Unit 3 Vocabulary (Review and Exam)

1	Line sensors	a. Repeatedly taking small steps to build a solution b. Infinite variation, like from dark to light c. Operators used to compare multiple conditions d. Sensors that detect lines and boundaries
2	Analog	a. Repeatedly taking small steps to build a solution b. Infinite variation, like from dark to light c. Operators used to compare multiple conditions d. Sensors that detect lines and boundaries
3	Iterative process	a. Repeatedly taking small steps to build a solution b. Infinite variation, like from dark to light c. Operators used to compare multiple conditions d. Sensors that detect lines and boundaries
4	Logical operators	a. Repeatedly taking small steps to build a solution b. Infinite variation, like from dark to light c. Operators used to compare multiple conditions d. Sensors that detect lines and boundaries
5	Int	a. No value, or null b. A container that holds key:value pairs c. A value that is an integer d. A sequence of items that cannot be changed
6	Tuple	a. No value, or null b. A container that holds key:value pairs c. A value that is an integer d. A sequence of items that cannot be changed
7	Dictionary	a. No value, or null b. A container that holds key:value pairs c. A value that is an integer d. A sequence of items that cannot be changed
8	None	a. No value, or null b. A container that holds key:value pairs c. A value that is an integer d. A sequence of items that cannot be changed
9	Constant	a. A list of lists b. A variable declared outside a function c. Data that doesn't change during the program d. A variable declared inside a function
10	Matrix	a. A list of lists b. A variable declared outside a function c. Data that doesn't change during the program d. A variable declared inside a function
11	Global variable	a. A list of lists b. A variable declared outside a function c. Data that doesn't change during the program d. A variable declared inside a function
12	Local variable	a. A list of lists b. A variable declared outside a function c. Data that doesn't change during the program

		d. A variable declared inside a function
13	Parameter	a. A variable listed in a function definition b. A value halfway between two readings c. A shortcut for appending items to a list d. A value passed when you call a function
14	Argument	a. A variable listed in a function definition b. A value halfway between two readings c. A shortcut for appending items to a list d. A value passed when you call a function
15	Threshold	a. A variable listed in a function definition b. A value halfway between two readings c. A shortcut for appending items to a list d. A value passed when you call a function
16	List comprehension	a. A variable listed in a function definition b. A value halfway between two readings c. A shortcut for appending items to a list d. A value passed when you call a function
17	Docstring	a. A way to document functions using triple quotes b. A parameter that uses a default value if nothing else is given c. An argument assigned to a parameter by name d. An argument that must be passed to a parameter in the correct order
18	Default parameter	a. A way to document functions using triple quotes b. A parameter that uses a default value if nothing else is given c. An argument assigned to a parameter by name d. An argument that must be passed to a parameter in the correct order
19	Positional argument	a. A way to document functions using triple quotes b. A parameter that uses a default value if nothing else is given c. An argument assigned to a parameter by name d. An argument that must be passed to a parameter in the correct order
20	Keyword argument	a. A way to document functions using triple quotes b. A parameter that uses a default value if nothing else is given c. An argument assigned to a parameter by name d. An argument that must be passed to a parameter in the correct order

Unit 3 Review Questions (in Kahoot)

A line sensor reading returns higher values when _____ light is reflected.	a. More b. Less c. Consistent d. Variable
What value is returned by the line sensor reading?	a. 0 or 1 b. True or False c. An integer between 0 and 100 d. An integer between 0 and 4095

What does the if statement evaluate to?
`number = 15`
`if 10 < number < 20:`
	a. Invalid comparison
	b. 15
	c. True
	d. False

What is the value of x? `x = abs(10-15)`	a. -5 b. 5 c. 25 d. -25
What is the correct code for getting input from the user?	a. input("Enter direction") b. dir = input("Enter direction") c. dir.input("Enter direction") d. dir = console.input("Enter direction")

Given the code, what is the value of **number**?
`my_matrix = [`
`  [1, 2, 3, 4],`
`  [5, 6, 7, 8],`
`  [9, 0, 1, 2]`
`]`
`number = my_matrix[1][3]`
	a. 4
	b. 8
	c. 3
	d. 7

What is the correct code for calling a function with a return?	a. get_name() b. def get_name(): c. call get_name() d. the_name = get_name()

