6.11 Review Questions

1. True or False: The length of a list is given by the `length()` function.
2. True or False: The index for the first element of a list is 1, e.g., `xlist[1]` is the first element of the list `xlist`.
3. What is the output produced by the following code?

```
xlist = []
xlist.append(5)
xlist.append(10)
print(xlist)
```

(a) `[5, 10]`

(b) `[]`

(c) `5, 10`

(d) `5 10`

(e) This produces an error.

(f) None of the above.

4. What is the output produced by the following code?

```
zlist = []
zlist.append([3, 4])
print(zlist)
```

(a) `[3, 4]`

(b) `[[3, 4]]`

(c) `3, 4`

(d) `3 4`

(e) None of the above.

5. What is the value of `xlist2` after the following statement has been executed?

```
xlist2 = list(range(-3, 3))
```

(a) `[-3, -2, -1, 0, 1, 2, 3]`

(b) `[-3, -2, -1, 0, 1, 2]`

(c) `[-2, -1, 0, 1, 2]`

(d) `[-3, 0, 3]`

(e) This produces an error.

6. What is the value of `xlist3` after the following statement has been executed?

```
xlist3 = list(range(-3, 3, 3))
```

(a) `[-3, 0, 3]`

(b) `[-3, 0]`

(c) `[-2, 1]`

(d) This produces an error.

7. What is the value of `xlist4` after the following statement has been executed?

```
xlist4 = list(range(-3))
```

(a) `[]`

(b) `[-3, -2, -1]`

(c) `[-3, -2, -1, 0]`

(d) This produces an error.

8. What is output produced by the following?

```
xlist = [2, 1, 3]
ylist = xlist.sort()
print(xlist, ylist)
```

(a) `[2, 1, 3] [1, 2, 3]`

(b) `[3, 2, 1] [3, 2, 1]`

(c) `[1, 2, 3] [2, 1, 3]`

(d) `[1, 2, 3] None`

(e) This produces an error.

9. To what value is the variable `x` set by the following code?

```
def multiply_list(start, stop):
    product = 1
    for element in range(start, stop):
        product = product * element
        return product

x = multiply_list(1, 4)
```

(a) `24`

(b) `6`

(c) `2`

(d) `1`

10. Consider the following function:

```
def f1(x, y):
    print([x, y])
```

True or False: This function returns a `list` consisting of the two parameters passed to the function.

11. Consider the following function:

```
def f2(x, y):
    return x, y
```

True or False: This function returns a `list` consisting of the two parameters passed to the function.

12. Consider the following function:

```
def f3(x, y):
    print(x, y)
    return [x, y]
```

True or False: This function returns a `list` consisting of the two parameters passed to the function.

13. Consider the following function:

```
def f4(x, y):
    return [x, y]
    print(x, y)
```

True or False: This function prints a `list` consisting of the two parameters passed to the function.

14. Consider the following function:

```
def f5(x, y):
    return [x, y]
    print([x, y])
```

True or False: This function prints a `list` consisting of the two parameters passed to the function.

15. What output is produced by the following code?

```
xlist = [3, 2, 1, 0]
for item in xlist:
   print(item, end=" ")
```

(a) `3210`

(b) `3 2 1 0`

(c) `[3, 2, 1, 0]`

(d) This produces an error.

(e) None of the above.

16. What output is produced by the following code?

```
a = 1
b = 2
xlist = [a, b, a + b]
a = 0
b = 0
print(xlist)
```

(a) `[a, b, a  b]+`

(b) `[1, 2, 3]`

(c) `[0, 0, 0]`

(d) This produces an error.

(e) None of the above.

17. What output is produced by the following code?

```
xlist = [3, 5, 7]
print(xlist[1] + xlist[3])
```

(a) `10`

(b) `12`

(c) `4`

(d) This produces an error.

(e) None of the above.

18. What output is produced by the following code?

```
xlist = ["aa", "bb", "cc"]
for i in [2, 1, 0]:
   print(xlist[i], end=" ")
```

(a) `aa bb cc`

(b) `cc bb aa`

(c) This produces an error.

(d) None of the above.

19. What does the following code do?

```
for i in range(1, 10, 2):
    print(i)
```

(a) Prints all odd numbers in the range [1, 9].

(b) Prints all numbers in the range [1, 9].

(c) Prints all even numbers in the range [1, 10].

(d) This produces an error.

20. What is the result of evaluating the expression `list(range(5))`?

(a) `[0, 1, 2, 3, 4]`

(b) `[1, 2, 3, 4, 5]`

(c) `[0, 1, 2, 3, 4, 5]`

(d) None of the above.

21. Which of the following headers is appropriate for implementing a counted loop that executes 4 times?

(a) `for i in 4:`

(b) `for i in range(5):`

(c) `for i in range(4):`

(d) `for i in range(1, 4):`

22. Consider the following program:

```
def main():
    num = eval(input("Enter a number: "))
    for i in range(3):
        num = num * 2
    print(num)

main()
```

Suppose the input to this program is 2, what is the output?

(a)
```
2
4
8
```

(b)
```
4
8
```

(c)
```
4
8
16
```

(d) `16`

23. The following fragment of code is in a program. What output does it produce?

```
fact = 1
for factor in range(4):
    fact = fact * factor
print(fact)
```

(a) `120`

(b) `24`

(c) `6`

(d) `0`

24. What is the output from the following program if the user enters `5`.

```
def main():
    n = eval(input("Enter an integer: "))
    ans = 0
    for x in range(1, n):
        ans = ans + x
    print(ans)

main()
```

(a) `120`

(b) `10`

(c) `15`

(d) None of the above.

