**Exam A**

**QUESTION 1**
HOTSPOT

You are designing a decision structure to convert a student's numeric grade to a letter grade. The program must assign a letter grade as specified in the following table:

| Percentage range | Letter grade |
|---|---|
| 90 through 100 | A |
| 80 through 89 | B |
| 70 through 79 | C |
| 65 through 69 | D |
| 0 through 64 | F |

For example, if the user enters a 90, the output should be, "Your letter grade is A". Likewise, if a user enters an 89, the output should be "Your letter grade is B".

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

**Hot Area:**

## Answer Area

```
#Letter Grade Converter

grade = int(input("Enter a numeric grade"))
```

| |
|---|
| if grade <= 90: |
| if grade >= 90: |
| elif grade > 90: |
| elif grade >= 90: |

```
    letter_grade = 'A'
```

| |
|---|
| if grade > 80: |
| if grade >= 80: |
| elif grade > 80: |
| elif grade >= 80: |

```
    letter_grade = 'B'
```

| |
|---|
| if grade > 70: |
| if grade >= 70: |
| elif grade > 70: |
| elif grade >= 70: |

```
    letter_grade = 'C'
```

| |
|---|
| if grade > 65: |

**Correct Answer:**

## Answer Area

```
#Letter Grade Converter

grade = int(input("Enter a numeric grade"))
```

```
[ ]
if grade <= 90:
if grade >= 90:
elif grade > 90:
elif grade >= 90:
```

```
    letter_grade = 'A'
```

```
[ ]
if grade > 80:
if grade >= 80:
elif grade > 80:
elif grade >= 80:
```

```
    letter_grade = 'B'
```

```
[ ]
if grade > 70:
if grade >= 70:
elif grade > 70:
elif grade >= 70:
```

```
[ ]
    letter_grade = 'C'
```

```
[ ]
if grade > 65:
```

**Section: (none)**
**Explanation**

**Explanation/Reference:**
References: https://www.w3resource.com/python/python-if-else-statements.php

**QUESTION 2**
You are developing a Python application for an online product distribution company.

You need the program to iterate through a list of products and escape when a target product ID is found.

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

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

**Hot Area:**

## Answer Area

```
productIdList = [0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
index = 0

[ while / for / if / break ]  (index < 10) :

    print(productIdList[index])

    if productIdList[index] == 6 :

        [ while / for / if / break ]

    else :
```

**Correct Answer:**

## Answer Area

```
productIdList = [0, 1, 2, 3, 4, 5, 6, 7, 8, 9]
index = 0

[ while ▼ ]  (index < 10) :
    print(productIdList[index])

    if productIdList[index] == 6 :

        [ break ▼ ]

    else :
```

**Section: (none)**
**Explanation**

**Explanation/Reference:**

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

**QUESTION 3**
DRAG DROP

You are building a Python program that displays all of the prime numbers from 2 to 100.

How should you complete the code? To answer, drag the appropriate code segments 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**

```
p = 2
while p <= 100:
      is_prime = True
```

```
p = 2
is_prime = True
while p <= 100:
```

```
break
```

```
continue
```

```
p = p + 1
```

```
for i in range(2, p):
 if p / i = = 0:
     is_prime = False
```

```
for i in range(2, p):
 if p % i = = 0:
     is_prime = False
```

**Answer Area**

```
if is_prime = = True:
    print(p)
```

**Correct Answer:**

**Code Segments**

```
p = 2
is_prime = True
while p <= 100:
```

```
continue
```

```
for i in range(2, p):
 if p / i = = 0:
     is_prime = False
```

**Answer Area**

```
p = 2
while p <= 100:
      is_prime = True
```

```
for i in range(2, p):
 if p % i = = 0:
     is_prime = False
```

```
break
```

```
if is_prime = = True:
    print(p)
```

```
p = p + 1
```

**Section: (none)**
**Explanation**

**Explanation/Reference:**
References:

https://docs.python.org/3.1/tutorial/inputoutput.html
https://stackoverflow.com/questions/11619942/print-series-of-prime-numbers-in-python
https://www.programiz.com/python-programming/examples/prime-number-intervals

**QUESTION 4**
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://interactivepython.org/runestone/static/pythonds/BasicDS/InfixPrefixandPostfixExpressions.html

