Mock Test#1

Total points 20/50

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Last Name

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1.Which of the following are valid Java identifiers? (Choose all that apply) * 0/1

```
package aquarium; public class Water { }

package aquarium;
import java.lang.*;
import java.lang.System;
import aquarium.Water;
import aquarium.*;
public class Tank {
  public void print(Water water) {
   System.out.println(water); } }
```

- [x] A. A$B
- [x] B. _helloWorld
- [ ] C. true D. java.lang
- [ ] D. Public
- [ ] E. 1980_s

2.What is the output of the following program? * 1/1

```
1: public class WaterBottle {
2: private String brand;
3: private boolean empty;
4: public static void main(String[] args) {
5: WaterBottle wb = new WaterBottle();
6: System.out.print("Empty = " + wb.empty);
7: System.out.print(", Brand = " + wb.brand);
8: } }
```

- [ ] A.Line 6 generates a compiler error.
- [ ] B.Line 7 generates a compiler error.
- [ ] C. There is no output.
- [x] D. Empty = false, Brand = null
- [ ] E. Empty = false, Brand =
- [ ] F. Empty = null, Brand = null

3.Which of the following are true? (Choose all that apply) * 1/1

```
4: short numPets = 5;
5: int numGrains = 5.6;
6: String name = "Scruffy";
7: numPets.length();
8: numGrains.length();
9: name.length();
```

- [ ] A. Line 4 generates a compiler error.
- [x] B. Line 5 generates a compiler error.
- [ ] C. Line 6 generates a compiler error.
- [x] D. Line 7 generates a compiler error.
- [x] E. Line 8 generates a compiler error.
- [ ] F. Line 9 generates a compiler error.
- [ ] G. The code compiles as is.

4.Given the following class, which of the following is true? (Choose all that apply) *0/1

```
1: public class Snake {
2:
3: public void shed(boolean time) {
4:
5: if (time) {
6:
7: }
8: System.out.println(result);
9:
10: }
11: }
```

- [ ] A.If String result = "done"; is inserted on line 2, the code will compile.
- [x] B. If String result = "done"; is inserted on line 4, the code will compile.
- [ ] C. If String result = "done"; is inserted on line 6, the code will compile.
- [ ] D. If String result = "done"; is inserted on line 9, the code will compile.
- [ ] E. None of the above changes will make the code compile.

5.Given the following classes, which of the following can independently replace INSERT IMPORTS HERE to make the code compile? (Choose all that apply) *1/1

```
package aquarium;
public class Tank { }
package aquarium.jellies;
public class Jelly { }
package visitor;
INSERT IMPORTS HERE
public class AquariumVisitor {
public void admire(Jelly jelly) { } }
```

- [ ] A. import aquarium.*;
- [ ] B. import aquarium.*.Jelly;
- [x] C. import aquarium.jellies.Jelly;
- [x] D. import aquarium.jellies.*;
- [ ] E. import aquarium.jellies.Jelly.*;
- [ ] F.None of these can make the code compile.

6.Which of the following Java operators can be used with boolean variables? *0/1
(Choose all that apply)

- [x] A. ==
- [ ] B. +
- [ ] C. --
- [x] D. !
- [ ] E. %
- [x] F. <=

7.What data type (or types) will allow the following code snippet to compile? *0/1
(Choose all that apply)

```
byte x = 5;
byte y = 10;
_____ z = x + y;
```

- [x] A. int
- [x] B. long
- [ ] C. boolean
- [ ] D. double
- [x] E. short
- [x] F. short

8.What is the output of the following application? * 0/1

```
1: public class CompareValues {
2: public static void main(String[] args) {
3: int x = 0;
4: while(x++ < 10) {}
5: String message = x > 10 ? "Greater than" : false;
6: System.out.println(message+","+x);
7: }
8: }
```

- [ ] A. Greater than,10
- [ ] B. false,10
- [x] C. Greater than,11
- [ ] D. false,11
- [ ] E. The code will not compile because of line 4.
- [x] F. The code will not compile because of line 5.

9.What change would allow the following code snippet to compile? (Choose all that apply) *0/1

```
3: long x = 10;
4: int y = 2 * x;
```

- [ ] A. No change; it compiles as is.
- [x] B. Cast x on line 4 to int.
- [x] C. Change the data type of x on line 3 to short.
- [x] D. Cast 2 * x on line 4 to int.
- [ ] E. Change the data type of y on line 4 to short.
- [x] F. Change the data type of y on line 4 to long.

10.What is the output of the following code snippet? * 1/1

```
3: java.util.List list = new java.util.ArrayList();
4: list.add(10);
5: list.add(14);
6: for(int x : list) {
7: System.out.print(x + ", ");
8: break;
9: }
```

- [ ] A. 10, 14,
- [ ] B. 10, 14
- [x] C. 10,
- [ ] D. The code will not compile because of line 7.
- [ ] E. The code will not compile because of line 8.
- [ ] F. The code contains an infinite loop and does not terminate.

11.What is output by the following code? (Choose all that apply) * 1/1

```
1: public class Fish {
2: public static void main(String[] args) {
3: int numFish = 4;
4: String fishType = "tuna";
5: String anotherFish = numFish + 1;
6: System.out.println(anotherFish + " " + fishType);
7: System.out.println(numFish + " " + 1);
8: } }
```

- [x] A. 4 1
- [ ] B. 41
- [ ] C. 5
- [x] D. 5 tuna
- [ ] E. 5tuna
- [ ] F. 51tuna
- [ ] G. The code does not compile.

12.Which of the following are output by this code? (Choose all that apply) * 1/1

```
3: String s = "Hello";
4: String t = new String(s);
5: if ("Hello".equals(s)) System.out.println("one");
6: if (t == s) System.out.println("two");
7: if (t.equals(s)) System.out.println("three");
8: if ("Hello" == s) System.out.println("four");
9: if ("Hello" == t) System.out.println("five");
```

- [x] A. one
- [ ] B. two
- [x] C. three
- [x] D. four
- [ ] E. five
- [ ] F. The code does not compile.

13.Which are true statements? (Choose all that apply) * 1/1

- [ ] A. An immutable object can be modified.
- [x] B. An immutable object cannot be modified.
- [x] C. An immutable object can be garbage collected.
- [ ] D. An immutable object cannot be garbage collected.
- [x] E. String is immutable.
- [ ] F. StringBuffer is immutable.
- [ ] G. StringBuilder is immutable.

14.What is the result of the following code? * 1/1

```
7: StringBuilder sb = new StringBuilder();
8: sb.append("aaa").insert(1, "bb").insert(4, "ccc");
9: System.out.println(sb);
```

- [ ] A. abbaaccc
- [x] B. abbaccca
- [ ] C. bbaaaccc
- [ ] D. bbaaccca
- [ ] E. An exception is thrown.
- [ ] F. The code does not compile.

15.What is the result of the following code? * 0/1

```
2: String s1 = "java";
3: StringBuilder s2 = new StringBuilder("java");
4: if (s1 == s2)
5: System.out.print("1");
6: if (s1.equals(s2))
7: System.out.print("2");
```

- [ ] A. 1
- [x] B. 2
- [ ] C. 12
- [ ] D. No output is printed.
- [ ] E. An exception is thrown.
- [ ] F. The code does not compile.

16.Which of the following can fill in the blank in this code to make it compile? *0/1
(Choose all that apply)

```
public class Ant { _____ void method()
{ } }
```

- [x] A. default
- [ ] B. final
- [x] C. private
- [x] D. Public
- [ ] E. String

17.Which of the following compile? (Choose all that apply) * 1/1

- [x] A. final static void method4() { }
- [ ] B. public final int void method() { }
- [ ] C. private void int method() { }
- [x] D. static final void method3() { }
- [ ] E. void final method() {}
- [ ] F. void public method() { }

18.Which of the following methods compile? (Choose all that apply) * 0/1

- [x] A. public void method A() { return;}
- [x] B. public void methodB() { return null;}
- [x] C. public void methodD() {}
- [x] D. public int methodD() { return 9;}
- [ ] E. public int methodE() { return 9.0;}
- [ ] F. public int methodF() { return;}
- [ ] G. public int methodG() { return null;}

19.Which of the following compile? (Choose all that apply) * 1/1

- [x] A. public void moreA(int... nums) {}
- [x] B. public void moreB(String values, int... nums) {}
- [ ] C. public void moreC(int... nums, String values) {}
- [ ] D. public void moreD(String... values, int... nums) {}
- [ ] E. public void moreE(String[] values, ...int nums) {}
- [ ] F. public void moreF(String... values, int[] nums) {}
- [x] G. public void moreG(String[] values, int[] nums) {}

20.Given the following method, which of the method calls return 2? (Choose all that apply) *1/1

```
public int howMany(boolean b, boolean... b2)
{ return b2.length; }
```

- [ ] A. howMany();
- [ ] B. howMany(true);
- [ ] C. howMany(true, true);
- [x] D. howMany(true, true, true);
- [ ] E. howMany(true, {true});
- [ ] F. howMany(true, {true, true});
- [x] G. howMany(true, new boolean[2]);

21.What modifiers are implicitly applied to all interface methods? (Choose all that apply) *0/1

- [ ] A. protected
- [x] B. public
- [ ] C. static
- [ ] D. void
- [x] E. abstract
- [ ] F. default

22.What is the output of the following code? * 0/1

```
1: class Mammal {
2: public Mammal(int age) {
3: System.out.print("Mammal");
4: }
5: }
6: public class Platypus extends Mammal {
7: public Platypus() {
8: System.out.print("Platypus");
9: }
10: public static void main(String[] args) {
11: new Mammal(5);
12: }
13: }
```

- [ ] A. Platypus
- [x] B. Mammal
- [ ] C. PlatypusMammal
- [ ] D. MammalPlatypus
- [ ] E. The code will not compile because of line 8.
- [ ] F. The code will not compile because of line 11.

23.Which of the following statements can be inserted in the blank line so that the code will compile successfully? (Choose all that apply) *0/1

```
public interface CanHop {}
public class Frog implements CanHop {
public static void main(String[] args) {
frog = new TurtleFrog(); } }
public class BrazilianHornedFrog extends Frog
{} public class TurtleFrog extends Frog {}
```

- [x] A. Frog
- [x] B. TurtleFrog
- [x] C. BrazilianHornedFrog
- [ ] D. CanHop
- [ ] E. Object
- [ ] F. Long

24.Which statement(s) are correct about the following code? (Choose all that apply) *0/1

```
public class Rodent {
protected static Integer chew() throws Exception {
System.out.println("Rodent is chewing"); return 1; } }
public class Beaver extends Rodent {
public Number chew() throws RuntimeException {
System.out.println("Beaver is chewing on wood"); return 2; } }
```

- [ ] A. It will compile without issue.
- [x] B. It fails to compile because the type of the exception the method throws is a subclass of the type of exception the parent method throws.
- [x] C. It fails to compile because the return types are not covariant.
- [x] D. It fails to compile because the method is protected in the parent class and public in the subclass.
- [ ] E. It fails to compile because of a static modifier mismatch between the two methods.

