1.Which of the following method signatures is a valid declaration of an entry point in a Java application?

A. public void main(String[] args)
B. public static void main()
C. private static void start(String[] mydata)
D. public static final void main(String[] mydata)

D. An entry point in a Java application consists of a main() method with a single String[] argument, return type of void, and modifiers public and static. The name of the variable in the input argument does not matter. Option A is missing the static modi- fier, Option B is missing the String[] argument, and Option C has the wrong access modifier and method name. Only Option D fulfills these requirements. Note that the modifier final is optional and may be added to an entry point method.

2.What is the proper filename extension for a Java bytecode compiled file?

A. .java
B. .bytecode
C. .class
D. .dll

C. The proper extension for a Java compiled bytecode file is .class, making Option C the correct answer.

3.Which variables have a scope limited to a method?

A. Interface variables
B. .Class variables
C. Instance variables
D. Local variables

D. Only local variables have such a small scope, making Option D the correct answer.

4. Which package is imported into every Java class by default?

A. java.util
B. java.lang
C. system.lang
D. java.system

B. The package java.lang is imported into every Java class, so Option B is correct. The other options must be explicitly imported. Option A exists but must be explicitly imported. Options C and D do not exist in the standard Java runtime.

5.Which of the following is not a valid code comment in Java?

A. // Add 5 to the result
B. /*** TODO: Fix bug 12312 ***/
C. # Add configuration value
D. /* Read file from system ****/

C. Java accepts Options A, B, and D as valid comments. Note that the /* */ syntax can have additional (and uneven) star (*) characters as shown in B and D. Option C is incorrect as hashtag (#) is not a valid comment character in Java.

6.Which statement about a valid .java file is true?

A. It can only contain one class declaration.
B. It can contain one public class declaration and one public interface definition.
C. It must define at least one public class.
D. It may define at most one public class.

D. A valid .java file may define any number of classes or interfaces but have at most one public class. It can also not define any public classes. For these reasons, Option A, B, and C are incorrect, leaving Option D as the only correct answer.

8.What is the result of compiling and executing the following class?

```
1: public class ParkRanger {
2:    int birds = 10;
3:    public static void main(String[] data) {
4:    int trees = 5;
5:    System.out.print(trees+birds);
6:    }
7: }
```

A. It does not compile.
B. It compiles but throws an exception at runtime.
C. It compiles and outputs 5.
D. It compiles and outputs 15.

A. The code does not compile because of line 5, making Option A the correct answer. For this question, it helps to understand variable scope. The main() method is static and does not have access to any class instance variables. The birds variable is not static and requires a class instance variable to access. Therefore, the code does not compile when the static method attempts to access a non-static variable without an instance of the class.

9. Which of the following lines of code is not allowed as the first line of a Java class file?

A. import widget.*;
B. // Widget Manager
C. package sprockets;
D. int facilityNumber;

D. A class can start with a comment, an optional package statement, or an import state- ment if there is no package statement. It cannot start with a variable definition, making Option D the correct answer.

10.What is the correct character for terminating a statement in Java?

A. A colon (:)
B. An end-of-line character
C. A tab character
D. A semicolon (;)

D. Unlike with some other programming languages, the proper way to terminate a line of code is with a semicolon (;), making D the only correct answer.

11.Given the following class definition, which is the only line that does not contain a compilation error?

```
1: public ThisClassDoesNotCompile {
2:    double int count;
3:    void errors() {}
4:    static void private limit; }
```

A. Line 1
B. Line 2
C. Line 3
D. Line 4

C. Line 1 is missing the class keyword. Line 2 contains two types for the same variable. Line 3 is a valid definition for a method, making C the correct answer. Finally, line 4 con- tains an access modifier, private, after the return type, which is not allowed. In addition, void is an invalid type for variables.

12.Which of the following features allows a Java class to be run on a wide variety of computers and devices?

A. Encapsulation
B. Object oriented
C. Inheritance
D. Platform independence

D. Platform independence is the property of Java that allows it to be run on a variety of different devices.

13.Given the following wildcard import statements, which class would be included in the import?

```
import television.actor.*;
import movie.director.*;
```

A. television.actor.recurring.Marie
B. movie.directors.John
C. television.actor.Package
D. movie.NewRelease

C. Option A is incorrect as the sub-package recurring is not included by the import state- ments. Option B is also incorrect as it uses the plural directors instead of the singular director used in the import statements. Option D is incorrect as the wildcard is applied to the sub-package movie.director, not the package movie. Finally, Option C is correct as it is a valid class accessible from the wildcard import.

14.Which is the correct order of statements for a Java class file?

A. import statements, package statement, class declaration
B. package statement, class declaration, import statement
C. class declaration, import statements, package declaration
D. package statement, import statements, class declaration

D. Java classes are defined in this order: package statement, import statements, class dec- laration, making Option D the only

correct answer. Note that not all of these statements are required. For example, a class may not have a package statement, but if it does, it must come first in the file.