**QUESTION 5**
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 6**
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 7**
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 [                    ]
        if [                    ]
        retu
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)
```

- word_list in word:
- word in word_list:
- word == word_list:
- word is word_list:

- word is letter:
- letter is word:
- word in letter:
- letter in word:

**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 [word is letter: / letter is word: / word in letter: / letter in word:]

        retu
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 8**
HOTSPOT

The ABC Video company needs a way to determine the cost that a customer will pay for renting a DVD. The cost is dependent on the time of day the DVD is returned. However, there are also special rates on Thursdays and Sundays. The fee structure is shown in the following list:

- The cost is $1.59 per night.
- If the DVD is returned after 8 PM, the customer will be charged an extra day.
- If the video is rented on a Sunday, the customer gets 30% off for as long as they keep the video.
- If the video is rented on a Thursday, the customer gets 50% off for as long as they keep the video.

You need to write code to meet the requirements.

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

## Answer Area

```
# ABC       Video, DVD Rental Calculator

ontime = input("Was video returned before 8 pm? y or n").lower()

days_rented = int(input("How many days was video rented?"))

day_rented = input("What day was the video rented?").capitalize()

cost_per_day = 1.59

if ontime [                    ▼]

    days_rented +=1

if day_rented [                ▼]

    total = (days_rented * cost_per_day) * .7

elif day_rented [              ▼]

    total = (days_rented * cost_per_day) * .5

else:

    total = days_rented * cost_per_day

print("Cost of the DVD rental is : $", total)
```

**Hot Area:**

## Answer Area

```
#  ABC      Video, DVD Rental Calculator

ontime = input("Was video returned before 8 pm? y or n").lower()

days_rented = int(input("How many days was video rented?"))

day_rented = input("What day was the video rented?").capitalize()

cost_per_day = 1.59

if ontime
        != "n":
    days_ren == "n":
        == "y":

if day_rented
        == "Sunday ":
    total = (da >= "Sunday ": * .7
        is " Sunday ":

elif day_rented
        == "Thursday":
        <= "Thursday":
```

**Correct Answer:**

## Answer Area

```
#  ABC      Video, DVD Rental Calculator

ontime = input("Was video returned before 8 pm? y or n").lower()

days_rented = int(input("How many days was video rented?"))

day_rented = input("What day was the video rented?").capitalize()

cost_per_day = 1.59

if ontime
        != "n":
    days_ren == "n":
        == "y":

if day_rented
        == "Sunday ":
    total = (da >= "Sunday ": * .7
        is " Sunday ":