25.Which of the following may only be hidden and not overridden? (Choose all that apply) *0/1

- [x] A. private instance methods
- [ ] B. protected instance methods
- [ ] C. public instance methods
- [ ] D. static methods
- [ ] E. public variables
- [x] F. private variables

26.Which of the following statements are true? (Choose all that apply) * 0/1

- [x] A. Runtime exceptions are the same thing as checked exceptions.
- [x] B. Runtime exceptions are the same thing as unchecked exceptions.
- [ ] C. You can declare only checked exceptions.
- [ ] D. You can declare only unchecked exceptions.
- [ ] E. You can handle only Exception subclasses

27.Which of the following pairs fill in the blanks to make this code compile? *1/1
(Choose all that apply)

```
7: public void ohNo()
_____ Exception { 8: _____________
Exception(); 9: }
```

- [ ] A. On line 7, fill in throw
- [x] B. On line 7, fill in throws
- [ ] C. On line 8, fill in throw
- [x] D. On line 8, fill in throw new
- [ ] E. On line 8, fill in throws
- [ ] F. On line 8, fill in throws new

28.When are you required to use a finally block in a regular try statement (not a try-with resources)? *0/1

- [ ] A. Never.
- [x] B. When the program code doesn't terminate on its own.
- [ ] C. When there are no catch blocks in a try statement.
- [ ] D. When there is exactly one catch block in a try statement.
- [x] E. When there are two or more catch blocks in a try statement.

29.Which exception will the following throw? * 1/1

```
Object obj = new Integer(3);
String str = (String) obj; System.out.println(str);
```

- [ ] A.ArrayIndexOutOfBoundsException
- [x] B. ClassCastException
- [ ] C. IllegalArgumentException
- [ ] D. NumberFormatException
- [ ] E. None of the above.

30.Which of the following exceptions are thrown by the JVM? (Choose all that apply) *0/1

- [x] A. ArrayIndexOutOfBoundsException
- [x] B. ExceptionInInitializerError
- [ ] C. java.io.IOException
- [x] D. NullPointerException
- [x] E. NumberFormatException

31.What is the result of the following code? * 0/1

```
1: public class Employee {
2: public int employeeId;
3: public String firstName, lastName;
4: public int yearStarted;
5: @Override public int hashCode() {
6: return employeeId;
7: }
8: public boolean equals(Employee e) {
9: return this.employeeId == e.employeeId;
10: }
11: public static void main(String[] args) {
12: Employee one = new Employee();
13: one.employeeId = 101;
14: Employee two = new Employee();
15: two.employeeId = 101;
16: if (one.equals(two)) System.out.println("Success");
17: else System.out.println("Failure");
18: } }
```

- [x] A. Success
- [x] B. Failure
- [x] C. The hashCode() method fails to compile.
- [x] D. The equals() method fails to compile.
- [ ] E. Another line of code fails to compile.
- [ ] F. A runtime exception is thrown.

32.What is the result of compiling the following class? * 1/1

```
public class Book {
private int ISBN; private String title, author; private int pageCount;
public int hashCode() {
return ISBN; }
@Override public boolean equals(Object obj) {
if ( !(obj instanceof Book)) {
return false;
} Book other = (Book) obj; return this.ISBN == other.ISBN; } // imagine getters and
setters are here }
```

- [x] A. The code compiles.
- [ ] B. The code does not compile because hashCode() is incorrect.
- [ ] C. The code does not compile because equals() does not override the parent method correctly.
- [ ] D. The code does not compile because equals() tries to refer to a private field.
- [ ] E. The code does not compile because the ClassCastException is not handled or declared.
- [ ] F. The code does not compile for another reason.

33.What is the result of the following code? 0/1

```
String s1 = "Canada";
String s2 = new String(s1);
if(s1 == s2) System.out.println("s1 == s2");
if(s1.equals(s2)) System.out.println("s1.equals(s2)");
```

- [ ] A. The output is 5.
- [ ] B. The output is 10.
- [ ] C. Line 4 generates a compiler error.
- [ ] D. Line 8 generates a compiler error.
- [ ] E. Line 9 generates a compiler error.
- [ ] F. An exception is thrown.

