Question Bank for Multiple Choice Questions

Program: Diploma in Computer engineering	**Program Code:- CO**
Scheme:-I	**Semester:- 4**
Course:- Java Programming	**Course Code:- 22412**

01 – Basic Syntactical constructs in Java	**Marks:-10**

Content of Chapter:-

1.1 Java Features and the Java Programming Environment, Object Oriented, Compiled, Interpreted, Platform independent, Portable, Robust and Secure, Dynamic.

1.2 Defining a class, creating object, accessing class members

1.3 Java Tokens and Data types, Constants and Symbolic Constants, variables, dynamic initialization, data types, array and string, scope of variable, typecasting, and standard default values.

1.4 Operators and Expressions, Arithmetic Operators. Relational Operators, Logical Operators, Increment and Decrement, Conditional Operators, Bit wise Operators, Instance of Operators, Dot Operators, Operator precedence and associativity, Evaluation of Expressions, Type conversions in expressions, Mathematical Functions – min(),max(), sqrt(), pow(), exp(), round(), abs().

1.5 Decision making and looping: If statement, if else statement, nested if else statement, if else if ladder, the switch statement, nested switch statement, The ?:operator, The while statement, the Do while statement, the for statement, break, continue and return statement, nested loops, labeled loops, for-each version of the for loop.

1. **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.

2. **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).

3. **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, executable and binaries required to compile, debug and execute a Java Program.

4. **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".

5. What is the extension of java code files?
a) .class
b) .java
c) .txt
d) .js
Answer: b
Explanation: Java files have .java extension.

6. 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.

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

```
class mainclass
{
    public static void main(String args[])
    {
        char a = 'A';
        a++;
            System.out.print((int)a);
    }
}
```

a) 66
b) 67
c) 65
d) 64
Answer: a
Explanation: ASCII value of „A" is 65, on using ++ operator character value increments by one.

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

```
class booloperators
{
    public static void main(String args[])
    {
        boolean var1 = true;
            boolean var2 = false;
            System.out.println((var1 & var2));
    }
}
```

a) 0
b) 1
c) true
d) false

Answer: d
Explanation: boolean „&" operator always returns true or false. var1 is defined true and var2 is defined false hence their „&" operator result is false.

9. Which of the following can be operands of arithmetic operators?
a) Numeric
b) Boolean
c) Characters
d) Both Numeric & Characters
Answer: d
Explanation: The operand of arithmetic operators can be any of numeric or character type, But not boolean.

10. Modulus operator, %, can be applied to which of these?
a) Integers
b) Floating - point numbers
c) Both Integers and floating - point numbers
d) None of the mentioned
Answer: c
Explanation: Modulus operator can be applied to both integers and floating point numbers.

11. Decrement operator, −−, decreases the value of variable by what number?
a) 1
b) 2
c) 3
d) 4
Answer: a

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

```
class increment
{
    public static void main(String args[])
```

```
    {
        double var1 = 1 + 5;
        double var2 = var1 / 4;
        int var3 = 1 + 5;
        int var4 = var3 / 4;
        System.out.print(var2 + " " + var4);

    }
  }
```

a) 1 1
b) 0 1
c) 1.5 1
d) 1.5 1.0
Answer: c

13. Can 8 byte long data type be automatically type cast to 4 byte float data type?
a) True
b) False
Answer: a
Explanation: Both data types have different memory representation that"s why 8-byte integral data type can be stored to 4-byte floating point data type.

14. Which of these is not a bitwise operator?
a) &
b) &=
c) |=
d) <=
Answer: d
Explanation: <= is a relational operator.

15. Which operator is used to invert all the digits in a binary representation of a number?
a) ~
b) <<<
c) >>>
d) ^
Answer: a
Explanation: Unary not operator, ~, inverts all of the bits of its operand in binary representation.