elif day_rented
        == "Thursday":
        <= "Thursday":
```

**Section: (none)**
**Explanation**

**Explanation/Reference:**
References:
https://www.w3resource.com/python/python-operators.php
https://www.w3resource.com/python/python-if-else-statements.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**
HOTSPOT

You are developing a Python application for your company.

You write the following code:

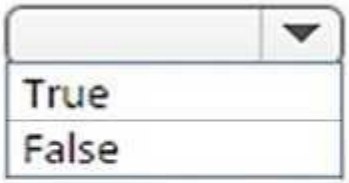
```
numList = [1,2,3,4,5]
alphaList = ["a","b","c","d","e"]
print(numList is alphaList)
print(numList == alphaList)
numList = alphaList
print(numList is alphaList)
print(numList == alphaList)
```

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:**

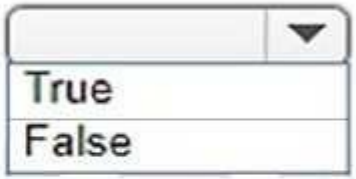
**Answer Area**

What is displayed after the first print?

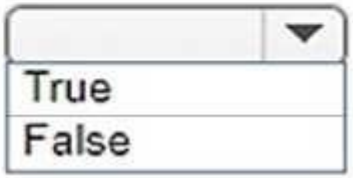



What is displayed after the second print?


What is displayed after the third print?



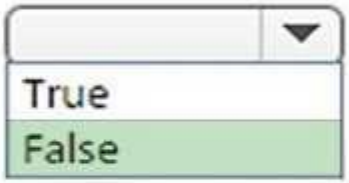

What is displayed after the fourth print?



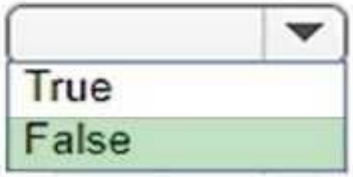

**Correct Answer:**

**Answer Area**

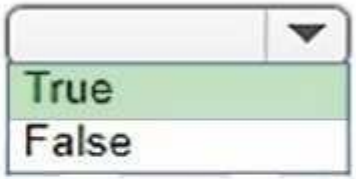
What is displayed after the first print?




What is displayed after the second print?




What is displayed after the third print?




What is displayed after the fourth print?


**Section: (none)**
**Explanation**

**Explanation/Reference:**

References: https://www.w3resource.com/python/python-list.php

**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

**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.

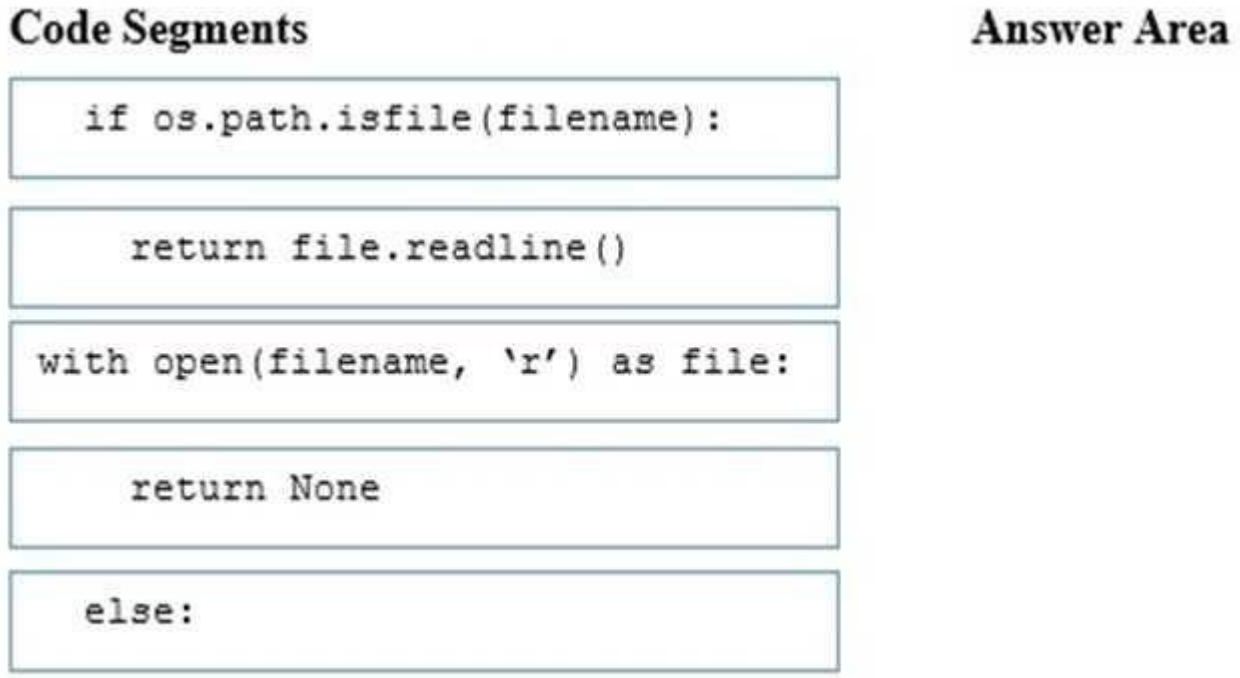
You need to ensure that the function returns None if the file does not exist. If the file does exist, the function must return the first line.

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:**




**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

**QUESTION 23**
HOTSPOT

For each of the following statements, select Yes if the statement is true. Otherwise, select No.

**Hot Area:**

**Answer Area**

| | Yes | No |
|---|---|---|
| A `try` statement can have one or more `except` clauses. | ○ | ○ |
| A `try` statement can have a `finally` clause without an `except` clause. | ○ | ○ |
| A `try` statement can have a `finally` clause and an `except` clause. | ○ | ○ |
| A `try` statement can have one or more `finally` clauses. | ○ | ○ |

**Correct Answer:**

## Answer Area

| | Yes | No |
|---|---|---|
| A `try` statement can have one or more `except` clauses. | ◉ | ○ |
| A `try` statement can have a `finally` clause without an `except` clause. | ◉ | ○ |
| A `try` statement can have a `finally` clause and an `except` clause. | ◉ | ○ |
| A `try` statement can have one or more `finally` clauses. | ○ | ◉ |

**Section: (none)**
**Explanation**

**Explanation/Reference:**
References: https://docs.python.org/2.0/ref/try.html

**QUESTION 24**
You develop a Python application for your company.

You want to add notes to your code so other team members will understand it.

What should you do?

A. Place the notes after the # sign on any line
B. Place the notes after the last line of code separated by a blank line

C. Place the notes before the first line of code separated by a blank line
D. Place the notes inside of parentheses on any time

**Correct Answer:** A
**Section: (none)**
**Explanation**

**Explanation/Reference:**
References: http://www.pythonforbeginners.com/comments/comments-in-python