

Mission 8 - Navigation (Objectives 1-6)	
<p>What values does the code return?</p> <pre>enc.read(side)</pre>	<ul style="list-style-type: none"> <li>a) True or False</li> <li>b) 0 or 1</li> <li>c) An integer between 0 and 4095</li> <li>d) An integer between 0 and 100</li> </ul>
<p>What is the value of enc_count after a full 360 degree rotation?</p>	<ul style="list-style-type: none"> <li>a) enc_count = 20</li> <li>b) enc_count = 360</li> <li>c) enc_count = 30</li> <li>d) enc_count = 40</li> </ul>
<p>How many slots are on the CodeBot's encoder disc?</p>	<ul style="list-style-type: none"> <li>a) 20</li> <li>b) 40</li> <li>c) 2</li> <li>d) 360</li> </ul>
<p>How do you make a list of counters for the LEFT and RIGHT wheels?</p>	<ul style="list-style-type: none"> <li>a) enc_count = [0, 0]</li> <li>b) enc_count = (0, 0)</li> <li>c) enc_count = [LEFT, RIGHT]</li> <li>d) enc_count = 0</li> </ul>
<p>What does the following line of code do?</p> <pre>enc_count[0] = enc_count[0] + 1</pre>	<ul style="list-style-type: none"> <li>a) Causes an error</li> <li>b) Increments the right wheel</li> <li>c) Increments the left wheel</li> <li>d) Increments both wheels</li> </ul>
<p>What is the final value of count?</p> <pre>count = 1 enc_state = True slot = False if enc_state != slot:     count = count + 1</pre>	<ul style="list-style-type: none"> <li>a) 1</li> <li>b) 2</li> <li>c) True</li> <li>d) False</li> </ul>
<p>Given this code, what happens when the wheels turn backward?</p> <pre>slot = sense_slot(side) if enc_state[side] != slot:     enc_state[side] = slot     enc_count[side] = enc_count[side] + 1</pre>	<ul style="list-style-type: none"> <li>a) enc_count stays the same</li> <li>b) enc_count increases</li> <li>c) enc_count decreases</li> <li>d) The 'bot will stop</li> </ul>
<p>What is the best way to use pi in code?</p>	<ul style="list-style-type: none"> <li>a) Use the number 3.14 in the calculation</li> <li>b) Define a constant PI = 3.14 and use PI in the calculation</li> <li>c) Use the fraction 22/7 in the calculation</li> <li>d) Use math.pi from the math library in the calculation</li> </ul>
<p>What is the calculation for moving the 'bot a specific distance?</p>	<ul style="list-style-type: none"> <li>a) Distance = counts * wheel circum / 40</li> <li>b) Distance = counts * 40 / wheel circum</li> <li>c) Distance = wheel circum * 40 / counts</li> <li>d) Distance = (counts + wheel circum) / 40</li> </ul>

