



SUBJECT CODE: 501

SUBJECT: JAVA PROGRAMMING

Unit 1 : Introduction to JAVA

1. Which component is used to compile, debug and execute java program?

- a) JVM
- b) JDK
- c) JIT
- d) JRE

Answer: b

Explanation: JDK is a core component of Java Environment and provides all the tools, executables and binaries required to compile, debug and execute a Java Program.

2. Which component is responsible for converting bytecode into machine specific code?

- a) JVM
- b) JDK
- c) JIT
- d) JRE

Answer: a

Explanation: JVM is responsible to converting bytecode to the machine specific code. JVM is also platform dependent and provides core java functions like garbage collection, memory management, security etc.

3. Which component is responsible to run java program?

- a) JVM
- b) JDK
- c) JIT
- d) JRE

Answer: d

Explanation: JRE is the implementation of JVM, it provides platform to execute java programs.



4. Which component is responsible to optimize bytecode to machine code?

- a) JVM
- b) JDK
- c) JIT
- d) JRE

Answer: c

Explanation: JIT optimizes bytecode to machine specific language code by compiling similar bytecodes at the same time. This reduces overall time taken for compilation of bytecode to machine specific language.

5. Which statement is true about java?

- a) Platform independent programming language
- b) Platform dependent programming language
- c) Code dependent programming language
- d) Sequence dependent programming language

Answer: a

Explanation: Java is called 'Platform Independent Language' as it primarily works on the principle of 'compile once, run everywhere'.

6. Which of the below is invalid identifier with the main method?

- a) public
- b) static
- c) private
- d) final

Answer: c

Explanation: main method cannot be private as it is invoked by external method. Other identifier are valid with main method.

7. What is the extension of java code files?

- a) .class
- b) .java



c) .txt

d) .js

Answer: b

Explanation: Java files have .java extension.

8. What is the extension of compiled java classes?

a) .class

b) .java

c) .txt

d) .js

Answer: a

Explanation: The compiled java files have .class extension.

9. How can we identify whether a compilation unit is class or interface from a .class file?

a) Java source file header

b) Extension of compilation unit

c) We cannot differentiate between class and interface

d) The class or interface name should be postfixed with unit type

Answer: a

Explanation: The Java source file contains a header that declares the type of class or interface, its visibility with respect to other classes, its name and any superclass it may extend, or interface it implements.

10. What is use of interpreter?

a) They convert bytecode to machine language code

b) They read high level code and execute them

c) They are intermediated between JIT and JVM

d) It is a synonym for JIT

Answer: b

Explanation: Interpreters read high level language (interprets it) and execute the program. Interpreters are normally not passing through byte-code and jit compilation.



11. Which of the following is not OOPS concept in Java?

- a) Inheritance
- b) Encapsulation
- c) Polymorphism
- d) Compilation

Answer: d

Explanation: There are 4 OOPS concepts in Java. Inheritance, Encapsulation, Polymorphism and Abstraction.

12. Which of the following is a type of polymorphism in Java?

- a) Compile time polymorphism
- b) Execution time polymorphism
- c) Multiple polymorphism
- d) Multilevel polymorphism

Answer: a

Explanation: There are two types of polymorphism in Java. Compile time polymorphism (overloading) and runtime polymorphism (overriding).

13. When does method overloading is determined?

- a) At run time
- b) At compile time
- c) At coding time
- d) At execution time

Answer: b

Explanation: Overloading is determined at compile time. Hence, it is also known as compile time polymorphism.

14. When Overloading does not occur?

- a) More than one method with same name but different method signature and different number or type of parameters
- b) More than one method with same name, same signature but different number of signature
- c) More than one method with same name, same signature, same number of parameters but



different type

d) More than one method with same name, same number of parameters and type but different signature

Answer: d

Explanation: Overloading occurs when more than one method with same name but different constructor and also when same signature but different number of parameters and/or parameter type.

15. Which concept of Java is a way of converting real world objects in terms of class?

- a) Polymorphism
- b) Encapsulation
- c) Abstraction
- d) Inheritance

Answer: c

Explanation: Abstraction is the concept of defining real world objects in terms of classes or interfaces.

16. Which concept of Java is achieved by combining methods and attribute into a class?

- a) Encapsulation
- b) Inheritance
- c) Polymorphism
- d) Abstraction

Answer: a

Explanation: Encapsulation is implemented by combining methods and attribute into a class. The class acts like a container of encapsulating properties.

17. What is it called if an object has its own lifecycle and there is no owner?

- a) Aggregation
- b) Composition
- c) Encapsulation
- d) Association

Answer: d



Explanation: It is a relationship where all objects have their own lifecycle and there is no owner. This occurs where many to many relationships are available, instead of one to one or one to many.

18. What is it called where child object gets killed if parent object is killed?

- a) Aggregation
- b) Composition
- c) Encapsulation
- d) Association

Answer: b

Explanation: Composition occurs when child object gets killed if parent object gets killed. Aggregation is also known as strong Aggregation.

19. What is it called where object has its own lifecycle and child object cannot belong to another parent object?

- a) Aggregation
- b) Composition
- c) Encapsulation
- d) Association

Answer: a

Explanation: Aggregation occurs when objects have their own life cycle and child object can associate with only one parent object.

20. Method overriding is combination of inheritance and polymorphism?

- a) True
- b) false

Answer: a

Explanation: In order for method overriding, method with same signature in both superclass and subclass is required with same signature. That satisfies both concepts inheritance and polymorphism.



21. Which of these operators is used to allocate memory to array variable in Java?

- a) malloc
- b) alloc
- c) new
- d) new malloc

Answer: c

Explanation: Operator new allocates a block of memory specified by the size of an array, and gives the reference of memory allocated to the array variable.

22. Which of these is an incorrect array declaration?

- a) int arr[] = new int[5]
- b) int [] arr = new int[5]
- c) int arr[] = new int[5]
- d) int arr[] = int [5] new

Answer: d

Explanation: Operator new must be succeeded by array type and array size.

23. What will be the output of the following Java code?

```
int arr[] = new int [5];  
System.out.print(arr);
```

- a) 0
- b) value stored in arr[0]
- c) 00000
- d) Class name@ hashCode in hexadecimal form

Answer: d

Explanation: If we trying to print any reference variable internally, toString() will be called which is implemented to return the String in following form:

classname@hashCode in hexadecimal form

24. Which of these is an incorrect Statement?

- a) It is necessary to use new operator to initialize an array
- b) Array can be initialized using comma separated expressions surrounded by curly braces
- c) Array can be initialized when they are declared
- d) None of the mentioned

Answer: a

Explanation: Array can be initialized using both new and comma separated expressions surrounded by curly braces example : `int arr[5] = new int[5];` and `int arr[] = { 0, 1, 2, 3, 4};`

25. Which of these is necessary to specify at time of array initialization?

- a) Row
- b) Column
- c) Both Row and Column
- d) None of the mentioned

Answer: a

Explanation: None.

26. What will be the output of the following Java code?

```
1.  class array_output
2.  {
3.      public static void main(String args[])
4.      {
5.          int array_variable [] = new int[10];
6.          for (int i = 0; i < 10; ++i)
7.          {
8.              array_variable[i] = i;
9.              System.out.print(array_variable[i] + " ");
10.                 i++;
11.             }
12.         }
13.     }
```


- a) 0 2 4 6 8
- b) 1 3 5 7 9
- c) 0 1 2 3 4 5 6 7 8 9
- d) 1 2 3 4 5 6 7 8 9 10

Answer: a

Explanation: When an array is declared using new operator then all of its elements are initialized to 0 automatically. for loop body is executed 5 times as whenever controls comes in the loop i value is incremented twice, first by ++ in body of loop then by ++i in increment condition of for loop.

output:

```
$ javac array_output.java
$ java array_output
0 2 4 6 8
```

27. What will be the output of the following Java code?

```
1.  class multidimension_array
2.  {
3.      public static void main(String args[])
4.      {
5.          int arr[][] = new int[3][];
6.          arr[0] = new int[1];
7.          arr[1] = new int[2];
8.          arr[2] = new int[3];
9.          int sum = 0;
10.         for (int i = 0; i < 3; ++i)
11.             for (int j = 0; j < i + 1; ++j)
12.                 arr[i][j] = j + 1;
13.         for (int i = 0; i < 3; ++i)
14.             for (int j = 0; j < i + 1; ++j)
15.                 sum += arr[i][j];
16.         System.out.print(sum);
17.     }
```

```
18.         }
```

- a) 11
- b) 10
- c) 13
- d) 14

Answer: b

Explanation: arr[][] is a 2D array, array has been allotted memory in parts. 1st row contains 1 element, 2nd row contains 2 elements and 3rd row contains 3 elements. each element of array is given i + j value in loop. sum contains addition of all the elements of the array.

output:

```
$ javac multidimension_array.java
$ java multidimension_array
10
```

28. What will be the output of the following Java code?

```
1.  class evaluate
2.  {
3.      public static void main(String args[])
4.      {
5.          int arr[] = new int[] {0 , 1, 2, 3, 4, 5, 6, 7, 8, 9};
6.          int n = 6;
7.              n = arr[arr[n] / 2];
8.          System.out.println(arr[n] / 2);
9.      }
10. }
```

- a) 3
- b) 0
- c) 6
- d) 1

b) View Answer

Answer: d

Explanation: Array arr contains 10 elements. n contains 6 thus in next line n is given value 3 printing arr[3]/2 i.e 3/2 = 1 because of int Value, by int values there is no rest. If this values would be float the result would be 1.5.

output:

```
$ javac evaluate.java
$ java evaluate
1
```

29. What will be the output of the following Java code?

```
1.  class array_output
2.  {
3.      public static void main(String args[])
4.      {
5.          char array_variable [] = new char[10];
6.          for (int i = 0; i < 10; ++i)
7.              {
8.                  array_variable[i] = 'i';
9.                  System.out.print(array_variable[i] + "");
10.             }
11.         }
12.     }
```

- a) 1 2 3 4 5 6 7 8 9 10
- b) 0 1 2 3 4 5 6 7 8 9 10
- c) i j k l m n o p q r
- d) i i i i i i i i i i

Answer: d

Explanation: None.

output:

```
$ javac array_output.java
```

```
$ java array_output  
i i i i i i i i i i
```

30. What will be the output of the following Java code?

```
1.   class array_output  
2.   {  
3.       public static void main(String args[])  
4.       {  
5.           int array_variable[][] = {{ 1, 2, 3}, { 4, 5, 6}, { 7, 8,  
6.           9}};  
7.           int sum = 0;  
8.           for (int i = 0; i < 3; ++i)  
9.               for (int j = 0; j < 3; ++j)  
10.                  sum = sum + array_variable[i][j];  
11.                  System.out.print(sum / 5);  
12.           }  
12.       }
```

- a) 8
- b) 9
- c) 10
- d) 11

Answer: b

Explanation: None.

output:

```
$ javac array_output.java  
$ java array_output  
9
```



31. String in Java is a?

- a) class
- b) object
- c) variable
- d) character array

Answer: a

Explanation: None.