25. What is the output from the following code?

```
s = ['s', 'c', 'o', 'r', 'e']
for i in range(len(s) - 1, -1, -1):
    print(s[i], end = " ")
```

(a) `s c o r e`

(b) `e r o c s`

(c) `4 3 2 1 0`

(d) None of the above.

26. The following fragment of code is in a program. What output does it produce?

```
s = ['s', 'c', 'o', 'r', 'e']
sum = 0
for i in range(len(s)):
    sum = sum + s[i]
print(sum)
```

(a) `score`

(b) `erocs`

(c) `scor`

(d) `01234`

(e) None of the above.

27. The following fragment of code is in a program. What output does it produce?

```
s = ['s', 'c', 'o', 'r', 'e']
sum = ""
for i in range(len(s)):
    sum =  s[i] + sum
print(sum)
```

(a) `score`

(b) `erocs`

(c) `scor`

(d) `01234`

(e) None of the above.

28. What is the value returned by the following function when it is called with an argument of `3` (i.e., `summer1(3)`)?

```
def summer1(n):
   sum = 0
   for i in range(1, n + 1):
      sum = sum + i
      return sum
```

(a) `3`

(b) `1`

(c) `6`

(d) `0`

29. What is the value returned by the following function when it is called with an argument of `4` (i.e., `summer2(4)`)?

```
def summer2(n):
    sum = 0
    for i in range(n):
        sum = sum + i
    return sum
```

(a) `3`

(b) `1`

(c) `6`

(d) `0`

30. Consider the following function:

```
def foo():
    xlist = []
    for i in range(4):
        x = input("Enter a number: ")
        xlist.append(x)
    return xlist
```

Which of the following best describes what this function does?

(a) It returns a list of four numbers that the user provides.

(b) It returns a list of four strings that the user provides.

(c) It returns a list of three numbers that the user provides.

(d) It produces an error.

7.9 Review Questions

1. What output isproduced by the following code?

```
xlist = [1, [1, 2], [1, 2, 3]]
print(xlist[1])
```

2. What output is produced by the following code?

```
xlist = [1, [1, 2], [1, 2, 3]]
print(xlist[1][1])
```

3. What output is produced by the following code?

```
xlist = [1, [1, 2], [1, 2, 3]]
print(xlist[1] + [1])
```

4. What output is produced by the following code?

```
def sum_part(xlist, n):
    sum = 0
    for x in xlist[n]:
```

```
        sum = sum + x
    return sum

ylist = [[1, 2], [3, 4], [5, 6], [7, 8]]
x = sum_part(ylist, 2)
print(x)
```

5. Assume `xlist` is a `list` of `lists` where the inner `lists` have two elements. The second element of these inner `lists` is a numeric value. Which of the following will sum the values of the second element of the nested `lists` and store the result in `sum`?

   (a)
   ```
   sum = 0
   for item in xlist:
       sum = sum + item[1]
   ```

   (b)
   ```
   sum = 0
   for one, two in xlist:
       sum = sum + two
   ```

   (c)
   ```
   sum = 0
   for i in range(len(xlist)):
       sum = sum + xlist[i][1]
   ```

   (d) All of the above.

6. What output is produced by the following code?

```
for i in range(3):
    for j in range(3):
        print(i * j, end="")
```

   (a) `123246369`

   (b) `0000012302460369`

   (c) `000012024`

   (d) None of the above.

7. What output is produced by the following code?

```
s = "abc"
for i in range(1, len(s) + 1):
    sub = ""
    for j in range(i):
        sub = s[j] + sub
    print(sub)
```

(a)
```
a
ba
cba
```

(b)
```
a
ab
abc
```

(c)
```
a
ab
```

(d) This code produces an error.

8. What output is produced by the following code?

```
s = "grasshopper"
for i in range(1, len(s), 2):
    print(s[i], end="")
```

(a) `gasopr`

(b) `gr`

(c) `rshpe`

(d) `rshper`

9. What output is produced by the following code?

```
x = [7]
y = x
x[0] = x[0] + 3
y[0] = y[0] - 5
print(x, y)
```

10. What output is produced by the following code?

```
x = [7]
y = x
x = [8]
print(x, y)
```

11. What output is produced by the following code?

```
x = [1, 2, 3, 4]
y = x
y[2] = 0
z = x[1 : ]
x[1] = 9
print(x, y, z)
```

12. What output is produced by the following code?

```
s = "row"
for i in range(len(s)):
    print(s[ : i])
```

(a)
```
r
ro
```

(b)
```
r
ro
row
```

(c)
```
ro
row
```

(d) None of the above.

13. What output is produced by the following code?

```
s = "stab"
for i in range(len(s)):
    print(s[i : 0 : -1])
```

(a)
```
s
ts
ats
bats
```

(b)
```
t
at
bat
```

(c)
```
s
st
sta
```

(d) None of the above.

14. What output is produced by the following code?

```
s = "stab"
for i in range(len(s)):
    print(s[i : -5 : -1])
```

(a)
```
s
ts
ats
bats
```

(b)
```
t
at
bat
```

(c)
```
s
st
sta
```

(d) None of the above.

15. What output is produced by the following code?

```
s = "stab"
for i in range(len(s)):
    print(s[0 : i : 1])
```

(a)
```
s
ts
ats
bats
```

(b)
```
t
at
bat
```

(c)
```
s
st
sta
```

(d) None of the above.