CPSC 217 Midterm 2
Duration: 30 minutes
16 March 2012

- This exam has 36 questions and 9 pages.
- This exam is closed book. No notes, books, calculators or electronic devices, or other assistance may be used.
- Mark your answers on the supplied answer sheet.
- If you think there are multiple correct answers to a question, select the best answer.

Due to the number of people in the room, you must stay for the entire exam.
Part 1

1. What is there the most of in John’s iTunes playlist? (bonus question) (A: Q5, B: Q16, C: Q22)
   (A) * songs by Rush
   (B) tracks with the “Alternative” genre
   (C) songs played 5 times
   (D) song titles containing the letter “N”
   (E) songs by Van Halen

2. What will `sys.argv` be, if a script is run as
   `python3 program.py`
   (A: Q3, B: Q19, C: Q23)
   (A) ['']
   (B) ['python3', 'program.py']
   (C) * ['program.py']
   (D) some other value not listed here

3. What will `sys.argv` be, if a script is run as
   `python3 program.py foo`
   (A: Q8, B: Q10, C: Q31)
   (A) ['']
   (B) ['foo']
   (C) ['python3', 'program.py', 'foo']
   (D) * ['program.py', 'foo']
   (E) some other value not listed here

4. You can plagiarize your own work. (A: Q10, B: Q23, C: Q35)
   (A) * True
   (B) False

5. Copyright protects ideas. (A: Q20, B: Q25, C: Q32)
   (A) True
   (B) * False

6. Canadian copyright law allows fair use. (A: Q14, B: Q21, C: Q34)
   (A) True
   (B) * False

7. What code would change the string `s` so that the lowercase characters become uppercase? (A: Q2, B: Q13, C: Q25)
   (A) `s.lower()`
   (B) `s.upper()`
   (C) * `s = s.upper()`
   (D) `s = s.lower()`
8. What is the value of L after the following code is run?

```python
L = [ 1, 2, 3 ]
L.append(42)
L.append(9)
```

(A:Q11,B:Q26,C:Q33)

(A) * [1, 2, 3, 42, 9]
(B) [1, 2, 3, 9, 42]
(C) [42, 9, 1, 2, 3]
(D) [9, 42, 1, 2, 3]

9. What does this code print when run?

```python
s = 'n!tpypho'
D = { '!': 'a', 'n': 'c', 'o': 'n', 'h': 'o', 't': 'r', 'p': '' }
for ch in s:
    newch = D[ch]
    print(newch, end='')
```

(A:Q6,B:Q20,C:Q36)

(A) car
(B) cart
(C) * carton
(D) cartoon
(E) none of the things listed here

10. What does this code print when run?

```python
def foo(s, n):
    s = s + s
    n = s * n
s = 'yyc'
n = 3
foo(s, n)
print(n)
```

(A:Q16,B:Q22,C:Q18)

(A) * 3
(B) yyycyyc
(C) yyycyycyycyycyycyyc
(D) none of the things listed here

11. What does this code print when run?
def foo(s, n):
    s = s + s
    n = s * n
    return n

s = 'yyc'
n = 3
n = foo(s, n)
print(n)

12. How many times does this code print X when it is run?

    def A():
        print('X')
    def B():
        print('X')
    def C():
        B()
        print('X')
    C()

13. Tuples and dictionaries are immutable. (A:Q17,B:Q24,C:Q30)

    (A) True
    (B) * False

14. type((12)) == type((12,)) (A:Q1,B:Q18,C:Q20)

    (A) True
    (B) * False

15. What number is printed when this code is run?

    t = (1, 3, 5, 7, 9)
s = t[1:-1]
print(s[1])

(A:Q4,B:Q11,C:Q26)

(A) 1
16. What does this code print when run?

```python
L = [ 1, 2, 3, 4, 5 ]
for i in range(len(L)):
    print(L[i])
```

(A:Q12,B:Q28,C:Q24)

(A) * 1, 2, 3, 4, 5 in that order
(B) 0, 1, 2, 3, 4 in that order
(C) 5, 4, 3, 2, 1 in that order
(D) 4, 3, 2, 1, 0 in that order

17. What does this code print when run?

```python
L = [ 1, 2, 3, 4, 5 ]
for i in range(len(L)):
    print(i)
```

(A:Q7,B:Q14,C:Q21)

