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Passing Score: 800  
Time Limit: 120 min



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98-381

Introduction to Programming Using Python

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## Exam A

### QUESTION 1

#### DRAG DROP

You are creating a Python script to evaluate input and check for upper and lower case.

Which four code segments should you use to develop the solution? To answer, move the appropriate code segment from the list of code segments to the answer area and arrange them in the correct order.



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Select and Place:

## Code Segments

```
else:  
    print(name, "is mixed case.")
```

```
else:  
    print(name, "is lower case.")
```

```
name = input("Enter your name: ")
```

```
else:  
    print(name, "is upper case.")
```

```
elif name.upper() == name:  
    print(name, "is all upper case.")
```

```
if name.lower() == name:  
    print(name, "is all lower case.")
```

## Answer Area

Correct Answer:

## Code Segments

```
else:  
    print(name, "is lower case.")
```

```
else:  
    print(name, "is upper case.")
```

## Answer Area

```
name = input("Enter your name: ")
```

```
if name.lower() == name:  
    print(name, "is all lower case.")
```

```
elif name.upper() == name:  
    print(name, "is all upper case.")
```

```
else:  
    print(name, "is mixed case.")
```

Section: (none)

Explanation

Explanation/Reference:

References: <https://www.w3resource.com/python/python-while-loop.php>

### QUESTION 2

HOTSPOT

You develop a Python application for your company.

You have the following code. Line numbers are included for reference only.

```
01 def main(a,b,c,d):  
02     value = a+b*c-d  
03     return value
```

Use the drop-down menus to select the answer choice that answers each question based on the information presented in the code segment.

**Hot Area:**

## Answer Area

Which part of the expression will be evaluated first?

$a+b$

$b*c$

$c-d$

Which operation will be evaluated second?

addition

subtraction

Which expression is equivalent to the expression in the function?

$(a+b) * (c-d)$

$(a + (b*c)) - d$

$a + ((b * c) - d)$

Correct Answer:

## Answer Area

Which part of the expression will be evaluated first?

$a+b$

$b*c$

$c-d$

Which operation will be evaluated second?

addition

subtraction

Which expression is equivalent to the expression in the function?

$(a+b) * (c-d)$

$(a + (b*c)) - d$

$a + ((b * c) - d)$

Section: (none)

Explanation

**Explanation/Reference:**

References: [http://www.mathcs.emory.edu/~valerie/courses/fall10/155/resources/op\\_precedence.html](http://www.mathcs.emory.edu/~valerie/courses/fall10/155/resources/op_precedence.html)

<http://interactivepython.org/runestone/static/pythonds/BasicDS/InfixPrefixandPostfixExpressions.html>

### QUESTION 3

The ABC company has hired you as an intern on the coding team that creates e-commerce applications.

You must write a script that asks the user for a value. The value must be used as a whole number in a calculation, even if the user enters a decimal value.

You need to write the code to meet the requirements.

Which code segment should you use?

- A. `totalItems = input("How many items would you like?")`
- B. `totalItems = float(input("How many items would you like?"))`
- C. `totalItems = str(input("How many items would you like?"))`
- D. `totalItems = int(input("How many items would you like?"))`

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

References: <http://anh.cs.luc.edu/python/hands-on/3.1/handsonHtml/io.html>

#### QUESTION 4

##### HOTSPOT

You create the following program to locate a conference room and display the room name. Line numbers are included for reference only.

```
01 rooms = {1: 'Foyer', 2: 'Conference Room'}
02 room = input('Enter the room number: ')
03 if not room in rooms:
04     print('Room does not exist.')
05 else:
06     print("The room name is " + rooms[room])
```

Colleagues report that the program sometimes produces incorrect results.

You need to troubleshoot the program. Use the drop-down menus to select the answer choice that answers each question based on the information presented in the code segment.

**Hot Area:**



## Answer Area

Which two data types are stored in the `rooms` list at line 01?

	▼
bool and string	
float and bool	
int and string	
float and int	

What is the data type of `room` at line 02?

	▼
bool	
float	
int	
string	

Why does line 03 fail to find the rooms?

