Laboratory #7 Report

Class:

Name: Student ID:

1. Exploration 1
2. Experimental result

Table 7.3

|  |  |  |  |
| --- | --- | --- | --- |
| Freq. (Hz) | Vi,p-p (mV) | Vo,p-p (mV) | Vo,p-p / Vi,p-p (dB) |
| 20 | 200 |  |  |
| 100 | 200 |  |  |
| 1k | 200 |  |  |
| 5k | 200 |  |  |
| 10k | 200 |  |  |
| 12k | 200 |  |  |
| 14k | 200 |  |  |
| 16k | 200 |  |  |
| 18k | 200 |  |  |
| 20k | 200 |  |  |
| 50k | 200 |  |  |
| 100k | 200 |  |  |

1. The figure of “(Vo,p-p/Vi,p-p) to freq” f3dB = \_\_\_\_\_Hz
2. Exploration 2
3. Experimental result

Table 7.4

|  |  |  |  |
| --- | --- | --- | --- |
| Freq. (Hz) | Vi,p-p (mV) | Vo,p-p (mV) | Vo,p-p / Vi,p-p (dB) |
| 20 | 200 |  |  |
| 100 | 200 |  |  |
| 1k | 200 |  |  |
| 1.5k | 200 |  |  |
| 2k | 200 |  |  |
| 2.5k | 200 |  |  |
| 5k | 200 |  |  |
| 10k | 200 |  |  |
| 20k | 200 |  |  |
| 50k | 200 |  |  |
| 100k | 200 |  |  |
| 200k | 200 |  |  |

1. The figure of “(Vo,p-p/Vi,p-p) to freq” f3dB = \_\_\_\_\_Hz
2. Exploration 3
3. Experimental result

Table 7.5

|  |  |  |  |
| --- | --- | --- | --- |
| Freq. (Hz) | Vi,p-p (mV) | Vo,p-p (mV) | Vo,p-p / Vi,p-p (dB) |
| 20 | 200 |  |  |
| 50 | 200 |  |  |
| 100 | 200 |  |  |
| 1k | 200 |  |  |
| 1.5k | 200 |  |  |
| 2k | 200 |  |  |
| 2.25k | 200 |  |  |
| 2.5k | 200 |  |  |
| 2.75k | 200 |  |  |
| 3k | 200 |  |  |
| 10k | 200 |  |  |
| 100k | 200 |  |  |

1. The figure of “(Vo,p-p/Vi,p-p) to freq.” f3dB = \_\_\_\_\_Hz
2. Exploration 4
3. Experimental result

Table 7.6

|  |  |  |  |
| --- | --- | --- | --- |
| Freq. (Hz) | Vi,p-p (mV) | Vo,p-p (mV) | Vo,p-p / Vi,p-p (dB) |
| 20 | 200 |  |  |
| 50 | 200 |  |  |
| 100 | 200 |  |  |
| 1k | 200 |  |  |
| 1.5k | 200 |  |  |
| 2k | 200 |  |  |
| 2.25k | 200 |  |  |
| 2.5k | 200 |  |  |
| 2.75k | 200 |  |  |
| 3k | 200 |  |  |
| 10k | 200 |  |  |
| 100k | 200 |  |  |

1. The figure of “(Vo,p-p/Vi,p-p) to freq.” f3dB = \_\_\_\_\_Hz
2. Problem 1

Please derive the transfer function of second-order low-pass filter as shown below



Fig. 7.12 Second-order low-pass filter

1. Problem 2

Please derive the transfer function of second-order high-pass filter as shown below



Fig. 7.13 Second-order high-pass filter

1. Conclusion