

Computer Science 217

Midterm Exam #2

Winter 2026

March 24, 2026

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First Name: _____

Last Name: _____

ID: _____

Instructions:

- Neatly print your names and ID number in the spaces above.
- Neatly print your names and ID number on both of the provided bubble sheets and shade the circles for your ID number on both of the bubble sheets.
- Record your answer for question 1 on the appropriate bubble sheet. Record your answers for questions 2 to 19 on the traditional five-answer multiple-choice bubble sheet.
- Ensure that any errors made when recording answers on the bubble sheets are erased completely. Replacement bubble sheets are available if you are unable to completely erase your undesired response.
- Pick the **best answer** for each multiple-choice question.
- This exam consists of 9 pages, including the cover. Before answering any questions, count the pages and ensure that they are all present.
- You have 60 minutes to complete this exam. Extra time will **not** be provided to record your answers on the bubble sheets. Ensure that all of your answers have been recorded before the time limit is reached.
- Unless noted otherwise, each question is worth one mark.
- This exam is closed book. You are not permitted to use any electronic devices or reference materials.
- **DO NOT TURN PAST THIS PAGE UNTIL YOU ARE INSTRUCTED TO BEGIN.**

Record the answers to the questions on this page on the provided bubble sheet.
Answers recorded in this question booklet will NOT be graded.

Question #1:

[12 marks] Some Olympians compete in multiple events at a particular winter or summer games. Occasionally, an individual has earned a gold, silver and bronze medal at the same games (in different events). Such individuals are sometimes said to have earned a 'full set' or 'complete set' of medals at the games.

Assume that data exists about all of the athletes that competed for a particular country and that this data is stored in a list. Each element in the list is either an athlete's name (a string), or the position in which the athlete finished in their event (an integer), with 1 indicating a first-place (gold) finish, 2 indicating a second-place (silver) finish, 3 indicating a third-place (bronze) finish, etc. The data will be ordered so that the name of the athlete is always immediately followed their position. Put another way, the athlete's names will appear at even indices in the list, and their finish positions will appear at odd indices. An athlete's name will only appear multiple times in the list if they competed in multiple events.

The following list represents that Ben was second in one event, and that Jonathan was third in one event and fourth in another, and Andrew was first in one event.

```
x = ["Ben", 2, "Jonathan", 3, "Jonathan", 4, "Andrew", 1]
```

Similarly, the following list represents that Beth competed in three events, finishing first, sixth and third, and that Zoe competed in four events where she finished second, eighth, first, and third. Notice that occurrences of a particular athlete may not be adjacent within the list.

```
y = ["Beth", 1, "Beth", 6, "Zoe", 2, "Zoe", 8, "Beth", 3, "Zoe", 1, "Zoe", 3]
```

Write a function named `fullSet` that takes a list of names and finish positions as described above (and such as the previous two examples) and determines whether or not there is any athlete that won a full set of medals. If so, the function will return `True`. Otherwise, it will return `False`. For example, calling `fullSet(x)` would return `False` because there is no athlete that won all three types of medals in list `x`, but it would return `True` for `fullSet(y)` because Zoe won gold, silver and bronze medals in list `y`.

Your function should return `False` if the list is empty because it does not contain any athlete that won all three types of medals.

Only write the function described in this question. Do **not** write a main program that attempts to use the function.

Hint: Build lists of the gold, silver and bronze medalists. Then check to see if there is a gold medalist who also won silver and bronze medals.

Record the answers to the questions on this page on the provided bubble sheet.
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Use the following lines to construct your solution. Record your answer onto the provided bubble sheet. Ensure that you follow the dashed vertical lines for any indented statements and that you shade the digits associated with each statement that you use. Statements can be used more than once. Some statements may not be needed. Any blank lines on the bubble sheet will be ignored.

```
1: bronzes = []
3: bronzes.append(data[i + 1])
5: bronzes.append(data[i])
7: def fullSet(data):
9: def fullSet(golds, silvers, bronzes):
12: for i in range(0, len(data), 2):
14: for i in range(0, len(golds), 2):
16: for i in range(len(data)):
18: for i in range(len(golds)):
23: golds = []
25: golds.append(data[i + 1])
27: golds.append(data[i])
29: if data[i + 1] == 1:
34: if data[i + 1] == 2:
36: if data[i + 1] == 3:
38: if data[i] == 1:
45: if data[i] == 2:
47: if data[i] == 3:
49: if golds[i] in silvers and golds[i] in bronzes:
56: if golds[i] in silvers or golds[i] in bronzes:
58: return False
67: return True
69: silvers = []
78: silvers.append(data[i + 1])
89: silvers.append(data[i])
```

Record the answers to the questions on this page on the provided bubble sheet.
Answers recorded in this question booklet will NOT be graded.

2. Which of the following statements is most correct about for loops in Python?
- A. A for loop is a post-tested loop.
 - B. A for loop should be used when reading values from the user until a particular value is entered.
 - C. A for loop always executes one or more times.
 - D. A for loop always counts from one integer to another as it executes.
 - E. None of the above statements is correct.
3. What collection of values is generated by calling `range(3, 0, -2)`?
- A. 0, 2
 - B. 2, 0
 - C. 3, 0
 - D. 3, 1
 - E. 3, 1, -1
4. What is the value of `y` after the following code segment executes?

```
y = 0

for i in range(0, 6, 2):
    if i == 1 or i == 5:
        y = y + 2
    else:
        y = y + 1
```

- A. 1
 - B. 3
 - C. 5
 - D. 6
 - E. 7
5. Which of the following problems would be best solved with nested loops?
- A. Computing the sum of all of the values entered by the user.
 - B. Computing the tax and tip amounts for a meal at a restaurant.
 - C. Displaying the sum of all of the even values entered by the user.
 - D. Modifying all of the pixels in an image to make the image darker.
 - E. Printing all of the multiples of 3 from 1 to 100.

