JAVA Programming Language Homework V: Threads

ID: **Name:**

1. Which of the following is true?

A. A program will terminate only when all user threads stop running.

B. A program will terminate only when all daemon stop running.

C. A daemon thread always runs at Thread.MIN_PRIORITY.

D. None of the above.

ANS:

2. Given the following Java code:

```
1.  class B implements Runnable{
2.     public void run() {}
3.  }
4.  class A {
5.     public static void main(String[] args) {
6.        Thread my1 = new Thread() ;
7.        Thread my2 = new Thread("B") ;
8.        Thread my3 = new Thread(new B()) ;
9.        Thread my4 = new Thread("B", new B()) ;
10.    }
11. }
```

What is the result?

A. A compile-time error is generated at line 6

B. A compile-time error is generated at line 7

C. A compile-time error is generated at line 8

D. A compile-time error is generated at line 9

E. None of the above

ANS:

3. Given the following Java code: [5 points]

```
1.         class B extends Thread {
```

```
2.          public String x;
3.          B(String in) {
4.             x = in;
5.          }
6.          public void run() {
7.             for(int i=1; i<5; i++) {
8.                System.out.println(x+"-"+i);
9.             }
10.         }
11.      }
12.
13.      class A {
14.         public static void main(String[] args) {
15.            B obj1 = new B("o");
16.            B obj2 = new B("x");
17.            obj1.setPriority(1);
18.            obj2.setPriority(10);
19.            obj1.start();
20.            obj2.start();
21.         }
22.      }
```

Which of the following is true?

A. This program will go exception when compiling.

B. Obj1 runs at Thread.MIN_PRIORITY.

C. Obj2 runs at Thread.MIN_PRIORITY.

D. The Thread.setDaemon method can change Thread.MIN_PRIORITY.

E. None of the above.

ANS:

4. Given the following Java code:

```
1.      class A extends Thread {
2.         private String i;
3.         public void run() {
4.            i = "A";
5.         }
```

```
6.          public static void main(String[ ] args) {
7.          A a = new A();
8.          a.start();
9.          System.out.print(a.i);
10.          }
11.     }
```

Which of the following are possible results of attempting to compile and run the program?

A. prints: A

B. prints: 0

C. prints: null

D. prints: i

E. Compile-time error

ANS:

5. Given the following Java code:

```
1.          public B extends Thread {
2.            public void run() {
3.              System.out.print("A");
4.            }
5.          }
6.          class A {
7.            public static void main (String[] args) {
8.              B obj = new B() ;
9.              obj.start() ;
10.              obj.start() ;
11.            }
12.     }
```

What is the result of attempting to compile and run the program?

A. The program compiles and runs fine but prints nothing.

B. prints: A

C. Compiler error

D. An IllegalThreadStateException is thrown at run-time

E. None of the above

ANS:

6. Given the following Java code:

```
1.        public class Hello implements Runnable {
2.            public void run () {
3.                System.out.print ( "running" );
4.            }
5.            public static void main ( String[] args ) {
6.                Thread t = new Thread ( new Hello());
7.                t.run ();
8.                t.run ();
9.                t.start ();
10.           }
11.       }
```

What is the result?

A. Compilation fails

B. An exception is thrown at runtime

C. The code executes and prints "running"

D. The code executes and prints "runningrunning"

E. The code executes and prints "runningrunningrunning"

ANS:

7. Given the following Java code:

```
12. class A extends Thread {
13.     public void m1( ) {
14.         System.out.print("A" ) ;
15.     }
16.
17.     public void m2( ) {
18.         synchronized(System.out) {
19.             try {
20.                 Thread.sleep(1000) ;
```

```
21.          System.out.print("B") ;
22.       }
23.       catch(InterruptedException e) { }
24.     }
25.   }
26.
27.   public void run( ) {
28.      this.m1( ) ;
29.      this.m2( ) ;
30.   }
31.
32.   public static void main(String args[ ]) {
33.      A obj1 = new A( ) ;
34.      obj1.start( ) ;
35.      A obj2 = new A( ) ;
36.      obj2.start( ) ;
37.   }
38. }
```

Which of the following are possible results of attempting to compile and run the program?

A. ABAB
B. BABA
C. AABB
D. BBAA
E. ABBA

ANS:

8. Given the following Java code:

```
1.  class A implements Runnable {
2.     boolean obj1_ok = false;
3.     A( ){
4.        Thread obj1 = new Thread(this, "o");
5.        Thread obj2 = new Thread(this, "x");
```

```
6.        obj2.start( ) ;
7.        obj1.start( ) ;
8.     }
9.
10.    public synchronized void my( ) {
11.       if(Thread.currentThread( ).getName( ).equals("x")) {
12.          while( !obj1_ok) {
13.             try {
14.                System.out.print("A");
15.                wait( ) ;
16.             } catch(InterruptedException e) { }
17.          }
18.       }
19.       System.out.print("B");
20.       obj1_ok = true ;
21.       notifyAll( ) ;
22.    }
23.
24.    public void run( ) {
25.       my( ) ;
26.    }
27.    public static void main (String[ ] args) {
28.       A obj = new A( ) ;
29.    }
30. }
```

Which of the following are possible results of attempting to compile and run the program?

A. ABA
B. BAB
C. AAB
D. BBA
E. ABB

ANS: