Some Practice Midterm Problems

February 13, 2018

1. 1 point word_count is a legal identifier in Java  A. True   B. False

2. 1 point k2 is a legal identifier in Java  A. True   B. False

3. 1 point Krazy1 is a legal identifier in Java  A. True   B. False

4. 1 point hot? is a legal identifier in Java  A. True   B. False

5. 1 point 2ndPlaceWinner is a legal identifier in Java  A. True   B. False

6. 1 point 2be0rNot2Be is a legal identifier in Java  A. True   B. False

7. 1 point cous-cous is a legal identifier in Java  A. True   B. False

8. 1 point It’s legal to have an integer variable named x and another integer variable named X in the same program.  A. True   B. False

9. 1 point How much is a kilobyte?
   A. $10^3$ bytes
   B. $10^6$ bytes
   C. $10^9$ bytes
   D. $10^{12}$ bytes
   E. $10^{15}$ bytes

10. 1 point How much is a megabyte?
    A. $10^3$ bytes
    B. $10^6$ bytes
    C. $10^9$ bytes
    D. $10^{12}$ bytes
    E. $10^{15}$ bytes
11. **1 point** How much is a gigabyte?
   A. $10^3$ bytes
   B. $10^6$ bytes
   C. $10^9$ bytes
   D. $10^{12}$ bytes
   E. $10^{15}$ bytes

12. **1 point** How much is a terabyte?
   A. $10^3$ bytes
   B. $10^6$ bytes
   C. $10^9$ bytes
   D. $10^{12}$ bytes
   E. $10^{15}$ bytes

13. **1 point** How long is a millisecond
   A. $10^{-3}$ seconds
   B. $10^{-6}$ seconds
   C. $10^{-9}$ seconds
   D. $10^{-12}$ seconds
   E. $10^{-15}$ seconds

14. **1 point** How long is a microsecond
   A. $10^{-3}$ seconds
   B. $10^{-6}$ seconds
   C. $10^{-9}$ seconds
   D. $10^{-12}$ seconds
   E. $10^{-15}$ seconds

15. **1 point** How long is a nanosecond
   A. $10^{-3}$ seconds
   B. $10^{-6}$ seconds
   C. $10^{-9}$ seconds
   D. $10^{-12}$ seconds
   E. $10^{-15}$ seconds
16. **1 point** What is the result of:

```java
int x=10, y=20;
boolean isBored=true;
if (isBored) {
    int z = x+y;
} else {
    z = x-y;
}
System.out.println(z);
```

A. prints 30  
B. prints -10  
C. compiler error: illegal declaration of isBored  
D. compiler error: can't find symbol z

17. **1 point** The most important job of the Java compiler is to

18. **1 point** In what component of your computer is most of the *computation* done?

19. **1 point** What do we mean when we classify DRAM as a *volatile* storage?

20. **1 point** What is the type of the expression: `true`

21. **1 point** What is the type of the expression: `'1'`

22. **1 point** What is the type of the expression: `23.2`

23. **1 point** What is the type of the expression: `32 + 2`
24. 1 point What is the type of the expression: "32"+2

25. 1 point What is the result of the expression: 52482/24478198

26. 1 point What is the result of the expression: (true || (3 == 2))

27. 1 point What is the result of the expression: !(false)

28. 1 point What is the result of the expression: !(4 < 2) && 3 < 10)

29. 1 point What is the result of the expression: 32/8 != 32.0/8

30. 1 point What is the result of the expression: !((true || 3 < 2) && !(false || true))

31. 1 point What is the result of the expression: 18 % 5 * 10 + 3 * 4 / 2

32. 1 point What is the result of the expression: 2 % 5 * 4 + 3 * 5 / 2

33. 1 point What is the result of the expression: "Scholes" + 6*3
34. 1 point What is the result of the expression: $0 \times (1264 + 2835) - 1.0$

35. 1 point What is the result of the expression: "Scholes" + 2+2

36. 1 point What is the result of the expression: $5+3\%6/2+8\times5/3$

37. 1 point What is the result of the expression: $3 > 3\%5 + 2||5 < 7&&1 < 2$

38. 1 point What is the result of the expression: $3 > 3\%5 + 2&&5 < 7&&1 > 2$

39. 1 point What is the result of the expression:

$$2+1"."+(3/4)+3*4$$

$$3 0 12$$

"3.012"

40. 1 point What is the result of the expression:

$$"1"+5/2+3\%4*5+(6+7)$$

$$"1"+2 + 3\%\frac{5}{15} + 13$$

"121513"

41. 1 point What is the result of the expression:

"ascend".charAt(1) + "acknowledge".substring(3,6)
42. 1 point What is most appropriate Java data type to store the number of points scored by the Eagles during the Super Bowl.

43. 1 point What is most appropriate Java data type to store the number of days left in the semester.

44. 1 point What is most appropriate Java data type to store your name.

45. 1 point What is most appropriate Java data type to store your height in meters or yards.

46. 1 point What is most appropriate Java data type to store whether or not it’s hot right now.

