

ID:

Question 1 (39 marks)

- a) Complete the output produced by the following code.

```
result = 3 * 4 + 4 + 2 // 3 - 3 * 2
print("Result:", result)
```

Result:

(3 marks)

- b) Give the output produced by the following code.

```
print(7 % 4, 4 % 4, 5 % 10)
```

(3 marks)

- c) Complete the output produced by the following code.

```
result = 1 + 2 * 3 ** 2 // 10
print("Result:", result)
```

Result:

(3 marks)

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d) Complete the output produced by the following code.

```
result = "3" * 2 + str(3 * 2 - 1) + str(4) + "5"  
print("Result:", result)
```

Result:

(3 marks)

e) Complete the output produced by the following code.

```
word1 = "pastiche"  
word2 = word1[5:] + word1[-1] + word1[2:4]  
print("Letters:", word2)
```

Letters:

(3 marks)

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f) Give the output produced by the following code.

```
word1 = "bric a brac"  
word2 = word1.upper()  
word2 = word2.strip()  
position1 = word1.find("b")  
position2 = word1.rfind("B")  
position3 = word2.rfind("B")  
  
print(position1, position2, position3)
```

(3 marks)

g) Complete the following Python statement which assigns a random number which is either 8, 10 or 12 to the variable, number. You can assume that the random module has been imported.

```
number =
```

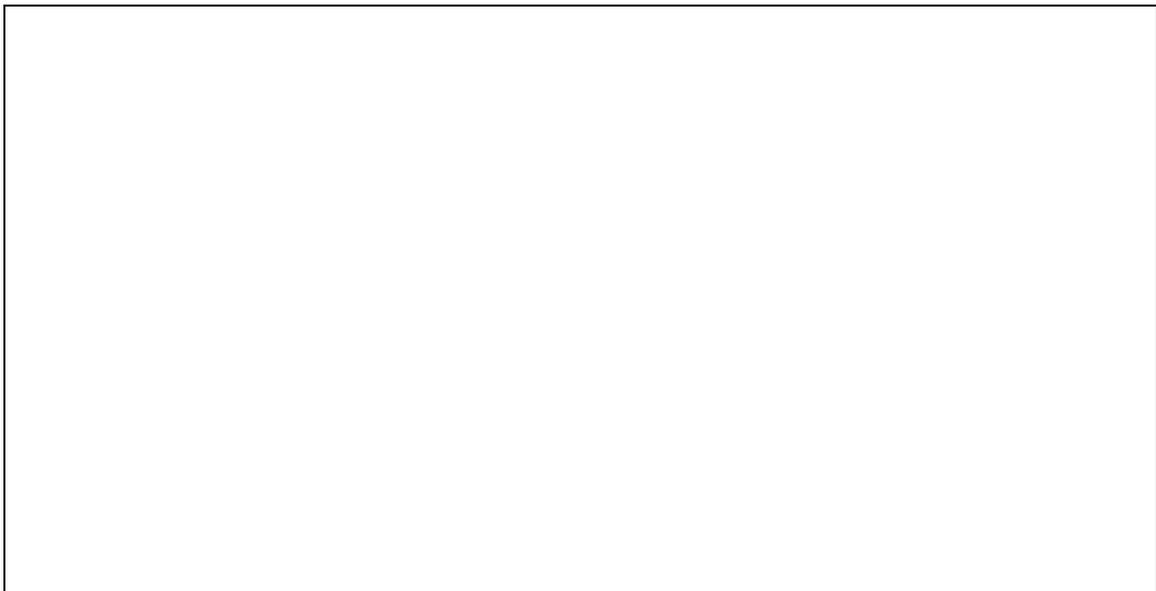
(3 marks)

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h) Give the output produced by the following code.

```
num1 = 32
num2 = 150
num3 = 100

if num1 < num2 or num3 > num2:
    print("A")
    if num2 - num2 > 100:
        print("B")
    print("C")
elif num3 < num1:
    print("d")
else:
    if num3 < num2 - 40:
        print("E")
print("F")
```



(3 marks)

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i) Give the output produced by the following code.

```
num1 = 32
num2 = 150
is_a_gift = True
amount = 200

if amount > num1 and amount < num2:
    if is_a_gift and amount < 100:
        amount = amount - 10
        print("1.")
    else:
        amount = amount + 5
        print("2.")
else:
    if amount > num2:
        amount = amount - 20
        print("3.")
    elif amount < num1:
        amount = amount + 20
        is_a_gift = False
        print("4.")
    if is_a_gift:
        amount = amount - 2
        print("5.")

print("Amount:", amount)
```

(3 marks)

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j) Give the output produced by the following code.