15.Which of the following is a true statement?

A. The java command compiles a .java file into a .class file.
B. The javac command compiles a .java file into a .class file.
C. The java command compiles a .class file into a .java file.
D. The javac command compiles a .class file into a .java file.

B.The javac command compiles a .java file into a .class bytecode file, making Option B the correct answer.

16.Which of the following statements about Java is true?

A. Java is a procedural programming language.
B. Java allows method overloading.
C. Java allows operator overloading.
D. Java allows direct access to objects in memory.

B. Java is object oriented, not procedural, so Option A is a false statement. Java allows method overloading in subclasses, so Option B is correct. Operator overloading is permitted in languages like C++, not Java, so Option C is also untrue. Finally, Option D is not a true statement as the JVM manages the location of objects in memory that can change and is transparent to the Java application.

17.Given the following code, what values inserted in order into the blank lines, allow the code to compile?

```
________agent;
public _______Banker
{
   private static_______getMaxWithdrawal()
   {
    return 10;
   }
}
```

A. import, class, null
B. import, interface, void
C. package, int, int
D. package, class, long

D. Option A is incorrect as the return type of the method cannot be null. Option B is also incorrect as the return type cannot be void if the method uses a return statement. Option C is incorrect too as the class keyword is replaced with int. Option D is correct because it's the only answer that allows the code to compile without issue. Note that other values are possible for this question. For example, either int or long can be entered in the last blank. The key here is that only one of the available answer choices allows the code to compile.

18.Given the file Magnet.java below, which of the marked lines can you independently insert the line public String color; into and still have the code compile?

```
// line a1
public class Magnet {
// line a2
public void attach() {
// line a3
}
// line a4
}
```

A. a1 and a3
B. a2 and a4
C. a2, a3, and a4
D. a1, a2, a3, and a4

B. The line of code cannot be inserted at a1 because no variables are allowed outside of the class declaration in this file, making Options A and D incorrect. The line of code can also not be inserted at a3 as local variables defined within methods cannot have access modifiers such as public, making Option C incorrect. The code can be inserted independently at a2 and a4 as instance variables can be defined anywhere in the class outside a method. There- fore, Option B is the correct choice.

19.What is required to define a valid Java class file?

A. A class declaration
B. A package statement
C. At least one import statement
D. The public modifier

A. Option A is the only correct answer as a class definition is the only required compo- nent in a Java class file. Note that we said a Java class file here; Java also allows interfaces and enums

to be defined in a file. A package statement and import statements are optional for declaring a class, making Options B and C incorrect. A class may also be defined with package-level access in a file, making Option D an incorrect answer.

20.What is the proper filename extension for a Java source file?

A. .jav
B. .class
C. .source
D. .java

D. The proper extension for a Java compiled bytecode file is .java, making Option D the correct answer.

21.What is the result of compiling and executing the following class?

```
public class RollerSkates
{
static int wheels = 1;
int tracks = 5;
public static void main(String[] arguments)
{
 RollerSkates s = new RollerSkates();
 int feet=4, tracks = 15;
 System.out.print(feet + tracks + s.wheels);
}
}
```

A. The code does not compile.
B. 5
C. 10
D. 20

D. The code compiles and runs without issue, so Option A is incorrect. The question involves understanding the value and scope of each variable at the print() statement. The variables feet and tracks are locally scoped and set to 4 and 15, respectively, ignoring the value of tracks of 5 in the instance of the class. Finally, the static variable s.wheels has a value of 1. The result is the combined value is 20, making Option D the correct answer.

22.What is the result of compiling and executing the following class?

```
package sports;
public class Bicycle
{
String color = "red";
private void printColor(String color)
{
color = "purple";
System.out.print(color);
}
public static void main(String[] rider)
{
 new Bicycle().printColor("blue");
}
}
```

A. Red
B. Purple
C. Blue
D. It does not compile.

B. First off, the color variable defined in the instance and set to red is ignored in the method printColor() as local scope overrides instance scope, so Option A is incor- rect. The value of color passed to the printColor() method is blue, but that is lost by the assignment to purple, making Option B the correct answer and Option C incorrect. Option D is incorrect as the code compiles and runs without issue.

23.What is the result of compiling and executing the following application?

```
package forecast;
public class Weather
{
private static boolean heatWave = true;
public static void main()
{
boolean heatWave = false;
System.out.print(heatWave);
}
```

}

A. True
B. False
C. It does not compile.
D. It compiles but throws an error at runtime.

E.The application compiles without issue, so Option C is incorrect. The application does not execute though, as the main() method does not have the correct method signature. It is missing the required input argument, an array of String. Trying to execute the application without a proper entry point produces an error, making Option D the correct answer.