47. 1 point What is most appropriate Java data type to store your middle initial.

48. 1 point Turn into a Java expression the statement "x is a multiple of y."

\[ x \mod y = 0 \]

49. 1 point Write an if/else statement that prints "in the black" if \texttt{revenue} is the same or higher than \texttt{expenses}, otherwise print out "in the red."

```java
if (revenue >= expenses) {
    System.out.println("in the black");
} else {
    System.out.println("in the red");
}
```
50. [1 point] We have two integers: x and y. Write an if statement that checks if one of them is even and the other is odd.

51. [1 point] What is the output of the following code:

```java
for(int i = 0; i<10; i++) {
    if (i%3 == 1) {
        System.out.print(i);
    }
}
```

7 1 4 7 10
52. 1 point  What is the output of this code?

```java
for(int i = 0; i<3 ; i++) {
    for(int j =0; j <= i; j++) {
        System.out.print(i + j);
        System.out.print(" "); // print a space
    }
    System.out.println();
}
```

53. 1 point  What is the output of this code?

```java
public class Presidents {
    public static void main(String args[]) {
        int x=10, y=20, z=30;
        if (x<y) {
            System.out.println("Washington");
        } else if ((x+y)%2==0) {
            System.out.println("Adams");
        } else if (x-2 < y+1) {
            System.out.println("Jefferson");
        } else {
            System.out.println("Madison");
        }
    }
}
```
54. 1 point What is the output of this code?

```java
public class Presidents {
    public static void main(String args[]) {
        int x=10, y=20, z=30;

        if (x<y) {
            System.out.println("Washington");
        } else if ((x+y)%2==0) {
            System.out.println("Adams");
        } else if (z-2 < y+1) {
            System.out.println("Jefferson");
        } else {
            System.out.println("Madison");
        }
    }
}
```

Washington
Adams

55. 1 point What is the output of this code?

```java
public class Presidents {
    public static void main(String args[]) {
        int x=10, y=20, z=30;

        if (x<y) {
            System.out.println("Washington");
        } else if ((x+y)%2==0) {
            if (z>=30 || z<=30) {
                System.out.print("(not Quincy) ");
            }
            System.out.println("Adams");
        } else if (z-2 < y+1) {
            System.out.println("Jefferson");
        } else {
            System.out.println("Madison");
        }
    }
}
```

Washington

56. 1 point What is the output of this code?

```java
public class Presidents {
    public static void main(String args[]) {
        int x=10, y=20, z=30;

        if (x<y) {
            System.out.println("Washington");
        } else if ((x+y)%2==0) {
            System.out.println("Adams");
        } else if (z-2 < y+1) {
            System.out.println("Jefferson");
        } else {
            if (x==10) {
                System.out.println("Madison");
            }
        }
    }
}
```

Washington
Adams

Jefferson

Madison
57. What is the value of a, b, and c when the following code finishes?

```java
int a=5, b=3, c=2;
if (c < a) {
    c-=a;
} else if (b < a) {
    b-=a;
}
if (a + b > c) {
    a+=10;
} else {
    b+=10;
}
```

58. What is the value of a, b, and c when the following code finishes?

```java
int a=1, b=2, c=3;
if (a * 2 < b) {
    a*=3;
    c-=b;
}
if (b < a) {
    b++;
} else {
    a--;
    c++;
}
```

59. What is printed by the following?

```java
for (int i=1; i<4; i++) {
    for (char c='a'; c<='c'; c++) {
        if (i%2==0) {
            i++;
            System.out.println(i + " " + c);
        } else {
            System.out.println(c + " " + i);
        }
    }
}
```
60. 1 point What is printed by the following?

```java
String s1="bob";
String s2="lob";
String s3="law";

for (int i=0; i<4; i++) {
    if (i%2==0) {
        s1+=s2;
    } else {
        s2=s1+s3;
    }
}
System.out.println(s1);
```

61. 1 point Is there a compiler error in this code? If so, what is it? If not, what’s printed?

```java
public class WhatsPrinted1 {
    public static void func(int x) {
        x++;
    }

    public static void main(String args[]) {
        int y=10;

        func(y);
        System.out.println(y);
    }
}
```
62. **1 point** Is there a compiler error in this code? If so, what is it? If not, what’s printed?

```java
public class WhatsPrinted2 {
    public static void func(int x) {
        x++;
        System.out.println(x);
    }

    public static void main(String[] args) {
        int y = 10;
        func(y);
    }
}
```

63. **1 point** Is there a compiler error in this code? If so, what is it? If not, what’s printed?

```java
public class WhatsPrinted3 {
    public static void func(int x, int y, int z) {
        x++;
        y += z % 2;
        z *= 2;
    }

    public static void main(String[] args) {
        int x = 10, y = 20, z = 30;
        func(y, z, x);
        System.out.println(x);
    }
}
```
64. **1 point** Is there a compiler error in this code? If so, what is it? If not, what’s printed?

```java
public class WhatsPrinted4 {
    public static void func(int x, int y, int z) {
        x++;  
        y+=z%2;  
        z*=2;  
        System.out.println(z);
    }

    public static void main(String args[]) {
        int x=10, y=20, z=30;
        func(y, z, x);
    }
}
```