6. Consider the following code segments:

Segment X

```
for i in range(10):  
    print(i)  
i = 0  
while i < 10:  
    print(i)  
    i = i + 1
```

Segment Y

```
a = 0  
while a < 10:  
    if a == 3:  
        print(a)  
    for i in range(a):  
        print(i)  
    a = a + 1
```

Segment Z

```
a = int(input())  
if a > 0:  
    for i in range(a):  
        print(i)  
    if a < 10:  
        for i in range(a):  
            print(i)  
    a = a + 1
```

Which of those code segments contains an example of a nested loop?

- A. Y (only)
- B. Z (only)
- C. X and Y
- D. Y and Z
- E. X, Y and Z

7. What is the value of z after the following code segment executes?

```
z = 0  
for i in range(1, 4):  
    for j in range(4, 7, 2):  
        z = z + 1
```

- A. 6
- B. 7
- C. 8
- D. 10
- E. 12

8. Which of the following statements is most correct?

- A. Every function that a programmer creates will include at least one parameter.
- B. Every function that a programmer creates will return at least one value.
- C. if, for and while are examples of Python function.
- D. print, range and float are examples of Python functions.
- E. The body of a function must contain at least two Python statements.

9. Consider the following program:

```
def mystery(a, b):  
    q = a + b  
    return q  
  
r = mystery(1, 2)
```

What are the arguments (or actual parameters)?

- A. q
 - B. r
 - C. 1 and 2
 - D. a and b
 - E. 1, 2, a and b
10. Consider the following program:

```
def f(a, b=100, c=1):  
    print(a, b, c)  
  
f(50, c=25)
```

What values are displayed when it executes?

- A. 50 25
 - B. 50 25 1
 - C. 50 100 1
 - D. 50 100 25
 - E. None of the above answers is correct
11. Which statement is most correct?
- A. A function's body may include multiple uses of the return keyword.
 - B. The body of a Python function may call another Python function.
 - C. Variables defined within the body of a function are referred to as local variables.
 - D. Exactly two of the above statements are correct.
 - E. Answers A, B and C are all correct.

12. Consider the following program:

```
def f(a):  
    return 2 * a  
  
def g(a):  
    return 3 + f(a)  
  
def h(a, b):  
    i = f(a) - g(b)  
    return i  
  
q = h(3, 2)  
print(q)
```

What value does it display?

- A. -3
- B. -1
- C. 1
- D. 3
- E. None of the above answers are correct

13. Consider the following function:

```
def sum(values):  
    total = 0  
  
    _____  
  
    return total
```

It is supposed to compute the total of all of the elements in values. Which line of code should be placed on the blank so that it accomplishes this goal?

- A. for i in len(values):
- B. for i in range(len(values)):
- C. for i in total:
- D. for i in values:
- E. for total in values:

14. Consider the following list:

```
fruit = ["apples", "oranges", "bananas", "grapes", "strawberries"]
```

At what index does "grapes" reside within the list?

- A. 1
- B. 2
- C. 3
- D. 4
- E. 5

15. Consider the following code segment:

```
data = [3, 1, 4]  
data.append(1)  
data.remove(1)
```

What is stored in data when it finishes executing?

- A. [1, 4, 1]
- B. [3, 1, 4]
- C. [3, 1, 4, 1]
- D. [3, 4]
- E. [3, 4, 1]

16. Consider the following code segment:

```
data = [5, 10, 15, 20]  
result = []  
  
while data != []:  
    d = data.pop(0)  
    result.insert(0, d)  
  
print(data, result)
```

What is displayed when it executes?

- A. [] [20, 15, 10, 5]
- B. [] [5, 10, 15, 20]
- C. [5, 10, 15, 20] [5, 10, 15, 20]
- D. [5, 10, 15, 20] [20, 15, 10, 5]
- E. [20, 15, 10, 5] [20, 15, 10, 5]

17. What value is printed by the following code segment?

```
data = ["Z", "X", "C", "V", "B"]
i = data.index("A")
print(i)
```

- A. -1
- B. 0
- C. 1
- D. None
- E. None of the answers is correct

18. Consider the following code segment:

```
data = ["Q", "W", "E", "R", "T", "Y"]

for i in range(len(data)):
    data[i // 2] = data[i]

print(data)
```

What is displayed when it executes?

- A. ['Q', 'W', 'E', 'R', 'T', 'Y']
- B. ['W', 'R', 'Y', 'R', 'T', 'Y']
- C. ['W', 'E', 'R', 'T', 'Y', 'Y']
- D. ['W', 'E', 'E', 'R', 'T', 'Y']
- E. None of the above answers are correct

19. Consider the following variable:

```
data = [["Q", "W", "E"], ["R", "T", "Y"], ["U", "I", "O"]]
```

Which of the following assignment statements will change its value to:

```
data = [["Q", "W", "E"], ["R", "T", "Y"], ["P", "I", "O"]]
```

- A. data[0][2] = "P"
- B. data[1][3] = "P"
- C. data[2][0] = "P"
- D. data[3][0] = "P"
- E. data[3][1] = "P"