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# SCJP / OCPJP

## Question Bank

### Chapter 2 : Declarations and Access Control



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## 2. Declarations and Access Control

Q: 1 Click the Task button.

Place the lines in the correct order to complete the enum.

```
enum Element {
```

1st

2nd

3rd

4th

5th

Lines

```
public String info() { return "element"; }
```

```
};
```

```
FIRE { public String info() { return "Hot"; } }
```

```
EARTH, WIND;
```

```
}
```

Solution:

```
enum Element{
    EARTH,WIND,
    FIRE{public String info(){return "Hot";}
    };
    public String info(){return "element";}
}
```

Q: 2 Given:

```
10. package com.sun.scjp;
11. public class Geodetics {
12. public static final double DIAMETER = 12756.32; // kilometers
13. }
```

Which two correctly access the DIAMETER member of the Geodetics class? (Choose two.)

A. import com.sun.scjp.Geodetics;  
public class TerraCarta {  
public double halfway()  
{ return Geodetics.DIAMETER/2.0; }  
B. import static com.sun.scjp.Geodetics;  
public class TerraCarta{

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```
public double halfway() { return DIAMETER/2.0; } }  
C. import static com.sun.scjp.Geodetics.*;  
public class TerraCarta {  
public double halfway() { return DIAMETER/2.0; } }  
D. package com.sun.scjp;  
public class TerraCarta {  
public double halfway() { return DIAMETER/2.0; } }
```

**Answer: A, C**

**Q: 3 Click the Task button.**

Place the code elements in order so that the resulting Java source file will compile correctly, resulting in a class called com.sun.cert.AddressBook.

Source File	Code Element
1st	package com.sun.cert;
2nd	package com.sun.cert.*;
3rd	import java.util.*;
	import java.*;
	public class AddressBook {
	public static class AddressBook {

ArrayList entries;  
}

**Solution:**

```
package com.sun.cert;  
import java.util.*;  
public class AddressBook{  
    ArrayList entries;  
}
```

**Q: 4 Which two classes correctly implement both the java.lang.Runnable and the java.lang.Cloneable interfaces? (Choose**

- A. public class Session  
implements Runnable, Cloneable {  
public void run();  
public Object clone();  
}
- B. public class Session  
extends Runnable, Cloneable {  
public void run() { /\* do something \*/ }  
public Object clone() { /\* make a copy \*/ }
- C. public class Session  
implements Runnable, Cloneable {

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```
public void run() { /* do something */ }
public Object clone() { /* make a copy */ }
D. public abstract class Session
implements Runnable, Clonable {
public void run() { /* do something */ }
public Object clone() { /*make a copy */ }
E. public class Session
implements Runnable, implements Clonable {
public void run() { /* do something */ }
public Object clone() { /* make a copy */ }
```

**Answer: C, D**

**Q: 5** Given classes defined in two different files:

```
1. package util;
2. public class BitUtils {
3. private static void process(byte[] b) {}
4. }
1. package app;
2. public class SomeApp {
3. public static void main(String[] args) {
4. byte[] bytes = new byte[256];
5. // insert code here
6. }
7. }
```

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**What is required at line 5 in class SomeApp to use the process method of BitUtils?**

- A. process(bytes);
- B. BitUtils.process(bytes);
- C. app.BitUtils.process(bytes);
- D. util.BitUtils.process(bytes);
- E. import util.BitUtils.\*; process(bytes);
- F. SomeApp cannot use the process method in BitUtils.