When using the encoders to travel, when will the drive loop break?	<ul style="list-style-type: none"> <li>a) When either wheel equals count</li> <li>b) When either wheel is greater than or equals count</li> <li>c) When either wheel count is 0</li> <li>d) When you press BTN-0</li> </ul>
<b>Mission 8 - Navigation (Objectives 7-14)</b>	
How do you make a copy of a list?	<ul style="list-style-type: none"> <li>a) new_list = old_list</li> <li>b) new_list = []</li> <li>c) new_list = old_list.copy()</li> <li>d) new_list.copy(old_list)</li> </ul>
What does this code do? <pre>while True:     while True:         if buttons.was_pressed(1):             break</pre>	<ul style="list-style-type: none"> <li>a) Waits for a button press to go again.</li> <li>b) Ends the code.</li> <li>c) Remote control for the 'bot.</li> <li>d) Recalculates the distance.</li> </ul>
How can you debounce the button?	<ul style="list-style-type: none"> <li>a) Hold the button for one second.</li> <li>b) Add a sleep() delay.</li> <li>c) Add another while loop to the code.</li> <li>d) Call buttons.was_pressed()</li> </ul>
What code captures the current time-tick count in milliseconds?	<ul style="list-style-type: none"> <li>a) ticks()</li> <li>b) ticks_ms()</li> <li>c) time()</li> <li>d) t_start</li> </ul>
What function finds the elapsed time?	<ul style="list-style-type: none"> <li>a) t_stop - t_start</li> <li>b) elapsed(t_stop, t_start)</li> <li>c) ticks_diff(t_stop, t_start)</li> <li>d) time(t_stop, t_start)</li> </ul>
What measurement are you using to calculate the 'bot's speed?	<ul style="list-style-type: none"> <li>a) Counts per second</li> <li>b) Centimeters per second</li> <li>c) Centimeters per millisecond</li> <li>d) Counts per millisecond</li> </ul>
What concept is used to continuously adjust a system to keep the error close to zero?	<ul style="list-style-type: none"> <li>a) Design iteration</li> <li>b) Process control system</li> <li>c) Closed loop control</li> <li>d) Feedback loop</li> </ul>
What happens if you don't use this code in your function? <pre>def drive(cm, speed):     global power, direction</pre>	<ul style="list-style-type: none"> <li>a) Your code will crash</li> <li>b) Nothing happens; it isn't necessary</li> <li>c) It will make a local variable into a global</li> <li>d) It will make a global variable into a local</li> </ul>
What does this code do?	<ul style="list-style-type: none"> <li>a) If the angle is negative, turn the 'bot clockwise</li> <li>b) If the angle is negative, turn the 'bot counterclockwise</li> <li>c) If the angle is negative, go backwards</li> <li>d) Causes an error</li> </ul>

<pre>if angle &lt; 0:     dir = [-1, +1] else:     dir = [+1, -1]</pre>	
<p>To make your code more readable, what section should go right after imports?</p>	<ul style="list-style-type: none"> <li>a) Functions</li> <li>b) Constants</li> <li>c) Global variables</li> <li>d) The main program</li> </ul>

**Mission 9 - All Systems Go! Obj 1-7**

<p>How many volts are provided with 4 fresh AA alkaline batteries in series?</p>	<ul style="list-style-type: none"> <li>a) 1.5 volts</li> <li>b) 3.0 volts</li> <li>c) 6.0 volts</li> <li>d) 12.0 volts</li> </ul>
<p>What code returns the power supply voltage?</p>	<ul style="list-style-type: none"> <li>a) system.pwr_volts()</li> <li>b) leds.pwr()</li> <li>c) system.pwr_is_usb()</li> <li>d) system.pwr_is_batt()</li> </ul>
<p>What code returns the power supply being used?</p>	<ul style="list-style-type: none"> <li>a) system.pwr_volts()</li> <li>b) leds.pwr()</li> <li>c) system.pwr_is_usb()</li> <li>d) system.pwr_is_batt()</li> </ul>
<p>The chart of battery usages resembles a:</p>	<ul style="list-style-type: none"> <li>a) Straight vertical line</li> <li>b) Straight horizontal line</li> <li>c) Parabola</li> <li>d) Straight slanted line</li> </ul>
<p>What calculation is used to find the battery percentage?</p>	<ul style="list-style-type: none"> <li>a) Percent = length * width / 2</li> <li>b) Percent = sum / count</li> <li>c) Percent = (volts / 2) - 2</li> <li>d) Percent = volts / 100</li> </ul>
<p>Which of the following DOES NOT influence the CPU's temperature:</p>	<ul style="list-style-type: none"> <li>a) The outside temperature</li> <li>b) Shaking the CodeBot</li> <li>c) The level of activity in the processor</li> <li>d) The amount of covering for the sensor</li> </ul>
<p>What code will add a new value to a list?</p>	<ul style="list-style-type: none"> <li>a) my_list.append(new_value)</li> <li>b) my_list.add[new_value]</li> <li>c) append.new_list(new_value)</li> <li>d) add.new_list[new_value]</li> </ul>
<p>What code will empty a list?</p>	<ul style="list-style-type: none"> <li>a) my_list.empty()</li> <li>b) my_list.clear()</li> <li>c) my_list.append()</li> <li>d) clear(my_list)</li> </ul>