16. Which of these statements are incorrect?
a) The left shift operator, <<, shifts all of the bits in a value to the left specified number of times
b) The right shift operator, >>, shifts all of the bits in a value to the right specified number of times
c) The left shift operator can be used as an alternative to multiplying by 2
d) The right shift operator automatically fills the higher order bits with 0
Answer: d
Explanation: The right shift operator automatically fills the higher order bit with its previous contents each time a shift occurs. This also preserves the sign of the value.

17. What is the output of relational operators?
a) Integer
b) Boolean
c) Characters
d) Double
Answer: b

18. What should be expression1 evaluate to in using ternary operator as in this line?
expression1 ? expression2 : expression3
a) Integer
b) Floating - point numbers
c) Boolean
d) None of the mentioned
Answer: c
Explanation: The controlling condition of ternary operator must evaluate to Boolean.

19. Which of these statements are incorrect?
a) Equal to operator has least precedence
b) Brackets () have highest precedence
c) Division operator, /, has higher precedence than multiplication operator
d) Addition operator, +, and subtraction operator have equal precedence
Answer: c
Explanation: Division operator, /, has equal precedence as of multiplication operator. In expression involving multiplication and division evaluation of expression will begin from the right side when no brackets are used.

20. Which of these selection statements test only for equality?
a) if
b) switch
c) if & switch
d) none of the mentioned
Answer: b
Explanation: Switch statements checks for equality between the controlling variable and its constant cases.

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

```
class selection_statements
{
   public static void main(String args[])
   {
      int var1 = 5;
      int var2 = 6;
      if ((var2 = 1) == var1)
         System.out.print(var2);
      else
         System.out.print(++var2);
```

```
      }
   }
```
a) 1
b) 2
c) 3
d) 4
Answer: b
Explanation: var2 is initialised to 1. The conditional statement returns false and the else part gets executed.

22. What would be the output of the following code if variable a=10?

```
if(a<=0)
{
  if(a==0)
  {
    System.out.println("1 ");
  }
  else
  {
     System.out.println("2 ");
  }
}
System.out.println("3 ");
```
a) 1 2
b) 2 3
c) 1 3
d) 3
Answer: d
Explanation: Since the first if condition is not met, control would not go inside if statement and hence only statement after the entire if block will be executed.

23. The while loop repeats a set of code while the condition is not met?
a) True
b) False
Answer: b
Explanation: While loop repeats a set of code only until the condition is met.

24. What is true about a break?
a) Break stops the execution of entire program
b) Break halts the execution and forces the control out of the loop
c) Break forces the control out of the loop and starts the execution of next iteration
d) Break halts the execution of the loop for certain time frame
Answer: b
Explanation: Break halts the execution and forces the control out of the loop.

25. What is true about do statement?
a) do statement executes the code of a loop at least once
b) do statement does not get execute if condition is not matched in the first iteration
c) do statement checks the condition at the beginning of the loop
d) do statement executes the code more than once always
Answer: a
Explanation: Do statement checks the condition at the end of the loop. Hence, code gets executed at least once.

26. Which of the following is used with the switch statement?
a) Continue
b) Exit
c) break
d) do
Answer: c
Explanation: Break is used with a switch statement to shift control out of switch.

27. What is the valid data type for variable "a" to print "Hello World"?
```
switch(a)
{
  System.out.println("Hello World");
}
```
a) int and float
b) byte and short
c) char and long
d) byte and char
Answer: d
Explanation: The switch condition would only meet if variable "a" is of type byte or char.

28. Which of the following is not a decision making statement?
a) if
b) if-else
c) switch
d) do-while
Answer: d
Explanation: do-while is an iteration statement. Others are decision making statements.

29. Which of the following is not a valid jump statement?
a) break
b) goto
c) continue
d) return
Answer: b
Explanation: break, continue and return transfer control to another part of the program and returns back to caller after execution. However, goto is marked as not used in Java.

