Preview Test: CSSE1001/7030 Semester One Final Examination 2020

Test Information

Description	CSSE1001/7030. Introduction to Software Engineering. Semester 1 Final Examinations. Materials permitted include 2 blank sheets of A4 paper and a FX82 series calculator or a UQ approved and labelled calculator or a calculator from UQ's list of approved calculators. You are NOT allowed to run any Python software while doing this examination.
Instructions	Answer all questions. For all questions, please choose the most appropriate answer if it appears that more than one option is a potentially correct answer. All coding questions relate to the Python 3 programming language. If an evaluation produces an error of any kind, choose Error as your answer. Different questions may have different numbers of choices. Each question is worth one mark. If you experience any technical difficulties during the exam, talk to your online invigilator via the webcam or chat functions. If the technical trouble cannot be resolved, you should ask for an email (or transcript of the chat) documenting any technical advice provided to support your request for a deferred exam.
Timed Test	This test has a time limit of 2 hours and 30 minutes.This test will save and be submitted automatically when the time expires. Warnings appear when **half the time**, **5 minutes**, **1 minute**, and **30 seconds** remain. *[The timer does not appear when previewing this test]*
Multiple Attempts	Not allowed. This Test can only be taken once.
Force Completion	This Test can be saved and resumed at any point until time has expired. The timer will continue to run if you leave the test. Your answers are saved automatically.

QUESTION 1 **0 points** Save Answer

Please use this space to specify any assumptions you have made in completing the exam and which questions those assumptions relate to. You may also include queries you may have made with respect to a particular question, should you have been able to 'raise your hand' in an examination room.

QUESTION 2

1 points Save Answer

What does the expression `(6.1 + 3.2) // 3` evaluate to?

- 3
- 3.0
- 3.1
- Error

QUESTION 3

1 points Save Answer

What does the expression `3 + 5 % 2` evaluate to?

- 4
- 4.0
- 5.5
- 0
- Error

QUESTION 4

1 points Save Answer

What does the expression `11.0 % 3 ** 2` evaluate to?

- 4.0
- Error
- 2.0
- 4
- 2

QUESTION 5

1 points Save Answer

What will be returned when `(7,3,(6,)) + (9,(5))` is entered into Python?

- (7, 3, 6, 9, 5)
- (7, 3, (6,), 9, (5))
- (7, 3, (6,), (9, (5)))
- (7, 3, (6,), 9, 5)
- None of the other choices are correct

QUESTION 6

1 points Save Answer

What does the expression `['ab'] <= ['ba']` evaluate to?

- Error
- 'ba'
- 'ab'
- False
- True

QUESTION 7

1 points Save Answer

What is the value of `a` after the following statements are evaluated?

```
x = [1, 'a', '\t bc'.strip()]
y = ['d', 'g', 'f']
z = x + y
a = z[2]
```

- '\tbc'
- 'bc'
- Error
- '\t bcf'
- '\tbc'

QUESTION 8 **1 points** Save Answer

What is the result of `max(2,4) < min(5,[6,3][1])` ?

- ○ True
- ○ False
- ○ Error
- ○ None of the other choices are correct

QUESTION 9 **1 points** Save Answer

What is the value of `x` after the following statements are evaluated?

```
x = [23, True, False]
y = x
y[2] = 46
x[1] = 7
```

- ○ [23, 7, False]
- ○ [23, 7, 46]
- ○ Error
- ○ None of the other choices

QUESTION 10 **1 points** Save Answer

After the assignment `s1 = "Ode to Programming"`, which of the following statements assigns `'rog'` to `s2`?

- ○ `s2=s1[8:11]`
- ○ s2=s1[8:10]
- ○ `s2 = s1[-7:-10]`
- ○ `s2 = s1[-10:-7]`
- ○ `More than one of the other options are correct`

QUESTION 11

1 points Save Answer

Given the assignment `s1 = "Ode to Programming"`, what will the value of `s2` be after the following command is entered?

```
s2=s1[3:11:4]
```

- `s2 = 'e '`
- `s2 = ' Pr'`
- `s2 = ' P'`
- None of the other choices are correct

QUESTION 12

1 points Save Answer

What will be in `sum` after the following loop has completed executing?

```
sum=''
for e,f in ('ab','cd'):
    sum+=2*e+f
```

- ('ababcd')
- 'ababcd'
- 'aabccd'
- Error
- None of the other choices are correct

QUESTION 13

1 points Save Answer

What will be printed after the following code is executed:

```
x = input("Please enter a two digit number: ")
x1 = int(x)
x1 = x1[0]
print("The first digit is:", x1)
```

- The first digit is: 1
- The first digit is: 15
- An Error message
- The first digit is:

QUESTION 14

1 points Save Answer

After executing the code below, what would be the contents of `a`?

```
a={1:"s",2:"t",3:"r"}
b={4:"i",5:"n"}
a.update({6:b.get(5)})
```

- {1: 's', 2: 't', 3: 'r'}
- {1: 's', 2: 't', 3: 'r', 6: 'n'}
- {}
- Error
- None of the other choices are correct

QUESTION 15

1 points Save Answer

What is the value of `d2` after the following statements are evaluated?

```
d = {1:'a', 2:'b', 3:'c'}
d2 = d.update({5:['def']})
```

- {1: 'a', 2: 'b', 3: 'c', 5: 'def'}
- {1: 'a', 2: 'b', 3: 'c', 5: ['def']
- Error
- None
- {1:'a', 2:'b', 3:'c'}

QUESTION 16

1 points Save Answer

What is the value of `y` after the following code is executed?

```
def g(y):
    y = y+25
    return y
y=40
g(y)
```

- 65
- 40
- None
- Error

QUESTION 17

1 points Save Answer

The following recursive function definition is used in this question and the next one.

```
def g(x) :
    if x == 1 :
        return 1
    x -=1
    return g(x-1)*x
```

What will the function call g(3) return?

- 2
- RecursionError will be raised due to maximum recursion depth being exceeded
- 6
- 4

QUESTION 18

1 points Save Answer

What will the function call `g(2)` return?

- `0`
- `-1`
- `1`
- `RecursionError will be raised due to maximum recursion depth being exceeded.`

QUESTION 19

1 points Save Answer

```
The following class and method definitions are
used for this and the following 4 questions.
class A(object) :
    def __init__(self, x) :
        self._x = x+1

    def m1(self, x) :
        return self.m2(x) * 3

    def m2(self, x) :
        return x + 2

class B(A) :
    def m2(self, y) :
        return self._x + y

class C(B) :
    def __init__(self, x, y) :
        super().__init__(x)
        self._y = y+1

    def m1(self, x) :
        return self._x + self._y

class D(B) :
    def __init__(self, x, y) :
        super().__init__(x)
        self._x += y
        self._y = y-1

    def m1(self, y)  :
        return self._y + y

    def m2(self, x) :
        return super().m2(x) + x

a = A(2)
b = B(1)
c = C(1, 2)
d = D(1, 1)
```

What does `a.m1(1)` return?

- ○ 7
- ○ 9
- ○ 11
- ○ 13
- ○ None of the other choices are correct

QUESTION 20 **1 points** Save Answer

What does `b.m1(1)` return?

- ○ `5`
- ○ 7
- ○ 9
- ○ 11
- ○ `None of the other choices are correct`

QUESTION 21 **1 points** Save Answer

What does `c.m2(2)` return?

- ○ `1`
- ○ `2`
- ○ `3`
- ○ `4`
- ○ None of the other choices are correct

QUESTION 22 **1 points** Save Answer

What does `d.m1(2)` return?

- ○ `-1`
- ○ `0`
- ○ `1`
- ○ `2`
- ○ `None of the other choices are correct`

QUESTION 23 **1 points** Save Answer

What does `d.m2(2)` return?

- 5
- 6
- 7
- 8
- None of the other choices are correct

QUESTION 24 **1 points** Save Answer

What is the value of `z` after the following has been evaluated?

```
g = lambda u,v: u+v
vs = 'trot'
z = [g(u,v) for u in 'same' if u not in
'amps' for v in vs]
```

- ['st', 'sr', 'so', 'st', 'at', 'ar', 'ao','at', 'mt', 'mr', 'mo', 'mt']
- ['et', 'er', 'eo', 'et']
- []
- None of the above choices are correct

QUESTION 25

1 points Save Answer

After running the following code:

```
import random
xs=[1,2,3,4]
new_list=[(x,random.random()) for x in xs]
new_list.sort()
z=[(y,y) for y,x in new_list]
```

which of the following represents the most plausible contents of `z`?

- `[(1, 0.3656826997131658), (2, 0.4789711218283632), (3, 0.20367358828920812), (4, 0.4651024789182844)]`
- `[(0.23845323656036166, 2), (0.5411763744080424, 4), (0.7368067435015173, 3), (0.9585633916983842, 1)]`
- `[(0.7070150251404196, 0.7070150251404196), (0.9635956493452444, 0.9635956493452444), (0.5960013756836279, 0.5960013756836279), (0.9623962721301965, 0.9623962721301965)]`
- `[(1, 1), (2, 2), (3, 3), (4, 4)]`
- `Error`

QUESTION 26

1 points Save Answer

The following partial definition of a SwimRecord class is used in this and the following two questions.

```
class SwimRecord(object) :
    def __init__(self, name, club) :
        """Parameters:
        name(str): swimmer's name
        club(str): swimmer's club
        self._swim_record(dict): Data record to store
swim meets and
        swim times. The key is the name of the
        swim meet; the value is the time recorded for
each swim meet"""
        self._name = name
        self._club = club
        self._swim_record = {}

    def update_swim_record(self, new_results: dict) :
        """Add results from 'new_results' into
record."""
        ## code block 1 ##

    def get_swim_results(self, swim_meet: str) :
        """Get swim results."""
        return self._swim_record.get(swim_meet,'Err')

    def get_swim_times(self) :
        """Return all swim times in a list"""
         ## code block 2 ##
```

What is the required code for **`## code block 1 ##`**?

- ○ `self._swim_record += new_results`
- ○ `self._swim_record.update(new_results)`
- ○ `self._swim_record.append(new_results)`
- ○ None of the other code blocks are correct.

QUESTION 27

1 points Save Answer

What is the required code for ## code block 2 ## ?

- return [j for i,j in self._swim_record.items()]
- return self._swim_record
- return list(self._swim_record.keys())
- return swim_record.update(self)
- More than one of the other choices are correct

QUESTION 28

1 points Save Answer

After the assignment `z='ministry of silly walks'` what does the expression `'----'.join(z.split('silly'))` evaluate to?

- `['ministry', 'of', '----', 'walks']`
- '----silly'
- `'ministry of ---- walks'`
- `None of the other choices are correct`

QUESTION 29

1 points Save Answer

The next 3 questions refer to the following definition that is missing three lines of code. The function get_column_sums below reads data from a CSV (Comma Separated Values) file and returns the list of sums for each column. We assume the file contains rows of floating point numbers separated by commas (and possibly including spaces) and each row has the same number of floats. Below is an example of such a file and the result of applying the function to that file.The following is an example of a data file (values.txt).

```
1.2, 1 ,2.3, 1.4, 0.1
0.7,1.5, 1.2, 2.4, 0.1
2.1,0.7, 1.4, 2.0, 0.1
>>> get_column_sums('values.txt')
[4.0, 3.2, 4.9, 5.8, 0.3]
>>>
```

The definition of the get_column_sums function with three missing lines and the result of applying the completed function to the file is given below.

```
def get_column_sums(filename):
    fd = open(filename, 'r')
    data = []
    for line in fd:
        parts = line.split(',')
        line_data = []
        for p in parts:
            ## line 1 ##
        data.append(line_data)
    column_sums = []
    for index in range(len(data[0])):
        colsum = 0
        for row in range(len(data)):
            ## line 2 ##
        ## line 3 ##
    return column_sums
```

What is the required code for ## line 1 ##?

- ○ line_data.append(p)
- ○ line_data.append(float(p.strip()))
- ○ line_data.extend(p)
- ○ line_data.extend(float(p.strip()))
- ○ More than one of the other options is correct.

QUESTION 30

1 points Save Answer

What is the required code for ## line 2 ##?

- colsum = data[index][row]
- colsum = data[row][index]
- colsum += data[index][row]
- colsum += data[row][index]
- More than one of the other options is correct

QUESTION 31

1 points Save Answer

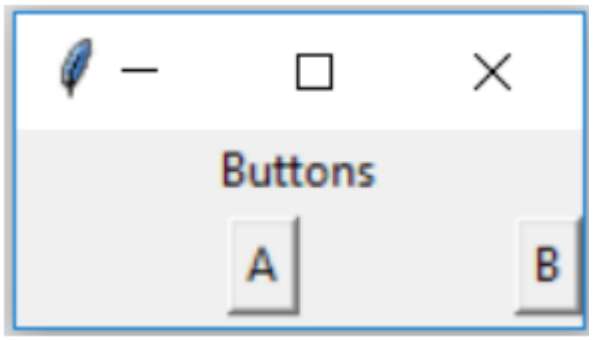
What is the required code for ## line 3 ##?