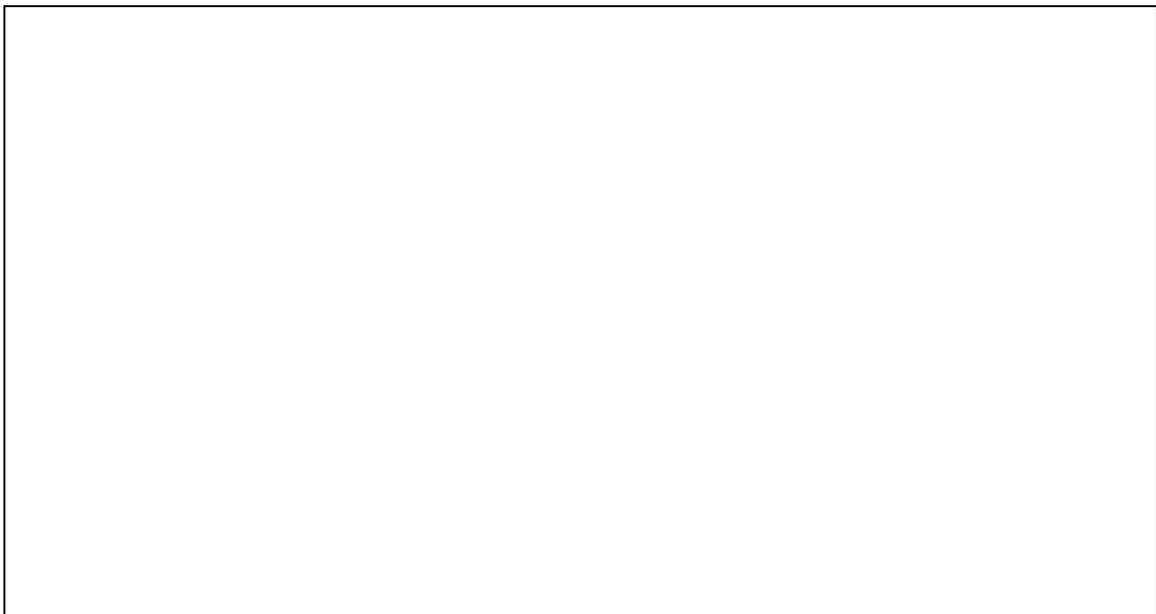
```
for number in range(4, 20, 4):  
    print(number)
```



(3 marks)

k) Give the output produced by the following code.

```
for number in range(18, 10, -3):  
    print(number)
```



(3 marks)

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l) Complete the output produced by the following program.

```
def mystery(a_list):
    length = len(a_list)
    last_one = a_list[-1]
    count = 0
    for index in range(length - 1):
        if a_list[index] > last_one:
            count += 1
    return count

def main():
    a_list = [24, 12, 30, 18, 26, 14, 32, 18]
    print("Result:", mystery(a_list))

main()
```

Result:

(3 marks)

m) Given the following code (the right hand side of the first statement is not shown but you can assume the code executes without error):

```
thing1 = ...
thing2 = thing1 + [5, 7, 2]
thing2[1] = "Two"
```

what is the type of the two Python objects `thing1` and `thing2[1]`?

`thing1` is an object of type:

`thing2[1]` is an object of type:

(3 marks)

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Question 2 (20 marks)

Part a) and Part b) refer to the following function:

```
def process(word1, word2, how_many):  
    part1 = word1[0:how_many]  
    part2 = word2[0:how_many]  
    if word1 == word2:  
        return False  
    else:  
        return part1 == part2
```

a) Complete the call to the `process()` function so that the following code prints "Yes".

```
if process(  ):  
    print("Yes")  
else:  
    print("No")
```

*(3 marks)*b) Complete the call to the `process()` function so that the following code prints "No".

```
if process(  ):  
    print("Yes")  
else:  
    print("No")
```

(3 marks)

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- c) Complete the `has_same_ending()` function which is passed two string parameters, `word1` and `word2`. The function returns `True` if both parameter strings have the same last letter, otherwise the function returns `False`. You can assume that the parameter strings always contain at least one character. For example, the following code:

```
print(has_same_ending("taro", "carrot"))
print(has_same_ending("funny", "day"))
```

prints:

`False`

`True`

```
def has_same_ending(word1, word2):
```

(7 marks)

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- d) Complete the `get_hollow_word()` function which is passed a string parameter, `word`. The function returns a string made up of the first letter of the parameter string followed by a series of "-" symbols followed by the last letter of the parameter string. The string returned by the function has the same number of characters as the parameter string. You can assume that the parameter string always contains at least two characters.

For example, the following code:

```
print(get_hollow_word("Geraldine"))
print(get_hollow_word("Simon"))
```

prints:

```
G-----e
S---n
```

```
def get_hollow_word(word):
```

(7 marks)