32. Which of these method of String class is used to obtain character at specified index?

- a) char()
- b) Charat()
- c) charat()
- d) charAt()

Answer: d

Explanation: None.

33. Which of these keywords is used to refer to member of base class from a subclass?

- a) upper
- b) super
- c) this
- d) none of the mentioned

Answer: b

Explanation: Whenever a subclass needs to refer to its immediate superclass, it can do so by use of the keyword super.

34. Which of these method of String class can be used to test to strings for equality?

- a) isequal()
- b) isequals()
- c) equal()
- d) equals()

Answer: d

Explanation: None.

35. Which of the following statements are incorrect?

- a) String is a class
- b) Strings in java are mutable
- c) Every string is an object of class String
- d) Java defines a peer class of String, called StringBuffer, which allows string to be altered

Answer: b

Explanation: Strings in Java are immutable that is they can not be modified.

36. What will be the output of the following Java program?

```
1.  class string_demo
2.  {
3.      public static void main(String args[])
4.      {
5.          String obj = "I" + "like" + "Java";
6.          System.out.println(obj);
7.      }
8.  }
```

- a) I
- b) like
- c) Java
- d) IlikeJava

Answer: d

Explanation: Java defines an operator +, it is used to concatenate strings.

output:

```
$ javac string_demo.java
$ java string_demo
```

IlikeJava

37. What will be the output of the following Java program?

```
1.  class string_class
2.  {
3.      public static void main(String args[])
4.      {
5.          String obj = "I LIKE JAVA";
6.          System.out.println(obj.charAt(3));
7.      }
8.  }
```

- a) I
- b) L
- c) K
- d) E

Answer: a

Explanation: charAt() is a method of class String which gives the character specified by the index. obj.charAt(3) gives 4th character i:e I.

output:

```
$ javac string_class.java
$ java string_class
I
```

38. What will be the output of the following Java program?

```
1.  class string_class
2.  {
3.      public static void main(String args[])
4.      {
5.          String obj = "I LIKE JAVA";
6.          System.out.println(obj.length());
```

```
7.     }  
8.     }
```

- a) 9
- b) 10
- c) 11
- d) 12

Answer: c

Explanation: None.

output:

```
$ javac string_class.java  
$ java string_class  
11
```

39. What will be the output of the following Java program?

```
1.  class string_class  
2.  {  
3.      public static void main(String args[])  
4.      {  
5.          String obj = "hello";  
6.          String obj1 = "world";  
7.          String obj2 = obj;  
8.          obj2 = " world";  
9.          System.out.println(obj + " " + obj2);  
10.     }  
11.     }
```

- a) hello hello
- b) world world
- c) hello world
- d) world hello

Answer: c

Explanation: None.

output:


```
$ javac string_class.java
$ java string_class
hello world
```

40. What will be the output of the following Java program?

```
1.   class string_class
2.   {
3.       public static void main(String args[])
4.       {
5.           String obj = "hello";
6.           String obj1 = "world";
7.           String obj2 = "hello";
8.           System.out.println(obj.equals(obj1) + " " + obj.equals(obj2));
9.       }
10.  }
```

- a) false false
- b) true true
- c) true false
- d) false true

Answer: d

Explanation: equals() is method of class String, it is used to check equality of two String objects, if they are equal, true is returned else false.

output:

```
$ javac string_class.java
$ java string_class
false true
```

41. Arrays in Java are implemented as?

- a) class
- b) object
- c) variable



d) none of the mentioned

Answer: b

Explanation: None.

42. Which of these keywords is used to prevent content of a variable from being modified?

- a) final
- b) last
- c) constant
- d) static

Answer: a

Explanation: A variable can be declared final, doing so prevents its content from being modified. Final variables must be initialized when it is declared.

43. Which of these cannot be declared static?

- a) class
- b) object
- c) variable
- d) method

Answer: b

Explanation: static statements are run as soon as class containing them is loaded, prior to any object declaration.

44. Which of the following statements are incorrect?

- a) static methods can call other static methods only
- b) static methods must only access static data
- c) static methods can not refer to this or super in any way
- d) when object of class is declared, each object contains its own copy of static variables

Answer: d

Explanation: All objects of class share same static variable, when object of a class are declared, all the objects share same copy of static members, no copy of static variables are made.

45. Which of the following statements are incorrect?

- a) Variables declared as final occupy memory
- b) final variable must be initialized at the time of declaration
- c) Arrays in java are implemented as an object
- d) All arrays contain an attribute-length which contains the number of elements stored in the array

Answer: a

Explanation: None.

46. Which of these methods must be made static?

- a) main()
- b) delete()
- c) run()
- d) finalize()

Answer: a

Explanation: main() method must be declared static, main() method is called by Java runtime system before any object of any class exists.

47. What will be the output of the following Java program?

```
1.  class access
2.  {
3.      public int x;
4.      static int y;
5.      void cal(int a, int b)
6.      {
7.          x += a ;
8.          y += b;
9.      }
10.     }
11.     class static_specifier
12.     {
```

```
13.         public static void main(String args[])
14.         {
15.             access obj1 = new access ();
16.             access obj2 = new access ();
17.             obj1.x = 0;
18.             obj1.y = 0;
19.             obj1.cal(1, 2);
20.             obj2.x = 0;
21.             obj2.cal(2, 3);
22.             System.out.println(obj1.x + " " + obj2.y);
23.         }
24.     }
```

- a) 1 2
- b) 2 3
- c) 3 2
- d) 1 5

Answer: d

Explanation: None.

output:

```
$ javac static_specifier.java
$ java static_specifier
1 5
```

48. What will be the output of the following Java program?

```
1.     class access
2.     {
3.         static int x;
4.         void increment()
5.         {
6.             x++;
7.         }
8.     }
9.     class static_use
```

```
10.     {
11.         public static void main(String args[])
12.     {
13.         access obj1 = new access ();
14.         access obj2 = new access ();
15.         obj1.x = 0;
16.         obj1.increment ();
17.         obj2.increment ();
18.         System.out.println(obj1.x + " " + obj2.x);
19.     }
20. }
```

- a) 1 2
- b) 1 1
- c) 2 2
- d) Compilation Error

Answer: c

Explanation: All objects of class share same static variable, all the objects share same copy of static members, obj1.x and obj2.x refer to same element of class which has been incremented twice and its value is 2.

output:

```
$ javac static_use.java
$ java static_use
2 2
```

49. What will be the output of the following Java program?

```
1.     class static_out
2.     {
3.         static int x;
4.         static int y;
5.         void add(int a , int b)
6.         {
7.             x = a + b;
```

```
8.         y = x + b;
9.     }
10.    }
11.    class static_use
12.    {
13.        public static void main(String args[])
14.        {
15.            static_out obj1 = new static_out();
16.            static_out obj2 = new static_out();
17.            int a = 2;
18.            obj1.add(a, a + 1);
19.            obj2.add(5, a);
20.            System.out.println(obj1.x + " " + obj2.y);
21.        }
22.    }
```

a) 7 7

b) 6 6

c) 7 9

d) 9 7

Answer: c

Explanation: None.

output:

```
$ javac static_use.java
$ java static_use
7 9
```

50. What will be the output of the following Java program?

```
1.    class Output
2.    {
3.        public static void main(String args[])
4.        {
5.            int arr[] = {1, 2, 3, 4, 5};
6.            for ( int i = 0; i < arr.length - 2; ++i)
```

```
7.         System.out.println(arr[i] + " ");
8.     }
9. }
```

- a) 1 2
- b) 1 2 3
- c) 1 2 3 4
- d) 1 2 3 4 5

Answer: b

Explanation: arr.length() is 5, so the loop is executed for three times.

output:

```
$ javac Output.java
$ java Output
1 2 3
```

51. What will be the output of the following Java program?

```
1.  class Output
2.  {
3.      public static void main(String args[])
4.      {
5.          int a1[] = new int[10];
6.          int a2[] = {1, 2, 3, 4, 5};
7.          System.out.println(a1.length + " " + a2.length);
8.      }
9.  }
```

- a) 10 5
- b) 5 10
- c) 0 10
- d) 0 5

Answer: a

Explanation: Arrays in java are implemented as objects, they contain an attribute that is length which contains the number of elements that can be stored in the array. Hence a1.length gives 10 and a2.length gives 5.

output:

```
$ javac Output.java  
$ java Output  
10 5
```



Unit 2 : Classes and Objects

1. What is the stored in the object obj in following lines of Java code?

```
box obj;
```

- a) Memory address of allocated memory of object
- b) NULL
- c) Any arbitrary pointer
- d) Garbage

Answer: b

Explanation: Memory is allocated to an object using new operator. box obj; just declares a reference to object, no memory is allocated to it hence it points to NULL.

