# QUESTION BANK 7

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7

# Fundamentals

## CERTIFICATION OBJECTIVES

7.1 Given a code example and a scenario, write code that uses the appropriate access modifiers, package declarations, and import statements to interact with (through access or inheritance) the code in the example.

7.2 Given an example of a class and a command-line, determine the expected runtime behavior.

7.3 Determine the effect upon object references and primitive values when they are passed into methods that perform assignments or other modifying operations on the parameters.

7.4 Given a code example, recognize the point at which an object becomes eligible for garbage collection, determine what is and is not guaranteed by the garbage collection system, and recognize the behaviors of the Object.finalize() method.

7.5 Given the fully-qualified name of a class that is deployed inside and/or outside a JAR file, construct the appropriate directory structure for that class. Given a code example and a classpath, determine whether the classpath will allow the code to compile successfully.

7.6 Write code that correctly applies the appropriate operators including assignment operators (limited to: =, +=, -=), arithmetic operators (limited to: +, -, *, /, %, ++, --), relational operators (limited to: <, <=, >, >=, ==, !=), the instanceof operator, logical operators (limited to: &, |, ^, !, &&, ||), and the conditional operator ( ? : ), to produce a desired result. Write code that determines the equality of two objects or two primitives.

## QUESTION 7.1

**Q 1: Sohel works as a Programmer for MediaTech Inc. He writes the following program:**

```
class TestQuestion {
        public static void main(String args[ ]) {
                if(args.length == 0||!args[0].equalsIgnoreCase("niraj")) {
                        System.out.println ("not any name");
                }
                else {
                        System.out.println (args[0]+ " is my name");
                }
        }
}
```

**What will happen when he attempts to compile and execute the preceding program?**

A. The program will give compilation error.

B. After compilation, when program will be executed by giving the following command line:
java TestQuestion
Then, it will print "not any name".

C. The program will compile successfully but throw a runtime exception.

D. After compilation, when program will be executed by giving the following command line:

```
java TestQuestion Niraj
Then, it will print "Niraj is my name".
```

.

## QUESTION 7.2

**Q 2: Prakash works as a Programmer for NewTech Inc. He writes the following program:**

```
interface My {
}
class MyClass implements My {
}
class TestQuestion extends MyClass {
        public static void main(String args[]) {
                MyClass parent = new MyClass( );
                TestQuestion child = new TestQuestion( );
                System.out.println (parent instanceof My);
                System.out.println (parent instanceof MyClass);
                System.out.println (child instanceof My);
        }
}
```

**What will happen when he attempts to compile and execute the preceding program?**

A. The program will not compile successfully.

B. The program will display:
true

C. The program will display:
true
true

D. The program will display:
true
true
true

.

## QUESTION 7.3

**Q 3: Prashant works as a Programmer for SoftTech Inc. He writes the following program:**

```
class TestQuestion {
        public static void main(String args[]) {
                int var1 = -80;
                int var2 =  7;
                int opmod = var1 % var2;
                System.out.println (opmod);
         }
 }
```

**What will happen when he attempts to compile and execute the preceding program?**

A. The program will display:
-11

B. The program will display:
-3

C. The program will display:
3

D. The program will display:
11

## QUESTION 7.4

**Q 4: Jones works as a Programmer for MediaTech Inc. He writes the following program:**

```
class TestQuestion {
        public static void main(String args[]) {
                int var_a = args.length/2;
                System.out.println (args[var_a --]);
        }
}
```

**The preceding program compiles successfully; now, Jones wants to execute the program. Which of the following command line will produce the output as "one"?**

A. java TestQuestion ONE FIVE SIX THREE
B. java TestQuestion TWO THREE ONE FOUR
C. java TestQuestion ONE TWO THREE FOUR
D. java TestQuestion FOUR THREE TWO SIX

## QUESTION 7.5

**Q 5: Siddarth works as a Programmer for MediaTech Inc. He writes the following program:**

```
class TestQuestion {
        public static void main(String args[]) {
                int var_a = 20 , var_b = 20 , var_c = 20;
                var_c += var_a ++;
                var_c -= -- var_b ;
                System.out.print("var_a=");
                System.out.println(+ var_a);
                System.out.print("var_b=");
                System.out.println(+ var_b);
                System.out.print("var_c=");
                System.out.println(+ var_c);
        }
}
```

**During compilation and execution of the preceding program, what will be the values of var_a , var_b , var_c ?**

A. 10 , 11 , 12
B. 21, 19, 21
C. 21, 19, 22
D. 0

.

## QUESTION 7.6

**Q 6: Krishna works as a Programmer for NewTech Inc. He writes the following program:**

```
class TestQuestion {
        public static void main(String args[]) {
                char s , S1 = 'A';
                char t , T1 = 'B';
                s = S1++;
                t = ++ T1;
                System.out.println ("s:" + s);
                System.out.println ("t:" + t);
        }
}
```

**During compilation and execution of the preceding program, what will be the values of s, t?**

A. s = A , t = C
B. s = B , t = A
C. s = A , t = B
D The program will not compile successfully.

.

## QUESTION 7.7

**Q 7: Karun works as a Programmer for MediaTech Inc. He writes the following program:**

```
public class  TestQuestion {
        public static void main(String args[]) {
                int a = 20;
                a  *=  -- a;
                System.out.println ("a=" + a);
        }
}
```

**What will happen when he attempts to compile and execute the preceding program?**

A. The program will not compile successfully.
B. The program will display:
   a=380
C. The program will display:
   20
D. The program will display:
   0

.

## QUESTION 7.8

**Q 8: Vikram works as a Programmer for MediaTech Inc. He writes the following program:**

```
public class  TestQuestion {
        static void operate(boolean op1, boolean op2) {
                boolean op3 = op1!= op2;
                boolean op4 = op1^op2;
                boolean op5 = op3 = op4;
                System.out.println(op5);
        }
        public static void main(String args[]) {
                operate(false,false);
                operate(true,false);
                operate(false,true);
                operate(true,true);
        }
}
```

**What will happen when he attempts to compile and execute the preceding program?**

A. The program will not compile successfully.

B. The program will display:
   true
   true
   false

C. The program will display:
   false
   true
   true

D. The program will display:
   false
   true

   false

## QUESTION 7.9

**Q 9: Chaabra and Bros. published a book for SCJP aspirants. In one of the sections following program was found:**

```
public class  TestQuestion {
        public static void main(String args[]) {
                short  s = 10;
                int a = s;              //1
                s = s + 10;             //2
                System.out.println ( s + "," + a);
        }
}
```

**During compilation and execution of the preceding program, what would be the result?**

A. The program will display:
   10, 20

B. The program will give compilation error at the line marked as 1.

C. The program will give compilation error at the line marked as 2.

D. The program will display:
   20, 10

## QUESTION 7.10

**Q 10: In a book written for java programmers a reader found the following program:**

```
public class  TestQuestion {
        public static void main(String args[]) {
                short  s = 10;
                int a = s;                          //1
                s += 10;                            //2
                System.out.println ( s +"," + a);
        }
}
```

**During compilation and execution of the preceding program, what would be the result?**

A. The program will display:
   10, 20
B. The program will give compilation error at the line marked as 1.
C. The program will give compilation error at the line marked as 2.
D. The program will display:
   0

.

## QUESTION 7.11

**Q 11: During a classroom the demonstrator asked a question referring to the following code:**

```
public class  TestQuestion {
        public int method_A (int x , int y) {
                System.out.println ( x + y);
                float temp = 4.6F;
                return (int )temp;
        }
        public static void main(String args []) {
                TestQuestion ob = new TestQuestion( );
                ob.method_A(1, 1);
        }
}
```

**During compilation and execution of the preceding program, what would be the result?**

A. The program will display:
   1 1
B. The program will display:
   2
C. The program will give compilation error.
D. The program will display:
   22

## QUESTION 7.12

**Q 12: During an examination conducted by software company following question was asked?**

```
class TestQuestion {
        public static void main(String args[]) {
                short  x = 0;
                short y =  x/ 1 ;
                System.out.println( y );
        }
}
```

**During compilation and execution of the preceding program, what would be the result?**

A. The program will give compilation error.
B. The program will give a runtime exception.
C. The program will display:
   0
D. The program will display:
   1

## QUESTION 7.13

**Q 13: Sana is working as a faculty in a programming institute. In one of her class she wrote the following code:**

```
class TestQuestion {
        public static void main(String [] args) {
                System.out.println (args [2] );
        }
}
```

**What value will be displayed if the program is executed with command line arguments as:**

```
>java TestQuestion are u niraj
```

A. The program will display:
   are
B. The program will display:
   u
C The program will display:
   niraj
D The program will display:
   i

.

## QUESTION 7.14

**Q 14: Stephen is a student of Java programming. In one of the class the teacher wrote the following program :**

```
import java.util.*;
class One {
        public final void msg() {
                System.out.println ("hi user");
        }
}
public class Two extends One {
        public static void main(String [] args) {
                Two obj = new Two();
                obj.msg();
```

```
        }
        public final void msg() {
                System.out.println ("hi user");
        }
}
```

**What will be the output when the preceding program is compiled and executed?**

A. Program generates compilation error as a class containing a final method must be final.
B. Program compiles successfully and displays "hi user" as output.
C. Program generates compilation error because of overriding a final method.
D. Program generates compilation error as a class cannot extend a class that contains a final method.

.

## QUESTION 7.15

**Q 15: Ali is writing a workbook for aspiring programmers. In one of the chapters, he wrote the following program:**

```
import java.util.*;
class One {
        private int x;
        public int t;
        public int cal(int temp ) {
                x =  temp;
                t = x++;
                return t;
        }
}
public class Two {
        public static void main(String [] args) {
                One obj = new One();
                System.out.println (obj.cal(100));
                System.out.println (obj.x);
                System.out.println (obj.t);
        }
}
```

**What will be the output when the preceding program is compiled and executed?**

A. The program compiles successfully and displays 100 as output.
B. The program compiles successfully and displays "hi user" as output.
C. The program generates a compilation error.
D. The program compiles successfully but leads to run time exception.

## QUESTION 7.16

**Q 16: Jaya is a programmer in a software company. During preparation of test questions for new hires she has written the following program:**

```
class One {
        private String msg;
        void  setOne(String str1) {
                msg = str1;
        }
        String getOne( ) {
                return msg;
        }
        public  static void main(String s[ ]) {
                One objone = new One( );
                objone.setOne("HI FROM ONE");
                objone.getOne();
                Two objtwo  = new Two( );
```

```
                objtwo.setOne("HI FROM TWO");
                objone.getOne();
        }
}
class Two extends One {
        void  setOne(String str2) {
                this.msg = str2;
        }
}
```

**What will be the output when the preceding program is compiled and executed?**

A. The program compiles successfully and displays "HI FROM ONE" as output.
B. The program compiles successfully and displays "HI FROM TWO" as output.
C. The program generates the compilation error.
D. The program compiles successfully but leads to run time exception.

## QUESTION 7.17

**Q 17: Maria is studying computer science in an engineering college. She found the following code on the yearly assignment sheet:**

```
class Frame1 {
        private int part=2;
        public int getPart() {
                return part;
        }
}
class Frame2 {
        public static void main(String s[]) {
                Frame1 obj = new Frame1();
                obj.part = 2;
                int part = obj.getPart( );
                System.out.println("no of parts:" +part);
        }
}
```

**What will be the output when the preceding program is compiled and executed?**

A. The program compiles successfully and displays 4 as output.
B. The program leads to compilation error because a private member is accessed outside the class
C. The program compiles successfully and displays 2 as output.
D. The program compiles successfully but leads to runtime exception.

.

## QUESTION 7.18

**Q 18: Parul is an undergraduate student in computer science. In a practice session she has written the following code:**

```
class Temp {
        public static void main(String args[]) {
                toNull(args);
                System.out.print(args[0] + " ");
                System.out.print(args[1]);
        }
        public static void toNull(String args[]) {
                args = null;
        }
}
```

**If the following code is run with command line argument**

```
>java Temp 1 2
```

**What will be the result?**

A. The program displays "null null" as output.
B. The program displays "1 2" as output.
C. The program displays "123" as output.
D. The program generates runtime exception.

## QUESTION 7.19

**Q 19: Naman is enrolled in a computer training institute as Java student. He has written the following code during a practice session:**

```
class MNR {
        void method1(String st , int x) {
                st = new String("bye");
                x = x+1;
        }
        public static void main(String s[]) {
                String str1 = "hi";
                String str2 = "hi";
                int a = 1;
                new MNR().method1(str1, 10);
                new MNR().method1(str2, 20);
                System.out.println(str1 + " " + str2 + " " + a);
        }
}
```

**If the following code is run with command line argument**

```
>java MNR
```

**What will be the result?**

A. The program displays "hi hi 1" as output.
B. The program displays "bye 2 bye 2" as output.
C. The program generates runtime exception.
D. The program displays "bye bye" as output.

.

## QUESTION7.20

**Q 20: Joe has written the following program in a lab session:**

```
class GH {
        void funct1(GH val1) {
                val1 = null;
        }
        void funct2(GH val2) {
                val2 = null;
        }
        public static void main(String s[]) {
                GH  val1 = null;
                GH  val2 = null;
                new GH().funct1(val1);
                new GH().funct2(val2);
                System.out.print(val1 + " ");
                System.out.print(val2);
}}
```

**What will be output of the preceding program?**

A. The program compiles successfully and displays "null null" as output.
B. The program compiles successfully and displays "null" as output.
C. The program compiles successfully but leads to runtime exception.
D. The program generates compile time error. j

.

## QUESTION 7.21

**Q 21: Hari is a student enrolled in a Java programming class. During the practice session he wrote the following code:**

```
class Temp {
        public static void main(String s[]) {
                int x = 20;
                int y = 25;
                if (++x < ( y= y-= 4) || ( x = x += 4) > y) {
                        System.out.println(x +  " " + y);
                }
        }
}
```

**What will be the output when the preceding program is compiled and executed?**

A. The program compiles successfully but does not display anything as output.
B. The program leads to compilation error.
C. The program compiles successfully and displays 25 21 as output.
D. The program compiles successfully and displays 25 20 as output.

.

## QUESTION 7.22

**Q 22: Hary is a student enrolled in a Java programming class. During the practice session he wrote the following code.**

```
class Ques_64 {
        public static void main(String s[]) {
                String str1 = "abc";
                String str2 = new String (str1);
                String str3 = new String ("abc");
                String str4 = new String ("Abc");
                System.out.print((str1 == str3) + " ");
                System.out.print(str4.equalsIgnoreCase(str1) + " ");
                System.out.print((str2 == str3) + " ");
                System.out.print(str2 == str4);
        }
}
```

**What will be the output when the preceding program is compiled and executed?**

A. The program compiles successfully and displays "false true false false" as output.
B. The program compiles successfully and displays "false true false true" as output.
C. The program compiles successfully and displays "true true false true" as output.
D. The program compiles successfully and displays "true true false false" as output.

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## QUESTION 7.23

**Q 23: Ashima is working as a software programmer in a software company and writes the following program:**

```
class Ques_66 {
        public static void main(String args[]) {
                if(args.length == 1 | args[1].equals("testing")) {
                        System.out.println("testing");
                }
                else {
                        System.out.println(args[0]);
                }
        }
}
```

**What will be the result if we compile and execute the following code using the command line argument?**

```
> java Ques_66 test
```

A. The program compiles successfully and displays null as output.
B. The program compiles successfully and displays test as output.
C. The program compiles successfully but throws the ArrayIndexOutOfBoundsException exception.
D. The program compiles successfully and displays testing as output.

## QUESTION 7.24

**Q 24: A student was asked to choose the correct order of import, package and class declarations options. Which of the following options should he select?**

A. package, import, class
B. class, import, package
C. import, package and class
D. int, float , double

## QUESTION 7.25

**Q 25: Imagine you are a Java programmer in the ABC. Company and create the following program.**

```
class Temp {
        public static void main(String args[]) {
                int s  = 123;
                boolean []  BA = new boolean [10];
                if(BA[0] == s>333)
                System.out.println(s);
        }
}
```

**What would be the output of the preceding program?**

A. The program compiles successfully and displays 123 as output.
B. The program compiles successfully and displays 333 as output.
C. The program generates compilation error will be generated.
D. The program compiles successfully but leads to runtime exception.

.

## QUESTION 7.26

**Q 26: Imagine you write the following incomplete code and ask your mentee to complete it.**

```
public class xyz {
        static int x = 4;
        int i;
        final boolean test;
        //insert code
}
```

**Which of the following is the correct option which your mentee can provide to complete the preceding program?**

A. xyz( ) { s +=10; }
B. instance ( ) { test = true; }
C. x = 1000;
D. test = (x >3), i = 10;

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## QUESTION 7.27

**Q 27: Imagine you are a Java programmer and create the following program:**

```
class Superclass {
}
class Subclass extends Superclass {
}
public class Test {
        public static void main(String s[ ]) {
                Superclass s1 = new Superclass();
                Subclass s2 = new Subclass();
                s1 = (Superclass) s2;
        }
}
```

**What would be the output during compiling and executing the preceding program?**

A. The program will generate compilation error as subclass instance cannot be typecast in the subclass type.
B. The program will compile successfully but throw the ClassCastException exception during runtime.
C. The program will generate compilation error as the instance of the subclass cannot be created.
D. The program compiles successfully and does not display anything during execution.

.

## QUESTION 7.28

**Q 28: Maya wrote the following program for her project:**

```
class Test {
        public static void main(String s[ ]) {
                Float h1 = new Float(Float.NaN);
                Float h2 = new Float(Float.NaN);
                System.out.print((h1 == h2) + " ");
                System.out.print(h1.equals(h2) + " ");
                System.out.print(Float.NaN == Float.NaN);
        }
}
```

**What will happen when the program is compiled and executed?**

A. The program compiles successfully and displays "false true false" as output.
B. The program compiles successfully and displays "true true true" as output.
C. The program compiles successfully and displays "false false false" as output.
D. The program generates compilation error.

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## QUESTION 7.29

**Q 29: Maya wrote the following codes. If executed what will be printed?**

```
class Ques79 {
        public static void main(String s[ ]) {
                boolean [ ] s1 = new boolean [2];
                boolean [ ] s2 = {true , false};
                System.out.print((s1[0] == s2[0]) + " ");
                System.out.print(s1[1] == s2[1]);
        }
}
```

**What will happen when you compile and execute the program?**

A. The program will generate compilation error.
B. The program will compile successfully and display "true false" as output.
C. The program will compile successfully and display "false true" as output.
D. The program will compile successfully and display ":false false" as output.

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## QUESTION 7.30

**Q 30: Imagine while practicing the concept of string variables in Java, you came across the following program.**

```
class Test {
        public void sendstring(String s1, StringBuffer s2) {
                s1 = s1+s2.toString();
                s2.append(s1);
                s1 = null;
                s2 = null;
        }
        public static void main(String [] args) {
                String str = "AAA";
                StringBuffer sbr = new StringBuffer("BBB");
                new Test().sendstring(str, sbr);
                System.out.print("str=" + str + " ");
                System.out.print("sbr=" +sbr);
        }
}
```

**What will be the output when you compile and execute the program?**

A. The program compiles successfully and displays str = AAA sbr = BBB as output.
B. The program compiles successfully and displays str = BBB sbr = AAA as output.
C. The program compiles successfully and displays str = AAA sbr = BBBAAABBB as output.
D. The program leads to compilation error.

## QUESTION 7.31

**Q 31: Imagine you are working in the ABC Company and you are assigned a project with a team. Being a team leader you need to analyze the programs created by your team members. While analyzing the programs, you came across the following program.**

```
class Test {
        static boolean b;
        static int  [] intarr = new int[1];
        static char chr;
        static boolean [ ] boolarr = new boolean [1];
        public static void main(String args[ ]) {
                boolean a = false;
                if(b)
                {
                        a = (chr == intarr[chr]);
                }
                else
                {
                        a = (boolarr[chr] = b);
                        System.out.println(a + " " + boolarr[chr]);
                }
        }
}
```

**What will happen when you compile and execute the program?**

A. The program compiles successfully and displays "false false" as output.
B. The program compiles successfully and displays " true true" as output.
C. The program compiles successfully and displays "true false" as output.
D. The program compiles successfully and displays " false true" as output.

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## QUESTION 7.32

**Q 32: Imagine you write the following program which accepts the command line arguments:**

```
class Eval {
        public static void main(String args[ ]) {
                Integer m = Integer.parseInt(args[0]);
                Integer n = m;
                m--;
                m++;
                System.out.println(m == n);
        }
}
```

**Which of the following passed as command line argument will lead the program to display true as output?**

A. -1
B. 127
C. 0
D. - 256

.

## QUESTION 7.33

**Q 33: Imagine you are a Java programmer and write the following program.**

```
class Ques87 {
        static String msg = "in super class";
}
class Ques_87 extends Ques87 {
}
class MyQues {
        public static void main(String args[ ]) {
                System.out.println(Ques_87.msg);
        }
}
```

**What will be output during compiling and executing the program?**

A. The program compiles successfully and displays "in super class" as output.
B. The program compiles successfully and displays "in sub class" as output.
C. The program generates compile time error.
D. The program compiles successfully and displays "in super class in sub class" as output.

## QUESTION 7.34

**Q 34: Imagine you write the following program for your project:**

```
public class Switchtest {
        public static void main(String args[]) {
                String str;
                String s;
                String s1 = new String("i");
                String s2 = new String("j");
                String s3 = new String("k");
                str = s2;
                s2 = null;//1
                str = s1 + s2 + s3;//2
                s1 = null;//3
                str = null;//4
                s3 = null;//6
        }
}
```

**At which of the following points the s2 variable becomes eligible for garbage collection?**

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

.

## QUESTION 7.35

**Q 35: Imagine you write the following program for your project:**

```
public class Demo {
        public static void main(String args[]) {
                System.out.print ("" +9 + 7 + " ");
                System.out.print (9 + "" + 7 +  " ");
                System.out.print (9+ 7 + "" + " ");
                System.out.print (9 + 7 + " ");
        }
}
```

**What will happen when you compile and execute the program?**

A. The program compiles successfully and displays 97, 97 16, 16 as output.
B. The program compiles successfully and displays 56, 56, 11, 56 as output.
C. The program compiles successfully and displays 56, 56, 56, 56, 11 as output.
D. None of these

## QUESTION 7.36

**Q 36: Bano is a programmer and has written the following program:**

```
class Ques97 {
        public static void main(String args[]) {
                String str1 , str2 , str3;
                str3 = new String("jim");
                str1 = new String("jack");
                str2 = str1 ;
                str1 = new String("jill");
                str3 = str2;
                System.out.println(str3);
        }
}
```

**What would be the output of the preceding program during compilation and execution?**

A. The program generates compilation error.
B. The program compiles successfully and displays Jim as output.
C. The program compiles successfully and displays jack as output.
D. The program compiles successfully and displays jill as output.