(A) 1, 2, 3, 4, 5 in that order
(B) * 0, 1, 2, 3, 4 in that order
(C) 5, 4, 3, 2, 1 in that order
(D) 4, 3, 2, 1, 0 in that order

18. What does this code print when run?

```python
L = [ 1, 2, 3, 4, 5 ]
for i in range(0, len(L), 2):
    print(L[i])
```

(A:Q15,B:Q27,C:Q27)

(A) * 1, 3, 5 in that order
(B) 0, 2, 4 in that order
(C) 4, 2, 0 in that order
(D) 5, 3, 1 in that order
(E) 1 and 3 only

19. What does the following code print when run?

```python
def foo(n):
    return 'n'
    return n+1
print(foo(42))
```

(A:Q18,B:Q15,C:Q29)
20. What does the following code print when run?

\[
L = \[
    [1, 3, 5],
    [9, 7, 5]
\]
for i in range(len(L)):
    print(L[i][i])
\]

(A) 1, 3, 5 in that order  (B) * 1, then 7  (C) 3, then 5  (D) 1, then 9  (E) 5, then 5 again

Part 2

Use this definition to answer the questions in this section:

\[
D = \{1: 'a', 2: 'd', 3: 's', 4: 'm'\}
\]

21. 'm' in D
   (A) True  (B) * False

22. 2 in D  (A) * True  (B) False

23. '2' in D  (A) True  (B) * False

24. len(D) is  (A) * 4  (B) 8  (C) 3  (D) 7  (E) some other value not listed here

25. What is printed by the following code?
for k in D:
    print(D[k])

(A:Q22,B:Q4,C:Q3)

(A) 1, 2, 3, 4 in that order
(B) 4, 3, 2, 1 in that order
(C) a, d, s, m in that order
(D) m, s, d, a in that order
(E) * a, d, s, m in some order


(A) * 'sad'
(B) 'dam'
(C) 'mad'
(D) 'mas'
(E) 'das'

Part 3

Use the following definition to answer the questions in this section.

L = [8, 6, 7, 5, 3, 0, 9]

27. len(L) is (A:Q32,B:Q36,C:Q10)

(A) * 7
(B) 6
(C) 8
(D) 9

28. 0 not in L (A:Q31,B:Q35,C:Q12)

(A) True
(B) * False

29. L[1] is (A:Q34,B:Q34,C:Q11)

(A) 8
(B) * 6
(C) an error; 1 is not in L

30. L[L[3]] - 1 is (A:Q35,B:Q33,C:Q7)

(A) * -1
(B) an error
(C) 8
(D) 4
(E) 7

31. L is mutable. (A:Q36,B:Q32,C:Q9)
(A) * True  
(B) False  

32. \( L[2:-3] \) is (A:Q33,B:Q30,C:Q13)  
  
(A) * [7, 5]  
(B) [7]  
(C) [7, 5, 3]  
(D) [6, 7, 5, 3]  
(E) [6, 7, 5]  

33. \( L[4:] \) is (A:Q30,B:Q31,C:Q8)  

(A) * [3, 0, 9]  
(B) [5, 3, 0, 9]  
(C) [0, 9]  
(D) an error  

**Part 4**  

Use the following code to answer the questions in this section.  

```python  
def rpn(x):  
    S = []  
    for i in x:  
        if i == '=':  
            print(S.pop())  
            return  
        elif i == '+':  
            S.append(S.pop() + S.pop())  
        elif i == '*':  
            S.append(S.pop() * S.pop())  
        else:  
            S.append(int(i))  

34. What is printed by the call rpn('235=')? (A:Q28,B:Q2,C:Q14)  
  
(A) nothing; there is an error  
(B) 2  
(C) 3  
(D) * 5  
(E) 235  

35. What is printed by the call rpn('23+=')? (A:Q29,B:Q1,C:Q16)  
  
(A) nothing; there is an error  
(B) 2  
(C) 3  
(D) * 5  
(E) 23  

36. What is printed by the call rpn('235+*=')? (A:Q27,B:Q3,C:Q15)
(A) nothing; there is an error
(B) 235
(C) * 16
(D) 25
(E) 5

End of questions. Remember that you must stay for the entire exam.