34.What is true about the following code? * 0/1

```
You may assume city and mascot are never null.
public class BaseballTeam {
private String city, mascot;
private int numberOfPlayers;
public boolean equals(Object obj) {
if ( !(obj instanceof BaseballTeam)) return false;
BaseballTeam other = (BaseballTeam) obj;
return (city.equals(other.city) && mascot.equals(other.mascot)); }
public int hashCode() { return numberOfPlayers; } // imagine getters and setters are here
}
```

- [x] A. The class does not compile.
- [ ] B. The class compiles but has an improper equals() method.
- [ ] C. The class compiles but has an improper hashCode() method.
- [ ] D. The class compiles and has proper equals() and hashCode() methods.

35.Which of the following statements are true, assuming a and b are String objects? (Choose all that apply.) *0/1

- [x] A. If a.equals(b) is true, a.hashCode() == b.hashCode() is always true.
- [ ] B. If a.equals(b) is true, a.hashCode() == b.hashCode() is sometimes but not always true.
- [ ] C. If a.equals(b) is false, a.hashCode() == b.hashCode() can never be true.
- [ ] D. If a.equals(b) is false, a.hashCode() == b.hashCode() can sometimes be true.

36.Which of the following statements about design principles and design patterns are true? (Choose all that apply.) *1/1

- [ ] A. A design principle is focused on solving a specific commonly occurring problem.
- [ ] B. Design principles and design patterns are the same thing.
- [x] C. Design principles are often applied throughout an application, whereas design patterns are applied to solve specific problems.
- [ ] D. Design patterns can only be applied to static classes.
- [x] E. Design principles and design patterns tend to produce code that is easier to maintain and easier for other developers to read.

37.What is the result of the following code? 1/1

```
1: public interface CanClimb {
2: public abstract void climb();
3: }
4: public interface CanClimbTrees extends CanClimb {}
5: public abstract class Chipmunk implements CanClimbTrees {
6: public abstract void chew();
7: }
8: public class EasternChipmunk extends Chipmunk {
9: public void chew() { System.out.println("Eastern Chipmunk is Chewing"); }
10: }
```

- [ ] A. It compiles and runs without issue.
- [ ] B. The code will not compile because of line 2.
- [ ] C. The code will not compile because of line 4.
- [ ] D. The code will not compile because of line 5.
- [x] E. The code will not compile because of line 8.
- [ ] F. It compiles but throws an exception at runtime.

38.Which of the following are valid functional interfaces? (Choose all that apply.) *1/1

```
public interface Climb { public int climb();
} public abstract class Swim {
public abstract Object swim(double speed, int duration);
} public interface ArcticMountainClimb extends MountainClimb {
public default int getSpeed();
} public interface MountainClimb extends Climb {}
```

- [x] A. Climb
- [ ] B. Swim
- [ ] C. ArcticMountainClimb
- [x] D. MountainClimb
- [ ] E. None of these are valid functional interfaces.

39.Which of the following are valid lambda expressions? (Choose all that apply.) *0/1

- [x] A. () -> ""
- [x] B. x,y -> x+y
- [ ] C. (Coyote y) -> return 0;
- [ ] D. (Camel c) -> {return;}
- [x] E. Wolf w -> 39
- [ ] F. () ->
- [ ] G. (Animal z, m) -> a

40.What are some of the properties of using the singleton pattern? (Choose all that apply.) *0/1

- [ ] A. Singleton object can be replaced with encapsulated setter method.
- [x] B. Requires constructor of singleton class to be private.
- [ ] C. Singleton object must be named instance.
- [ ] D. Singleton object may be private or protected.
- [x] E. Ensures that there is only one instance of an object in memory.
- [x] F. Requires a public static method to retrieve the instance of the singleton.

