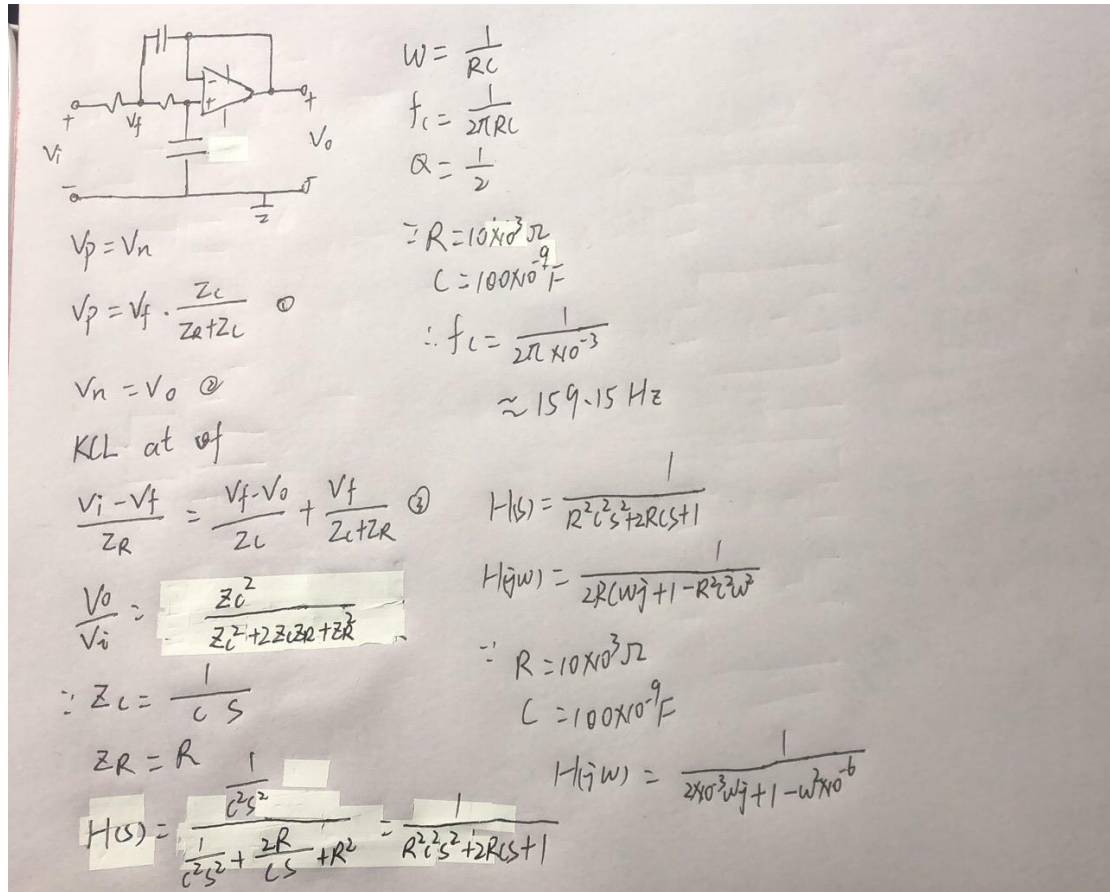Jishen Wang (400228352)

1. The expression for the transfer function:

$$H(jw)=1/(1-w^2*10^{(-6)}+0.002wj)$$

The calculation:

2. The cut-off frequency of this filter is 159.15Hz.

3. The table:

Frequency	Angular velocity (w)	abs(V0/Vi) analytical	abs(V0/Vi) measured
50Hz	100pi	9.10E-01	9.81E-01
100Hz	200pi	7.17E-01	9.40E-01
200Hz	400pi	3.88E-01	8.11E-01
500Hz	1000pi	9.20E-02	4.51E-01

| 1kHz	2000pi	2.47E-02	2.02E-01
1.1kHz	2200pi	2.05E-02	1.75E-01
1.2kHz	2400pi	1.73E-02	1.56E-01
1.3kHz	2600pi	1.48E-02	1.38E-01
1.4kHz	2800pi	1.28E-02	1.26E-01
1.5kHz	3000pi	1.11E-02	1.13E-01
1.6kHz	3200pi	9.80E-03	1.03E-01
1.7kHz	3400pi	8.69E-03	9.43E-02
1.8kHz	3600pi	7.76E-03	8.80E-02
1.9kHz	3800pi	6.97E-03	8.07E-02
2kHz	4000pi	6.29E-03	7.33E-02
5kHz	10000pi	1.01E-03	4.85E-02