30. From where break statement causes an exit?
a) Only from innermost loop
b) Terminates a program
c) Only from innermost switch
d) From innermost loops or switches
Answer: d
Explanation: The break statement causes an exit from innermost loop or switch.

31. Which of the following is not a valid flow control statement?
a) exit()
b) break
c) continue
d) return
Answer: a
Explanation: exit() is not a flow control statement in Java. exit() terminates the currently running JVM.

32. 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.

33. 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.

34. 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

35. 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};

36. 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.

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

```
class array_output
{
   public static void main(String args[])
   {
      int array_variable [] = new int[10];
          for (int i = 0; i < 10; ++i)
      {
         array_variable[i] = i;
         System.out.print(array_variable[i] + " ");
         i++;
      }
   }
}
```

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.

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

```
class multidimention_array
{
   public static void main(String args[])
   {
      int arr[][] = new int[3][];
```

```
        arr[0] = new int[1];
        arr[1] = new int[2];
        arr[2] = new int[3];
            int sum = 0;
            for (int i = 0; i < 3; ++i)
                for (int j = 0; j < i + 1; ++j)
                arr[i][j] = j + 1;
            for (int i = 0; i < 3; ++i)
                for (int j = 0; j < i + 1; ++j)
                sum + = arr[i][j];
            System.out.print(sum);
    }
  }
```

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.

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

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

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

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.

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

```
  class array_output
  {
     public static void main(String args[])
```

```
    {
        char array_variable [] = new char[10];
            for (int i = 0; i < 10; ++i)
        {
            array_variable[i] = 'i';
            System.out.print(array_variable[i] + "");
        }
    }
  }
```

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

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

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

a) 8
b) 9
c) 10
d) 11
Answer: b

02 – Derived Syntactical Constructors in Java	Marks:-18

Content of Chapter:-

2.1 Constructors & Methods, Types Of Constructors, Nesting Of Methods, argument passing the „this" keyword , Command Line Arguments, Varargs: Variable-Length Arguments, Garbage Collection, Finalize() Method, the object class

2.2 Visibility Control, Public, Private, Protected, Default, Friendly Private, Protected Access.

2.3 Arrays and Strings: Types of Arrays, Creating an Array, Strings, String Classes and String buffer, Vectors, Wrapper Classes, enumerated types

1. A Java constructor is like a method without___.

a) statements
b) return type
c) argument list
d) None

Answer: b

2. The name of a constructor and the name of a class are___.

a) Same
b) Different

Answer: a

3. The placement of a constructor inside a class should be___.

a) Always at the beginning of class
b) Always at the end of class
c) Anywhere in the class
d) None

Answer: c

4. The purpose of a Java constructor is___.

a) Initialization of variables with passed data
b) Writing custom code
c) Accepting other objects as inputs
d) All the above

Answer: d

5. Memory is allocated to an object once the execution of___is over in Java language.

a) main method
b) constructor
c) destructor
d) None

Answer: b

6. What is the output of the below Java program?

```
public class TestingConstructor
{
  void TestingConstructor()
  {
    System.out.println("Amsterdam");
  }
```

```
 TestingConstructor()
 {
  System.out.println("Antarctica");
 }

 public static void main(String[] args)
 {
  TestingConstructor tc = new TestingConstructor();
 }
}
```

a) Antarctica
b) Amsterdam
c) No output
d) Compiler error

Answer: a

Explanation:

Here the constructor is TestingConstructor() without return type.