41.Suppose that you have a collection of products for sale in a database and you need todisplay those products. The products are not unique. Which of the following collectionsclasses in the java.util package best suit your needs for this scenario? *1/1

- [ ] A. Arrays
- [x] B. ArrayList
- [ ] C. HashMap
- [ ] D. HashSet
- [ ] E. LinkedList

42.Suppose that you need to work with a collection of elements that need to be sorted in theirnatural order, and each element has a unique string associated with its value. Which of thefollowing collections classes in the java.util package best suit your needs for this scenario? *1/1

- [ ] A. ArrayList
- [ ] B. HashMap
- [ ] C. HashSet
- [ ] D. TreeMap
- [x] E. TreeSet
- [ ] F. Vector

43.What is the result of the following statements? * 0/1

```
3: List list = new ArrayList();
4: list.add("one");
5: list.add("two");
6: list.add(7);
7: for (String s: list)
8: System.out.print(s);
```

- [ ] A. onetwo
- [x] B. onetwo7
- [ ] C. onetwo followed by an exception
- [ ] D. Compiler error on line 6
- [ ] E. Compiler error on line 7

44.What is the result of the following statements? * 0/1

```
3: ArrayDeque<String> greetings = new ArrayDeque<String>();
4: greetings.push("hello");
5: greetings.push("hi");
6: greetings.push("ola");
7: greetings.pop();
8: greetings.peek();
9: while (greetings.peek() != null)
10: System.out.print(greetings.pop());
```

- [ ] A. hello
- [ ] B. hellohi
- [ ] C. hellohiola
- [ ] D. hi
- [ ] E. hihello
- [x] F. The code does not compile.
- [x] G. An exception is thrown.

45.Which of these statements compile? (Choose all that apply.) * 0/1

- [x] A. HashSet<Number> hs = new HashSet<Integer>();
- [ ] B. HashSet<? super ClassCastException> set = new HashSet<Exception>();
- [x] C. List<String> list = new Vector<String>();
- [x] D. List<Object> values = new HashSet<Object>();
- [ ] E. List<Object> objects = new ArrayList<? extends Object>();
- [x] F. Map<String, ? extends Number> hm = new HashMap<String, Integer>();

46.What is the output of the following? * 0/1

- [ ] A. 12112
- [ ] B. 212
- [ ] C. 212112
- [ ] D. java.util.stream.ReferencePipeline$3@4517d9a3
- [x] E. The code does not compile.
- [ ] F. An exception is thrown.
- [ ] G. The code hangs.

47.What is the output of the following? * 0/1

```
Predicate<? super String> predicate = s -> s.startsWith("g");
Stream<String> stream1 = Stream.generate(() -> "growl! ");
Stream<String> stream2 = Stream.generate(() -> "growl! ");
boolean b1 = stream1.anyMatch(predicate);
boolean b2 = stream2.allMatch(predicate);
System.out.println(b1 + " " + b2);
```

- [ ] A. true false
- [x] B. true true
- [ ] C. java.util.stream.ReferencePipeline$3@4517d9a3
- [ ] D. The code does not compile.
- [ ] E. An exception is thrown.
- [ ] F. The code hangs.

48.What is the output of the following? * 1/1

```
Predicate<? super String> predicate = s -> s.length() > 3;
Stream<String> stream = Stream.iterate("-", (s) -> s + s);
boolean b1 = stream.noneMatch(predicate);
boolean b2 = stream.anyMatch(predicate);
System.out.println(b1 + " " + b2);
```

- [x] A. false true
- [ ] B. false false
- [ ] C. java.util.stream.ReferencePipeline$3@4517d9a3
- [ ] D. The code does not compile.
- [ ] E. An exception is thrown.
- [ ] F. The code hangs.

49.Which are true statements about terminal operations in a stream? (Choose all that apply.) *0/1

- [ ] A. At most one terminal operation can exist in a stream pipeline.
- [x] B. Terminal operations are a required part of the stream pipeline in order to get a result.
- [x] C. Terminal operations have Stream as the return type.
- [x] D. The referenced Stream may be used after calling a terminal operation.
- [ ] E. The peek() method is an example of a terminal operation.

50.Which terminal operations on the Stream class are reductions? (Choose all that apply.) *0/1

- [x] A. collect()
- [x] B. count()
- [x] C. findFirst()
- [ ] D. map()
- [ ] E. peek()
- [x] F. sum()