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**Answer: F**

**Q: 6 Given:**

**11. class Cup { }**

**12. class PoisonCup extends Cup { }**

**...**

**21. public void takeCup(Cup c) {**

**22. if (c instanceof PoisonCup) {**

**23. System.out.println("Inconceivable!");**

**24. } else if (c instanceof Cup) {**

**25. System.out.println("Dizzying intellect!");**

**26. } else {**

**27. System.exit(0);**

**28. }**

**29. }**

**And the execution of the statements:**

**Cup cup = new PoisonCup();**

**takeCup(cup);**

**What is the output?**

A. Inconceivable!

B. Dizzying intellect!

C. The code runs with no output.

D. An exception is thrown at runtime.

E. Compilation fails because of an error in line 22.

**Answer: A**

**Q: 7 Click the Exhibit button.**

**public class A**

**{**

**private int counter=0;**

**public static int getInstanceCount()**

**{**

**return counter;**

**}**

**public A()**

**{**

**counter++;**

**}**

**}**

**Given this code from Class B:**

**25. A a1 = new A();**

**26. A a2 = new A();**

**27. A a3 = new A();**

**28. System.out.println(A.getInstanceCount());**

**What is the result?**

A. Compilation of class A fails.

B. Line 28 prints the value 3 to System.out.

C. Line 28 prints the value 1 to System.out.

D. A runtime error occurs when line 25 executes.

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E. Compilation fails because of an error on line 28.

**Answer: A**

**Q:8 Given:**

```
11. String[] elements = { "for", "tea", "too" };  
12. String first = (elements.length > 0) ? elements[0] : null;
```

**What is the result?**

- A. Compilation fails.
- B. An exception is thrown at runtime.
- C. The variable first is set to null.
- D. The variable first is set to elements[0].

**Answer: D**

**Q:09 Given:**

```
11. interface DeclareStuff {  
12.     public static final int EASY = 3;  
13.     void doStuff(int t); }  
14. public class TestDeclare implements DeclareStuff {  
15.     public static void main(String [] args) {  
16.         int x = 5;  
17.         new TestDeclare().doStuff(++x);  
18.     }  
19.     void doStuff(int s) {  
20.         s += EASY + ++s;  
21.         System.out.println("s " + s);  
22.     }  
23. }
```

**What is the result?**

- A. s 14
- B. s 16
- C. s 10
- D. Compilation fails.
- E. An exception is thrown at runtime.

**Answer: D**

**Q: 10 Given:**

```
1. public class TestString1 {  
2.     public static void main(String[] args) {  
3.         String str = "420";  
4.         str += 42;  
5.         System.out.print(str);  
6.     }  
7. }
```

**What is the output?**

- A. 42



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- B. 420
- C. 462
- D. 42042
- E. Compilation fails.
- F. An exception is thrown at runtime.

**Answer: D**

**Q: 11 Given:**

```
11. class Converter {  
12. public static void main(String[] args) {  
13. Integer i = args[0];  
14. int j = 12;  
15. System.out.println("It is " + (j==i) + " that j==i.");  
16. }  
17. }
```

What is the result when the programmer attempts to compile the code and run it with the command `java Converter 12`?

- A. It is true that `j==i`.
- B. It is false that `j==i`.
- C. An exception is thrown at runtime.
- D. Compilation fails because of an error in line 13.

**Answer: D**

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**Q: 12 Given:**

```
10. int x = 0;  
11. int y = 10;  
12. do {  
13. y--;  
14. ++x;  
15. } while (x < 5);  
16. System.out.print(x + "," + y);
```

What is the result?

- A. 5,6
- B. 5,5
- C. 6,5
- D. 6,6

**Answer: B**

**Q: 13 Given:**

```
1. public interface A {  
2. String DEFAULT_GREETING = "Hello World";
```

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3. `public void method1();`

4. `}`

A programmer wants to create an interface called B that has A as its parent. Which interface declaration is correct?

A. `public interface B extends A { }`

B. `public interface B implements A { }`

C. `public interface B instanceof A { }`

D. `public interface B inheritsFrom A { }`

**Answer: A**

**Q: 14 Given:**

11. `public enum Title {`

12. `MR("Mr."), MRS("Mrs."), MS("Ms.");`

13. `private final String title;`

14. `private Title(String t) { title = t; }`

15. `public String format(String last, String first) {`

16. `return title + " " + first + " " + last;`

17. `}`

18. `}`

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

20. `System.out.println(Title.MR.format("Doe", "John"));`

21. `}`

What is the result?

A. Mr. John Doe

B. An exception is thrown at runtime.

C. Compilation fails because of an error in line 12.

D. Compilation fails because of an error in line 15.

E. Compilation fails because of an error in line 20.

**Answer: A**

**Q: 15 Given:**

1. `package test;`

2.

3. `class Target {`

4. `public String name = "hello";`

5. `}`

What can directly access and change the value of the variable name?