<p>What does this code do?</p> <pre>count = len(nlist) sum = 0 i = 0 while i &lt; count:     sum = sum + nlist[i]     i = i + 1 return sum / count</pre>	<ul style="list-style-type: none"> <li>a) Returns the sum of the list</li> <li>b) Returns the highest number in the list</li> <li>c) Returns the lowest number in the list</li> <li>d) Returns the average of the list</li> </ul>
<p>What happens if the temperature is too low?</p> <pre>if t &gt; BASELINE + DEADBAND:     leds.user(0b11111111) elif t &lt; BASELINE - DEADBAND:     leds.ls(0b11111)</pre>	<ul style="list-style-type: none"> <li>a) The 8 user LEDs turn on, simulating a heater</li> <li>b) The 5 line sensor LEDs turn on, simulating a fan</li> <li>c) Both sets of LEDs turn on, heating and cooling</li> <li>d) Nothing will happen</li> </ul>
<b>Mission 9 - All Systems Go! Obj 8-12</b>	
<p>What values are returned by accel.read()</p>	<ul style="list-style-type: none"> <li>a) A tuple of three integers, ranging from 0-100</li> <li>b) A tuple of three floats, ranging from -99.0 to +100.0</li> <li>c) A tuple of three integers, ranging from -32767 to +32768</li> <li>d) A tuple of two Booleans, True or False</li> </ul>
<p>What does this code do?</p> <pre>accel.dump_axes()</pre>	<ul style="list-style-type: none"> <li>a) Clears the accelerometer</li> <li>b) Prints the accelerometer reading to the console</li> <li>c) Adds a reading value to the list</li> <li>d) Causes an error because it needs a parameter</li> </ul>
<p>If the robot is flat and motionless, what will accel.read() return?</p>	<ul style="list-style-type: none"> <li>a) (0.0, 0.0, -1.0)</li> <li>b) (0, 0, -1)</li> <li>c) (0, 16383, -1)</li> <li>d) (0, 0, -16383)</li> </ul>
<p>Which axis does vals[2] refer to?</p> <pre>vals = accel.read() print(vals[2])</pre>	<ul style="list-style-type: none"> <li>a) X-axis</li> <li>b) Y-axis</li> <li>c) Z-axis</li> <li>d) The tuple vals</li> </ul>
<p>What is the value of x?</p> <pre>x, y, z = (10, 20, 30)</pre>	<ul style="list-style-type: none"> <li>a) 10</li> <li>b) 20</li> <li>c) 30</li> <li>d) (10, 20, 30)</li> </ul>
<p>Approximately what value would the y-axis have if you pointed CodeBot toward the sky?</p>	<ul style="list-style-type: none"> <li>a) -16383</li> <li>b) +16384</li> <li>c) 0</li> <li>d) -1</li> </ul>
<p>If the x-axis is zero and the 'bot is facing straight up, what would the speed "rot_spd" be assigned?</p>	<ul style="list-style-type: none"> <li>a) 50</li> <li>b) 0</li> <li>c) +SPEED</li> <li>d) -SPEED</li> </ul>

