Review Questions for Chapter 2 Test

(Note: Question numbers may not be in consecutive)

Question type: Multiple Choice

1) Which of the following options declares a `float` variable?

a) `Float age;`
b) `flt age;`
c) `float age;`
d) `age: float;`

Answer: c

2) What is the result of the following code snippet?

```
public static void main(String[] args)
{
   double circleRadius;
   double circleVolume = 22 / 7 *
circleRadius * circleRadius;
   System.out.println(circleVolume);
}
```

a) 0
b) 3.14
c) 6.28
d) compile-time error

Answer: d

3) What is wrong with the following code snippet?

```
public class Area
{
   public static void main(String[] args)
   {
      int width = 10;
      height = 20.00;
      System.out.println("area = " +
(width * height));
   }
}
```

a) The code snippet uses an uninitialized variable.
b) The code snippet uses an undeclared variable.
c) The code snippet attempts to assign a decimal value to an integer variable.
d) The code snippet attempts to add a number to a string variable.

Answer: b

4) What is wrong with the following code snippet?

```
int average;
average = 78A;
```

a) The `average` variable is never initialized.
b) The data type for the `average` variable is not specified.
c) The `average` variable is never assigned a value.
d) The `average` variable is assigned a non-numeric value.

Answer: d

6) What will be the value stored in the variable `x` after the execution of the following code snippet?

```
int a = 10;
int b = 20;
int c = 2;
int x = b / a /*c*/;
```

a) 1
b) 2
c) 4
d) The code has a syntax error

Answer: b

7) Which of the following statements with comments is(are) valid?

I. `int cnt = 0; /* Set count to 0`
II. `int cnt = 0; /* Set count to 0 */`
III. `int cnt = 0; // Set count to 0`

a) Only I is valid
b) I and II are valid
c) II and III are valid
d) Only III is valid

Answer: c

8) What is wrong with the following code?

```
int count = 2000 * 3000 * 4000;
```

a) Wrong data type
b) Variable is undefined
c) Integer overflow
d) Illegal expression

Answer: c

9) Which one of the following variables is assigned with valid literals?

a)
```
int salary = 0;
salary = 5000.50;
```
b)
```
int salary1 = 0;
salary1 = 1.2E6;
```

c)
```
double salary2 = 0;
salary2 = 2.96E-2;
```
d)
```
long salary3 = 0;
salary3 = 1E-6;
```

Answer: c

10) What will be the value inside the variables `a` and `b` after the given set of assignments?

```
int a = 20;
int b = 10;
a = (a + b) / 2;
b = a;
a++;
```

a) a = 15, b = 16
b) a = 16, b = 16
c) a = 16, b = 15
d) a = 15, b = 15

Answer: c

11) What is the value inside the `value` variable at the end of the given code snippet?

```
public static void main(String[] args)
{
   int value = 3;
   value = value - 2 * value;
   value++;
}
```

a) –2
b) 0
c) 2
d) 4

Answer: a

12.) What are the values of `num1` and `num2` after this snippet executes?

```
double num1 = 4.20;
double num2 = 5.0 + num1 * 10;
```

a) `num1 = 4.20 and num2 = 92.0`
b) `num1 = 4.20 and num2 = 47.0`
c) `num1 = 42.0 and num2 = 42.0`
d) `num1 = 42.0 and num2 = 47.0`

Answer: b

14) What is the output of the following code snippet?

```
public static void main(String[] args)
{
   int value = 3;
   value++;
   System.out.println(value);
}
```

a) 2
b) 3
c) 4
d) No output due to syntax error

Answer: c

15) What is the output of the following code snippet?

```
public static void main(String[] args)
{
   int value = 25;
   value = value * 2;
   value--;
   System.out.println(value);
}
```

a) 25
b) 50
c) 49
d) 26

Answer: c

17) Which of the following statements is correct about constants?

a) Constants are written using capital letters because the compiler ignores constants declared in small letters.
b) The data stored inside a constant can be changed using an assignment statement.
c) You can make a variable constant by using the `final` reserved word when declaring it.
d) Constant variables can only be changed through the Math library.

Answer: c

18) Which one of the following operators computes the remainder of an integer division?

a) `/`
b) `%`
c) `\`
d) `!`

Answer: b

20) What is the output of the following code snippet?

```
public static void main(String[] args)
{
   double a;
   a = Math.sqrt(9.0) + Math.sqrt(16.0);
   System.out.println(a);
}
```

a) 25.0
b) 337.0
c) 7.0
d) 19.0

Answer: c

21) Which is the Java equivalent of the following mathematical expression?

$c = \sqrt{a^2 + b^2}$

a) `c = Math.sqrt(a * 2 + b * 2);`
b) `c = Math.sqrt(a * 2) + Math.sqrt(b * 2);`
c) `c = Math.sqrt(a * a + b * b);`
d) `c = Math.sqrt(a ^ 2 + b ^ 2);`

Answer: c

23) Which of the following is the Java equivalent of the following mathematical expression?

