Some Practice Midterm Problems

September 23, 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 2beOrNot2Be 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: \(5 + \frac{6}{2} + 8 + \frac{5}{3}\)

37. 1 point What is the result of the expression: \(3 > \frac{3}{5} \land 2 \land 5 < 7 \land 1 < 2\) [Answer: True]

38. 1 point What is the result of the expression: \(3 > \frac{3}{5} \land 2 \land 5 < 7 \land 1 > 2\) [Answer: False]

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

\[2 + 1".\"+(3/4)+3*4\]

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

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

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"

\[ x \mid y = 0 \]

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

\[ x \mid y = 0 \]
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);
    }
}
```
52. 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. 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");
        }
    }
}
```
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");
        }
    }
}
```

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");
        }
    }
}
```

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");
            }
        }
    }
```
57. **1 point** 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. **1 point** 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. **1 point** 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 {
            c++;
            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 ...`.

```
public class Main {
    public static void main(String[] args) {
        // code here
    }
}
```

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`.

```
public static void main(String args[]) {
```

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

```
for (int i = 5; i <= 1000; i += 6) {
    System.out.println(i);
}
```
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 the few lines of code that prompts the user to enter a series of exam scores, stopping when the user has entered an exam score < 0. The program then prints the highest, lowest, and average score or **no scores** if no scores have been entered.

76. **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>twoConsecutive(1, 2, 12)</td>
<td>true</td>
</tr>
<tr>
<td>twoConsecutive(1, 12, 2)</td>
<td>true</td>
</tr>
<tr>
<td>twoConsecutive(2, 12, 1)</td>
<td>true</td>
</tr>
<tr>
<td>twoConsecutive(4, 5, 3)</td>
<td>true</td>
</tr>
<tr>
<td>twoConsecutive(2, 4, 6)</td>
<td>false</td>
</tr>
<tr>
<td>twoConsecutive(8, 8, 8)</td>
<td>false</td>
</tr>
</tbody>
</table>

77. Write a method which is passed the name of a text file. The method returns the number of characters found in the file. You are not required to handle `FileNotFoundException`.

78. Write a method which is passed the name of a text file. The method returns the number of words found in the file. You are not required to handle `FileNotFoundException`.

79. Write a method which is passed the name of a text file. The method returns the length of the longest word found in the file. You are not required to handle `FileNotFoundException`.

80. Write a method which is passed the name of a text file which contains grades in a course that's in the following format:

<table>
<thead>
<tr>
<th>Stan 99 87 100</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dipper 100 100 97 100</td>
</tr>
<tr>
<td>Mabel 100 100</td>
</tr>
<tr>
<td>Seuss 72 85 65</td>
</tr>
</tbody>
</table>

the method returns the average of the student with the highest semester average.
81. Write a method which is passed the name of a text file. The method returns the number of blank lines contained in the file. You are not required to handle `FileNotFoundException`.

```java
while (in.hasNextLine()) {
    String line = in.nextLine();
    if (line.length() == 0) {
        numBlanks++;
    }
}
```