What does this code do?
`sensor_data = [`
`  ['N', 3557],`
`  ['E', 286],`
`  ['S', 1391],`
`  ['W', 2481]`
`]`
`left = 2481`
`def find_name(left):`
`  for d in sensor_data:`
`  if abs(left - d[1]) < MIN_DIFF:`
`  return d[0]`
	a. Searches the matrix and returns 'W'
	b. Searches the matrix and returns 2481
	c. Searches the matrix and returns 3
	d. Fails to find any match in the matrix

What is printed by the code:
`x = 5`
`y = 12`
`if 10 < x < 20:`
`  if y > 10:`
`  print("ONE")`
`  else:`
`  print("TWO")`
`else:`
`  print("THREE")`
	a. ONE
	b. TWO
	c. THREE
	d. ONE and then THREE

When a line sensor's reading returns a higher value, it is on a _____ surface	a. Light or reflective b. Dark or non-reflective

	c. Variable d. Uneven

Given the code, what will be printed?
`threshold = 2`
`for i in range(4):`
`  if i > threshold:`
`  break`
`  print(i, end=' ')`
	a. 0
	b. 0, 1, 2,
	c. 0, 1, 2, 3, 4
	d. Infinite loop, won't stop

Given the code, how many times will the loop print a value?
`num = 0`
`while num < 5:`
`  val = ls.read(2)`
`  print(val)`
`  sleep(1)`
	a. 5
	b. 2
	c. 1
	d. Infinite loop, won't stop

Identify the default parameter:
`def go(left, right, delay=0.5):`
`  motors.run(LEFT, left)`
`  motors.run(RIGHT, right)`
`  sleep(delay)`
 	
`go(50, 50)`
	a. left
	b. delay=0.5
	c. LEFT
	d. 50

What is the result of the function call?
`def go(left, right, delay=0.5):`
`  motors.run(LEFT, left)`
`  motors.run(RIGHT, right)`
`  sleep(delay)`
 	
`go(50, 50)`
	a. Nothing happens; missing argument
	b. CodeBot moves backward for 0.5 seconds
	c. CodeBot moves forward for 0.5 seconds
	d. CodeBot turns for 0.5 seconds

Identify the positional argument:
`def fun(num1, num2=4):`
`  print(num1, num2, sep=',')`
 	
`fun(3, num2=6)`
	a. 4
	b. 3
	c. num2=6
	d. num1

Identify the keyword argument:
`def fun(num1, num2=4):`
`  print(num1, num2, sep=',')`
 	
`fun(3, num2=6)`
	a. 4
	b. 3
	c. num2=6
	d. num1

What is the result of the function call:
`def fun(num1, num2=4):`
`  print(num1, num2, sep=',')`
 	
`fun(3, num2=6)`
	a. 3,4
	b. 3,6
	c. 3, num2=6
	d. Error, function call not correct

What is the result of the function call:
`def fun(num1, num2=4):`
`  print(num1, num2, sep=',')`
 	
`fun(1)`
	a. 1,
	b. 1,4
	c. 1,1
	d. Error, function call not correct

What code will add an item to a list?	a. my_list.add(val) b. my_list(val) c. my_list[val] d. my_list.append(val)

What is returned by this function:
`def scan_lines():`
`  sensors = []`
`  for i in range(5):`
`  val = ls.read(i)`
`  is_line = val < threshold`
`  sensors.append(is_line)`
`  return sensors`
	a. A Boolean value: True or False
	b. An integer: the line sensor reading
	c. A list of 5 Boolean values
	d. A list of 5 integer readings

What is the result of the code:
`vals=[True, True, False, False, False]`
`if any(vals):`
`  brake()`
`  if vals[0] and not vals[4]:`
`  back_turn(30)`
`  elif vals[4] and not vals[0]:`
`  back_turn(-30)`
`  else:`
`  back_turn()`
	a. The 'bot will brake and then back_turn(30)
	b. The 'bot will brake and then back_turn(-30)
	c. The 'bot will brake and then back_turn()
	d. Nothing will happen

What data type does ls.check() return?	A. List B. Tuple C. String D. Boolean
When working with a tuple, which of the following will cause an error? `my_tuple = (True, True, False, False, True)`	A. number = len(my_tuple) B. result = my_tuple[0] C. leds.ls(my_tuple) D. my_tuple.append(True)

Given the code, what will print:
`number = 5`
`status = False`
`if number < 1 or status:`
`  print("Good to go")`
`elif not status:`
`  print("On hold")`
`else:`
`  print("Abort")`
	A. Good to go
	B. On hold
	C. Abort
	D. On hold, and then Abort