4. The circuit:
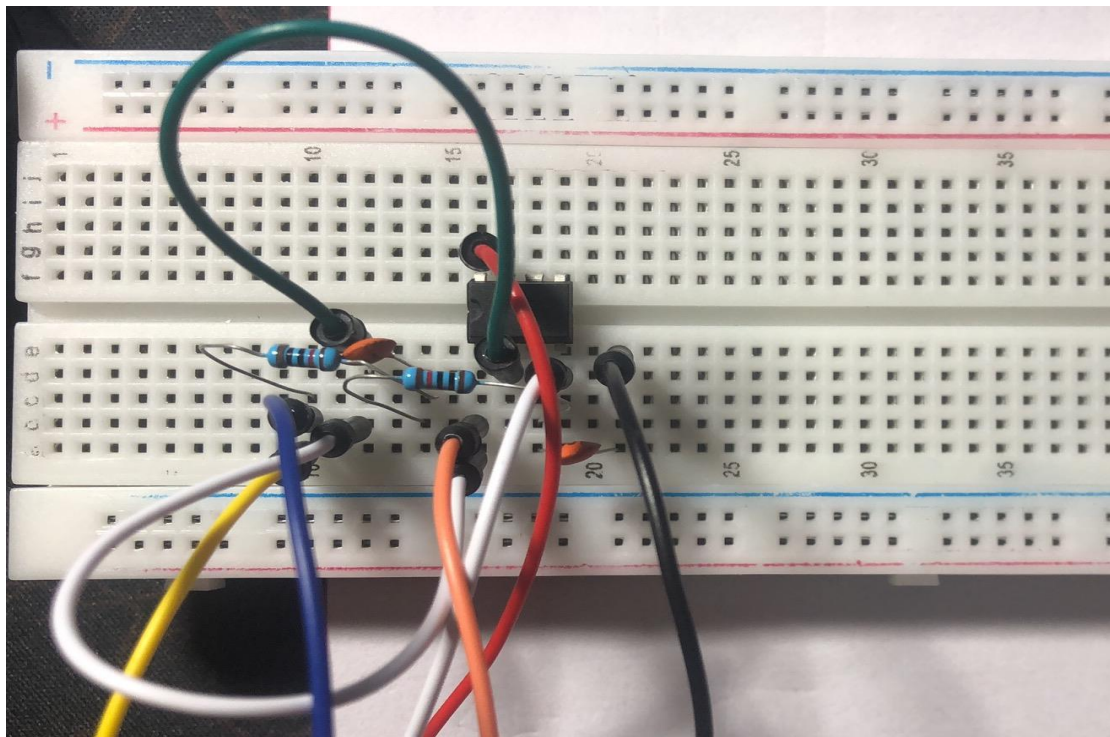
5. The measurement:

50Hz
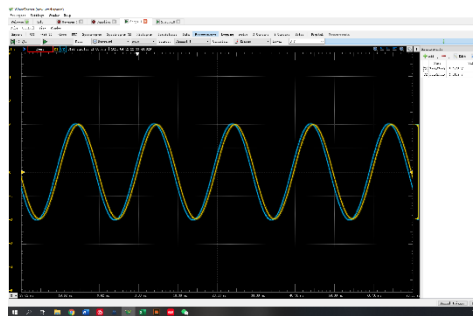
100Hz
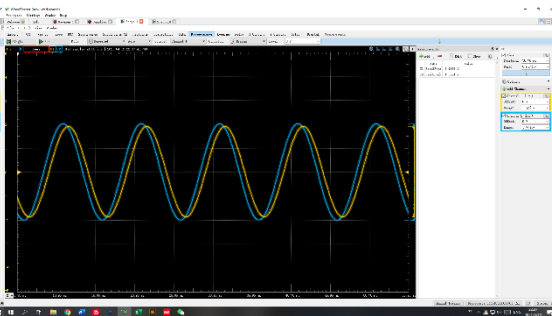
200Hz
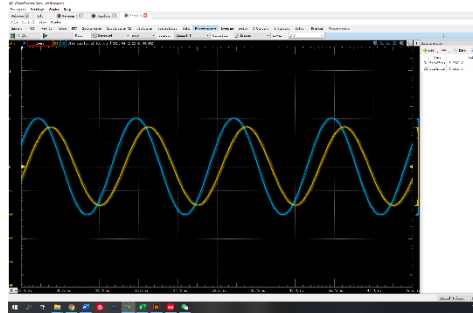
500Hz
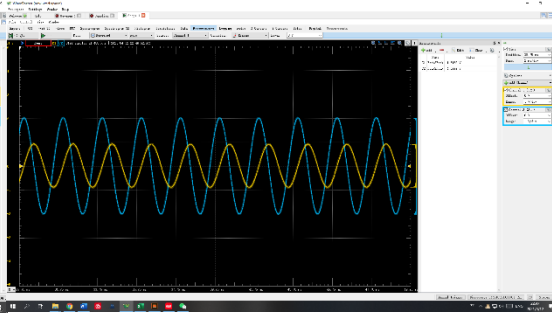