2. Which of these keywords is used to make a class?

- a) class
- b) struct
- c) int
- d) none of the mentioned

Answer: a

Explanation: None.

3. Which of the following is a valid declaration of an object of class Box?

- a) Box obj = new Box();
- b) Box obj = new Box;
- c) obj = new Box();
- d) new Box obj;

Answer: a

Explanation: None.

4. Which of these operators is used to allocate memory for an object?

- a) malloc
- b) alloc
- c) new
- d) give

Answer: c

Explanation: Operator new dynamically allocates memory for an object and returns a reference to it. This reference is address in memory of the object allocated by new.

5. Which of these statement is incorrect?

- a) Every class must contain a main() method
- b) Applets do not require a main() method at all
- c) There can be only one main() method in a program
- d) main() method must be made public

Answer: a

Explanation: Every class does not need to have a main() method, there can be only one main() method which is made public.

6. What will be the output of the following Java program?

```
1.  class main_class
2.  {
3.      public static void main(String args[])
4.      {
5.          int x = 9;
6.          if (x == 9)
7.          {
8.              int x = 8;
9.              System.out.println(x);
10.         }
11.     }
12. }
```

- a) 9
- b) 8
- c) Compilation error
- d) Runtime error

Answer: c

Explanation: Two variables with the same name can't be created in a class.

output:

```
$ javac main_class.java
Exception in thread "main" java.lang.Error: Unresolved compilation problem:
    Duplicate local variable x
```

7. Which of the following statements is correct?

- a) Public method is accessible to all other classes in the hierarchy
- b) Public method is accessible only to subclasses of its parent class
- c) Public method can only be called by object of its class
- d) Public method can be accessed by calling object of the public class

Answer: a

Explanation: None.

8. What will be the output of the following Java program?

```
1.  class box
2.  {
3.      int width;
4.      int height;
5.      int length;
6.  }
7.  class mainclass
8.  {
9.      public static void main(String args[])
10.     {
11.         box obj = new box();
```

```
12.         obj.width = 10;
13.         obj.height = 2;
14.         obj.length = 10;
15.         int y = obj.width * obj.height * obj.length;
16.         System.out.print(y);
17.     }
18. }
```

- a) 12
- b) 200
- c) 400
- d) 100

Answer: b

Explanation: None.

output:

```
$ javac mainclass.java
$ java mainclass
200
```

9. What will be the output of the following Java program?

```
1.  class box
2.  {
3.      int width;
4.      int height;
5.      int length;
6.  }
7.  class mainclass
8.  {
9.      public static void main(String args[])
10.     {
11.         box obj1 = new box();
12.         box obj2 = new box();
13.         obj1.height = 1;
14.         obj1.length = 2;
```

```
15.         obj1.width = 1;
16.         obj2 = obj1;
17.         System.out.println(obj2.height);
18.     }
19. }
```

- a) 1
- b) 2
- c) Runtime error
- d) Garbage value

Answer: a

Explanation: When we assign an object to another object of same type, all the elements of right side object gets copied to object on left side of equal to, =, operator.

output:

```
$ javac mainclass.java
$ java mainclass
1
```

10. What will be the output of the following Java program?

```
1.  class box
2.  {
3.      int width;
4.      int height;
5.      int length;
6.  }
7.  class mainclass
8.  {
9.      public static void main(String args[])
10.     {
11.         box obj = new box();
12.         System.out.println(obj);
13.     }
14. }
```

- a) 0



- b) 1
- c) Runtime error
- d) classname@hashcode in hexadecimal form

Answer: d

Explanation: When we print object internally toString() will be called to return string into this format classname@hashcode in hexadecimal form.

output:

```
$ javac mainclass.java
$ java mainclass
box@130671e
```

11. What is true about private constructor?

- a) Private constructor ensures only one instance of a class exist at any point of time
- b) Private constructor ensures multiple instances of a class exist at any point of time
- c) Private constructor eases the instantiation of a class
- d) Private constructor allows creating objects in other classes

Answer: a

Explanation: Object of private constructor can only be created within class. Private constructor is used in singleton pattern.

12. What would be the behaviour if this() and super() used in a method?

- a) Runtime error
- b) Throws exception
- c) compile time error
- d) Runs successfully

Answer: c

Explanation: this() and super() cannot be used in a method. This throws compile time error.

13. What is false about constructor?



- a) Constructors cannot be synchronized in Java
- b) Java does not provide default copy constructor
- c) Constructor can have a return type
- d) “this” and “super” can be used in a constructor

Answer: c

Explanation: The constructor cannot have a return type. It should create and return new objects. Hence it would give a compilation error.

14. What is true about Class.getInstance()?

- a) Class.getInstance calls the constructor
- b) Class.getInstance is same as new operator
- c) Class.getInstance needs to have matching constructor
- d) Class.getInstance creates object if class does not have any constructor

Answer: d

Explanation: Class class provides list of methods for use like getInstance().

15. What is true about constructor?

- a) It can contain return type
- b) It can take any number of parameters
- c) It can have any non access modifiers
- d) Constructor cannot throw an exception

Answer: b

Explanation: Constructor returns a new object with variables defined as in the class. Instance variables are newly created and only one copy of static variables are created.

16. Abstract class cannot have a constructor.

- a) True
- b) False



Answer: b

Explanation: No instance can be created of abstract class. Only pointer can hold instance of object.

17. What is true about protected constructor?

- a) Protected constructor can be called directly
- b) Protected constructor can only be called using super()
- c) Protected constructor can be used outside package
- d) protected constructor can be instantiated even if child is in a different package

Answer: b

Explanation: Protected access modifier means that constructor can be accessed by child classes of the parent class and classes in the same package.

18. What is not the use of “this” keyword in Java?

- a) Passing itself to another method
- b) Calling another constructor in constructor chaining
- c) Referring to the instance variable when local variable has the same name
- d) Passing itself to method of the same class

Answer: d

Explanation: “this” is an important keyword in java. It helps to distinguish between local variable and variables passed in the method as parameters.

19. What would be the behaviour if one parameterized constructor is explicitly defined?

- a) Compilation error
- b) Compilation succeeds
- c) Runtime error
- d) Compilation succeeds but at the time of creating object using default constructor, it throws compilation error

Answer: d

Explanation: The class compiles successfully. But the object creation of that class gives a compilation error.



20. What would be behaviour if the constructor has a return type?

- a) Compilation error
- b) Runtime error
- c) Compilation and runs successfully
- d) Only String return type is allowed

Answer: a

Explanation: The constructor cannot have a return type. It should create and return new object. Hence it would give compilation error.

21. What is the process of defining two or more methods within same class that have same name but different parameters declaration?

- a) method overloading
- b) method overriding
- c) method hiding
- d) none of the mentioned

Answer: a

Explanation: Two or more methods can have same name as long as their parameters declaration is different, the methods are said to be overloaded and process is called method overloading. Method overloading is a way by which Java implements polymorphism.

22. Which of these can be overloaded?

- a) Methods
- b) Constructors
- c) All of the mentioned
- d) None of the mentioned

Answer: c

Explanation: None.

23. Which of these is correct about passing an argument by call-by-value process?

- a) Copy of argument is made into the formal parameter of the subroutine
- b) Reference to original argument is passed to formal parameter of the subroutine
- c) Copy of argument is made into the formal parameter of the subroutine and changes made on parameters of subroutine have effect on original argument
- d) Reference to original argument is passed to formal parameter of the subroutine and changes made on parameters of subroutine have effect on original argument

Answer: a

Explanation: When we pass an argument by call-by-value a copy of argument is made into the formal parameter of the subroutine and changes made on parameters of subroutine have no effect on original argument, they remain the same.

24. What is the process of defining a method in terms of itself, that is a method that calls itself?

- a) Polymorphism
- b) Abstraction
- c) Encapsulation
- d) Recursion

Answer: d

Explanation: None.

25. What will be the output of the following Java code?

```
1. class San
2. {
3.     public void m1 (int i, float f)
4.     {
5.         System.out.println(" int float method");
6.     }
7.
8.     public void m1 (float f, int i);
```

```
9.  {
10.     System.out.println("float int method");
11. }
12.
13.     public static void main(String[] args)
14.     {
15.         San s=new San ();
16.         s.m1(20,20);
17.     }
18. }
```

- a) int float method
- b) float int method
- c) compile time error
- d) run time error

Answer: c

Explanation: While resolving overloaded method, compiler automatically promotes if exact match is not found. But in this case, which one to promote is an ambiguity.

26. What will be the output of the following Java code?

```
1.     class overload
2.     {
3.         int x;
4.         int y;
5.         void add(int a)
6.         {
7.             x = a + 1;
8.         }
9.         void add(int a, int b)
10.        {
11.            x = a + 2;
12.        }
13.    }
14.     class Overload_methods
```

```
15.     {
16.         public static void main(String args[])
17.     {
18.         overload obj = new overload();
19.         int a = 0;
20.         obj.add(6);
21.         System.out.println(obj.x);
22.     }
23. }
```

- a) 5
- b) 6
- c) 7
- d) 8

Answer: c

Explanation: None.

output:

```
$ javac Overload_methods.java
$ java Overload_methods
7
```

27. What will be the output of the following Java code?

```
1.  class overload
2.  {
3.      int x;
4.      int y;
5.      void add(int a)
6.      {
7.          x = a + 1;
8.      }
9.      void add(int a , int b)
10.     {
11.         x = a + 2;
12.     }
```

```
13.     }
14.     class Overload_methods
15.     {
16.         public static void main(String args[])
17.         {
18.             overload obj = new overload();
19.             int a = 0;
20.             obj.add(6, 7);
21.             System.out.println(obj.x);
22.         }
23.     }
```

- a) 6
- b) 7
- c) 8
- d) 9

Answer: c

Explanation: None.

output:

```
$ javac Overload_methods.java
$ java Overload_methods
8
```

28. What will be the output of the following Java code?

```
1.     class overload
2.     {
3.         int x;
4.         double y;
5.         void add(int a , int b)
6.         {
7.             x = a + b;
8.         }
9.         void add(double c , double d)
10.        {
```

```
11.         y = c + d;
12.     }
13.     overload()
14.     {
15.         this.x = 0;
16.         this.y = 0;
17.     }
18. }
19. class Overload_methods
20. {
21.     public static void main(String args[])
22.     {
23.         overload obj = new overload();
24.         int a = 2;
25.         double b = 3.2;
26.         obj.add(a, a);
27.         obj.add(b, b);
28.         System.out.println(obj.x + " " + obj.y);
29.     }
30. }
```

- a) 6 6
- b) 6.4 6.4
- c) 6.4 6
- d) 4 6.4

Answer: d

Explanation: For obj.add(a,a); ,the function in line number 4 gets executed and value of x is 4.