	▼
Invalid syntax	
Mismatched data type(s)	
Misnamed variable(s)	

Correct Answer:

## Answer Area

Which two data types are stored in the `rooms` list at line 01?

	▼
bool and string	
float and bool	
int and string	
float and int	

What is the data type of `room` at line 02?

	▼
bool	
float	
int	
string	

Why does line 03 fail to find the rooms?

	▼
Invalid syntax	
Mismatched data type(s)	
Misnamed variable(s)	

**Section:** (none)

**Explanation**

**Explanation/Reference:**

References:

<https://www.w3resource.com/python/python-data-type.php>

<https://www.w3resource.com/python/python-if-else-statements.php>

**QUESTION 5**  
DRAG DROP

Match the data type to the type operations.

To answer, drag the appropriate data type to the correct type operation. Each data type may be used once, more than once, or not at all.

Select and Place:

**Data Types**

int	float	str	bool
-----	-------	-----	------

**Answer Area**

type (+1E10)

type (5.0)

type ("True")

type (False)

**Correct Answer:**

## Data Types

int	float	str	bool
-----	-------	-----	------

## Answer Area

type (+1E10)	float
type (5.0)	float
type ("True")	str
type (False)	bool

Section: (none)

Explanation

Explanation/Reference:

References: <https://www.w3resource.com/python/python-data-type.php>

### QUESTION 6

HOTSPOT

The ABC company needs a way to find the count of particular letters in their publications to ensure that there is a good balance. It seems that there have been complaints about overuse of the letter e. You need to create a function to meet the requirements.

How should you complete this code? To answer, select the appropriate code segments in the answer area.

**NOTE:** Each correct selection is worth one point.

## Answer Area

```
#Function accepts list of words from a file,  
#and letter to search for.  
#Returns count of a particular letter in that list.
```

```
def count_letter(letter, word_list):
```

```
    count=0
```

```
    for  
```

```
        if  
```

```
            count += 1
```

```
    return count
```

```
word_list=[]
```

```
#word_list is populated a from file. Code not shown.
```

```
letter = input("which letter would you like to count")
```

```
letter_count= count_letter(letter, word_list)
```

```
print("There are: ", letter_count, " instances of " + letter)
```

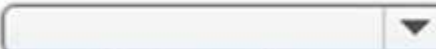
Hot Area:

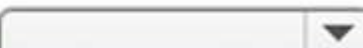
## Answer Area

```
#Function accepts list of words from a file,  
#and letter to search for.  
#Returns count of a particular letter in that list.
```

```
def count_letter(letter, word_list):
```

```
    count=0
```

```
    for :  
        word_list in word:  
        word in word_list:  
        word == word_list:  
        word is word_list:
```

```
    if :  
        letter is word:  
        word in letter:  
        letter in word:
```

```
word_list = []
```

```
#word_list is populated a from file. Code not shown.
```

```
letter = input("which letter would you like to count")
```

```
letter_count= count_letter(letter, word_list)
```

```
print("There are: ", letter_count, " instances of " + letter)
```

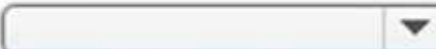
**Correct Answer:**

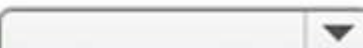
## Answer Area

```
#Function accepts list of words from a file,  
#and letter to search for.  
#Returns count of a particular letter in that list.
```

```
def count_letter(letter, word_list):
```

```
    count=0
```

```
    for :  
        word_list in word:  
            word in word_list:  
            word == word_list:  
            word is word_list:
```

```
    if :  
        letter is word:  
        word in letter:  
        letter in word:
```

```
word_list = []
```

```
#word_list is populated a from file. Code not shown.
```

```
letter = input("which letter would you like to count")
```

```
letter_count= count_letter(letter, word_list)
```

```
print("There are: ", letter_count, " instances of " + letter)
```



**Section: (none)**

**Explanation**

**Explanation/Reference:**

References: <https://www.w3resource.com/python/python-for-loop.php>

**QUESTION 7**

DRAG DROP

The ABC company is converting an existing application to Python. You are creating documentation that will be used by several interns who are working on the team.

You need to ensure that arithmetic expressions are coded correctly.

