

**Name:** \_\_\_\_\_

## Lab 4, Prelab Grading Sheet

*Answer the following questions related to the Background section of this lab.*

- 1) What are the three main waves in an ECG signal?
  
  
  
  
  
  
  
  
  
  
- 2) What produces the QRS complex in the ECG?
  
  
  
  
  
  
  
  
  
  
- 3) The time interval between successive QRS complexes in a healthy individual is constant.  
TRUE or FALSE ?
  
  
  
  
  
  
  
  
  
  
- 4) What corresponds to the peak of the plethysmograph (pressure pulse)?
  
  
  
  
  
  
  
  
  
  
- 5) What does the time interval between the R wave and the peak of the pressure pulse represent?
  
  
  
  
  
  
  
  
  
  
- 6) Name two ways ECG and plethysmograph are alike.
  
  
  
  
  
  
  
  
  
  
- 7) Sometimes a feature known as the Dicrotic notch is seen on the waveform. What causes the notch to appear? You will have to look this up. Use a reliable source of information and cite your resource(s).

Lab Partner Names: \_\_\_\_\_

## Lab 4 Grading Sheet

### Exercise 1: ECG – Patient 1

Exercise 1/Step 21: LabVIEW and electrode setup \_\_\_\_\_

Exercise 1/Step 26: ECG waveform \_\_\_\_\_

#### Experiment 1: Part 1 – Patient 1 at rest

Exercise 1/Step 29:

<i>Amplitudes</i>	<b>ECG 1</b>	<b>ECG 2</b>	<b>ECG 3</b>	<b>Average</b>
<b>P wave</b>				
<b>QRS complex</b>				
<b>T wave</b>				

<i>Period</i>	<b>ECG 1 to 2</b>	<b>ECG 2 to 3</b>	<b>Average</b>
<b>P to P</b>			
<b>R to R</b>			
<b>T to T</b>			

<i>Time Interval</i>	<b>ECG 1</b>	<b>ECG 2</b>	<b>ECG 3</b>	<b>Average</b>
<b>PR wave</b>				
<b>QRS complex</b>				
<b>QT wave</b>				

Exercise 1/Step 30: Average Amplitude \_\_\_\_\_

Average Period \_\_\_\_\_

Exercise 1/Step 31: Heart Rate \_\_\_\_\_

#### Experiment 1: Part 2 - Patient 1 after Exercise

Exercise 1/Step 29:

<i>Amplitudes</i>	<b>ECG 1</b>	<b>ECG 2</b>	<b>ECG 3</b>	<b>Average</b>
<b>P wave</b>				
<b>QRS complex</b>				
<b>T wave</b>				

<i>Period</i>	<b>ECG 1 to 2</b>	<b>ECG 2 to 3</b>	<b>Average</b>
<b>P to P</b>			
<b>R to R</b>			
<b>T to T</b>			

<i>Time Interval</i>	<b>ECG 1</b>	<b>ECG 2</b>	<b>ECG 3</b>	<b>Average</b>
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<b>PR wave</b>				
<b>QRS complex</b>				
<b>QT wave</b>				

Exercise 1/Step 30: Average Amplitude \_\_\_\_\_

Average Period \_\_\_\_\_

Exercise 1/Step 31: Heart Rate \_\_\_\_\_

### Exercise 1: ECG – Patient 2

Exercise 1/Step 21: LabVIEW and electrode setup \_\_\_\_\_

Exercise 1/Step 26: ECG waveform \_\_\_\_\_

### Experiment 1: Part 1 – Patient 2 at rest

Exercise 1/Step 29:

<i>Amplitudes</i>	<b>ECG 1</b>	<b>ECG 2</b>	<b>ECG 3</b>	<b>Average</b>
<b>P wave</b>				
<b>QRS complex</b>				
<b>T wave</b>				

<i>Period</i>	<b>ECG 1 to 2</b>	<b>ECG 2 to 3</b>	<b>Average</b>
<b>P to P</b>			
<b>R to R</b>			
<b>T to T</b>			