1kHz
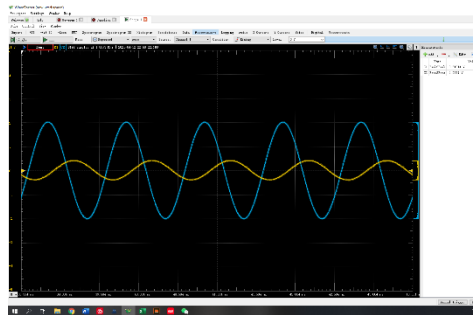
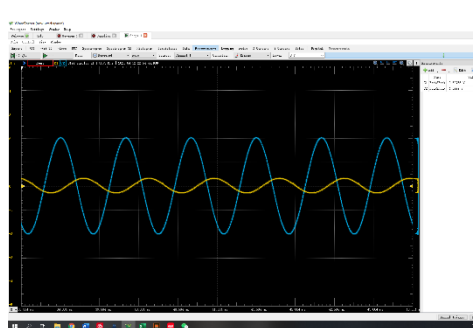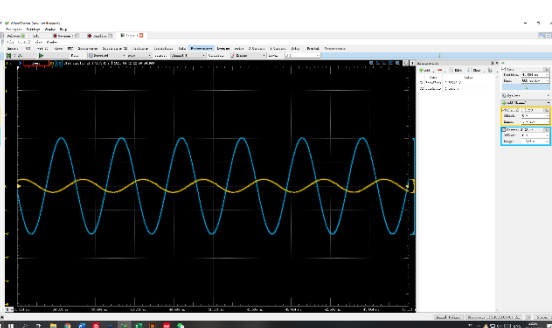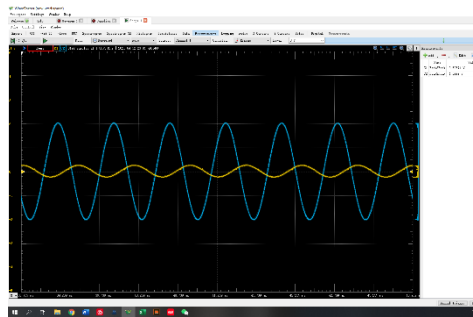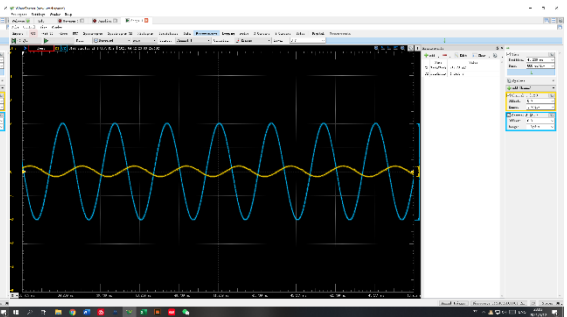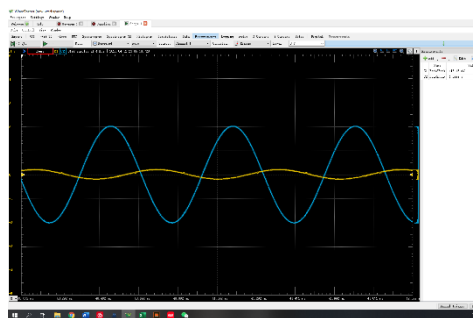