Given the code, what will print:
`for count in range(5):`
`  if count < 2:`
`  print('A', end=' ')`
`  elif count < 4:`
`  print('B', end=' ')`
`  else:`
`  print('C', end=' ')`
	A. A B B C C
	B. A A B B C
	C. A A B B C C
	D. A B B B C

What is assigned to a variable to represent no value?	A. my_var = None B. my_var = Undefined C. my_var = 0 D. my_var = “none”

What does this code do?
`prev_vals = (0, 0, 0, 1, 1)`
`vals = (1, 1, 0, 0, 0)`
`if vals != prev_vals:`
`  print(vals)`
`  prev_vals = vals`
	A. Nothing, condition is false
	B. Nothing, condition is true
	C. Prints vals and updates prev_vals
	D. Updates prev_vals and then prints it

Given the code, what is printed?
`name = 'Barbie'`
`def fun():`
`  name = 'Ken'`
`  print(name)`
 	
`fun()`
	A. ‘Barbie’
	B. ‘Ken’
	C. Nothing is printed
	D. UnboundLocalError

Given the code, what is printed?	A. ‘Barbie’ B. ‘Ken’ C. Nothing is printed D. UnboundLocalError

``
name = 'Barbie'
def fun():
    print(name)
    name = 'Ken'
 	
fun()
``	

Given the code, what is printed?
``
name = 'Barbie'
def fun():
    global name
    print(name)
    name = 'Ken'
 	
fun()
``
	A. 'Barbie'
	B. 'Ken'
	C. Nothing is printed
	D. UnboundLocalError

Unit 3 Exam Questions (in Microsoft Forms)

1	A line sensor reading returns lower values when _____ light is reflected.	a. More b. Less c. Consistent d. Variable
2	What value is returned by the line sensor reading?	a. 0 or 1 b. True or False c. An integer between 0 and 100 d. An integer between 0 and 4095

3	What does the condition evaluate to?
	``
	number = 10
	if 10 < number < 20:
	``
		a. Invalid comparison
		b. 10
		c. True
		d. False

4	What is the value of **x**? ``` x = abs(10-5) ```	a. -5 b. 5 c. 15 d. -15
5	What is the correct code for getting input from the user?	a. answer.input('Enter color') b. answer = console.input('Enter color') c. answer = input('Enter color') d. input('Enter color')
6	What is the value of **number** after the code runs?	a. 6 b. 0 c. 7 d. 1

	``
	my_matrix = [
	    [1, 2, 3, 4],
	    [5, 6, 7, 8],
	    [9, 0, 1, 2]
	]
	number = my_matrix[2][1]
	``	

7	What is the correct code for calling a function with a return?	a. get_dir() b. dir = get_dir() c. call get_dir() d. def get_dir(return)

8	What does this code do?
	``
	sensor_data = [['N', 3557],
	                ['E', 286],
	                ['S', 1391],
	                ['W', 2481]]
	d[1] = 1391
	
	def find_name(left):
	    for d in sensor_data:
	        if abs(left-d[1]) < MIN_DIFF:
	            return d[0]
	
	left = 1391
	find_name(left)
	``
		a. Searches the matrix and returns 1391
		b. Searches the matrix and returns 2
		c. Searches the matrix and returns 'S'
		d. Fails to find any match in the matrix

9	What is printed after the code runs?
	``
	x = 12
	y = 5
	if 10 < x < 20:
	    if y > 10:
	        print('ONE')
	    else:
	        print('TWO')
	else:
	    print('THREE')
	``
		a. ONE
		b. TWO
		c. THREE
		d. TWO and THREE

10	When a line sensor's reading returns a lower value, it is on a _____ surface.	a. Light or reflective b. Dark or non-reflective c. Variable d. Uneven

11	What will print when the code runs?
	``
	threshold = 4
	for i in range(10):
	    if i > threshold:
	        break
	    print(i, end=' ')
	``
		a. Nothing - loop ends
		b. Nothing - infinite loop
		c. 0 1 2 3
		d. 0 1 2 3 4

12	How many times will the loop execute?
	`num = 0`
	`while num < 5:`
	`    val = ls.read(2)`
	`    sleep(1)`
		a. 0 - loop condition is False
		b. Infinite loop
		c. 4 times
		d. 5 times