7. In Java, a constructor with no parameters or no arguments is called____constructor.

a) Default constructor
b) User-defined constructor

Answer: a

8. In Java, a constructor with one or more arguments or parameters is called a____constructor.

a) Default constructor
b) User-defined constructor or Non-default constructor

Answer: b

9. The compiler adds a default no-argument constructor to a class if it____.

a) does not define a constructor at all.
b) defines at least one constructor with arguments

Answer: a

10. Overloading of constructors in Java means adding more than____constructors with the different argument list.

a) 1
b) 2
c) 3
d) 8

Answer: a

11. What is the output of the below Java program with constructors?

```
public class Constructor2
{
 int count=10;
 Constructor2(int count)
 {
  System.out.println("Count=" + count);
 }
```

```
  public static void main(String[] args)
  {
    Constructor2 con = new Constructor2();
  }
}
```

a) Count=0
b) Count=10
c) Compiler error
d) None of the above

Answer: c

Explanation:

If you write a constructor with arguments, the default constructor is not added by the compiler. You should add it explicitly.

12. A constructor can call another overloaded constructor using the____keyword in Java.

a) super
b) local
c) con
d) this

Answer: d

13. What is the output of the below Java program with overloaded constructors?

```
public class Constructor3
{
  int birds=10;
  Constructor3()
  {
    this(20);
  }
  Constructor3(int birds)
  {
    System.out.println("Birds=" + birds);
  }

  public static void main(String[] args)
  {
    Constructor3 con = new Constructor3();
  }
}
```

a) Birds=0
b) Birds=10
c) Birds=20
d) Compiler error

Answer: b

Explanation: You can pass parameters to another constructor.

14 In Java, you can pass___variables from one constructor to another overloaded constructor.
a) local variables
b) static variables
c) non-static variables
d) local and static variables
Answer: d

15. Choose the correct way of calling the second constructor from the first constructor in the below code options.
a)
```
Constructor5()
{
  int a=30;
  this('A');
}
Constructor5(char c)
{
 //
}
```
b)
```
Constructor5()
{
  int a=30;
  this('A');
  System.out.println("Success");
}
Constructor5(char c)
{
  //
}
```
c)
```
Constructor5()
{
  this('A');
  System.out.println("Success");
}
Constructor5(char c)
{
  //
}
```
d) All the above
Answer: c
Explanation: Only the first statement should call another constructor.

16. What is the output of the below Java program with many constructors?
```
public class Constructor7
{
  Constructor7(int a)
  {
```

```
   System.out.println("Book=" + a);
  }
  Constructor7(float a)
  {
   System.out.println("Pen="+ a );
  }
  public static void main(String[] args)
  {
   Constructor7 con = new Constructor7(50.5f);
  }
}
```

a) Book=50
b) Pen=50.5
c) Compiler error
d) None of the above

Answer: b

Explanation: Constructor overloading allows constructors with different arguments at the same time.

17. What is the output of the below Java program with many constructors?

```
public class Constructor8
{
  Constructor8(boolean a)
  {
   System.out.println("MODEM="+ a );
  }
  Constructor8(float a)
  {
   System.out.println("ROUTER=" + a);
  }
  public static void main(String[] args)
  {
   Constructor8 con1 = new Constructor8(50);
   Constructor8 con2 = new Constructor8(false);
  }
}
```

a)
ROUTER=50.0
MODEM=false
b)
ROUTER=50
MODEM=false
c) Compiler error
d) None

Answer: a

Explanation:
Java knows when to typecast a variable to a higher type like a float from int. So the number 50 is passed to a constructor accepting a float argument as there is no constructor accepting int argument above.

18. What is the output of the below Java program with overloaded constructors?

```
public class Jiraffe
{
  Jiraffe(int sugarcanes)
  {
    System.out.println("Eats "+ sugarcanes + " Sugarcanes");
  }
  Jiraffe(int age, int...sugarcanes)
  {
    System.out.println("Eats "+ sugarcanes[0] + " Sugarcanes");
  }
  public static void main(String[] args)
  {
    Jiraffe jiff2 = new Jiraffe(40);
    Jiraffe jiff = new Jiraffe(5,10);
  }
}
```

a)
2.Eats 40 Sugarcanes
2.Eats 10 Sugarcanes
b)
1.Eats 40 Sugarcanes
2.Eats 10 Sugarcanes
c) Compiler error
d) None
Answer: b
Explanation: Java supports using the varargs in constructors.