$c = 2\pi \cdot radius$

a) `c = 2 * Math.PI * radius * 2;`
b) `c = 2 * Math.PI * (2 ^ radius);`
c) `c = 2 * Math.PI * (radius ^ 2);`
d) `c = 2 * Math.PI * radius;`

Answer: d

24) What is the result of the following statement?

```
String s = "You" + "had" + "me" + "at" +
"hello";
```

a) The string s has the following value: "`You had me at "hello"`
b) The statement results in an error because the + operator can be used only with numbers
c) The statement results in an error because the + operation cannot be performed on string literals
d) The string `s` has the following value: "`Youhadmeathello`"

Answer: d

26) What output is produced by these statements?

```
String name = "Joanne Hunt";
System.out.println(name.length());
```

a) 8
b) 10
c) 9
d) 11

Answer: d

28) What is the output of the following code snippet?

```
public static void main(String[] args){
{
   String str1;
   str1 = "I LOVE MY COUNTRY";
   String str2 = str1.substring(4, 11);
   System.out.println(str2);
}
```

a) OVE MY
b) OVE MY C
c) VE MY CO
d) VE MY C

Answer: d

29) What is the output of the following code snippet?

```
public static void main(String[] args)
{
   int s;
   double f = 365.25;
   s = f / 10;
   System.out.println(s);
}
```

a) 36
b) 36.525
c) 37
d) No output because the code snippet generates compilation errors

Answer: d

30) Assuming that the user inputs “Joe” at the prompt, what is the output of the following code snippet?

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

```
   System.out.print("Enter your name ");
   String name;
   Scanner in = new Scanner(System.in);
   name = in.next();
   name += ", Good morning";
   System.out.print(name);
}
```

a) The code snippet does not compile because the += operator cannot be used in this context.
b) Joe, Good morning
c) , Good morning
d) Joe

Answer: b

32) What happens to the fractional part when a division is performed on two integer variables?

a) The fractional part is rounded off to the nearest integer value.
b) The fractional part is discarded.
c) Two integers cannot be used in division; at least one of the operands should be a floating-point number.
d) Instead of using an integer division, you should use the modulus operator to perform floating-point division.

Answer: b

33) Consider the following division statements:

I. 22 / 7
II. 22.0 / 7
III. 22 / 7.0

Which of the following is correct?

a) All three statements will return an integer value.
b) Only I will return an integer value.
c) Only I, II will return an integer value.
d) Only I and III will return an integer value.

Answer: b

34) Which of the following options is valid with reference to the code snippet?

```
public static void main(String[] args)
{
   double d = 45.326;
   double r = d % 9.0;
   System.out.println(r);
}
```

a) The value inside the variable `r` will be 0.326
b) The value inside the variable `r` will be 5.036
c) Variable `r` has to be defined as an integer because the `%` operator always returns an integer
d) The initialization of variable `r` is wrong, because the `%` operator expects integer values as operands

Answer: a

35) What is the output of the following code snippet?

```
public static void main(String[] args)
{
   int var1 = 10;
   int var2 = 2;
   int var3 = 20;
   var3 = var3 / (var1 % var2);
   System.out.println(var3);
}
```

a) 0
b) 4
c) 20
d) There will be no output due to a run-time error.

Answer: d

36) Which one of the following statements gives the absolute value of the floating-point number `x = -25.50`?

a) `abs(x);`
b) `Math.abs(x);`
c) `x.abs();`
d) `x.absolute();`

Answer: b

37) Assuming that the user enters 45 and 62 as inputs for `n1` and `n2`, respectively, what is the output of the following code snippet?

```
public static void main(String[] args)
{
   System.out.print("Enter a number: ");
   Scanner in = new Scanner(System.in);
   String n1 = in.next();
   System.out.print("Enter another
number: ");
   String n2 = in.next();
   String result = n1 + n2;
   System.out.print(result);
}
```

a) 46
b) 4662
c) 107
d) 4562

Answer: d

40) Assuming that the user inputs a value of 25000 for the pay and 10 for the bonus rate in percentage in the following code snippet, what is the output?

```
public static void main(String[] args)
{
   Scanner in = new Scanner(System.in);
   System.out.print("Enter the pay: ");
   double pay = in.nextDouble();
   System.out.print("Enter the bonus
rate: ");
   double bonus = in.nextDouble();

   System.out.println("The new pay is " +
      (pay + pay * (bonus / 100.0)));
}
```

a) The new pay is 25000
b) The new pay is 25100
c) The new pay is 27500
d) The new pay is 30000

Answer: c

46) Which of the given `System.out.println` statements generates the following output?

```
ABCDE"\
```

a) `System.out.println("ABCDE\"\\");`
b) `System.out.println("ABCDE"\");`
c) `System.out.println("ABCDE"\);`
d) `System.out.println("ABCDE\"\");`