A. any class                      B. only the Target class

C. any class in the test package    D. any class that extends Target

**Answer: C**

**Q: 16 Given:**

11. `public class Ball{`

12. `public enum Color { RED, GREEN, BLUE };`

13. `public void foo(){`

14. `// insert code here`

15. `{ System.out.println(c); }`

16. `}`

17. `}`

Which code inserted at line 14 causes the foo method to print RED, GREEN, and BLUE?



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- A. for( Color c : Color.values() )
- B. for( Color c = RED; c <= BLUE; c++ )
- C. for( Color c ; c.hasNext() ; c.next() )
- D. for( Color c = Color[0]; c <= Color[2]; c++ )
- E. for( Color c = Color.RED; c <= Color.BLUE; c++ )

**Answer: A**



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### 17 Click the Task button.

Insert six modifiers into the code such that it meets all of these requirements:

1. It must be possible to create instances of Alpha and Beta from outside the packages in which they are defined.
2. When an object of type Alpha (or any potential subclass of Alpha) has been created, the instance variable alpha may never be changed.
3. The value of the instance variable alpha must always be "A" for objects of type Alpha.

#### Code

```
package alpha;
Place here class Alpha {
    Place here String alpha;
    Place here Alpha() { this("A"); }
    Place here Alpha(String a) { alpha = a; }
}

package beta;
Place here class Beta extends alpha.Alpha {
    Place here Beta(String a) { super(a); }
}
```

#### Modifiers

private

protected

public

Done

#### Solution:

```
package alpha;
public class Alpha{
    private String alpha;
    public Alpha(){ this("A") ; }
    protected Alpha(String a){ alpha=a; }
}

package beta;
public class Beta extends alpha.Alpha{
    private Beta(String a){ super(a); }
}
```

#### Q: 18 Given:

1. public class Target {
2. private int i = 0;
3. public int addOne(){
4. return ++i;
5. }
6. }

#### And:

1. public class Client {
2. public static void main(String[] args){
3. System.out.println(new Target().addOne());
4. }
5. }

Which change can you make to Target without affecting Client?

- A. Line 4 of class Target can be changed to return i++;
- B. Line 2 of class Target can be changed to private int i = 1;

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C. Line 3 of class Target can be changed to private int addOne(){

D. Line 2 of class Target can be changed to private Integer i = 0;

**Answer: D**

### Q: 19 Click the Task button.

Replace two of the Modifiers that appear in the Single class to make the code compile.

Note: Three modifiers will not be used and four modifiers in the code will remain unchanged.

#### Code

```
public class Single {  
    private static Single instance;  
    public static Single getInstance() {  
        if (instance == null) instance = create();  
        return instance;  
    }  
    private Single() { }  
    protected Single create() { return new Single(); }  
}  
class SingleSub extends Single {  
}
```

#### Modifiers

final

protected

private

abstract

static

Done

#### Solution:

```
public class Single{  
    private static Single instance;  
    public static Single getInstance() {  
        if(instance==null) instance = create();  
        return instance;  
    }  
    protected Single() { }  
    static Single create () { return new Single (); }  
}  
class SingleSub extends Shape{  
}
```

#### Q: 20 Given:

```
12. public class Test {  
13. public enum Dogs {collie, harrier};  
14. public static void main(String [] args) {  
15. Dogs myDog = Dogs.collie;  
16. switch (myDog) {  
17. case collie:  
18. System.out.print("collie ");  
19. case harrier:  
20. System.out.print("harrier ");  
21. }  
22. }  
23. }
```

What is the result?

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- A. collie
- B. harrier
- C. Compilation fails.
- D. collie harrier
- E. An exception is thrown at runtime.

**Answer: D**

**Q: 21 Click the Exhibit button.**

**Given:**

**ClassA a = new ClassA();**

**a.methodA();**

**What is the result?**

```
10. public class ClassA {
11.     public void methodA() {
12.         ClassB classB = new ClassB();
13.         classB.getValue();
14.     }
15. }
```

And:

```
20. class ClassB {
21.     public ClassC classC;
22.
23.     public String getValue() {
24.         return classC.getValue();
25.     }
26. }
```

And:

```
30. class ClassC {
31.     public String value;
32.
33.     public String getValue() {
34.         value = "ClassB";
35.         return value;
36.     }
37. }
```

- A. Compilation fails.
- B. ClassC is displayed.
- C. The code runs with no output.
- D. An exception is thrown at runtime.