What is the correct order of operations for the six classes of operations ordered from first to last in order of precedence? To answer, move all operations from the list of operations to the answer area and arrange them in the correct order.

**Select and Place:**

## Operations

Parenthesis

Exponents

And

Multiplication and Division

Addition and Subtraction

Unary positive, negative, not

## Answer Area

Correct Answer:

## Operations


## Answer Area

Parenthesis

Exponents

Unary positive, negative, not

Multiplication and Division

Addition and Subtraction

And

**Section: (none)**

**Explanation**

**Explanation/Reference:**

References: [http://www.mathcs.emory.edu/~valerie/courses/fall10/155/resources/op\\_precedence.html](http://www.mathcs.emory.edu/~valerie/courses/fall10/155/resources/op_precedence.html)

### QUESTION 8

DRAG DROP

You are writing a Python program. The program collects customer data and stores it in a database.

The program handles a wide variety of data.



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You need to ensure that the program handles the data correctly so that it can be stored in the database correctly.

Match the data type to the code segment. To answer, drag the appropriate data type from the column on the left to its code segment on the right. Each data type may be used once, more than once, or not at all.

**Select and Place:**

### Operations

bool	float	int	str
------	-------	-----	-----

### Answer Area

age = 2

minor = False

name = "Contoso"

weight = 123.5

zip = "81000"

Correct Answer:

## Operations

bool	float	int	str
------	-------	-----	-----

## Answer Area

int
-----

age = 2

bool
------

minor = False

str
-----

name = "Contoso"

float
-------

weight = 123.5

str
-----

zip = "81000"

Section: (none)

Explanation

Explanation/Reference:

References: <https://www.w3resource.com/python/python-data-type.php>

### QUESTION 9

You are creating a Python program that shows a congratulation message to employees on their service anniversary.

You need to calculate the number of years of service and print a congratulatory message.

You have written the following code. Line numbers are included for reference only.

```
01 start = input("How old were you on your start date?")
02 end = input("How old are you today?")
03
```

You need to complete the program.

Which code should you use at line 03?

- A. `print("Congratulations on" + (int(end)-int(start)) + "years of service!")`
- B. `print("Congratulations on" + str(int(end)-int(start)) + "years of service!")`
- C. `print("Congratulations on" + int(end - start) + "years of service!")`
- D. `print("Congratulations on" + str(end - start) + "years of service!")`

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

int must be converted to string

#### QUESTION 10

DRAG DROP

You are writing a Python program that evaluates an arithmetic formula.

The formula is described as  $b$  equals  $a$  multiplied by negative one, then raised to the second power, where  $a$  is the value that will be input and  $b$  is the result.

You create the following code segment. Line numbers are included for reference only.

```
01 a = eval(input("Enter a number for the equation: "))
02 b =
```

You need to ensure that the result is correct.

How should you complete the code on line 02? To answer, drag the appropriate code segment to the correct location. Each code segment may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

**NOTE:** Each correct selection is worth one point.

Select and Place:

Code Segments

-	(	)	**	**2	2	a
---	---	---	----	-----	---	---

Answer Area

b = 

--	--	--	--	--

Correct Answer:

Code Segments

			**		2	
--	--	--	----	--	---	--

Answer Area

b = 

(	-	a	)	**2
---	---	---	---	-----

Section: (none)

Explanation

Explanation/Reference:

#### QUESTION 11

Evaluate the following Python arithmetic expression:

```
(3*(1+2)**2 - (2**2)*3)
```

What is the result?

- A. 3
- B. 13
- C. 15

D. 69

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

References: [http://www.mathcs.emory.edu/~valerie/courses/fall10/155/resources/op\\_precedence.html](http://www.mathcs.emory.edu/~valerie/courses/fall10/155/resources/op_precedence.html)

### QUESTION 12

You develop a Python application for your company.

A list named `employees` contains 200 employee names, the last five being company management. You need to slice the list to display all employees excluding management.

Which two code segments should you use? Each correct answer presents a complete solution. (Choose two.)