For the next function call, the function in line number 7 gets executed and value of y is 6.4

output:

```
$ javac Overload_methods.java
$ java Overload_methods
4 6.4
```

29. What will be the output of the following Java code?

```
1.  class test
2.  {
3.      int a;
4.      int b;
5.      void meth(int i , int j)
6.      {
7.          i *= 2;
8.          j /= 2;
9.      }
10.     }
11.     class Output
12.     {
13.         public static void main(String args[])
14.         {
15.             test obj = new test ();
16.             int a = 10;
17.             int b = 20;
18.             obj.meth(a , b);
19.             System.out.println(a + " " + b);
20.         }
21.     }
```

- a) 10 20
- b) 20 10
- c) 20 40
- d) 40 20

Answer: a

Explanation: Variables a & b are passed by value, copy of their values are made on formal parameters of function meth() that is i & j. Therefore changes done on i & j are not reflected back on original arguments. a & b remain 10 & 20 respectively.

output:

```
$ javac Output.java
$ java Output
10 20
```

30. What will be the output of the following Java code?

```
1.  class test
2.  {
3.      int a;
4.      int b;
5.      test(int i, int j)
6.      {
7.          a = i;
8.          b = j;
9.      }
10.         void meth(test o)
11.         {
12.             o.a *= 2;
13.             o.b /= 2;
14.         }
15.     }
16.     class Output
17.     {
18.         public static void main(String args[])
19.         {
20.             test obj = new test(10 , 20);
21.             obj.meth(obj);
22.             System.out.println(obj.a + " " + obj.b);
23.         }
24.     }
```

- a) 10 20
- b) 20 10
- c) 20 40
- d) 40 20

Answer: b

Explanation: Class objects are always passed by reference, therefore changes done are reflected back on original arguments. obj.meth(obj) sends object obj as parameter whose



variables a & b are multiplied and divided by 2 respectively by meth() function of class test. a & b becomes 20 & 10 respectively.

output:

```
$ javac Output.java
$ java Output
20 10
```

31. Which of this method is given parameter via command line arguments?

- a) main()
- b) recursive() method
- c) Any method
- d) System defined methods

Answer: a

Explanation: Only main() method can be given parameters via using command line arguments.

32. Which of these data types is used to store command line arguments?

- a) Array
- b) Stack
- c) String
- d) Integer

Answer: c

Explanation: None.

33. How many arguments can be passed to main()?

- a) Infinite
- b) Only 1
- c) System Dependent
- d) None of the mentioned

Answer: a

Explanation: None.

34. Which of these is a correct statement about args in the following line of code?

```
public static void main(String args[])
```

- a) args is a String
- b) args is a Character
- c) args is an array of String
- d) args in an array of Character

Answer: c

Explanation: args in an array of String.

35. Can command line arguments be converted into int automatically if required?

- a) Yes
- b) No
- c) Compiler Dependent
- d) Only ASCII characters can be converted

Answer: b

Explanation: All command Line arguments are passed as a string. We must convert numerical value to their internal forms manually.

36. What will be the output of the following Java program, Command line execution is done as – “java Output This is a command Line”?

```
1. class Output
2. {
3.     public static void main(String args[])
4.     {
5.         System.out.print("args[0]");
6.     }
7. }
```

- a) java
- b) Output
- c) This



d) is

Answer: c

Explanation: None.

Output:

```
$ javac Output.javac
java Output This is a command Line
This
```

37. What will be the output of the following Java program, Command line execution is done as – “java Output This is a command Line”?

```
1.  class Output
2.  {
3.      public static void main(String args[])
4.      {
5.          System.out.print("args[3]");
6.      }
7.  }
```

a) java

b) is

c) This

d) command

Answer: d

Explanation: None.

Output:

```
$ javac Output.javac
java Output This is a command Line
command
```

38. What will be the output of the following Java program, Command line execution is done as – “java Output This is a command Line”?

```
1. class Output
2. {
3.     public static void main(String args[])
4.     {
5.         System.out.print("args");
6.     }
7. }
```

- a) This
- b) java Output This is a command Line
- c) This is a command Line
- d) Compilation Error

Answer: c

Explanation: None.

Output:

```
$ javac Output.java
java Output This is a command Line
This is a command Line
```

39. What will be the output of the following Java program, Command line execution is done as – “java Output command Line 10 A b 4 N”?

```
1. class Output
2. {
3.     public static void main(String args[])
4.     {
5.         System.out.print("(int)args[2] * 2");
6.     }
7. }
```

- a) java
- b) 10
- c) 20
- d) b



Answer: c

Explanation: None.

Output:

```
$ javac Output.javac
java Output command Line 10 A b 4 N
20
```

40. What will be the output of the following Java program, Command line execution is done as – “java Output command Line 10 A b 4 N”?

```
1. class Output
2. {
3.     public static void main(String args[])
4.     {
5.         System.out.print("args[6]");
6.     }
7. }
```

- a) java
- b) 10
- c) b
- d) N

Answer: d

Explanation: None.

Output:

```
$ javac Output.javac
java Output command Line 10 A b 4 N
N
```

41. Which of these keywords are used to define an abstract class?

- a) abst
- b) abstract
- c) Abstract



d) abstract class

Answer: b

Explanation: None.

42. Which of these is not abstract?

a) Thread

b) AbstractList

c) List

d) None of the Mentioned

Answer: a

Explanation: Thread is not an abstract class.

43. If a class inheriting an abstract class does not define all of its function then it will be known as?

a) Abstract

b) A simple class

c) Static class

d) None of the mentioned

Answer: a

Explanation: Any subclass of an abstract class must either implement all of the abstract method in the superclass or be itself declared abstract.

44. Which of these is not a correct statement?

a) Every class containing abstract method must be declared abstract

b) Abstract class defines only the structure of the class not its implementation

c) Abstract class can be initiated by new operator

d) Abstract class can be inherited

Answer: c

Explanation: Abstract class cannot be directly initiated with new operator, Since abstract class does not contain any definition of implementation it is not possible to create an abstract object.

45. Which of these packages contains abstract keyword?

- a) java.lang
- b) java.util
- c) java.io
- d) java.system

Answer: a

Explanation: None.

46. What will be the output of the following Java code?

```
1.  class A
2.  {
3.      public int i;
4.      private int j;
5.  }
6.  class B extends A
7.  {
8.      void display()
9.      {
10.         super.j = super.i + 1;
11.         System.out.println(super.i + " " + super.j);
12.     }
13. }
14. class inheritance
15. {
16.     public static void main(String args[])
17.     {
18.         B obj = new B();
19.         obj.i=1;
20.         obj.j=2;
21.         obj.display();
22.     }
23. }
```

a) 2 2

- b) 3 3
- c) Runtime Error
- d) Compilation Error

Answer: d

Explanation: Class contains a private member variable j, this cannot be inherited by subclass B and does not have access to it.

output:

```
$ javac inheritance.java
Exception in thread "main" java.lang.Error: Unresolved compilation problem:
    The field A.j is not visible
```

47. What will be the output of the following Java code?

```
1.  class A
2.  {
3.      public int i;
4.      public int j;
5.      A()
6.      {
7.          i = 1;
8.          j = 2;
9.      }
10.     }
11.     class B extends A
12.     {
13.         int a;
14.         B()
15.         {
16.             super ();
17.         }
18.     }
19.     class super_use
20.     {
21.         public static void main(String args[])
22.         {
```



```
23.         B obj = new B();
24.         System.out.println(obj.i + " " + obj.j)
25.     }
26. }
```

- a) 1 2
- b) 2 1
- c) Runtime Error
- d) Compilation Error

Answer: a

Explanation: Keyword super is used to call constructor of class A by constructor of class B. Constructor of a initializes i & j to 1 & 2 respectively.

output:

```
$ javac super_use.java
$ java super_use
1 2
```

48. What will be the output of the following Java code?

```
1.  class A
2.  {
3.      int i;
4.      void display()
5.      {
6.          System.out.println(i);
7.      }
8.  }
9.  class B extends A
10. {
11.     int j;
12.     void display()
13.     {
14.         System.out.println(j);
15.     }
16. }
```

```
17.         class method_overriding
18.         {
19.             public static void main(String args[])
20.             {
21.                 B obj = new B();
22.                 obj.i=1;
23.                 obj.j=2;
24.                 obj.display();
25.             }
26.         }
```

- a) 0
- b) 1
- c) 2
- d) Compilation Error

Answer: c

Explanation: class A & class B both contain display() method, class B inherits class A, when display() method is called by object of class B, display() method of class B is executed rather than that of Class A.

output:

```
$ javac method_overriding.java
$ java method_overriding
2
```

49. What will be the output of the following Java code?

```
1.     class A
2.     {
3.         public int i;
4.         protected int j;
5.     }
6.     class B extends A
7.     {
8.         int j;
9.         void display()
```

```
10.         {
11.             super.j = 3;
12.             System.out.println(i + " " + j);
13.         }
14.     }
15.     class Output
16.     {
17.         public static void main(String args[])
18.         {
19.             B obj = new B();
20.             obj.i=1;
21.             obj.j=2;
22.             obj.display();
23.         }
24.     }
```

- a) 1 2
- b) 2 1
- c) 1 3
- d) 3 1

Answer: a

Explanation: Both class A & B have member with same name that is j, member of class B will be called by default if no specifier is used. I contains 1 & j contains 2, printing 1 2.

output:

```
$ javac Output.java
$ java Output
1 2
```



Unit 3 : Collection

1. Which of these packages contain all the collection classes?

- a) java.lang
- b) java.util
- c) java.net
- d) java.awt

Answer: b

Explanation: None.