65. **1 point** Is there a compiler error in this code? If so, what is it? If not, what’s printed?

```java
public class WhatsPrinted5 {
    public static int func(int x) {
        x*=2;  
        return x;
    }

    public static void main(String args[]) {
        int x=10;
        func(x);
        System.out.println(x);
    }
}
```
66. 1 point Is there a compiler error in this code? If so, what is it? If not, what’s printed?

```java
public class WhatsPrinted6 {
    public static int func(int x) {
        x*=2;
        return x;
    }
    public static void main(String args[]) {
        int x=10;
        x=func(x);
        System.out.println(x);
    }
}
```

67. 1 point Is there a compiler error in this code? If so, what is it? If not, what’s printed?

```java
public class WhatsPrinted7 {
    public static void func(String base, String prefix, String suffix) {
        base = prefix+base+suffix;
    }
    public static void main(String args[]) {
        String r="ject";
        String p="con";
        String s="ure";
        func(r, p, s);
        System.out.println(r);
    }
}
```
68. 1 point Is there a compiler error in this code? If so, what is it? If not, what’s printed?

```java
public class WhatsPrinted8 {
    public static String func(String base, String prefix, String suffix) {
        base = prefix+base+suffix;
        return base;
    }

    public static void main(String args[]) {
        String r="ject";
        String p="con";
        String s="ure";

        func(r, p, s);
        System.out.println(r);
    }
}
```

69. 1 point Is there a compiler error in this code? If so, what is it? If not, what’s printed?

```java
public class WhatsPrinted9 {
    public static String func(String base, String prefix, String suffix) {
        base = prefix+base+suffix;
        return base;
    }

    public static void main(String args[]) {
        String r="ject";
        String p="con";
        String s="ure";

        r=func(r, p, s);
        System.out.println(r);
    }
}
```
Is there a compiler error in this code? If so, what is it? If not, what's printed?

```java
public class WhatsPrinted10 {
    public static void f1() {
        System.out.print("a");
    }

    public static void f2() {
        f1();
        System.out.print("b");
    }

    public static void f3() {
        f2();
        f1();
        System.out.print("c");
    }

    public static void main(String[] args) {
        f3();
        System.out.println();
    }
}
```
71. **3 points** Write the few lines of code that prints the first 50 perfect squares (1, 4, 9, 16, 25, 36, ...).
You do not need to write a full program (i.e., there’s no need for public class ... or public static void main ...

\[
\text{for (int } i = 1; \ i \leq 50; \ i++) \ \\
\quad \text{System.out.println}(i*i);
\]

72. **1 point** In the main function provided, write a program that asks the user to input two integers and
prints out the first integer raised to the second (e.g. if the user enters 2 and 4, the program prints 16,
which is \(2^4\)). You do not have to write any imports or public class .... Please just fill in main.

\[
\text{public static void main(String args[])} \ {
\text{Scanner in = new Scanner(System.in);} \\
\text{System.out.println(">");} \\
\text{int } a = \text{in.nextInt();} \\
\text{int } b = \text{in.nextInt();} \\
\text{int } c = \text{in.nextInt();}
\]

73. **1 point** Write the few lines of code that print all of the integers between 5 and 1000 that are divisible
by 6.

\[
\text{System.out.println(Math.pow(b,e));} \\
\text{int } \text{prod} = 1; \\
\text{for (int } i = 1; \ i \leq e; \ i++) \ \\
\quad \text{prod} \text{ *= b;}
\text{System.out.println(prod)}
\]
74. **1 point** Write a Java program which asks the user to enter three integers. The program prints "between" if the 2nd number falls in between the 1st and 3rd, and "not between" if it doesn't. For example, if I enter 1 10 27, the program prints "between", and if I enter 5 9 6, the program prints "not between".

75. **1 point** Write a static method named `twoConsecutive` that accepts three integers as parameters and returns `true` if there is at least one pair of integers that differ by exactly 1. For example, the integers 3 and 4 differ by 1. The integers 12 and 11 also differ by 1.

Your method should return false if there are no such consecutive values. The integers could be passed in any order; the two consecutive values could be any of the two values passed in.

Here are some sample calls:

<table>
<thead>
<tr>
<th>Call</th>
<th>Output</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>twoConsecutive(1, 2, 12)</code></td>
<td>true</td>
</tr>
<tr>
<td><code>twoConsecutive(1, 12, 2)</code></td>
<td>true</td>
</tr>
<tr>
<td><code>twoConsecutive(2, 12, 1)</code></td>
<td>true</td>
</tr>
<tr>
<td><code>twoConsecutive(4, 5, 3)</code></td>
<td>true</td>
</tr>
<tr>
<td><code>twoConsecutive(2, 4, 6)</code></td>
<td>false</td>
</tr>
<tr>
<td><code>twoConsecutive(8, 8, 8)</code></td>
<td>false</td>
</tr>
</tbody>
</table>