- column_sums.append(colsum)
- column_sums.extend(colsum)
- column_sums + colsum
- column_sums + [colsum]
- More than one of the other options is correct

QUESTION 32

1 points Save Answer

The next two question relate to the following partial definitions. In a GUI application we decide we need a widget that contains two buttons and that this widget is to appear within the main window of the application below the label as shown in the image below.




```
class ButtonsFrame(tk.Frame) :
    def __init__(self, parent) :
        tk.Frame.__init__(self, parent.root)
         b1 = tk.Button(self, text= "A")
         b2 = tk.Button(self, text = "B")
         ## lines 1 and 2 ##

class MainWindow(object) :
     def __init__(self, root) :
     self.root = root
     tk.Label(root, text="Buttons").pack()
     bf = ButtonsFrame(self)
     ## line 3 ##
```

What is the required code for ## lines 1 and 2 ##?

- ○ b1.pack(side=tk.LEFT, expand=1)
b2.pack(side=tk.LEFT)
- ○ b1.pack(side=tk.LEFT, expand=1)
b2.pack(side=tk.LEFT, expand=1)
- ○ b1.pack(side=tk.LEFT, fill=tk.BOTH)
b2.pack(side=tk.LEFT, fill=tk.BOTH)
- ○ b1.pack(side=tk.LEFT, fill=tk.BOTH)
b2.pack(side=tk.LEFT, fill=tk.X)
- ○ More than one of the other choices is correct.

QUESTION 33

1 points Save Answer

What is the required code for ## line 3 ##?

- bf.pack(expand=1)
- bf.pack(fill=tk.BOTH, expand=1)
- bf.pack()
- bf.pack(fill=tk.BOTH)
- More than one of the other choices is correct.

QUESTION 34

1 points Save Answer

To create a menu in a window, use _____

- menubar = tk.Menu(master)
- menubar = tk.MenuBar(master)
- menubar = tk.Menu()
- menubar = tk.MenuBar()

QUESTION 35

1 points Save Answer

Which of the following is true?

- Lists are mutable but dictionaries are immutable
- User defined classes are by default immutable
- Values and keys in dictionaries must both be immutable
- Strings, integers, floats, booleans and image objects are all immutable
- None of the other options are true

QUESTION 36

1 points Save Answer

What will be returned after the following commands are entered?
import operator
print(sum(list(map(operator.mul, [1,2,3,4],[5,6,7,8]))))

- 70
- [5, 12, 21, 32]
- 260
- [50, , 60, 70, 80]
- None of the other options are correct

QUESTION 37

1 points Save Answer

What is the value of g after the following is evaluated?
y = ['a', 'b']
g= [2]
y.extend([4])
g.append(y)

- [2, ['a', 'b', 4]]
- [2, 'a', 'b', [4]]
- None
- Error

QUESTION 38 **1 points** Save Answer

What will be the value of x after evaluating these statements?

```
x = [1, 2, 3, 4]
x.append(x.pop(2))
x.insert(2, x.pop(1))
```

- ○ [1, 2, 3, 4]
- ○ [2, 4, 3, 1]
- ○ [1, 3, 2, 4]
- ○ [1, 4, 2, 3]
- ○ None of the other options are correct

QUESTION 39 **1 points** Save Answer

The next two questions refer to the following function definition.

```
def get_days(years) :
    total_days = 0
    while years >= 0 :
        total_days += 365
        years -= 1
    return total_days
```

When the following code is executed, what, if any, error will be thrown?

```
years = input("How many years to convert to days? ")
days = get_days(years)
print("You entered ", years, "years.")
print("That is {} days.".format(days))
```

- ○ ValueError
- ○ NameError
- ○ TypeError
- ○ No error will be thrown

QUESTION 40

1 points Save Answer

What will the following function call return? (If you determined that an error would be thrown in the previous question, assume that it has been fixed.)

get_days(2)

- ○ 365
- ○ 730
- ○ 1095
- ○ None of the other choices are correct

QUESTION 41

1 points Save Answer

What is the value of z after the following commands are entered?

```
gf = ['Mo', 'Python']
z=[''.join([gf[i][j] for i in range(len(gf[0]))]) for j in range(len(gf))]
```

- ○ [’MP’, ’oy’]
- ○ [’My’, 'Po']
- ○ [’MyPo’]
- ○ Error
- ○ None of the other options are correct