19. Choosing a suitable overloaded constructor happens at____time in Java.
a) Compile-time
b) Run time
Answer: b

20. Java constructor overloading follows____principle in Object-Oriented programming.
a) Inheritance
b) Encapsulation
c) Polymorphism
d) None
Answer: c
Explanation:
Overloading of constructors requires you to specify the same name to all constructors. So, it satisfies the polymorphism principle of Oops.

21. Java allows calling or invoking a method from a constructor. State TRUE or FALSE.
a) TRUE
b) FALSE
Answer: a

22. What is the output of the below Java program?

```
public class Constructor9
{
  Constructor9()
  {
    show();
  }
  void show()
  {
    System.out.println("JAM JAM");
  }
  public static void main(String[] args)
  {
    Constructor9 con = new Constructor9();
  }
}
```

a) JAM JAM
b) No output
c) Compiler error
d) None

Answer: a
Explanation: Invoking a method from within a constructor is allowed

23. Java Varargs are applicable only for___.

a) Constructors
b) Methods
c) Both Constructors and Methods
d) None

Answer: c
Explanation: Only constructors and methods accept arguments. So, Java Varargs are applicable only to these.

24. A Java-Vararg is nothing but____.

a) Variable number of arguments
b) Variable type of arguments
c) Variable size of arguments
d) All

Answer: a
Explanation: A Java Vararg represents simply a variable number of arguments.

25. A Java vararg is a____.

a) Method
b) Constructor
c) Variable
d) All

Answer: c
Explanation: A Java-Vararg represents a variable of a particular type.

26. A Java-Vararg can be of any type like primitive or object type. State TRUE or FALSE.

a) TRUE

b) FALSE

Answer: a

Explanation:

Yes. A Vararg can be a non-primitive or object type also along with a primitive type like byte, short, int, long, float, double etc.

27. A Java Vararg or Variable Argument can come at any position in a method or constructor. State TRUE or FALSE.

A) FALSE

B) TRUE

Answer: b

Explanation: A Vararg can come only as the last argument in the list of arguments of a constructor or method.

28. What is the output of the below java program with varargs?

```
public class Varargs1
{
  static void displayStudents(String... stu)
  {
    for(String s: stu)
      System.out.print(s + " ");
  }
  public static void main(String args[])
  {
    displayStudents("Bean", "Atkinson", "Milton");
  }
}
```

a) Bean Bean Bean

b) null null null

c) Bean Atkinson Milton

d) Compiler error

Answer: c

Explanation:

In the above example, the Vararg variable "stu" is of String array type. So, we have used a FOR loop to go through all the elements. We also use a NORMAL FOR loop with an index starting from 0.

29. What is the output of the below Java program with Variable arguments?

```
public class Varargs2
{
  void attendance(String... allStu)
  {
    System.out.println("Attended: " + allStu.length);
  }
  void attendance(boolean... all)
  {
    System.out.println("Attended: " + all.length);
```

```
  }
  public static void main(String args[])
  {
    new Varargs2().attendance();
  }
}
```

a) Attended: 0
b) Attended: 0
   Attended: 0
c) No Output
d) Compiler Error
Answer:d
Explanation:
Observe that there is no default constructor with 0 arguments. When no argument is passed, the compiler can not choose which attendance() method to choose. So it gives an error.

30. Which is the error thrown when two methods with varargs look the same to the compiler?
a) The method is ambiguous
b) The method is difficult to choose
c) The method signature is not correct
d) None
Answer:a
Explanation: The compiler simply gives an error when two methods look the same to the compiler for calls at compile time.