- A. `employees [1:-4]`
- B. `employees[:-5]`
- C. `employees [1:-5]`
- D. `employees [0:-4]`
- E. `employees [0:-5]`

**Correct Answer:** BE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

References: <https://www.w3resource.com/python/python-list.php#slice>

### QUESTION 13

You are creating a function that manipulates a number. The function has the following requirements:

- A `float` is passed into the function
- The function must take the absolute value of the `float`
- Any decimal points after the integer must be removed

Which two math functions should you use? Each correct answer is part of the solution. (Choose two.)

- A. `math.fmod(x)`
- B. `math.frexp(x)`



- C. `math.floor(x)`
- D. `math.ceil(x)`
- E. `math.fabs(x)`

**Correct Answer:** CE

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

C: `math.floor(x)` returns the largest integer less than or equal to x.

E: `math.fabs(x)` returns the absolute value of x.

Incorrect Answers:

A: `math.fmod()` takes two variables

B: `math.frexp(x)` returns the mantissa and exponent of x as the pair (m, e). m is a float and e is an integer

D: `math.ceil(x)` returns the smallest integer greater than or equal to x

References: <https://docs.python.org/2/library/math.html#number-theoretic-and-representation-functions>

<https://docs.python.org/3/library/math.html>

#### QUESTION 14

You are writing an application that uses the `sqrt` function. The program must reference the function using the name `squareRoot`.

You need to import the function.

Which code segment should you use?

- A. `import math.sqrt as squareRoot`
- B. `import sqrt from math as squareRoot`
- C. `from math import sqrt as squareRoot`
- D. `from math.sqrt as squareRoot`

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

References: <https://infohost.nmt.edu/tcc/help/pubs/python/web/import-statement.html>

**QUESTION 15**

You are writing code that generates a random integer with a minimum value of 5 and a maximum value of 11.

Which two functions should you use? Each correct answer presents a complete solution. (Choose two.)

- A. `random.randint(5, 12)`
- B. `random.randint(5, 11)`
- C. `random.randrange(5, 12, 1)`
- D. `random.randrange(5, 11, 1)`

**Correct Answer:** BC

**Section:** (none)

**Explanation**

**Explanation/Reference:**

References: <https://docs.python.org/3/library/random.html#>

**QUESTION 16**

DRAG DROP

You are writing a function that works with files.

You need to ensure that the function returns None if the file does not exist. If the file does exist, the function must return the first line.



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You write the following code:

```
import os
def get_first_line(filename, mode):
```

In which order should you arrange the code segments to complete the function? To answer, move all code segments from the list of code segments to the answer area and arrange them in the correct order.

**Select and Place:**

## Code Segments

```
if os.path.isfile(filename):
```

```
    return file.readline()
```

```
with open(filename, 'r') as file:
```

```
    return None
```

```
else:
```

## Answer Area

Correct Answer:

## Code Segments

## Answer Area

```
with open(filename, 'r') as file:
```

```
    if os.path.isfile(filename):
```

```
        return file.readline()
```

```
    else:
```

```
        return None
```

**Section: (none)**

**Explanation**

**Explanation/Reference:**

Explanation:

References: <http://effbot.org/zone/python-with-statement.htm>

### QUESTION 17

You are writing a Python program to automate inventory. Your first task is to read a file of inventory transactions. The file contains sales from the previous day, including the item id, price, and quantity.

The following shows a sample of data from the file:

```
10, 200, 5
20, 100, 1
```

The code must meet the following requirements:

- Each line of the file must be read and printed
- If a blank line is encountered, it must be ignored
- When all lines have been read, the file must be closed

You create the following code. Line numbers are included for reference only.

```
01 inventory = open("inventory.txt", 'r')
02 eof = False
03 while eof == False:
04     line = inventory.readline()
05
06
07     print(line)
08 else:
09     print ("End of file")
10     eof = True
11     inventory.close()
```

Which code should you write for line 05 and line 06?

- A. 05 if line != '\n':  
06 if line != "":
- B. 05 if line != '\n':  
06 if line != None:
- C. 05 if line != '':  
06 if line != "":
- D. 05 if line != '':  
06 if line != "\n":

**Correct Answer: A**

**Section: (none)**

**Explanation**

**Explanation/Reference:**

<https://www.dotnetperls.com/readline-python>

**QUESTION 18**

You develop a Python application for your company.

You need to accept input from the user and print that information to the user screen.

You have started with the following code. Line numbers are included for reference only.

```
01 print("What is your name?")
02
03 print(name)
```

Which code should you write at line 02?

- A. `name = input`
- B. `input("name")`
- C. `input(name)`
- D. `name = input()`

**Correct Answer:** B

**Section:** (none)

**Explanation**

**Explanation/Reference:**

**QUESTION 19**

You develop a Python application for your school.

You need to read and write data to a text file. If the file does not exist, it must be created. If the file has content, the content must be removed.

Which code should you use?

- A. `open("local_data", "r")`
- B. `open("local_data", "r+")`
- C. `open("local_data", "w+")`
- D. `open("local_data", "w")`

**Correct Answer:** C

**Section:** (none)

**Explanation**

**Explanation/Reference:**

Explanation:

Modes 'r+', 'w+' and 'a+' open the file for updating (reading and writing). Mode 'w+' truncates the file.

References:

<https://docs.python.org/2/library/functions.html>

<https://pythontips.com/2014/01/15/the-open-function-explained/>

## **QUESTION 20**

**HOTSPOT**

You find errors while evaluating the following code. Line numbers are included for reference only.

```
01 numbers = [0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
02 index = 0
03 while (index < 10)
04     print(numbers[index])
05
06     if numbers(index) = 6
07         break
08     else :
09         index += 1
```

You need to correct the code at line 03 and line 06.

How should you correct the code? Use the drop-down menus to select the answer choice that answers each question based on the information presented in the code segment.

**NOTE:** Each correct selection is worth one point.

**Hot Area:**

## Answer Area

Which code segment should you use at line 03?

.....

	▼
while (index < 10) :	
while [index < 10]	
while (index < 5) :	
while [index < 5]	

Which code segment should you use at line 06?

	▼
if numbers[index] == 6	
if numbers[index] == 6 :	
if numbers(index) = 6 :	
if numbers(index) != 6	

Correct Answer:



## Answer Area

Which code segment should you use at line 03?

	▼
while (index < 10) :	
while [index < 10]	
while (index < 5) :	
while [index < 5]	

Which code segment should you use at line 06?

	▼
if numbers[index] == 6	
if numbers[index] == 6 :	
if numbers(index) = 6 :	
if numbers(index) != 6	

Section: (none)

Explanation

**Explanation/Reference:**

References: <https://www.w3resource.com/python/python-while-loop.php>

### QUESTION 21

You are creating a function that reads a data file and prints each line of the file.

You write the following code. Line numbers are included for reference only.

```
01 import os
02 def read_file(file):
03     line = None
04     if os.path.isfile(file):
05         data = open(file, 'r')
06         while line != '':
07             line = data.readline()
08             print(line)
```

The code attempts to read the file even if the file does not exist.

You need to correct the code.

Which three lines have indentation problems? Each correct answer presents part of the solution. (Choose three.)

- A. Line 01
- B. Line 02
- C. Line 03
- D. Line 04
- E. Line 05
- F. Line 06
- G. Line 07
- H. Line 08

**Correct Answer:** FGH

**Section:** (none)

**Explanation**

**Explanation/Reference:**

## QUESTION 22

This question requires that you evaluate the underlined text to determine if it is correct.

You write the following code:

```
import sys
try:
    file_in = open("in.txt", 'r')
    file_out = open("out.txt", 'w+')
except IOError:
    print('cannot open', file_name)
else:
    i = 1
    for line in file_in:
        print(line.rstrip())
        file_out.write("line " + str(i) + ": " + line)
        i = i + 1
    file_in.close()
    file_out.close()
```

The out.txt file does not exist. You run the code. The code will execute without error.

Review the underlined text. If it makes the statement correct, select "No change is needed". If the statement is incorrect, select the answer choice that makes the statement correct.

- A. No change is needed
- B. The code runs, but generates a logic error
- C. The code will generate a runtime error
- D. The code will generate a syntax error

**Correct Answer:** A

**Section:** (none)

**Explanation**

**Explanation/Reference:**

References: <https://docs.python.org/2/library/exceptions.html>



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