<i>Time Interval</i>	<b>ECG 1</b>	<b>ECG 2</b>	<b>ECG 3</b>	<b>Average</b>
<b>PR wave</b>				
<b>QRS complex</b>				
<b>QT wave</b>				

Exercise 1/Step 30: Average Amplitude \_\_\_\_\_

Average Period \_\_\_\_\_

Exercise 1/Step 31: Heart Rate \_\_\_\_\_

### Experiment 1: Part 2 – Patient 2 after Exercise

Exercise 1/Step 29:

<i>Amplitudes</i>	<b>ECG 1</b>	<b>ECG 2</b>	<b>ECG 3</b>	<b>Average</b>
<b>P wave</b>				
<b>QRS complex</b>				
<b>T wave</b>				

<i>Period</i>	<b>ECG 1 to 2</b>	<b>ECG 2 to 3</b>	<b>Average</b>
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<b>P to P</b>			
<b>R to R</b>			
<b>T to T</b>			

<i>Time Interval</i>	<b>ECG 1</b>	<b>ECG 2</b>	<b>ECG 3</b>	<b>Average</b>
<b>PR wave</b>				
<b>QRS complex</b>				
<b>QT wave</b>				

Exercise 1/Step 30: Average Amplitude \_\_\_\_\_

Average Period \_\_\_\_\_

Exercise 1/Step 31: Heart Rate \_\_\_\_\_

### Exercise 2: ECG and Plethysmograph – Patient 1

Exercise 2/Step 10: ECG and Plethysmograph waveform \_\_\_\_\_

Exercise 2/Step 13:

<i>Time Interval</i>	<b>ECG 1/Pleth 1</b>	<b>ECG 2/Pleth 2</b>	<b>ECG 3/Pleth 3</b>	<b>Average</b>
<b>P to D</b>				
<b>R to D</b>				
<b>T to D</b>				

<i>Time Period</i>	<b>ECG 1 to ECG 2</b>	<b>ECG 2 to ECG 3</b>	<b>Average</b>
<b>R to R</b>			

<i>Time Period</i>	<b>Pleth 1 to Pleth 2</b>	<b>Pleth 2 to Pleth 3</b>	<b>Average</b>
<b>D to D</b>			

<i>Difference</i>	<b>RR1 and DD 1</b>	<b>RR2 and DD2</b>	<b>Average</b>
<b>RR – DD</b>			

Exercise 2/Step 14:

	<b>Average Amplitude</b>	<b>Average Period</b>	<b>Average</b>
<b>ECG</b>			
<b>Plethysmograph</b>			

Exercise 2/Step 17: Heart Rate ECG \_\_\_\_\_

Heart Rate Plethysmograph \_\_\_\_\_

### Exercise 2: ECG and Plethysmograph – Patient 2

Exercise 2/Step 10: ECG and Plethysmograph waveform \_\_\_\_\_

Exercise 2/Step 13:

<i>Time Interval</i>	<b>ECG 1/Pleth 1</b>	<b>ECG 2/Pleth 2</b>	<b>ECG 3/Pleth 3</b>	<b>Average</b>
<b>P to D</b>				
<b>R to D</b>				
<b>T to D</b>				

<i>Time Period</i>	<b>ECG 1 to ECG 2</b>	<b>ECG 2 to ECG 3</b>	<b>Average</b>
<b>R to R</b>			

<i>Time Period</i>	<b>Pleth 1 to Pleth 2</b>	<b>Pleth 2 to Pleth 3</b>	<b>Average</b>
<b>D to D</b>			

<i>Difference</i>	<b>RR1 and DD 1</b>	<b>RR2 and DD2</b>	<b>Average</b>
<b>RR – DD</b>			

Exercise 2/Step 14:

	<b>Average Amplitude</b>	<b>Average Period</b>	<b>Average</b>
<b>ECG</b>			
<b>Plethysmograph</b>			

Exercise 2/Step 17: Heart Rate ECG\_\_\_\_\_

Heart Rate Plethysmograph\_\_\_\_\_

Explain in detail how the ‘Continuous Acquisition Shell’ from the biomedical toolkit works

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What can the delay between the peaks of the ECG and the plethysmograph tell you about the blood flow in the body?

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