13	Identify the default parameter:
	`def my_function(x, y, z=1):`
	`    answer = (x + y) * z`
	`    return answer`
	
	`answer = my_function(2, 3)`
	`print(answer)`
		a. x
		b. y
		c. z
		d. 2

14	What is printed after the code runs?
	`def my_function(x, y, z=1):`
	`    answer = (x + y) * z`
	`    return answer`
	
	`answer = my_function(2, 3, 4)`
	`print(answer)`
		a. 5
		b. 20
		c. 9
		d. An error occurs

15	Identify the positional argument:
	`def my_function(a, b=5):`
	`    answer = a * b`
	`    print(answer)`
	
	`my_function(3, b=4)`
		a. a
		b. b=5
		c. 3
		d. b=4

16	Identify the keyword argument:
	`def my_function(a, b=5):`
	`    answer = a * b`
	`    print(answer)`
	
	`my_function(3, b=4)`
		a. a
		b. b=5
		c. 3
		d. b=4

17	What is printed when the code runs?
	`def my_function(a, b=5):`
	`    answer = a * b`
	`    print(answer)`
	
	`my_function(3, b=4)`
		a. 12
		b. 15
		c. 20
		d. An error occurs

18	What is printed when the code runs?
	`def my_function(a, b=5):`
	`    answer = a * b`
	`    print(answer)`
	
	`my_function(2)`
		a. 25
		b. 10
		c. 7
		d. An error occurs

19	What code will add an item to a list?	a. my_list(val) b. my_list[val] c. my_list.append(val) d. my_list.add(val)

20	What is returned by this function:
	`def scan_lines():`
	`    sensors = []`
	`    for i in range(5):`
	`        val = ls.read(i)`
	`        is_line = val < threshold`
	`        sensors.append(is_line)`
	`    return sensors`
		a. A Boolean value: True or False
		b. An integer: the line sensor reading
		c. A list of 5 Boolean values
		d. A list of 5 integer readings

21	What is the result when the code runs?
	`vals = [False, False, True, True, True]`
	`if any(vals):`
	`    if vals[0] and not vals[4]:`
	`        turn_right()`
	`    elif vals[4] and not vals[0]:`
	`        turn_left()`
	`    else:`
	`        move_forward()`
		a. The function turn_right() is called
		b. The function turn_left() is called
		c. The function move_forward() is called
		d. Nothing happens

22	What data type does the function **ls.check()** return?	a. String b. Boolean c. Tuple d. List
23	When working with a tuple, which of the following will cause an error? `vals = [False, False, True, True, True]`	a. vals.append(True) b. amount = len(vals) c. result = vals[0] d. leds.ls(val)

24	What will print when the code runs?
	`number = 5`
	`status = True`
	`if number < 3 or status:`
	`    print('Hello')`
	`elif not status:`
	`    print('Good-bye')`
	`else:`
	`    print('Exit')`
		a. Hello
		b. Good-bye
		c. Exit
		d. An error occurs

25	What will print when the code runs?
	`for count in range(5):`
	`    if count < 1:`
	`        print('A', end=' ')`
	`    elif count > 3:`
	`        print('Z', end=' ')`
	`    else:`
	`        print('M', end=' ')`
		a. A A M Z Z
		b. A Z M M M
		c. A M M M Z
		d. M M M Z Z

26	What is assigned to a variable to represent no value?	a. my_var = None b. my_var = Undefined c. my_var = 0 d. my_var = “none”

27	What does this code do?
	`prev_vals = (0, 0, 0, 1, 1)`
	`vals = (1, 1, 0, 0, 0)`
	`if vals != prev_vals:`
	`    print(vals)`
	`    prev_vals = vals`
		a. Nothing, condition is false
		b. Prints vals and then updates vals
		c. Prints vals and then updates prev_vals
		d. Updates prev_vals and then prints it

28	What is printed when the code runs?
	`name = 'Barbie'`
	`def fun():`
	`    global name`
	`    print(name)`
	`    name = 'Ken'`
	
	`fun()`
		a. ‘Barbie’
		b. ‘Ken’
		c. Nothing is printed
		d. UnboundLocalError

29	What is printed when the code runs?
	`name = 'Barbie'`
	`def fun():`
	`    name = 'Ken'`
	`    print(name)`
	
	`fun()`
		a. ‘Barbie’
		b. ‘Ken’
		c. Nothing is printed
		d. UnboundLocalError

30	What is printed when the code runs?
	`name = 'Barbie'`
	`def fun():`
	`    print(name)`
	`    name = 'Ken'`
	
	`fun()`
		a. ‘Barbie’
		b. ‘Ken’
		c. Nothing is printed
		d. UnboundLocalError