edhesive

Term 1 – Unit 4 – Week 16

Exam 4 – Offline Version – Solution

1. What is output by the following code?

```
System.out.print(21 / 5);
```

a. 3.5 b. 4 c. 4.2 d. 5 e. 5.5

2. Assume the following method has been defined:

```
public static int mystery(String a [], int x) {
      int c = 0;
      for(int i = 0; i < a.length; i++) {
            if (a[i].length() != x )
                  c++;
      }
      return c;
}
```

What is output by the following code?

```
String b [] = {"aardvark", "banana", "cougar", "daikon",
                        "elephant", "fog", "get"};
System.out.println( mystery(b, 6));
```

a. 0 b. 2 c. 3 d. 4 e. 5

3. What does the following method do?

```
public static int mystery(int a [], int x) {
      int c = 0;
      for(int i = 0; i < a.length; i++)
            if (a[i] % 2 == 0)
                  c++;
      return c;
}
```

a. Returns a count of the number of elements in the array.
b. Returns the sum of the values in the array.
c. Returns a count of the number of times x appears in the array.
d. Returns the average of the values in the array.
e. Returns a count of the number of even elements in the array.

4. What is output by the following code?

```
public static void stuff(int w) {
      w += 2;
}
public static void main(String a []) {
      int n = 2;
      stuff(n);
      System.out.println(n);
}
```

a. 0 b. 1 c. 2 d. 3 e. 4

5. Consider the following methods:

```
public static void printSport(double n) {
    System.out.print("football ");
    printSport((int)(n));
}
public static void printSport(int n) {
    System.out.print("basketball ");
}
```

What is output by the method call `printSport(3.5)`?

a. football basketball
b. football football basketball basketball
c. football
d. basketball
e. basketball football

6. Consider the following method definition:

```
public static int mystery(int a) {
      int sum = 0;
      for(int i = 1; i <= a; i++) {
            sum += i;
      }
      return sum;
}
```

What is returned by the call, mystery(9); ?

a. 9 b. 10 c. 36 d. 45 e. 55

7. What does the following method do?

```
public static void mystery (int a, int b) {
      if (a < b)
            mystery(a, b-1);
      if(b < a)
            mystery(a-1, b);
      System.out.println(a + " " + b);
}
```

a. Repeats until a and b are equal.
b. Repeats until b is less than a.
c. Repeats until a is less than b.
d. The recursion does not stop.
e. There is an error, you cannot have more than one recursive call.

8. Consider the following code:

```
public static void mystery(int x) {
      if (x > 0)
            mystery( x/10 );
      System.out.print(x % 10 + " ");
}
```

What is output by the call, mystery(3748); ?

a. 8 4 7 3 0
b. 374 37 3 0 0
c. 0 0 3 37 374
d. 0 3 7 4 8
e. 0

9. What is output by the following code?

```
int a [] = {64, 66, 67, 37, 73, 70, 95, 52, 81, 82};

for(int i = 0; i < a.length; i++) {
      a[i] = a[i]/10 + 1;
}
for(int i = 0; i < a.length; i++) {
      System.out.print(a[i] + " ");
}
```

a. 2 4 5 2 2 8 7 8 1 2
b. 4 6 7 7 3 0 5 2 1 2
c. 6 6 6 3 7 7 9 5 8 8
d. 7 7 7 4 8 8 10 6 9 9
e. 5 7 8 8 4 1 6 2 3

10. What return statement may be used in p()?

```
public static int p() {
      //…
}
```

a. return 1;
b. return {1, 2, 3};
c. return int [] {1, 2, 3};
d. return new int [] {1, 2, 3};
e. return true;

11. Consider the following methods:

```
public static double average(int nums[]) {
      int sum = 0;
      for(int i = 0; i < nums.length; i++) {
            sum += nums[i];
      }
      return (1.0*sum) / nums.length;
}//average

public static int [] mystery(String a [] ) {
      int temp [] = new int[a.length];
      for(int i = 0; i < a.length; i++) {
            if (a[i].indexOf('a') >= 0)
                  temp[i] = a[i].indexOf('a');
            else
                  temp[i] = 0;
      }
      return temp;
}
```

What is output by running the following code?

```
String spelling [] = {"against", "forms", "belief", "government",
                      "democratic", "movement", "understanding",
                      "single", "followed", "scenario"};
System.out.println( average( mystery( spelling)));
```

a. 0.5 b. 1.1 c. 1.25 d. 1.7 e. Error, you cannot average Strings.

