

JAVA Programming Language Homework I — Nested Class

Student ID: Name:

1. Which two statements are true about has-a and is-a relationships? (choose two)

- A. Inheritance represents an is-a relationship.
- B. Inheritance represents a has-a relationship.
- C. Interfaces must be used when creating a has-a relationship.
- D. Instance variables can be used when creating a has-a relationship.

Answer:

2. Which three statements are true? (choose two)

- A. A final method in class X can be abstract if and only if X is abstract.
- B. A protected method in class X can be overridden by any subclass of X.
- C. A private static method can be called only within other static methods in class X.
- D. A non-static public final method in class X can be overridden in any subclass of X.
- E. A public static method in class X can be called by a subclass of X without explicitly referencing the class X.

Answer:

3. Given the following Java code:

```
1.      class A {
2.          public static final int a = 1;
3.          protected static int b=2;
4.          int c=3;
5.          static class B {
6.              int d=a;
7.              int e=b;
8.              int f=c;
9.          }
10.         class C {
11.             int g=a;
12.             int h=b;
```

```
13.         int i=c;
14.         }
15.     }
```

What is the result?

- A. Compilation Error at line 10.
- B. Compilation Error at line 8.
- C. Compilation Error at line 2.
- D. Run without any problem.
- E. None of the above.

Answer:

4. Given the following Java code:

```
1.     class B {
2.         private int x = 2;
3.         static A a1 = new A(2,1) {
4.             public A(int tmp) {x(tmp); y(tmp);};
5.             public int m() {return x()+y();}
6.         };
7.         public static void main(String[] args) {
8.             System.out.print(a1.m());
9.         }
10.    }
11.    abstract class A {
12.        private int x = 4;
13.        private int y = 2;
14.        private int z = 6;
15.        public int x() {return x;}
16.        public void x(int x) {this.x = x;}
17.        public int y() {return y;}
18.        public void y(int y) {this.y = y;}
19.        public abstract int m();
20.    }
```

What is the result?

- A. Prints: 8
- B. Prints: 3122
- C. Compilation fails
- D. Run-time error
- E. None of the above

Answer:

5. Given the following Java code:

```
1. public class Foo {
2.     Foo() {System.out.println("foo");}
3.     class Bar {
4.         Bar() {System.out.println("bar");}
5.         public void go() {System.out.println("hi");}
6.     }
7.     public static void main (String[] args) {
8.         Foo f= new Foo();
9.         f.makeBar();
10.    }
11.    void makeBar() {
12.        (new Bar() {}).go();
13.    }
14. }
```

What is the result?

- A. Run-time error.
- B. Compilation fails.
- C. foobarhi
- D. barhi
- E. hi

Answer:

6. Given the following Java code:

```
1.    public class HorseTest {
2.        public static void main (String[] args) {
3.            class Horse {
4.                public String name;
5.                public Horse(String s) {
6.                    name = s;
7.                }
8.            }
9.            Object obj = new Horse("Zippo");
10.           Horse h = (Horse) obj;
11.           System.out.println(h.name);
12.       }
13.   }
```

What is the result?

- A. Compilation Error at line 3
- B. Compilation Error at line 9
- C. Compilation Error at line 10
- D. Compilation Error at line 11
- E. Zippo

Answer :

7. Given the following Java code:

```
1.    public class HorseTest {
2.        public static void main (String[] args) {
3.            class Horse {
4.                public String name;
5.                public Horse(String s) {
6.                    name = s;
7.                }
8.            }
9.            Object obj = new Horse("Zippo");
10.           System.out.println(obj.name);
11.       }
```

12. }

What is the result?

- A. Compilation Error at line 3
- B. Compilation Error at line 9
- C. Compilation Error at line 10
- D. Compilation Error at line 11
- E. Zippo

Answer :

8. Given the following Java code:

```
1. public abstract class AbstractTest {
2.     public int getNum() {
3.         return 45;
4.     }
5.     public abstract class Bar {
6.         public int getNum() {
7.             return 38;
8.         }
9.     }
10.     public static void main (String[] args) {
11.         AbstractTest t = new AbstractTest() {
12.             public int getNum() {
13.                 return 22;
14.             }
15.         };
16.         AbstractTest.Bar f = t.new Bar() {
17.             public int getNum() {
18.                 return 57;
19.             }
20.         };
21.         System.out.println(f.getNum() + " " + t.getNum());
22.     }
23. }
```

What is the result?

- A. 57 22
- B. 45 38
- C. 45 57
- D. Compilation fails
- E. None of the above

Answer :

9. Given the following Java code:

```
1.    public class TestObj {  
2.        public static void main (String [] args) {  
3.            Object o = new Object() {  
4.                public boolean equals(Object obj) {  
5.                    return true;  
6.                }  
7.            }  
8.            System.out.println(o.equals("Fred"));  
9.        }  
10.    }
```

What is the result?

- A. true
- B. Compilation fails because of an error on line 3.
- C. Compilation fails because of an error on line 4.
- D. Compilation fails because of an error on line 8.
- E. Compilation fails because of an error on a line other than 3, 4, or 8.

Answer:

10. Given the following Java code:

```
1.    class Foo {  
2.        class Bar{ }  
3.    }
```

```
4.      class Test {
5.          public static void main (String [] args) {
6.              Foo f = new Foo();
7.              // Insert code here
8.          }
9.      }
```

Which statement, inserted at line 7, creates an instance of Bar?

- A. Foo.Bar b= new Foo.Bar();
- B. Foo.Bar b = f.new Bar();
- C. Bar b = new f.Bar();
- D. Bar b = f.new Bar();
- E. Foo.Bar b = new f.Bar();

Answer :