CPSC 231 Midterm 1

Duration: 40 minutes

8 February 2013

- This exam has 34 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 value does s have, after this code is run?

   s = '*'
   s = s + s
   s = s + s + s

   (A) '***'
   (B) '****'
   (C) '*****'
   (D) '******'
   (E) '*******'

2. What does this code print when run?

   sum = 0
   for i in range(3):
       for j in range(2):
           sum = sum + j
   print(sum)

   (A) 1
   (B) 2
   (C) 3
   (D) 4
   (E) 5

3. What does this code print when run?

   sum = 0
   for i in range(3):
       for j in range(i):
           sum = sum + j
   print(sum)

   (A) 0
   (B) 1
   (C) 2
   (D) 3
   (E) 4

4. What does this code print when run?

   print(12 + 3 * 3)

   (A) 17
   (B) 18
   (C) 21
   (D) 39
   (E) 45
5. What does this code print when run?

```python
print('1' * 2)
```

(A) 1  
(B) 2  
(C) 11  
(D) 12  
(E) Nothing; there is an error

6. What is the value of \( x \) after this code is run?

```python
x = 1 / 2
```

(A) 0  
(B) 1  
(C) 0.0  
(D) 0.5  
(E) 1.0

7. What is the value of \( x \) after this code is run?

```python
x = 1 // 2
```

(A) 0  
(B) 1  
(C) 0.0  
(D) 0.5  
(E) 1.0

8. Which of the following are valid variable names?

- _
- foo
- if
- 4ever
- MO0S3

(A) _ and MO0S3  
(B) All except 4ever  
(C) All except _  
(D) foo and if  
(E) foo, if, and 4ever

9. Real numbers are the same as floating point numbers.

(A) True  
(B) False

10. How many of the following statements evaluate to False?

- 0 < 0
- True < False
- 0 == False
- 0 != True
- 0 <= 0
'ab' not in 'abc'
'ab' in 'abc'
'9' < '10'
5.0 > -2

(A) 0  
(B) 1  
(C) 2  
(D) 3  
(E) 4

11. How many of the following statements evaluate to True?

2 < 4  
3 >= 5  
42 == 42  
'foo' != 'bar'

(A) 0  
(B) 1  
(C) 2  
(D) 3  
(E) 4

12. How many times is 1 printed when this code is run?

```python
for i in range(2):
    for j in range(4):
        x = 1
        print(x)
```

(A) 0  
(B) 2  
(C) 4  
(D) 6  
(E) 8

13. How many times is 1 printed when this code is run?

```python
for i in range(2):
    for j in range(4):
        x = 1
        print(x)
```

(A) 0  
(B) 2  
(C) 4  
(D) 6  
(E) 8

14. How many times is X printed when this code is run?
for i in range(5):
    if i != 2:
        print('X')

(A) 0
(B) 1
(C) 2
(D) 3
(E) 4

15. How many times is X printed when this code is run?

for i in range(5):
    if (i == 2) or (i-1 < 1):
        print('X')

(A) 0
(B) 1
(C) 2
(D) 3
(E) 4

16. What input would cause this program to print X?

s = input()
b = 'e' not in s
if not b:
    print('X')

(A) Batman
(B) hobbit
(C) orc
(D) elf
(E) Gandalf

17. Under what conditions is baz printed? Assume A and B are Boolean variables that have been assigned a value.

if A:
    print('foo')
elif B:
    print('bar')
else:
    print('baz')

(A) One of A or B is True
(B) A is True
(C) B is True
(D) Both A and B are True
(E) Neither A nor B are True

18. What does this code draw when run?
import turtle
turtle.lt(90)
turtle.fd(75)
turtle.rt(45)
turtle.bk(100)
turtle.fd(50)
turtle.rt(45)
turtle.fd(40)

(A) Nothing listed here
(B) A triangle
(C) The letter “N”
(D) The letter “A”
(E) Nothing; there is an error when it is run

19. Just as dividing by zero in math is somewhat problematic, an error is caused if a Python program tries to divide by zero. Does this program cause an error when it is run?

   b = True or 1 / 0

   (A) Yes
   (B) No

Part 2

There is a Python module called foo. In that module is a function named bar that you can call. bar takes one integer as an argument. Starting with the following:

AAA
BBB
s = '42'
CCC

20. What should AAA be replaced with?

   (A) import math
   (B) import turtle
   (C) Nothing

21. What should BBB be replaced with?

   (A) import foo
   (B) import time
   (C) Nothing

22. What should CCC be replaced with?

   (A) foo.bar(s)
   (B) bar(s)
   (C) foo.bar(int(s))
   (D) foo.bar(integer(s))
   (E) bar(int(s))
Part 3

Write a loop to print the numbers 1 through 10, inclusive. Starting with the following:

```python
n = 10
for i in AAA:
    BBB
```

23. What should AAA be replaced with?

(A) `range(n)`
(B) `n`
(C) `range(len(n))`
(D) `range(1, n)`
(E) `range(1, n+1)`

24. What should BBB be replaced with?

(A) `print i`
(B) `print n`
(C) `print(i)`
(D) `print(n)`

Part 4

Write code to draw a horizontal row of six boxes. Starting with the following:

```python
AAA
BBB
for i in CCC:
    turtle.pu()
    turtle.fd(75)
    turtle.pd()
    for j in DDD:
        turtle.fd(50)
        turtle.lt(90)
```

25. What should AAA be replaced with?

(A) `import math`
(B) `import turtle`
(C) Nothing

26. What should BBB be replaced with?

(A) `n = 5`
(B) `n = 6`
(C) Nothing

27. What should CCC be replaced with?

(A) 4
(B) `n`
(C) `n-1`
28. What should DDD be replaced with?

(A) 4
(B) n
(C) range(4)
(D) range(n)

29. What should AAA be replaced with?

(A) a * 2
(B) a ^ 2
(C) a ** 2

30. What should BBB be replaced with?

(A) 2ab
(B) 2 * ab
(C) 2a * b
(D) 2 * a * b

31. What should CCC be replaced with?

(A) c * pi-1
(B) c * math.pi-1
(C) c ** (pi-1)
(D) c ^ (math.pi-1)
(E) c ** (math.pi-1)

Part 6

The input to the programs in this section is the following:

9
2
4
7

32. What does the following program print when it is run with the above input?

```python
input()
a = float(input())
input()
b = int(input())
print(a * b)
```
33. What does the following program print when it is run with the above input?

```python
x = 0
for i in range(3):
    n = int(input())
    x = x + n
print(x)
```

(A) 11  
(B) 15  
(C) 22  
(D) Nothing; there is an error

34. What does the following program print when it is run with the above input?

```python
x = 0
for i in range(4):
    n = int(input())
    x = x * n
print(x)
```

(A) 0  
(B) 18  
(C) 72  
(D) 504  
(E) Nothing; there is an error

**Answer Key**

Q1: E; Q2: C; Q3: B; Q4: C; Q5: C; Q6: A; Q7: A; Q8: A; Q9: B; Q10: C; Q11: D; Q12: B; Q13: E; Q14: E; Q15: D; Q16: D; Q17: E; Q18: D; Q19: B; Q20: C; Q21: A; Q22: C; Q23: E; Q24: C; Q25: B; Q26: B; Q27: D; Q28: C; Q29: C; Q30: D; Q31: E; Q32: C; Q33: B; Q34: A.

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