12. The following is intended to return the location of the first instance of the String the user enters from the keyboard, -1 if not found.

```
String names [] = new String [20];
//assume array is initialized

System.out.println("Enter a name to search for: ");
String lookingFor = scan.nextLine();

int found = -1;
for(int i = 0; i < names.length; i++) {
      if ( /* Missing Code */ ) {
            found = i;
            break;
      }
}
```

Which of the following could replace /* Missing Code */ so that it works as intended?

a. ! lookingFor.equals(names[i])
b. lookingFor[i].equals(names[i])
c. lookingFor != names[i]
d. lookingFor.equals(names)
e. lookingFor.equals(names[i])

13. Consider the following method definition:

```
public static void test(int maxNum) {
      int first = 0;
      int second = 0;
      int third = 0;
      for(int k = 1; k <= maxNum; k++) {
            if (k % 2 == 0 && k % 3 == 0)
                  first++;
            if (k % 2 == 0)
                  second ++;
            if(k % 3 == 0)
                  third++;
      }
      System.out.println(first + " " + second + " " + third);
}
```

What is printed as a result of the call, test(30)?

a. 5 15 5
b. 5 15 10
c. 5 10 5
d. 5 10 10
e. 30 15 10

14. Given the following method declaration:

```
public static int mystery (int a []) {
      int m = a[0];
      for(int i = 0; i < a.length; i++) {
            if (m < a[i])
                  m = a[i];
      }
      return m;
}
```

What would be returned by mystery if it was passed the following array?

```
int a[] = {34, 18, 34, 38, 27, 37, 39, 21, 19};
```

a. 18 b. 19 c. 27 d. 34 e. **39**

15. What mistake is in the following code:

```
public static double mystery(double a) {
      System.out.println(a * 3.14);
}
```

a. It should say return true;
b. There should not be a return statement.
c. The parameter should be a boolean type.
d. The return statement is missing.
e. The method cannot return a double.

16. When a parameter is a(n) _____, any changes made in a method are NOT preserved.
    a. class data type
    b. primitive data type
    c. actual
    d. reference
    e. String of characters

17. Which method(s) would produce the following output if they were passed the argument, "hamster"?

```
h
ha
ham
hams
hamst
hamste
hamster
```

I.
```
public static void mystery(String wo) {
      System.out.println(wo);
      if (wo.length() > 0)
            mystery( wo.substring(0, wo.length() - 1));
}
```

II.
```
public static void mystery(String wo) {
      if (wo.length() > 0)
            mystery( wo.substring(0, wo.length() - 1));
      System.out.println(wo);
}
```

III.
```
public static void mystery(String wo) {
      if (wo.length() > 0)
            mystery( wo.substring( wo.length() - 1));
      System.out.println(wo);
}
```

    a. I only
    b. II only
    c. III only
    d. I and III only
    e. I, II and III

18. Consider a method defined with the header:

```
public static void doStuff(double x)
```

    Which of the following method calls is legal?
    a. doStuff(9);
    b. doStuff(0.555);
    c. doStuff(0.1 + 0.2);
    d. doStuff(0.1, 0.2);
    e. all of the above are legal except for d.

19. Consider the following variables and method representing a student.

```
private int testAverage;
private int assignmentAverage;

public boolean isPassing()
{
      /* Missing Code */
}
```

A student can pass a class if at least one of the following is true:

- His/her test average is over 95
- His/her test average and assignment average are over 80

Which of the following correctly replaces /* Missing Code */ so that the method works as intended?

I.
```
if ((testAverage > 95) || ((testAverage > 80) && (assignmentAverage >80)))
      return true;
```

II.
```
boolean pass = false;
if (testAverage > 95)
      pass = true;
if ((testAverage > 80) && (assignmentAverage > 80))
      pass = true;
return pass;
```

III.
```
return (testAverage > 95 || (testAverage > 80 && assignmentAverage > 80));
```

a. I only
b. II only
c. III only
d. I & III only
e. II, & III only

20. What is output by the following code?

```
String q = "adjective";
String r = "stinky";

System.out.println( q.charAt( r.indexOf('s')));
```

a. 1
b. 2
c. a
d. d
e. Error - index out of bounds