**Answer: D**

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**Q: 22 Click the Task button.**

Place code fragments into position so the output is: The quantity is 420

```
Place here update(int quantity, int adjust) {  
    Place here  
}  
  
public void callUpdate() {  
    int quant = 100;  
    Place here  
    System.out.println("The quantity is " + quant);  
}
```

### Code Fragments

public int	quantity = quantity + adjust;	update(quant, 320);
public void	quant = update(quant, 320);	quantity = quantity + adjust; return quantity;

**Solution:**

```
public int update(int quantity,int adjust){  
    quantity=quantity+adjust;  
    return quantity;  
}  
public void call Update( ) {  
    int quant=100;  
    quant=update(quant,320);  
    System.out.println("the quantity is " +quant);  
}
```

**Q: 23 Given:**

1. package sun.scjp;
2. public enum Color { RED, GREEN, BLUE }
1. package sun.beta;
2. // insert code here
3. public class Beta {
4. Color g = GREEN;
5. public static void main( String[] argv)
6. { System.out.println( GREEN); }
7. }

The class Beta and the enum Color are in different packages.

Which two code fragments, inserted individually at line 2 of the Beta declaration, will allow this code to compile? (Choose two.)

A. import sun.scjp.Color.\*;

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- B. import static sun.scjp.Color.\*;
- C. import sun.scjp.Color; import static sun.scjp.Color.\*;
- D. import sun.scjp.\*; import static sun.scjp.Color.\*;
- E. import sun.scjp.Color; import static sun.scjp.Color.GREEN;

**Answer: CE**

### Question 24

**Given:**

```
10. public class Fabric
11. public enum Color {
12. RED(0xff0000), GREEN(0x00ff00), BLUE(0x0000ff);
13. private final int rgb;
14. Color( int rgb) { this.rgb = rgb; }
15. public int getRGB() { return rgb; }
16. };
17. public static void main( String[] argv) {
18. // insert code here
19. }
20. }
```

**Which two code fragments, inserted independently at line 18, allow the Fabric class to compile? (Choose two.)**

- A. Color skyColor = BLUE;
- B. Color treeColor = Color.GREEN;
- C. Color purple = new Color( 0xff00ff);
- D. if( RED.getRGB() < BLUE.getRGB() ) {}
- E. Color purple = Color.BLUE + Color.RED;
- F. if( Color.RED.ordinal() < Color.BLUE.ordinal() ) {}

**Answer: BF**

### Question 25

**Given:**

```
11. public class Rainbow {
12. public enum MyColor {
13. RED(0xff0000), GREEN(0x00ff00), BLUE(0x0000ff);
14. private final int rgb;
15. MyColor(int rgb) { this.rgb = rgb; }
16. public int getRGB() { return rgb; }
17. };
18. public static void main(String[] args) {
19. // insert code here
20. }
21. }
```

**Which code fragment, inserted at line 19, allows the Rainbow class to compile?**

- A. MyColor skyColor = BLUE;
- B. MyColor treeColor = MyColor.GREEN;



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- C. if(RED.getRGB() < BLUE.getRGB()) { }
- D. Compilation fails due to other error(s) in the code.
- E. MyColor purple = new MyColor(0xff00ff);
- F. MyColor purple = MyColor.BLUE + MyColor.RED;

**Answer: B**

### Question 26

**Given:**

```
21. class Money {  
22.     private String country = "Canada";  
23.     public String getC() { return country; }  
24. }  
25. class Yen extends Money {  
26.     public String getC() { return super.country; }  
27. }  
28. public class Euro extends Money {  
29.     public String getC(int x) { return super.getC(); }  
30.     public static void main(String[] args) {  
31.         System.out.print(new Yen().getC() + " " + new Euro().getC());  
32.     }  
33. }
```

**What is the result?**

- A. Canada
- B. null Canada
- C. Canada null
- D. Canada Canada
- E. Compilation fails due to an error on line 26.
- F. Compilation fails due to an error on line 29.

**Answer: E**



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