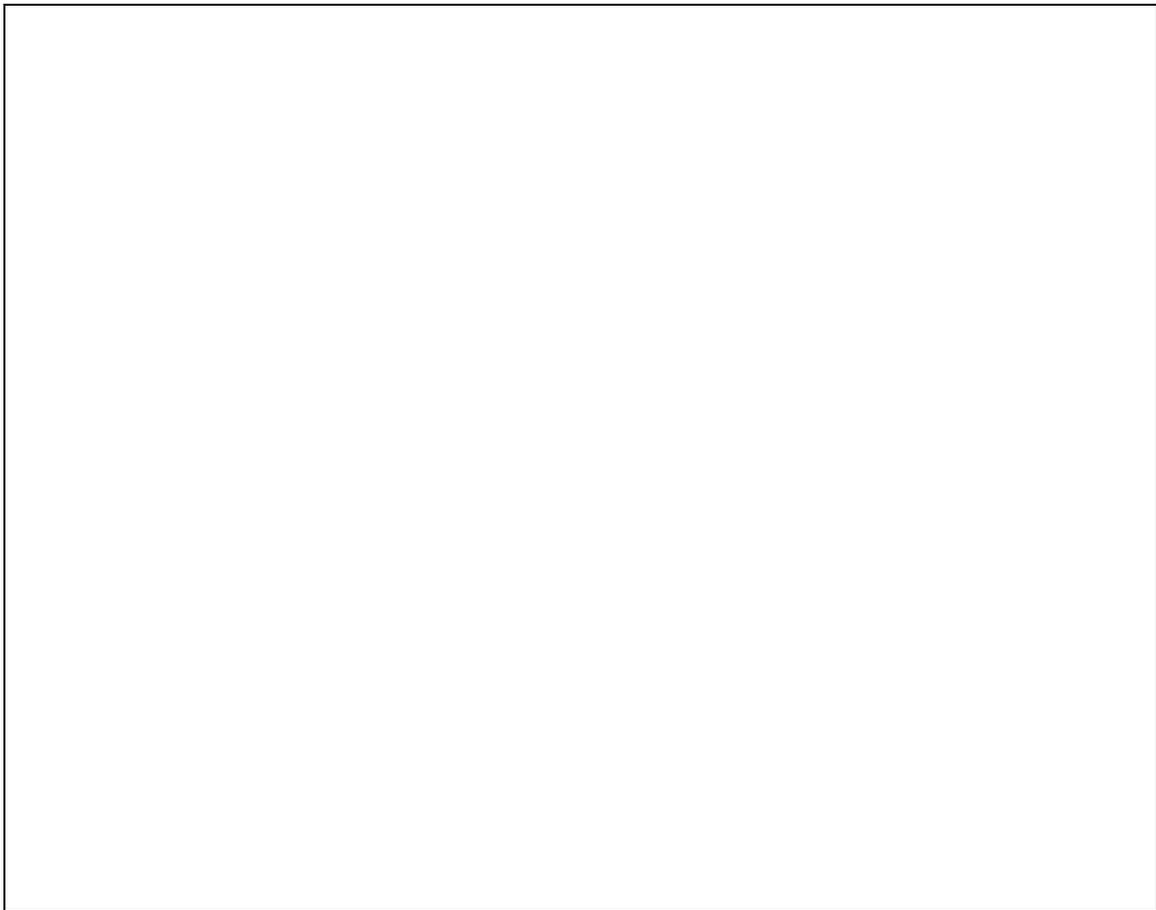
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Question 3 (14 marks)

- a) Convert the following code which uses a `while` loop into equivalent code which uses a `for ... in range(...)` loop.

```
num = 2
while num < 34:
    print(num)
    num = num + 3
```

*(6 marks)*

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- b) Complete the following program which continuously prompts the user for a whole number (using the prompt "Enter number: ") until the sum of the numbers entered by the user is greater than 20. Once the sum is greater than 20 the final line of output displays the string "Final sum: " followed by the final sum reached (a number greater than 20). An example execution of the completed program is shown below (the user input is shown in bold in a larger font size):

```
Enter number: 9
Enter number: 4
Enter number: 11
Final sum: 24
```

```
def main():
```



(8 marks)

```
main()
```

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Question 4 (14 marks)

a) Complete the output produced by the following code:

```
a_list = [3, 2, 1, 5, 0, 3]
a_list[3] = a_list[2] + a_list[1]
a_list[1] = a_list[5] * a_list[0]
a_list[4] = a_list[a_list[2]]
print("a_list:", a_list)
```

```
a_list: [ ]
```

(6 marks)

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- b) Complete the `get_count_negatives()` function, which returns the number of elements from the parameter list which are less than zero. For example, executing the following code using the completed function:

```
a_list = [3, -2, 1, 5, 10, -3, 0, -2]
count = get_count_negatives(a_list)
print("Elements less than zero:", count)
```

gives the output:

```
Elements less than zero: 3
```

```
def get_count_negatives(a_list):
```

(8 marks)

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Question 5 (13 marks)

- a) Using the code tracing technique shown in lectures, perform a code trace for the following program and give the output. Give the output in the space below and **show the code trace in the space provided on the next page.**

```
def main():
    print("A")
    partA = "XYZ"
    partB = 123
    function1(partA, partB)
    print("B")

def function1(part1, part2):
    print("C")
    combined = part1 + str(part2)
    print("D", combined)
    result = function2(combined, "Z")
    print("E", result)

def function2(symbols, letter):
    pos = symbols.find(letter)
    print("F", pos)
    result = symbols[pos:] + symbols[pos - 1]
    return result

main()
```

Give the output:

(6 marks)

CONTINUED

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Complete the code trace in the space below:

```
main() function
```

(7 marks)

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ROUGH WORKING (WILL NOT BE MARKED)

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ID:

ROUGH WORKING (WILL NOT BE MARKED)

(You may detach this page from the answer booklet and use it for rough working)