31. What is the output of the below Java program with Varargs?

```
public class Varargs3
{
  Varargs3(int... dates)
  {
    System.out.println("Inside Varargs(int...)");
  }
  Varargs3(boolean... yesno)
  {
    System.out.println("Inside Varargs(float...)");
  }
  public static void main(String[] args)
  {
    new Varargs3();
  }
}
```

a) Inside Varargs(int...)
b) Inside Varargs(boolean...)
c) Inside Varargs(int...)
Inside Varargs(boolean...)
d) Compiler error
Answer: d

Explanation: As the two constructors have the same method signature with zero arguments, the compiler sees those as the same. So, it throws an error saying the Constructor is ambiguous.

32. What is the output of the below Java program with Varargs?

```
public class Varargs4
{
  Varargs4(int... carnums)
  {
    System.out.println("Inside Varargs(int...)");
  }
  Varargs4(float... prices)
  {
    System.out.println("Inside Varargs(float...)");
  }
  public static void main(String[] args)
  {
    new Varargs4();
  }
}
```

a) Inside Varargs(int...)
b) Inside Varargs(int...)
Inside Varargs(float...)
c) No output
d) Compiler error

Answer:a

Explanation: In the above example, both constructors are overloading one another. In such cases, the compiler chooses the Constructor or Method with a lower sized data type as an argument.

33. What is the output of the below code snippet?

```
public class Varargs5
{
  Varargs5(int...weights, boolean yesno)
  {
    System.out.println("AMAZON");
  }
  public static void main(String[] args)
  {
   //new Varargs5(20, true);
  }
}
```

a) No output
b) Error: The variable argument type int of the method Varargs5 must be the last parameter
c) Error: Varargs do not allow other data types
d) None

Answer:b

Explanation: Yes. The compiler throws errors "Unresolved Compilation Problem" and "The variable argument type of the method or constructor must be the last parameter"

34. Which is the operator used to represent a Vararg type in a method or constructor in Java?

a) One Dot (.)
b) Two Dots (..)
c) Three Dots (...)
d) DOT DOT DOT COMMA (...,)

Answer:c

Explanation: The data type (primitive or object) immediately followed by three dots and a variable name separated by a space create a Variable Argument.

35. How many maximum numbers of Varargs or Variable-Arguments can be there in a method or a constructor in Java?

a) 1
b) 2
c) 8
d) 16
e) **Answer:**a

Explanation: Yes, only one. Because a VARARG can be present only as the last parameter or argument.

36. What is the maximum number of methods or constructors with Varargs in a single Java class?

a) 1
b) 2
c) 8
d) There is no limit

Answer: d

Explanation: Yes. There is no limit. There can be any number of methods or constructors with one Vararg per each method or constructor.

37. 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.

38. 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.

39. 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

40. 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};

41. 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

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

```
class array_output
{
   public static void main(String args[])
   {
      int array_variable [] = new int[10];
          for (int i = 0; i < 10; ++i)
      {
         array_variable[i] = i;
         System.out.print(array_variable[i] + " ");
         i++;
      }
   }
}
```

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.

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

```
class multidimention_array
{
   public static void main(String args[])
   {
      int arr[][] = new int[3][];
      arr[0] = new int[1];
      arr[1] = new int[2];
      arr[2] = new int[3];
          int sum = 0;
          for (int i = 0; i < 3; ++i)
              for (int j = 0; j < i + 1; ++j)
             arr[i][j] = j + 1;
          for (int i = 0; i < 3; ++i)
              for (int j = 0; j < i + 1; ++j)
             sum + = arr[i][j];
          System.out.print(sum);
   }
}
```

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.

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

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

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

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.

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

```
class array_output
{
   public static void main(String args[])
   {
      char array_variable [] = new char[10];
          for (int i = 0; i < 10; ++i)
      {
         array_variable[i] = 'i';
         System.out.print(array_variable[i] + "");
      }
   }
}
```

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

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

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

a) 8
b) 9
c) 10
d) 11
Answer: b

47. Which of these class is used to create an object whose character sequence is mutable?
a) String()
b) StringBuffer()
c) String() & StringBuffer()
d) None of the mentioned
Answer: b
Explanation: StringBuffer represents growable and writable character sequence.