The value of the expression can be: <code>abs(dx)</code>	<ul style="list-style-type: none"> <li>a) Positive or negative</li> <li>b) Positive only</li> <li>c) True or False only</li> <li>d) Any integer or float</li> </ul>
Given the code, what is TRUE about “before”? <code>now = accel.read()</code> <code>before = now</code>	<ul style="list-style-type: none"> <li>a) It references the same list as “now”</li> <li>b) It is a tuple with the same values as “now”</li> <li>c) It overwrites the values in “now”</li> <li>d) It reads a new value from the accelerometer</li> </ul>
What does this code do? <code>dx = now[0] - before[0]</code>	<ul style="list-style-type: none"> <li>a) Compares the second value to the first value</li> <li>b) Finds the average of the two numbers</li> <li>c) Compares the difference to a sensitivity threshold</li> <li>d) Calculates the difference between the first and second reading</li> </ul>

#### Unit 4 Vocabulary Review/Test (Missions 8-9: “The computer science definition of ...”)

(A total of 14 terms introduced in the missions, use the ones you want—same terms for review/ test)

Wheel encoders	<ul style="list-style-type: none"> <li>a) A tiny chip that measures the force of acceleration in three directions</li> <li>b) A disc with slots that rotates with a wheel so IR light can pass through them</li> <li>c) IR sensors that can detect nearby objects by reflected light</li> <li>d) A tiny chip with silicon structures inside that really move</li> </ul>
accelerometer	<ul style="list-style-type: none"> <li>a) A tiny chip that measures the force of acceleration in three directions</li> <li>b) A disc with slots that rotates with a wheel so IR light can pass through them</li> <li>c) IR sensors that can detect nearby objects by reflected light</li> <li>d) A tiny chip with silicon structures inside that really move</li> </ul>
MEMS	<ul style="list-style-type: none"> <li>a) A tiny chip that measures the force of acceleration in three directions</li> <li>b) A disc with slots that rotates with a wheel so IR light can pass through them</li> <li>c) IR sensors that can detect nearby objects by reflected light</li> <li>d) A tiny chip with silicon structures inside that really move</li> </ul>
Iterative process	<ul style="list-style-type: none"> <li>a) Repeatedly taking small steps to build a whole solution</li> <li>b) Continuously adjusting the system to keep the error close to zero</li> <li>c) Automates control of a system by comparing the output state to input</li> <li>d) A marker placed on a line of code that causes the debugger to stop</li> </ul>
Closed loop control	<ul style="list-style-type: none"> <li>a) Repeatedly taking small steps to build a whole solution</li> <li>b) Continuously adjusting the system to keep the error close to zero</li> <li>c) Automates control of a system by comparing the output state to input</li> <li>d) A marker placed on a line of code that causes the debugger to stop</li> </ul>
Feedback loop	<ul style="list-style-type: none"> <li>a) Repeatedly taking small steps to build a whole solution</li> <li>b) Continuously adjusting the system to keep the error close to zero</li> <li>c) Automates control of a system by comparing the output state to input</li> <li>d) A marker placed on a line of code that causes the debugger to stop</li> </ul>
breakpoint	<ul style="list-style-type: none"> <li>a) Repeatedly taking small steps to build a whole solution</li> <li>b) Continuously adjusting the system to keep the error close to zero</li> </ul>

	<ul style="list-style-type: none"> <li>c) Automates control of a system by comparing the output state to input</li> <li>d) A marker placed on a line of code that causes the debugger to stop</li> </ul>
state	<ul style="list-style-type: none"> <li>a) An input or output device used for communication by CodeBot</li> <li>b) The part of a computer the user interacts with</li> <li>c) Distance divided by time; the rate</li> <li>d) A property of an object at a given point during code execution</li> </ul>
speed	<ul style="list-style-type: none"> <li>a) An input or output device used for communication by CodeBot</li> <li>b) The part of a computer the user interacts with</li> <li>c) Distance divided by time; the rate</li> <li>d) A property of an object at a given point during code execution</li> </ul>
User interface	<ul style="list-style-type: none"> <li>a) An input or output device used for communication by CodeBot</li> <li>b) The part of a computer the user interacts with</li> <li>c) Distance divided by time; the rate</li> <li>d) A property of an object at a given point during code execution</li> </ul>
Under load	<ul style="list-style-type: none"> <li>a) Surroundings</li> <li>b) The range of input values where the output doesn't change</li> <li>c) Original data used as a starting point for comparison</li> <li>d) Batteries being used to power a peripheral</li> </ul>
ambient	<ul style="list-style-type: none"> <li>a) Surroundings</li> <li>b) The range of input values where the output doesn't change</li> <li>c) Original data used as a starting point for comparison</li> <li>d) Batteries being used to power a peripheral</li> </ul>
Baseline data	<ul style="list-style-type: none"> <li>a) Surroundings</li> <li>b) The range of input values where the output doesn't change</li> <li>c) Original data used as a starting point for comparison</li> <li>d) Batteries being used to power a peripheral</li> </ul>
deadband	<ul style="list-style-type: none"> <li>a) Surroundings</li> <li>b) The range of input values where the output doesn't change</li> <li>c) Original data used as a starting point for comparison</li> <li>d) Batteries being used to power a peripheral</li> </ul>

**Unit 4 Concepts and Coding Kahoot Review (Missions 8, 9) / (questions from 4 review kahoots)**

What is the value of enc_count after a full 360 degree rotation?	<ul style="list-style-type: none"> <li>a) enc_count = 20</li> <li>b) enc_count = 360</li> <li>c) enc_count = 30</li> <li>d) enc_count = 40</li> </ul>
How do you make a list of counters for the LEFT and RIGHT wheels?	<ul style="list-style-type: none"> <li>a) enc_count = [0, 0]</li> <li>b) enc_count = (0, 0)</li> <li>c) enc_count = [LEFT, RIGHT]</li> <li>d) enc_count = 0</li> </ul>
What does the following line of code do?	<ul style="list-style-type: none"> <li>a) Causes an error</li> <li>b) Increments the right wheel</li> </ul>

<pre>enc_count[0] = enc_count[0] + 1</pre>	<p>c) Increments the left wheel d) Increments both wheels</p>
<p>What is the final value of count?</p> <pre>count = 1 enc_state = True slot = False if enc_state != slot:     count = count + 1</pre>	<p>a) 1 b) 2 c) True d) False</p>
<p>What is the best way to use pi in code?</p>	<p>a) Use the number 3.14 in the calculation b) Define a constant PI = 3.14 and use PI in the calculation c) Use the fraction 22/7 in the calculation d) Use math.pi from the math library in the calculation</p>
<p>How do you make a copy of a list?</p>	<p>a) new_list = old_list b) new_list = [] c) new_list = old_list.copy() d) new_list.copy(old_list)</p>
<p>What does this code do?</p> <pre>while True:     while True:         if buttons.was_pressed(1):             break</pre>	<p>a) Waits for a button press to go again. b) Ends the code. c) Remote control for the 'bot. d) Recalculates the distance.</p>
<p>How can you debounce the button?</p>	<p>a) Hold the button for one second. b) Add a sleep() delay. c) Add another while loop to the code. d) Call buttons.was_pressed()</p>
<p>What code captures the current time-tick count in milliseconds?</p>	<p>a) ticks() b) ticks_ms() c) time() d) t_start</p>
<p>What function finds the elapsed time?</p>	<p>a) t_stop - t_start b) elapsed(t_stop, t_start) c) ticks_diff(t_stop, t_start) d) time(t_stop, t_start)</p>
<p>To make your code more readable, what section should go right after imports?</p>	<p>a) Functions b) Constants c) Global variables d) The main program</p>
<p>How many volts are provided with 4 fresh AA alkaline batteries in series?</p>	<p>a) 1.5 volts b) 3.0 volts c) 6.0 volts d) 12.0 volts</p>
<p>What code returns the power supply voltage?</p>	<p>a) system.pwr_volts() b) leds.pwr() c) system.pwr_is_usb()</p>

