Game Programming and Design

1. Will the following lines of code print the same thing? Explain why or why not.

x = 6

print(6)

print("6")

1. Will the following lines of code print the same thing? Explain why or why not.

x = 7

print(x)

print("x")

1. What is wrong with the following statement that attempts to assign the value ten to variable x?

10 = x

1. Once a variable has been properly assigned can its value be changed?
2. Given the following assignment:

x = 2

Indicate what each of the following Python statements would print:

(a) print("x") (d) print("x + 1")

(b) print(’x’) (e) print(’x’ + 1)

(c) print(x) (f) print(x + 1)

1. Given the following assignments:

i1 = 2

i2 = 5

i3 = -3

d1 = 2.0

d2 = 5.0

d3 = -0.5

Evaluate each of the following Python expressions.

(a) i1 + i2

(b) i1 / i2

(c) i1 // i2

(d) i2 / i1

(e) i2 // i1

(f) i1 \* i3

(g) d1 + d2

(h) d1 / d2

(i) d2 / d1

(j) d3 \* d1

(k) d1 + i2

(l) i1 / d2

(m) d2 / i1

(n) i2 / d1

(o) i1/i2\*d1

(p) d1\*i1/i2

(q) d1/d2\*i1

(r) i1\*d1/d2

(s) i2/i1\*d1

(t) d1\*i2/i1

(u) d2/d1\*i1

(v) i1\*d2/d1

1. What is printed by the following statement:

#print(5/3)

1. Given the following assignments:

i1 = 2

i2 = 5

i3 = -3

d1 = 2.0

d2 = 5.0

d3 = -0.5

Evaluate each of the following Python expressions.

(a) i1 + (i2 \* i3)

(b) i1 \* (i2 + i3)

(c) i1 / (i2 + i3)

(d) i1 // (i2 + i3)

(e) i1 / i2 + i3

(f) i1 // i2 + i3

(g) 3 + 4 + 5 / 3

(h) 3 + 4 + 5 // 3

(i) (3 + 4 + 5) / 3

(j) (3 + 4 + 5) // 3

(k) d1 + (d2 \* d3)

(l) d1 + d2 \* d3

(m) d1 / d2 - d3

(n) d1 / (d2 - d3)

(o) d1 + d2 + d3 / 3

(p) (d1 + d2 + d3) / 3

(q) d1 + d2 + (d3 / 3)

(r) 3 \* (d1 + d2) \* (d1 - d3)

1. What symbol signiﬁes the beginning of a comment in Python?
2. Consider the following program, which contains some errors. You may assume that the comments within the program accurately describe the program’s intended behavior.

# Get two numbers from the user

n1, n2 = eval(input()) # 1

# Compute sum of the two numbers

print(n1 + n2) # 2

# Compute average of the two numbers

print(n1+n2/2) # 3

# Assign some variables

d1 = d2 = 0 # 4

# Compute a quotient

print(n1/d1) # 5

# Compute a product

n1\*n2 = d1 # 6

# Print result

print(d1) # 7

For each line listed in the comments, indicate whether or not an error is present. Not all lines contain an error.

1. What possible values can a Boolean expression have?
2. What is an integer equivalent to True in Python?
3. What is the integer equivalent to False in Python?
4. Given the following deﬁnitions:

x, y, z = 3, 5, 7

evaluate the following Boolean expressions:

(a) x == 3

(b) x < y

(c) x >= y

(d) x <= y

(e) x != y - 2

(f) x < 10

(g) x >= 0 and x < 10

(h) x < 0 and x < 10

(i) x >= 0 and x < 2

(j) x < 0 or x < 10

(k) x > 0 or x < 10

(l) x < 0 or x > 10

1. Given the following deﬁnitions:

b1, b2, b3, b4 = true, false, x == 3, y < 3

evaluate the following Boolean expressions:

(a) b3

(b) b4

(c) not b1

(d) not b2

(e) not b3

(f) not b4

(g) b1 and b2

(h) b1 or b2

(i) b1 and b3

(j) b1 or b3

(k) b1 and b4

(l) b1 or b4

(m) b2 and b3

(n) b2 or b3

(o) b1 and b2 or b3

(p) b1 or b2 and b3

(q) b1 and b2 and b3

(r) b1 or b2 or b3

(s) not b1 and b2 and b3

(t) not b1 or b2 or b3

(u) not (b1 and b2 and b3)

(v) not (b1 or b2 or b3)

(w) not b1 and not b2 and not b3

(x) not b1 or not b2 or not b3

(y) not (not b1 and not b2 and not b3)

(z) not (not b1 or not b2 or not b3)

1. Write a Python program that requests an integer value from the user. If the value is between 1 and 100 inclusive, print ”OK;” otherwise, print ”Out of range.”
2. Consider the following Python code fragment:

# i, j, and k are numbers

**if** i < j:

**if** j < k:

i = j

**else**:

j = k

**else**:

**if** j > k:

j = i

**else**:

i = k

print("i =", i, " j =", j, " k =", k)

What will the code print if the variables i, j, and k have the following values?

(a) i is 3, j is 5, and k is 7

(b) i is 3, j is 7, and k is 5

(c) i is 5, j is 3, and k is 7

(d) i is 5, j is 7, and k is 3

(e) i is 7, j is 3, and k is 5

(f) i is 7, j is 5, and k is 3

1. How many asterisks does the following code fragment print?

a = 0

**while** a < 100:

print('\*', end='')

a += 1

print()

1. How many asterisks does the following code fragment print?

**for** a **in** range(100):

print('\*', end='')

print()

1. 12. How many asterisks does the following code fragment print?

**for** a **in** range(20, 100, 5):

print('\*', end='')

print()