2. Which of these classes is not part of Java's collection framework?

- a) Maps
- b) Array
- c) Stack
- d) Queue

Answer: a

Explanation: Maps is not a part of collection framework.

3. Which of this interface is not a part of Java's collection framework?

- a) List
- b) Set
- c) SortedMap
- d) SortedList

Answer: d

Explanation: SortedList is not a part of collection framework.

4. Which of these methods deletes all the elements from invoking collection?

- a) clear()
- b) reset()

- c) delete()
- d) refresh()

Answer: a

Explanation: clear() method removes all the elements from invoking collection.

5. What is Collection in Java?

- a) A group of objects
- b) A group of classes
- c) A group of interfaces
- d) None of the mentioned

Answer: a

Explanation: A collection is a group of objects, it is similar to String Template Library (STL) of C++ programming language.

6. What will be the output of the following Java program?

```
1. import java.util.*;
2. class Array
3. {
4.     public static void main(String args[])
5.     {
6.         int array[] = new int [5];
7.         for (int i = 5; i > 0; i--)
8.             array[5-i] = i;
9.         Arrays.fill(array, 1, 4, 8);
10.            for (int i = 0; i < 5 ; i++)
11.                System.out.print(array[i]);
12.            }
13.    }
```

- a) 12885
- b) 12845
- c) 58881
- d) 54881

Answer: c

Explanation: array was containing 5,4,3,2,1 but when method Arrays.fill(array, 1, 4, 8) is called it fills the index location starting with 1 to 4 by value 8 hence array becomes 5,8,8,8,1.

Output:

```
$ javac Array.java
$ java Array
58881
```

7. What will be the output of the following Java program?

```
1.  import java.util.*;
2.  class Bitset
3.  {
4.      public static void main(String args[])
5.      {
6.          BitSet obj = new BitSet(5);
7.          for (int i = 0; i < 5; ++i)
8.              obj.set(i);
9.          obj.clear(2);
10.             System.out.print(obj);
11.         }
12.     }
```

- a) {0, 1, 3, 4}
- b) {0, 1, 2, 4}
- c) {0, 1, 2, 3, 4}
- d) {0, 0, 0, 3, 4}

Answer: a

Explanation: None.

Output:

```
$ javac Bitset.java
$ java Bitset
{0, 1, 3, 4}
```



8. Which of these standard collection classes implements a dynamic array?

- a) AbstractList
- b) LinkedList
- c) ArrayList
- d) AbstractSet

Answer: c

Explanation: ArrayList class implements a dynamic array by extending AbstractList class.

9. Which of these class can generate an array which can increase and decrease in size automatically?

- a) ArrayList()
- b) DynamicList()
- c) LinkedList()
- d) MallocList()

Answer: a

Explanation: None.

10. Which of these method can be used to increase the capacity of ArrayList object manually?

- a) Capacity()
- b) increaseCapacity()
- c) increasecapacity()
- d) ensureCapacity()

Answer: d

Explanation: When we add an element, the capacity of ArrayList object increases automatically, but we can increase it manually to specified length x by using function ensureCapacity(x);

11. Which of these method of ArrayList class is used to obtain present size of an object?

- a) size()
- b) length()

- c) index()
- d) capacity()

Answer: a

Explanation: None.

12. Which of these methods can be used to obtain a static array from an ArrayList object?

- a) Array()
- b) covertArray()
- c) toArray()
- d) covertToArray()

Answer: c

Explanation: None.

13. Which of these method is used to reduce the capacity of an ArrayList object?

- a) trim()
- b) trimSize()
- c) trimTosize()
- d) trimToSize()

Answer: d

Explanation: trimTosize() is used to reduce the size of the array that underlines an ArrayList object.

14. What will be the output of the following Java program?

```
1. import java.util.*;
2. class ArrayList
3. {
4.     public static void main(String args[])
5.     {
6.         ArrayList obj = new ArrayList();
7.         obj.add("A");
8.         obj.add("B");
```



```
9.         obj.add("C");
10.                obj.add(1, "D");
11.                System.out.println(obj);
12.                }
13.        }
```

- a) [A, B, C, D]
- b) [A, D, B, C]
- c) [A, D, C]
- d) [A, B, C]

Answer: b

Explanation: obj is an object of class ArrayList hence it is an dynamic array which can increase and decrease its size. obj.add("X") adds to the array element X and obj.add(1,"X") adds element x at index position 1 in the list, Hence obj.add(1,"D") stores D at index position 1 of obj and shifts the previous value stored at that position by 1.

Output:

```
$ javac ArrayList.java
$ java ArrayList
[A, D, B, C].
```

15. What will be the output of the following Java program?

```
1.  import java.util.*;
2.  class Output
3.  {
4.      public static void main(String args[])
5.      {
6.          ArrayList obj = new ArrayList();
7.          obj.add("A");
8.          obj.add(0, "B");
9.          System.out.println(obj.size());
10.         }
11.     }
```

- a) 0

- b) 1
- c) 2
- d) Any Garbage Value

Answer: c

Explanation: None.

Output:

```
$ javac Output.java
$ java Output
2
```

16. What will be the output of the following Java program?

```
1.  import java.util.*;
2.  class Output
3.  {
4.      public static void main(String args[])
5.      {
6.          ArrayList obj = new ArrayList();
7.          obj.add("A");
8.          obj.ensureCapacity(3);
9.          System.out.println(obj.size());
10.     }
11. }
```

- a) 1
- b) 2
- c) 3
- d) 4

Answer: a

Explanation: Although `obj.ensureCapacity(3);` has manually increased the capacity of `obj` to 3 but the value is stored only at index 0, therefore `obj.size()` returns the total number of elements stored in the `obj` i:e 1, it has nothing to do with `ensureCapacity()`.

Output:

```
$ javac Output.java
```

```
$ java Output
```

```
1
```

17. What will be the output of the following Java program?

```
1.  class Output
2.  {
3.      public static void main(String args[])
4.      {
5.          ArrayList obj = new ArrayList();
6.          obj.add("A");
7.          obj.add("D");
8.          obj.ensureCapacity(3);
9.          obj.trimToSize();
10.             System.out.println(obj.size());
11.         }
12.     }
```

- a) 1
- b) 2
- c) 3
- d) 4

Answer: b

Explanation: trimToSize() is used to reduce the size of the array that underlines an ArrayList object.

Output:

```
$ javac Output.java
```

```
$ java Output
```

```
2
```

18. What is the default clone of HashSet?

- a) Deep clone
- b) Shallow clone
- c) Plain clone



d) Hollow clone

Answer: b

Explanation: Default clone() method uses shallow copy. The internal elements are not cloned. A shallow copy only copies the reference object.

19. Do we have get(Object o) method in HashSet.

a) True

b) False

Answer: b

Explanation: get(Object o) method is useful when we want to compare objects based on the comparison of values. HashSet does not provide any way to compare objects. It just guarantees unique objects stored in the collection.

20. What does Collections.emptySet() return?

a) Immutable Set

b) Mutable Set

c) The type of Set depends on the parameter passed to the emptySet() method

d) Null object

Answer: a

Explanation: Immutable Set is useful in multithreaded environment. One does not need to declare generic type collection. It is inferred by the context of method call.

21. What are the initial capacity and load factor of HashSet?

a) 10, 1.0

b) 32, 0.75

c) 16, 0.75

d) 32, 1.0

Answer: c

Explanation: We should not set the initial capacity too high and load factor too low if iteration performance is needed.



22. What is the relation between hashset and hashmap?

- a) HashSet internally implements HashMap
- b) HashMap internally implements HashSet
- c) HashMap is the interface; HashSet is the concrete class
- d) HashSet is the interface; HashMap is the concrete class

Answer: a

Explanation: HashSet is implemented to provide uniqueness feature which is not provided by HashMap. This also reduces code duplication and provides the memory efficient behavior of HashMap.

23. Set has contains(Object o) method.

- a) True
- b) False

Answer: a

Explanation: Set has contains(Object o) method instead of get(Object o) method as get is needed for comparing object and getting corresponding value.

24. What is the difference between TreeSet and SortedSet?

- a) TreeSet is more efficient than SortedSet
- b) SortedSet is more efficient than TreeSet
- c) TreeSet is an interface; SortedSet is a concrete class
- d) SortedSet is an interface; TreeSet is a concrete class

Answer: d

Explanation: SortedSet is an interface. It maintains an ordered set of elements. TreeSet is an implementation of SortedSet.

25. What happens if two threads simultaneously modify TreeSet?

- a) ConcurrentModificationException is thrown
- b) Both threads can perform action successfully
- c) FailFastException is thrown
- d) IteratorModificationException is thrown



Answer: a

Explanation: TreeSet provides fail-fast iterator. Hence when concurrently modifying TreeSet it throws ConcurrentModificationException.

26. What is the unique feature of LinkedHashSet?

- a) It is not a valid class
- b) It maintains the insertion order and guarantees uniqueness
- c) It provides a way to store key values with uniqueness
- d) The elements in the collection are linked to each other

Answer: b

Explanation: Set is a collection of unique elements. HashSet has the behavior of Set and stores key value pairs. The LinkedHashSet stores the key value pairs in the order of insertion.

27. Map implements collection interface?

- a) True
- b) False

Answer: b

Explanation: Collection interface provides add, remove, search or iterate while map has clear, get, put, remove, etc.

28. Which of the below does not implement Map interface?

- a) HashMap
- b) Hashtable
- c) EnumMap
- d) Vector

Answer: d

Explanation: Vector implements AbstractList which internally implements Collection. Others come from implementing the Map interface.

29. What is the premise of equality for IdentityHashMap?

- a) Reference equality



- b) Name equality
- c) Hashcode equality
- d) Length equality

Answer: a

Explanation: IdentityHashMap is rarely used as it violates the basic contract of implementing equals() and hashCode() method.

30. What happens if we put a key object in a HashMap which exists?

- a) The new object replaces the older object
- b) The new object is discarded
- c) The old object is removed from the map
- d) It throws an exception as the key already exists in the map

Answer: a

Explanation: HashMap always contains unique keys. If same key is inserted again, the new object replaces the previous object.

31. While finding the correct location for saving key value pair, how many times the key is hashed?

- a) 1
- b) 2
- c) 3
- d) unlimited till bucket is found

Answer: b

Explanation: The key is hashed twice; first by hashCode() of Object class and then by internal hashing method of HashMap class.

32. Is hashmap an ordered collection.

- a) True
- b) False

Answer: b

Explanation: Hashmap outputs in the order of hashcode of the keys. So it is unordered but will always have same result for same set of keys.

33. If two threads access the same hashmap at the same time, what would happen?

- a) ConcurrentModificationException
- b) NullPointerException
- c) ClassNotFoundException
- d) RuntimeException

Answer: a

Explanation: The code will throw ConcurrentModificationException if two threads access the same hashmap at the same time.

34. What will be the output of the following Java code snippet?

```
1. public class Demo
2. {
3.     public static void main(String[] args)
4.     {
5.         Map<Integer, Object> sampleMap = new TreeMap<Integer, Object>();
6.         sampleMap.put(1, null);
7.         sampleMap.put(5, null);
8.         sampleMap.put(3, null);
9.         sampleMap.put(2, null);
10.             sampleMap.put(4, null);
11.
12.             System.out.println(sampleMap);
13.     }
14. }
```

- a) {1=null, 2=null, 3=null, 4=null, 5=null}
- b) {5=null}
- c) Exception is thrown
- d) {1=null, 5=null, 3=null, 2=null, 4=null}

Answer: a

Explanation: HashMap needs unique keys. TreeMap sorts the keys while storing objects.

35. If large number of items are stored in hash bucket, what happens to the internal structure?

- a) The bucket will switch from LinkedList to BalancedTree
- b) The bucket will increase its size by a factor of load size defined
- c) The LinkedList will be replaced by another hashmap
- d) Any further addition throws Overflow exception

Answer: a

Explanation: BalancedTree will improve performance from $O(n)$ to $O(\log n)$ by reducing hash collisions.



1. When does Exceptions in Java arises in code sequence?

- a) Run Time
- b) Compilation Time
- c) Can Occur Any Time
- d) None of the mentioned

Answer: a

Explanation: Exceptions in Java are run-time errors.



2. Which of these keywords is not a part of exception handling?

- a) try
- b) finally
- c) thrown
- d) catch

Answer: c

Explanation: Exceptional handling is managed via 5 keywords – try, catch, throws, throw and finally.

3. Which of these keywords must be used to monitor for exceptions?

- a) try
- b) finally
- c) throw
- d) catch

Answer: a

Explanation: None.

4. Which of these keywords must be used to handle the exception thrown by try block in some rational manner?

- a) try
- b) finally
- c) throw
- d) catch

Answer: d

Explanation: If an exception occurs within the try block, it is thrown and caught by catch block for processing.

5. Which of these keywords is used to manually throw an exception?

- a) try
- b) finally

c) throw

d) catch

Answer: c

Explanation: None.

6. What will be the output of the following Java program?

```
1.  class exception_handling
2.  {
3.      public static void main(String args[])
4.      {
5.          try
6.          {
7.              System.out.print("Hello" + " " + 1 / 0);
8.          }
9.          catch (ArithmeticException e)
10.         {
11.             System.out.print("World");
12.         }
13.     }
14. }
```

a) Hello

b) World

c) HelloWorld

d) Hello World

Answer: b

Explanation: System.out.print() function first converts the whole parameters into a string and then prints, before "Hello" goes to output stream 1 / 0 error is encountered which is caught by catch block printing just "World".

Output:

```
$ javac exception_handling.java
$ java exception_handling
World
```

7. What will be the output of the following Java program?

```
1.  class exception_handling
2.  {
3.      public static void main(String args[])
4.      {
5.          try
6.          {
7.              int a, b;
8.              b = 0;
9.              a = 5 / b;
10.                 System.out.print("A");
11.            }
12.            catch (ArithmeticException e)
13.            {
14.                System.out.print("B");
15.            }
16.        }
17.    }
```

- a) A
- b) B
- c) Compilation Error
- d) Runtime Error

Answer: b

Explanation: None.

Output:

```
$ javac exception_handling.java
$ java exception_handling
B
```

8. What will be the output of the following Java program?

```
1.  class exception_handling
2.  {
3.      public static void main(String args[])
4.      {
5.          try
6.          {
7.              int a, b;
8.              b = 0;
9.              a = 5 / b;
10.                 System.out.print("A");
11.            }
12.            catch (ArithmeticException e)
13.            {
14.                System.out.print("B");
15.            }
16.            finally
17.            {
18.                System.out.print("C");
19.            }
20.        }
21.    }
```

- a) A
- b) B
- c) AC
- d) BC

Answer: d

Explanation: finally keyword is used to execute the code before try and catch block end.

Output:

```
$ javac exception_handling.java
```

```
$ java exception_handling  
BC
```

9. What will be the output of the following Java program?

```
1.  class exception_handling  
2.  {  
3.      public static void main(String args[])  
4.      {  
5.          try  
6.          {  
7.              int i, sum;  
8.              sum = 10;  
9.              for (i = -1; i < 3 ;++i)  
10.                 sum = (sum / i);  
11.             }  
12.             catch (ArithmeticException e)  
13.             {  
14.                 System.out.print("0");  
15.             }  
16.             System.out.print(sum);  
17.         }  
18.     }
```

- a) 0
- b) 05
- c) Compilation Error
- d) Runtime Error

Answer: c

Explanation: Value of variable sum is printed outside of try block, sum is declared only in try block, outside try block it is undefined.

Output:

```
$ javac exception_handling.java  
Exception in thread "main" java.lang.Error: Unresolved compilation problem:  
    sum cannot be resolved to a variable
```



10. Which of these keywords must be used to handle the exception thrown by try block in some rational manner?

- a) try
- b) finally
- c) throw
- d) catch

Answer: d

Explanation: If an exception occurs within the try block, it is thrown and caught by catch block for processing.

11. What is the use of try & catch?

- a) It allows us to manually handle the exception
- b) It allows to fix errors
- c) It prevents automatic terminating of the program in cases when an exception occurs
- d) All of the mentioned

Answer: d

Explanation: None.

12. Which of these keywords are used for the block to be examined for exceptions?

- a) try
- b) catch
- c) throw
- d) check

Answer: a

Explanation: try is used for the block that needs to be checked for exception.



13. Which of these keywords are used for the block to handle the exceptions generated by try block?

- a) try
- b) catch
- c) throw
- d) check

Answer: b

Explanation: None.

14. Which of these keywords are used for generating an exception manually?

- a) try
- b) catch
- c) throw
- d) check

Answer: c

Explanation: None.

15. Which of these statements is incorrect?

- a) try block need not to be followed by catch block
- b) try block can be followed by finally block instead of catch block
- c) try can be followed by both catch and finally block
- d) try need not to be followed by anything

Answer: d

Explanation: try must be followed by either catch or finally block.

16. What will be the output of the following Java code?

```
1.   class Output
2.   {
3.       public static void main(String args[])
```



```
4.     {
5.         try
6.         {
7.             int a = 0;
8.             int b = 5;
9.             int c = b / a;
10.                System.out.print("Hello");
11.        }
12.        catch (Exception e)
13.        {
14.            System.out.print("World");
15.        }
16.    }
17. }
```

- a) Hello
- b) World
- c) HelloWorld
- d) Compilation Error

View Answer

Answer: b

Explanation: None.

Output:

```
$ javac Output.javac
java Output
World
```

17. What will be the output of the following Java code?

```
1.     class Output
2.     {
3.         public static void main(String args[])
4.         {
5.             try
6.             {
```

```
7.         int a = 0;
8.         int b = 5;
9.         int c = a / b;
10.                System.out.print("Hello");
11.        }
12.        catch (Exception e)
13.        {
14.                System.out.print("World");
15.        }
16.    }
17. }
```

- a) Hello
- b) World
- c) HelloWOrld
- d) Compilation Error

Answer: a

Explanation: None.

Output:

```
$ javac Output.javac
java Output
Hello
```

18. What will be the output of the following Java code?

```
1.  class Output
2.  {
3.      public static void main(String args[])
4.      {
5.          try
6.          {
7.              int a = 0;
8.              int b = 5;
9.              int c = b / a;
10.                 System.out.print("Hello");
```

```
11.         }
12.     }
13. }
```

- a) Hello
- b) World
- c) HelloWOrld
- d) Compilation Error

Answer: d

Explanation: try must be followed by either catch or finally

Output:

```
$ javac Output.javac
Exception in thread "main" java.lang.Error: Unresolved compilation problem:
    Syntax error, insert "Finally" to complete BlockStatements
```

19. What will be the output of the following Java code?

```
1.  class Output
2.  {
3.      public static void main(String args[])
4.      {
5.          try
6.          {
7.              int a = 0;
8.              int b = 5;
9.              int c = a / b;
10.             System.out.print("Hello");
11.         }
12.         finally
13.         {
14.             System.out.print("World");
15.         }
16.     }
17. }
```

- a) Hello

- b) World
- c) HelloWOrld
- d) Compilation Error

View Answer

Answer: c

Explanation: finally block is always executed after try block, no matter exception is found or not.

Output:

```
$ javac Output.javac
java Output
HelloWorld
```

20. What will be the output of the following Java code?

```
1.  class Output
2.  {
3.      public static void main(String args[])
4.      {
5.          try
6.          {
7.              int a = 0;
8.              int b = 5;
9.              int c = b / a;
10.                 System.out.print("Hello");
11.             }
12.             catch (Exception e)
13.             {
14.                 System.out.print("World");
15.             }
16.             finally
17.             {
18.                 System.out.print("World");
19.             }
20.         }
21.     }
```



- a) Hello
- b) World
- c) HelloWorld
- d) WorldWorld

Answer: d

Explanation: finally block is always executed after tryblock, no matter exception is found or not. catch block is executed only when exception is found. Here divide by zero exception is found hence both catch and finally are executed.

Output:

```
$ javac Output.javac
java Output
WorldWorld
```

21. Which of these clause will be executed even if no exceptions are found?

- a) throws
- b) finally
- c) throw
- d) catch

Answer: b

Explanation: finally keyword is used to define a set of instructions that will be executed irrespective of the exception found or not.

22. A single try block must be followed by which of these?

- a) finally
- b) catch
- c) finally & catch
- d) none of the mentioned

Answer: c

Explanation: try block can be followed by any of finally or catch block, try block checks for exceptions and work is performed by finally and catch block as per the exception.

23. Which of these exceptions handles the divide by zero error?

- a) ArithmeticException
- b) MathException
- c) IllegalAccessException
- d) IllegalException

Answer: a

Explanation: None.

24. Which of these exceptions will occur if we try to access the index of an array beyond its length?

- a) ArithmeticException
- b) ArrayException
- c) ArrayIndexException
- d) ArrayIndexOutOfBoundsException

Answer: d

Explanation: ArrayIndexOutOfBoundsException is a built in exception that is caused when we try to access an index location which is beyond the length of an array.

25. What will be the output of the following Java code?

```
1.  class exception_handling
2.  {
3.      public static void main(String args[])
4.      {
5.          try
6.          {
7.              int a = args.length;
8.              int b = 10 / a;
9.              System.out.print(a);
10.         }
11.         catch (ArithmeticException e)
12.         {
13.             System.out.println("1");
```

```
14.         }
15.     }
16. }
```

Note : Execution command line : \$ java exception_handling

- a) 0
- b) 1
- c) Compilation Error
- d) Runtime Error

Answer: b

Explanation: None.

Output:

```
$ javac exception_handling.java
$ java exception_handling
1
```

26. What will be the output of the following Java code?

```
1.  class exception_handling
2.  {
3.      public static void main(String args[])
4.      {
5.          try
6.          {
7.              throw new NullPointerException ("Hello");
8.          }
9.          catch(ArithmeticException e)
10.         {
11.             System.out.print("B");
12.         }
13.     }
14. }
```

- a) A
- b) B

c) Compilation Error

d) Runtime Error

Answer: d

Explanation: Try block is throwing NullPointerException but the catch block is used to counter Arithmetic Exception. Hence NullPointerException occurs since no catch is there which can handle it, runtime error occurs.

Output:

```
$ javac exception_handling.java
$ java exception_handling
Exception in thread "main" java.lang.NullPointerException: Hello
```

27. What will be the output of the following Java code?

```
1. class exception_handling
2.     {
3.         public static void main(String args[])
4.         {
5.             try
6.             {
7.                 int a = 1;
8.                 int b = 10 / a;
9.                 try
10.                {
11.                    if (a == 1)
12.                        a = a / a - a;
13.                    if (a == 2)
14.                    {
15.                        int c[] = {1};
16.                        c[8] = 9;
17.                    }
18.                }
19.                finally
20.                {
21.                    System.out.print("A");
22.                }

```



```
23.         }
24.         catch (Exception e)
25.         {
26.             System.out.println("B");
27.         }
28.     }
29. }
```

- a) A
- b) B
- c) AB
- d) BA

Answer: a

Explanation: The inner try block does not have a catch which can tackle `ArrayIndexOutOfBoundsException` hence finally is executed which prints 'A' the outer try block does have catch for `ArrayIndexOutOfBoundsException` exception but no such exception occurs in it hence its catch is never executed and only 'A' is printed.

Output:

```
$ javac exception_handling.java
$ java exception_handling
A
```

28. What will be the output of the following Java code?

```
1.  class exception_handling
2.  {
3.      public static void main(String args[])
4.      {
5.          try
6.          {
7.              int a = args.length;
8.              int b = 10 / a;
9.              System.out.print(a);
10.         }
11.     }
```

```
12.         if (a == 1)
13.             a = a / a - a;
14.         if (a == 2)
15.         {
16.             int []c = {1};
17.             c[8] = 9;
18.         }
19.     }
20.     catch (ArrayIndexOutOfBoundsException e)
21.     {
22.         System.out.println("TypeA");
23.     }
24.     catch (ArithmeticException e)
25.     {
26.         System.out.println("TypeB");
27.     }
28. }
29. }
```

Note: Execution command line: \$ java exception_handling one two

- a) TypeA
- b) TypeB
- c) Compilation Error
- d) Runtime Error

Answer: c

Explanation: try without catch or finally

Output:

```
$ javac exception_handling.java
$ java exception_handling
Main.java:9: error: 'try' without 'catch', 'finally' or resource declarations
```

Unit 5 : Applet, AWT and Swing Programming



1. Which of these functions is called to display the output of an applet?

- a) display()
- b) paint()
- c) displayApplet()
- d) PrintApplet()

Answer: b

Explanation: Whenever the applet requires to redraw its output, it is done by using method paint().

2. Which of these methods can be used to output a string in an applet?

- a) display()
- b) print()
- c) drawString()
- d) transient()

Answer: c

Explanation: drawString() method is defined in Graphics class, it is used to output a string in an applet.



3. Which of these methods is a part of Abstract Window Toolkit (AWT) ?

- a) display()
- b) paint()
- c) drawString()
- d) transient()

Answer: b

Explanation: paint() is an abstract method defined in AWT.

4. Which of these modifiers can be used for a variable so that it can be accessed from any thread or parts of a program?

- a) transient
- b) volatile
- c) global
- d) No modifier is needed

Answer: b

Explanation: The volatile modifier tells the compiler that the variable modified by volatile can be changed unexpectedly by other part of the program. Specially used in situations involving multithreading.

5. Which of these operators can be used to get run time information about an object?

- a) getInfo
- b) Info
- c) instanceof
- d) getinfoof

Answer: c

Explanation: None.

6. What is the Message is displayed in the applet made by the following Java program?

```
1. import java.awt.*;
2. import java.applet.*;
3. public class myapplet extends Applet
4. {
5.     public void paint(Graphics g)
6.     {
7.         g.drawString("A Simple Applet", 20, 20);
8.     }
9. }
```

- a) A Simple Applet
- b) A Simple Applet 20 20
- c) Compilation Error
- d) Runtime Error

Answer: a

Explanation: None.

Output:

A Simple Applet

(Output comes in a new java application)

7. What is the length of the application box made by the following Java program?

```
1. import java.awt.*;
2. import java.applet.*;
3. public class myapplet extends Applet
4. {
5.     public void paint(Graphics g)
6.     {
7.         g.drawString("A Simple Applet", 20, 20);
8.     }
```

9. }

- a) 20
- b) 50
- c) 100
- d) System dependent

Answer: a

Explanation: the code in pain() method – g.drawString(“A Simple Applet”,20,20); draws a applet box of length 20 and width 20.

8. What is the length of the application box made the following Java program?

```
1.        import java.awt.*;
2.        import java.applet.*;
3.        public class myapplet extends Applet
4.        {
5.            Graphic g;
6.            g.drawString("A Simple Applet", 20, 20);
7.        }
```

- a) 20
- b) Default value
- c) Compilation Error
- d) Runtime Error

Answer: c

Explanation: To implement the method drawString we need first need to define abstract method of AWT that is paint() method. Without paint() method we can not define and use drawString or any Graphic class methods.

9. What will be the output of the following Java program?

```
1.        import java.io.*;
2.        class Chararrayinput
```

```
3.     {
4.         public static void main(String[] args)
5.         {
6.             String obj = "abcdefghg";
7.             int length = obj.length();
8.             char c[] = new char[length];
9.             obj.getChars(0, length, c, 0);
10.            CharArrayReader input1 = new CharArrayReader(c);
11.            CharArrayReader input2 = new CharArrayReader(c, 1, 4);
12.            int i;
13.            int j;
14.            try
15.            {
16.                while((i = input1.read()) == (j = input2.read()))
17.                {
18.                    System.out.print((char)i);
19.                }
20.            }
21.            catch (IOException e)
22.            {
23.                e.printStackTrace();
24.            }
25.        }
26.    }
```

- a) abc
- b) abcd
- c) abcde
- d) none of the mentioned

Answer: d

Explanation: No output is printed. CharArrayReader object input1 contains string "abcdefghg" whereas object input2 contains string "bcde", when while((i=input1.read())==(j=input2.read())) is executed the starting character of each object is compared since they are unequal control comes out of loop and nothing is printed on the screen.

Output:



```
$ javac Chararrayinput.java  
$ java Chararrayinput
```

10. Which of these modifiers can be used for a variable so that it can be accessed from any thread or parts of a program?

- a) transient
- b) volatile
- c) global
- d) No modifier is needed

Answer: b

Explanation: The volatile modifier tells the compiler that the variable modified by volatile can be changed unexpectedly by other part of the program. Specially used in situations involving multithreading.

11. Which of the following is not OOPS concept in Java?

- a) Inheritance
- b) Encapsulation
- c) Polymorphism
- d) Compilation

Answer: d

Explanation: There are 4 OOPS concepts in Java. Inheritance, Encapsulation, Polymorphism and Abstraction.

12. Which of the following is a type of polymorphism in Java?

- a) Compile time polymorphism
- b) Execution time polymorphism
- c) Multiple polymorphism
- d) Multilevel polymorphism

Answer: a

Explanation: There are two types of polymorphism in Java. Compile time polymorphism (overloading) and runtime polymorphism (overriding).



13. When does method overloading is determined?

- a) At run time
- b) At compile time
- c) At coding time
- d) At execution time

Answer: b

Explanation: Overloading is determined at compile time. Hence, it is also known as compile time polymorphism.

14. When Overloading does not occur?

- a) More than one method with same name but different method signature and different number or type of parameters
- b) More than one method with same name, same signature but different number of signature
- c) More than one method with same name, same signature, same number of parameters but different type
- d) More than one method with same name, same number of parameters and type but different signature

Answer: d

Explanation: Overloading occurs when more than one method with same name but different constructor and also when same signature but different number of parameters and/or parameter type.

15. Which concept of Java is a way of converting real world objects in terms of class?

- a) Polymorphism
- b) Encapsulation
- c) Abstraction
- d) Inheritance

Answer: c

Explanation: Abstraction is the concept of defining real world objects in terms of classes or interfaces.



16. Which concept of Java is achieved by combining methods and attribute into a class?

- a) Encapsulation
- b) Inheritance
- c) Polymorphism
- d) Abstraction

Answer: a

Explanation: Encapsulation is implemented by combining methods and attribute into a class. The class acts like a container of encapsulating properties.

17. What is it called if an object has its own lifecycle and there is no owner?

- a) Aggregation
- b) Composition
- c) Encapsulation
- d) Association

Answer: d

Explanation: It is a relationship where all objects have their own lifecycle and there is no owner. This occurs where many to many relationships are available, instead of one to one or one to many.

18. What is it called where child object gets killed if parent object is killed?

- a) Aggregation
- b) Composition
- c) Encapsulation
- d) Association

Answer: b

Explanation: Composition occurs when child object gets killed if parent object gets killed. Aggregation is also known as strong Aggregation.

19. What is it called where object has its own lifecycle and child object cannot belong to another parent object?

- a) Aggregation
- b) Composition



c) Encapsulation

d) Association

Answer: a

Explanation: Aggregation occurs when objects have their own life cycle and child object can associate with only one parent object.

20. Method overriding is combination of inheritance and polymorphism?

a) True

b) false

Answer: a

Explanation: In order for method overriding, method with same signature in both superclass and subclass is required with same signature. That satisfies both concepts inheritance and polymorphism.

21. Which of these operators is used to allocate memory to array variable in Java?

a) malloc

b) alloc

c) new

d) new malloc

Answer: c

Explanation: Operator new allocates a block of memory specified by the size of an array, and gives the reference of memory allocated to the array variable.

22. Which of these is an incorrect array declaration?

a) `int arr[] = new int[5]`

b) `int [] arr = new int[5]`

c) `int arr[] = new int[5]`

d) `int arr[] = int [5] new`

Answer: d

Explanation: Operator new must be succeeded by array type and array size.



23. What will be the output of the following Java code?

```
int arr[] = new int [5];  
System.out.print(arr);
```

- a) 0
- b) value stored in arr[0]
- c) 00000
- d) Class name@ hashCode in hexadecimal form

Answer: d

Explanation: If we trying to print any reference variable internally, toString() will be called which is implemented to return the String in following form:

classname@hashCode in hexadecimal form

24. Which of these is an incorrect Statement?

- a) It is necessary to use new operator to initialize an array
- b) Array can be initialized using comma separated expressions surrounded by curly braces
- c) Array can be initialized when they are declared
- d) None of the mentioned

Answer: a

Explanation: Array can be initialized using both new and comma separated expressions surrounded by curly braces example : int arr[5] = new int[5]; and int arr[] = { 0, 1, 2, 3, 4};

25. Which of these is necessary to specify at time of array initialization?

- a) Row
- b) Column
- c) Both Row and Column
- d) None of the mentioned

Answer: a

Explanation: None.

26. What will be the output of the following Java code?

```
14.      class array_output
15.      {
16.          public static void main(String args[])
17.          {
18.              int array_variable [] = new int[10];
19.              for (int i = 0; i < 10; ++i)
20.              {
21.                  array_variable[i] = i;
22.                  System.out.print(array_variable[i] + " ");
23.                  i++;
24.              }
25.          }
26.      }
```

- a) 0 2 4 6 8
- b) 1 3 5 7 9
- c) 0 1 2 3 4 5 6 7 8 9
- d) 1 2 3 4 5 6 7 8 9 10

Answer: a

Explanation: When an array is declared using new operator then all of its elements are initialized to 0 automatically. for loop body is executed 5 times as whenever controls comes in the loop i value is incremented twice, first by i++ in body of loop then by ++i in increment condition of for loop.

output:

```
$ javac array_output.java
$ java array_output
0 2 4 6 8
```

27. What will be the output of the following Java code?

```
19.      class multidimention_array
20.      {
21.          public static void main(String args[])
22.          {
23.              int arr[][] = new int[3][];
24.              arr[0] = new int[1];
25.              arr[1] = new int[2];
26.              arr[2] = new int[3];
27.              int sum = 0;
28.              for (int i = 0; i < 3; ++i)
29.                  for (int j = 0; j < i + 1; ++j)
30.                      arr[i][j] = j + 1;
31.              for (int i = 0; i < 3; ++i)
32.                  for (int j = 0; j < i + 1; ++j)
33.                      sum += arr[i][j];
34.              System.out.print(sum);
35.          }
36.      }
```

- a) 11
- b) 10
- c) 13
- d) 14

Answer: b

Explanation: arr[][] is a 2D array, array has been allotted memory in parts. 1st row contains 1 element, 2nd row contains 2 elements and 3rd row contains 3 elements. each element of array is given i + j value in loop. sum contains addition of all the elements of the array.

output:

```
$ javac multidimention_array.java
$ java multidimention_array
10
```



28. What is Remote method invocation (RMI)?

- a) RMI allows us to invoke a method of java object that executes on another machine.
- b) RMI allows us to invoke a method of java object that executes on another Thread in multithreaded programming.
- c) RMI allows us to invoke a method of java object that executes parallely in same machine.
- d) None of the mentioned

Answer: a

Explanation: Remote method invocation or RMI allows us to invoke a method of java object that executes on another machine..

29. Which of these package is used for remote method invocation?

- a) java.applet
- b) java.rmi
- c) java.lang.rmi
- d) java.lang.reflect

Answer: b

30. Which of these methods are member of Remote class?

- a) checkIP()
- b) addLocation()
- c) AddServer()
- d) None of the mentioned

Answer: d

Explanation: Remote class does not define any methods, its pupose is simply to indicate that an interface uses remote methods.



31. Which of these Exceptions is thrown by remote method?

- a) RemoteException
- b) InputOutputException
- c) RemoteAccessException
- d) RemoteInputOutputException

Answer: a

Explanation: All remote methods throw RemoteException.

32. Which of these class is used for creating a client for a server-client operations?

- a) serverClientjava
- b) Client.java
- c) AddClient.java
- d) ServerClient.java

Answer: c

33. Which of these package is used for all the text related modifications?

- a) java.text
- b) java.awt
- c) java.lang.text
- d) java.text.mofify

Answer: a

Explanation: java.text provides capabilities for formatting, searching and manipulating text.

34. What is the output of this program?

```
1. import java.lang.reflect.*;
2. class Additional_packages {
3.     public static void main(String args[]) {
4.         try {
5.             Class c = Class.forName("java.awt.Dimension");
6.             Constructor constructors[] = c.getConstructors();
7.             for (int i = 0; i < constructors.length; i++)
```



```
8.      System.out.println(constructors[i]);
9.      }
10.     catch (Exception e){
11.         System.out.print("Exception");
12.     }
13.     }
14.     }
```

- a) Program prints all the constructors of 'java.awt.Dimension' package.
 - b) Program prints all the possible constructors of class 'Class'.
 - c) Program prints "Exception"
 - d) Runtime Error
- Answer: a

35. What is the output of this program?

```
1.      import java.lang.reflect.*;
2.      class Additional_packages {
3.          public static void main(String args[]) {
4.              try {
5.                  Class c = Class.forName("java.awt.Dimension");
6.                  Field fields[] = c.getFields();
7.                  for (int i = 0; i < fields.length; i++)
8.                      System.out.println(fields[i]);
9.              }
10.         catch (Exception e){
11.             System.out.print("Exception");
12.         }
13.     }
14.     }
```

- a) Program prints all the constructors of 'java.awt.Dimension' package.
 - b) Program prints all the methods of 'java.awt.Dimension' package.
 - c) Program prints all the data members of 'java.awt.Dimension' package.
 - d) program prints all the methods and data member of 'java.awt.Dimension' package.
- Answer: c

36. What is the length of the application box made by this program?

```
1.      import java.awt.*;
2.      import java.applet.*;
3.      public class myapplet extends Applet {
4.          Graphic g;
```

```
5.         g.drawString("A Simple Applet",20,20);
6.         }
```

- a) 20
- b) Default value
- c) Compilation Error
- d) Runtime Error

Answer: c

Explanation: To implement the method drawString we need first need to define abstract method of AWT that is paint() method. Without paint() method we cannot define and use drawString or any Graphic class methods.

37. What is the output of this program?

```
1.         import java.lang.reflect.*;
2.         class Additional_packages {
3.             public static void main(String args[]) {
4.                 try {
5.                     Class c = Class.forName("java.awt.Dimension");
6.                     Method methods[] = c.getMethods();
7.                     for (int i = 0; i < methods.length; i++)
8.                         System.out.println(methods[i]);
9.                 }
10.            catch (Exception e){
11.                System.out.print("Exception");
12.            }
13.        }
14.    }
```

- a) Program prints all the constructors of 'java.awt.Dimension' package.
- b) Program prints all the methods of 'java.awt.Dimension' package.
- c) Program prints all the data members of 'java.awt.Dimension' package.
- d) program prints all the methods and data member of 'java.awt.Dimension' package.

Answer: b