	d) system.pwr_is_batt()
What code returns the power supply being used?	<ul style="list-style-type: none"> <li>a) system.pwr_volts()</li> <li>b) leds.pwr()</li> <li>c) system.pwr_is_usb()</li> <li>d) system.pwr_is_batt()</li> </ul>
What code will add a new value to a list?	<ul style="list-style-type: none"> <li>a) my_list.append(new_value)</li> <li>b) my_list.add[new_value]</li> <li>c) append.new_list(new_value)</li> <li>d) add.new_list[new_value]</li> </ul>
What code will empty a list?	<ul style="list-style-type: none"> <li>a) my_list.empty()</li> <li>b) my_list.clear()</li> <li>c) my_list.append()</li> <li>d) clear(my_list)</li> </ul>
<p>What does this code do?</p> <pre> count = len(nlist) sum = 0 i = 0 while i &lt; count:     sum = sum + nlist[i]     i = i + 1 return sum / count </pre>	<ul style="list-style-type: none"> <li>a) Returns the sum of the list</li> <li>b) Returns the highest number in the list</li> <li>c) Returns the lowest number in the list</li> <li>d) Returns the average of the list</li> </ul>
<p>What happens if the temperature is too low:</p> <pre> if t &gt; BASELINE + DEADBAND:     leds.user(0b11111111) elif t &lt; BASELINE - DEADBAND:     leds.ls(0b111111) </pre>	<ul style="list-style-type: none"> <li>a) The 8 user LEDs turn on, simulating a heater</li> <li>b) The 5 line sensor LEDs turn on, simulating a fan</li> <li>c) Both sets of LEDs turn on, heating and cooling</li> <li>d) Nothing will happen</li> </ul>
What values are returned by accel.read()	<ul style="list-style-type: none"> <li>a) A tuple of three integers, ranging from 0-100</li> <li>b) A tuple of three floats, ranging from -99.0 to +100.0</li> <li>c) A tuple of three integers, ranging from -32767 to +32768</li> <li>d) A tuple of two Booleans, True or False</li> </ul>
If the robot is flat and motionless, what will accel.read() return?	<ul style="list-style-type: none"> <li>a) (0.0, 0.0, -1.0)</li> <li>b) (0, 0, -1)</li> <li>c) (0, 16383, -1)</li> <li>d) (0, 0, -16383)</li> </ul>
<p>Which axis does vals[2] refer to?</p> <pre> vals = accel.read() print(vals[2]) </pre>	<ul style="list-style-type: none"> <li>a) X-axis</li> <li>b) Y-axis</li> <li>c) Z-axis</li> <li>d) The tuple vals</li> </ul>
<p>What is the value of x?</p> <pre> x, y, z = (10, 20, 30) </pre>	<ul style="list-style-type: none"> <li>a) 10</li> <li>b) 20</li> <li>c) 30</li> <li>d) (10, 20, 30)</li> </ul>



Approximately what value would the y-axis have if you pointed CodeBot toward the sky?	<ul style="list-style-type: none"> <li>a) -16383</li> <li>b) +16384</li> <li>c) 0</li> <li>d) -1</li> </ul>
Given the code, what is TRUE about "before"? <pre>now = accel.read() before = now</pre>	<ul style="list-style-type: none"> <li>a) It references the same list as "now"</li> <li>b) It is a tuple with the same values as "now"</li> <li>c) It overwrites the values in "now"</li> <li>d) It reads a new value from the accelerometer</li> </ul>
What does this code do? <pre>dx = now[0] - before[0]</pre>	<ul style="list-style-type: none"> <li>a) Compares the second value to the first value</li> <li>b) Finds the average of the two numbers</li> <li>c) Compares the difference to a sensitivity threshold</li> <li>d) Calculates the difference between the first and second reading</li> </ul>

#### Unit 4 Concepts and Coding Kahoot Test (Missions 8, 9) / (questions from 4 review kahoots)

What is the value of one wheel encoder after a full 360 degree rotation?	<ul style="list-style-type: none"> <li>a) enc_count = 20</li> <li>b) enc_count = 30</li> <li>c) enc_count = 40</li> <li>d) enc_count = 360</li> </ul>
How do you make a new list for the LEFT and RIGHT power?	<ul style="list-style-type: none"> <li>a) power = 0</li> <li>b) power = [LEFT, RIGHT]</li> <li>c) power = [0, 0]</li> <li>d) power = (0, 0)</li> </ul>
What does the following line of code do? <pre>enc_count[1] = enc_count[1] + 1</pre>	<ul style="list-style-type: none"> <li>a) Increments the RIGHT wheel counter</li> <li>b) Increments the LEFT wheel counter</li> <li>c) Increments both wheel counters</li> <li>d) Compares the right and left wheel counters</li> </ul>
What is the final value of "count"? <pre>count = 1 enc_state = True slot = True if enc_state != slot:     count = count + 1</pre>	<ul style="list-style-type: none"> <li>a) 1</li> <li>b) 2</li> <li>c) True</li> <li>d) False</li> </ul>
What is the best way to use $\pi$ in code?	<ul style="list-style-type: none"> <li>a) Use the fraction 22/7</li> <li>b) Use the number 3.14</li> <li>c) Use math.pi from the math library</li> <li>d) Define a constant PI = 3.14</li> </ul>
How do you make a copy of a list?	<ul style="list-style-type: none"> <li>a) New_list = [ ]</li> <li>b) new_list = old_list</li> <li>c) new_list.copy(old_list)</li> <li>d) new_list = old_list.copy()</li> </ul>

<p>What does this code do?</p> <pre>while True:     while True:         if buttons.was_pressed(1):             break</pre>	<ul style="list-style-type: none"> <li>a) Ends the code</li> <li>b) Recalculates the distance</li> <li>c) Waits for a button press to go again</li> <li>d) Remote control for the CodeBot</li> </ul>
<p>What code will debounce a button?</p>	<ul style="list-style-type: none"> <li>a) buttons.was_pressed()</li> <li>b) if buttons.was_pressed() == True</li> <li>c) x = buttons.was_pressed()</li> <li>d) sleep(delay)</li> </ul>
<p>What code captures the current time-tick count in milliseconds?</p>	<ul style="list-style-type: none"> <li>a) time()</li> <li>b) ticks()</li> <li>c) ticks_ms()</li> <li>d) t_start</li> </ul>
<p>What function finds the elapsed time?</p>	<ul style="list-style-type: none"> <li>a) time(t_stop, t_start)</li> <li>b) t_stop - t_start</li> <li>c) ticks(t_stop, t_start)</li> <li>d) ticks_diff(t_stop, t_start)</li> </ul>
<p>To make your code more readable, what section should go right after constants?</p>	<ul style="list-style-type: none"> <li>a) Functions</li> <li>b) Imports</li> <li>c) Global variables</li> <li>d) Main program</li> </ul>
<p>How many volts are provided with 4 fresh AA batteries in series?</p>	<ul style="list-style-type: none"> <li>a) 12.0 volts</li> <li>b) 6.0 volts</li> <li>c) 3.0 volts</li> <li>d) 2.0 volts</li> </ul>
<p>What code returns the power supply voltage?</p>	<ul style="list-style-type: none"> <li>a) leds.pwr()</li> <li>b) system.pwr_is_usb()</li> <li>c) system.pwr_is_batt()</li> <li>d) system.pwr_volts()</li> </ul>
<p>What code returns the power supply being used?</p>	<ul style="list-style-type: none"> <li>a) leds.pwr()</li> <li>b) system.pwr_is_usb()</li> <li>c) system.pwr_is_batt()</li> <li>d) system.pwr_volts()</li> </ul>
<p>What code will add a new value to a list?</p>	<ul style="list-style-type: none"> <li>a) my_list.add[new_value]</li> <li>b) my_list.append(new_value)</li> <li>c) append.my_list(new_value)</li> <li>d) add.my_list(new_value)</li> </ul>
<p>What code will empty a list?</p>	<ul style="list-style-type: none"> <li>a) my_list.empty()</li> <li>b) my_list.append()</li> <li>c) my_list.clear()</li> <li>d) clear(my_list)</li> </ul>
<p>What does this code do?</p>	<ul style="list-style-type: none"> <li>a) Returns the highest value in a list</li> <li>b) Returns the lowest value in a list</li> <li>c) Returns the average of the list</li> <li>d) Returns the sum of the list</li> </ul>

<pre>count = len(nlist) sum = 0 i = 0 while i &lt; count:     sum = sum + nlist[i]     i = i + 1 return sum / count</pre>	
<p>What happens if the temperature is too high?</p> <pre>if t &gt; BASELINE + DEADBAND:     leds.user(0b11111111) elif t &lt; BASELINE - DEADBAND:     leds.ls(0b111111)</pre>	<ul style="list-style-type: none"> <li>a) The 8 user LEDs turn on, simulating a heater</li> <li>b) The 5 line sensor LEDs turn on, simulating a fan</li> <li>c) Both sets of LEDs turn on, heating and cooling</li> <li>d) Nothing happens</li> </ul>
<p>What happens if the temperature is in an acceptable range?</p> <pre>if t &gt; BASELINE + DEADBAND:     leds.user(0b11111111) elif t &lt; BASELINE - DEADBAND:     leds.ls(0b111111)</pre>	<ul style="list-style-type: none"> <li>a) The 8 user LEDs turn on, simulating a heater</li> <li>b) The 5 line sensor LEDs turn on, simulating a fan</li> <li>c) Both sets of LEDs turn on, heating and cooling</li> <li>d) Nothing happens</li> </ul>
<p>What values are returned by “accel.read()”?</p>	<ul style="list-style-type: none"> <li>a) A tuple of two Booleans, True or False</li> <li>b) A tuple of three integers, ranging from -32767 to 32768</li> <li>c) A tuple of three integers, ranging from 0-100</li> <li>d) A tuple of three floats, ranging from -99.0 to 100.0</li> </ul>
<p>Which axis does vals[0] refer to?</p> <pre>vals = accel.read() print(vals[0])</pre>	<ul style="list-style-type: none"> <li>a) x-axis</li> <li>b) y-axis</li> <li>c) z-axis</li> <li>d) The tuple “vals”</li> </ul>
<p>What is the value of “y”?</p> <pre>x, y, z = (30, 50, 40)</pre>	<ul style="list-style-type: none"> <li>a) 30</li> <li>b) 50</li> <li>c) 40</li> <li>d) (30, 50, 40)</li> </ul>
<p>If the robot is flat and motionless, what will “accel.read()” return?</p>	<ul style="list-style-type: none"> <li>a) (0.0, 0.0, -1.0)</li> <li>b) (0.0, 0.0, -32767.0)</li> <li>c) (0, 0, -16383)</li> <li>d) (-16383, 0, 0)</li> </ul>
<p>Given the code, what is TRUE about “before”?</p> <pre>now = accel.read() before = now</pre>	<ul style="list-style-type: none"> <li>a) It overwrites the values in “now”</li> <li>b) It references the same list as “now”</li> <li>c) It reads a new value from the accelerometer</li> <li>d) It is a tuple with the same values as “now”</li> </ul>
<p>What does this code do?</p> <pre>dx = now[0] - before[0]</pre>	<ul style="list-style-type: none"> <li>a) Finds the average of the two numbers</li> <li>b) Finds the difference between the first and last reading</li> <li>c) Compares the difference to a sensitivity threshold</li> <li>d) Compares the “now” value to the “before” value</li> </ul>