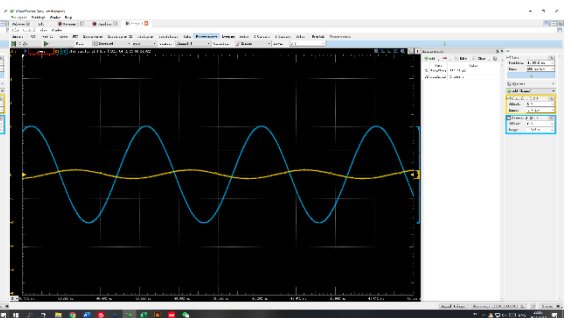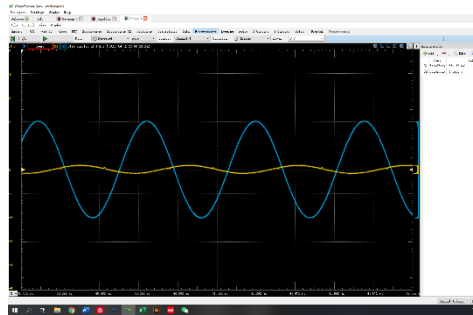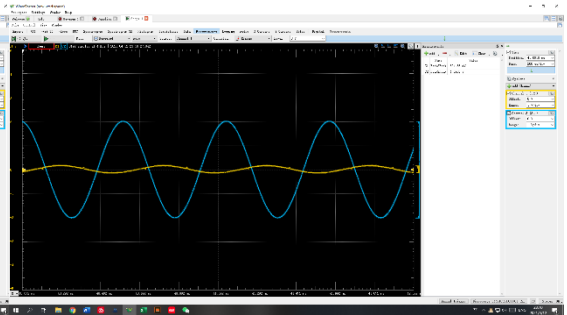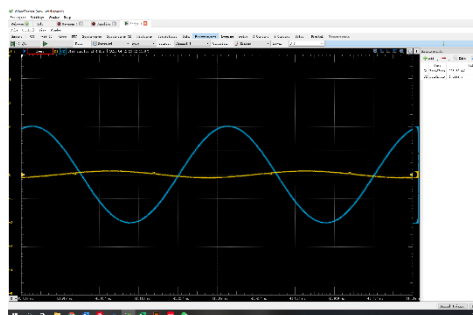1.1kHz
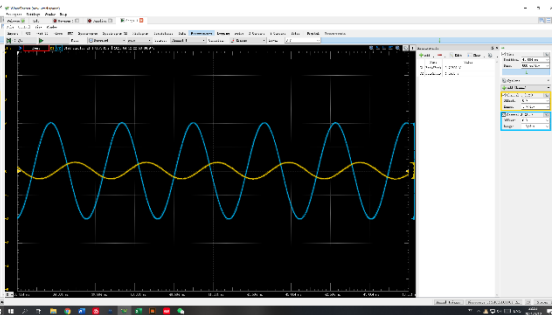
1.2kHz

1.3kHz

1.4kHz

1.5kHz

1.6kHz

1.7kHz

1.8kHz

1.9kHz

2kHz

5kHz

6.