CSPP Week - 15

Time: 1 Hour   Score: 40 Points

1. Trace the output of the below code and explain the result of each `print()` statement.

   ```python
   my_string = "Welcome to Python"                          4 * 1 = 4 Points
   print(my_string[3:10])
   print(my_string[:7])
   print(my_string[-6:])
   print(my_string[::2])
   ```

2. Given the following string, what will the given expressions output? Justify your answer.

   ```python
   text = "Programming is fun!"                             3 * 1 = 3 Points
   ```
   a. `text.upper()`
   b. `text.find('is')`
   c. `text.replace('fun', 'awesome')`

3. Consider the string, what will the given expressions output? Justify your answer.

   ```python
   word = "hello world"                                     3 * 1 = 3 Points
   ```
   a. `word[::-1]`
   b. `word[0:5]`
   c. `word[-6:]`

4. Given the list numbers, trace the given code, predict the output, and justify your answer.

   ```python
   numbers = [10, 20, 30, 40, 50]                           4 * 1 = 4 Points
   print(numbers[1:4])
   print(numbers[::2])
   print(numbers[-3:])
   print(numbers[:3] + [60, 70])
   ```

5. Consider the following list, what will the given expressions output? Justify your answer.

   ```python
   fruits = ["apple", "banana", "cherry", "date"]           3 * 1 = 3 Points
   ```
   a. `fruits[1] = "grape"`
   b. `fruits.append("kiwi")`
   c. `fruits.remove("cherry")`

6. Given the list, what will the given expressions output? Justify your answer.

   ```python
   my_list = [5, 2, 8, 1, 3, 7]                             3 * 1 = 3 Points
   ```
   a. `my_list.sort()`
   b. `my_list.reverse()`
   c. `print(my_list)`

7. Consider the dictionary, predict the output of the given code and justify your answer

```python
my_dict = {"name": "John", "age": 25, "city": "New York"}
print(my_dict["name"])
print(my_dict.pop("age"))                                    4 * 1 = 4 Points
print(my_dict.keys())
print(my_dict.values())
```

8. Given the dictionary, what will the given expressions output? Justify your answer.

```python
students = {"Alice": 85, "Bob": 92, "Charlie": 88, "David": 79}
    a. students["Eve"] = 95
    b. students["Charlie"] = 99                              3 * 1 = 3 Points
    c. print(students)
```

9. Consider the dictionary. what will the given expressions output? Justify your answer.

```python
scores = {"math": 90, "science": 85, "english": 88}
    a. scores["math"] -= 20
    b. scores["english"] -= 20                               3 * 1 = 3 Points
    c. print("english" in scores)
```

10. Given the following code, trace and explain the output.   3 Points

```python
for i in range(3, 8):
    if i % 2 == 0:
        print(i)
```

11. Given the following code, trace and explain the output.   4 Points

```python
numbers = [1, 2, 3, 4, 5]
total = 0
for num in numbers:
    total += num
print(total)
```

12. Given the following code, trace and explain the output.   3 Points

```python
words = ["cat", "dog", "elephant", "tiger"]
for word in words:
    print(word, len(word))
```