Answer: a

48) What will be the value inside the variables `x` and `y` after the given set of assignments?

```
int x = 20;
int y = 10;
x = (x - y) * 2;
y = x / 2;
```

a) x = 40, y = 20
b) x = 20, y = 10
c) x = 10, y = 20
d) x = 20, y = 20

Answer: b

49) What is the value inside the `var` variable at the end of the given code snippet?

```
public static void main(String[] args)
{
   int var = 30;
   var = var + 29 / var;
   var++;
}
```

a) 0
b) 1
c) 30
d) 31

Answer: d

50) What is the output of the following code snippet?

```
public static void main(String[] args)
{
   int num1 = 10;
   int num2 = 5;
   int num3 = 200;
   num3 = num3 % (num1 * num2);
   System.out.println(num3);
}
```

a) 0
b) 4
c) 10
d) 250

Answer: a

57) Which one of the following statements defines a constant with the value 123?

a) `final int MY_CONST = 123;`
b) `const int MY_CONST = 123;`
c)
```
final int MY_CONST;
  MY_CONST = 123;
```
d) `static int MY_CONST = 123;`

Answer: a

64) What does the following statement sequence print?

```
final String str = "Java";
str += " is powerful";
System.out.println(str);
```

a) Java is powerful
b) Java + is powerful
c) is powerful
d) Nothing; compile-time error

Answer: d

65) What does the following statement sequence print?

```
String str = "Java";
str += " is powerful";
System.out.println(str);
```

a) Java is powerful
b) Java + is powerful
c) is powerful
d) Compile-time error

Answer: a

66) What does the following statement sequence print if the user input is 123?

```
public static void main(String[] args)
{
   Scanner in = new Scanner(System.in);
   System.out.print("Enter a number ");
   int myInt = in.nextInt();
   myInt += 456;
   System.out.println(myInt);
}
```

a) 579
b) Compile-time error
c) Run-time error
d) 123456

Answer: a

67) What does the following statement sequence print if the user input is 123?

```
public static void main(String[] args)
{
   Scanner in = new Scanner(System.in);
   System.out.print("Enter a number: ");
   String str = in.next();
   str += 456;
   System.out.println(str);
}
```

a) 579
b) Compile-time error
c) Run-time error
d) 123456

Answer: d

68) What is the output of the following statement sequence?

```
public static void main(String[] args)
{
   int x = 100.0 % 6.0;
   System.out.println(x);
}
```

a) 4
b) Compile-time error
c) Run-time error
d) 16

Answer: b

69) Which statement is true?

a) Variables cannot be assigned and declared in the same statement
b) Variable names must contain at least one dollar sign
c) Variable names can be no more than 8 characters long
d) It is incorrect to initialize a string variable with a number

Answer: d

70) Which statement about number literals in Java is false?

a) Numbers in exponential notation always have type `double`
b) Zero is an integer
c) Integers must be positive
d) An integer with fractional part of .0 has type `double`.

Answer: c

71. Which option represents the best choice for a variable name to represent the average grade of students on an exam?

a) `averageGrade`
b) `$averageGrade`
c) `avg`
d) `AveGd`

Answer: a

72) The assignment operator

a) denotes mathematical equality
b) places a new value into a variable
c) means the same as the equals sign used in algebra
d) makes it illegal to write a statement like `sum = sum + 4;`

Answer: b

73) Which of the following statements about constants in Java are true?

I. Although not required, constants are commonly named using uppercase letters
II. Only integer values can appear as constants
III. A variable can be defined with an initial value, but the reserved word `final` prevents it from being changed
IV. A named constant makes computations that use it clearer

a) I, II, III
b) II, III, IV
c) I, III, IV
d) I, II, IV

Answer: c

74) What is the output of this code snippet?

```
int sum = 22;
sum = sum + 2;
System.out.print(sum);  // sum = sum + 4;
System.out.print(sum);
```

a) 2424
b) 2425
c) 2428
d) 2528

Answer: a

75) What is the output of this code snippet?

```
double average;
int grade1 = 87;
int grade2 = 94;
// System.out.print("The average is " +
(grade1 + grade2) / 2.0);
System.out.print("The average is " +
average);
```

a) Compile-time error
b) The average is 91.5
c) The average is 91.5
   The average is 91.5
d) The average is 91.5
   The average is 0.0

Answer: a

76) What is the output of the following code snippet?

```
int counter = 0;
counter++;
System.out.print("The initial value of
the counter is ");
System.out.println(count);
```

a) The initial value of the counter is 0
b) The initial value of the counter is 1
c) The code will not compile
d) The initial value of the counter is

Answer: c

77. Which statements about numeric types in Java are true?

I. There is more than one integer type
II. The data type `float` uses twice the storage of `double`
III. The numeric range of the Java integer type is related to powers of two

a) I, II
b) I, III
c) II, III
d) I, II, III

Answer: b

78. The typical ranges for integers may seem strange but are derived from

a) Base 10 floating-point precision
b) Field requirements for typical usage and limits
c) Overflows
d) Powers of two because of base 2 representation within the computer

Answer: d

79. What is result of evaluating the following expression?

```
(45 / 6) % 5
```

a) 2
b) 7
c) 2.5
d) 3

Answer: a

80. What is the difference between the result of the following two Java statements?

I. `int cents = (int)(100 * price + 0.5);`
II. `int cents = (100 * price + 0.5);`

a) Statement I causes truncation, but II does not
b) Statement II causes truncation, but I does not
c) Statement I compiles, but II does not
d) Statement II compiles, but I does not

Answer: c