48. Which of this method of class StringBuffer is used to concatenate the string representation to the end of invoking string?
a) concat()
b) append()
c) join()
d) concatenate()
Answer: b

49. Which of these method of class StringBuffer is used to find the length of current character sequence?
a) length()
b) Length()
c) capacity()
d) Capacity()
Answer: a

50. What is the string contained in s after following lines of Java code?
StringBuffer s new StringBuffer("Hello");
s.deleteCharAt(0);
a) Hell
b) ello
c) Hel
d) llo
Answer: b
Explanation: deleteCharAt() method deletes the character at the specified index location and returns the resulting StringBuffer object.

51. Which of the following statement is correct?
a) reverse() method reverses all characters
b) reverseall() method reverses all characters
c) replace() method replaces first occurrence of a character in invoking string with another character
d) replace() method replaces last occurrence of a character in invoking string with another character
Answer: a
Explanation: reverse() method reverses all characters. It returns the reversed object on which it was called.

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

```
class output
{
   public static void main(String args[])
   {
      String a = "hello i love java";
      System.out.println(a.indexOf('e')+" "+a.indexOf('a')+" "+a.lastIndexOf('l')+" "+a.lastIndexOf('v'));
   }
}
```

a) 6 4 6 9
b) 5 4 5 9
c) 7 8 8 9
d) 1 14 8 15

Answer: d

Explanation: indexof(„c") and lastIndexof(„c") are pre defined function which are used to get the index of first and last occurrence of the character pointed by c in the given array.

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

```
class output
{
   public static void main(String args[])
   {
      StringBuffer c = new StringBuffer("Hello");
      c.delete(0,2);
      System.out.println(c);
   }
}
```

a) He
b) Hel
c) lo
d) llo

Answer: d

Explanation: delete(0,2) is used to delete the characters from 0 th position to 1 st position.

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

```
class output
{
   public static void main(String args[])
   {
       StringBuffer c = new StringBuffer("Hello");
       StringBuffer c1 = new StringBuffer(" World");
       c.append(c1);
       System.out.println(c);
   }
}
```

a) Hello
b) World
c) Helloworld
d) Hello World

Answer: d

Explanation: append() method of class StringBuffer is used to concatenate the string representation to the end of invoking string.

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

```
class output
{
   public static void main(String args[])
   {
     StringBuffer s1 = new StringBuffer("Hello");
     StringBuffer s2 = s1.reverse();
     System.out.println(s2);
   }
}
```

a) Hello
b) olleH
c) HelloolleH
d) olleHHello

Answer: b

Explanation: reverse() method reverses all characters. It returns the reversed object on which it was called.

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

```
class output
{
  class output
  {
   public static void main(String args[])
   {
     char c[]={'A', '1', 'b' , ' ' ,'a' , '0'};
     for (int i = 0; i < 5; ++i)
```

```
        {
            i++;
            if(Character.isDigit(c[i]))
               System.out.println(c[i]+" is a digit");
            if(Character.isWhitespace(c[i]))
               System.out.println(c[i]+" is a Whitespace character");
            if(Character.isUpperCase(c[i]))
               System.out.println(c[i]+" is an Upper case Letter");
            if(Character.isLowerCase(c[i]))
               System.out.println(c[i]+" is a lower case Letter");
            i++;
        }
     }
  }
```

a) a is a lower case Letter
   is White space character
b) b is a lower case Letter
   is White space character
c) 1 is a digit
   a is a lower case Letter
d) a is a lower case Letter
   0 is a digit

Answer: c

Explanation: Character.isDigit(c[i]), Character.isUpperCase(c[i]), Character.isWhitespace(c[i]) are the function of library java.lang they are used to find whether the given character is of specified type or not. They return true or false i:e Boolean variable.

03 – Inheritance, Interface and Package	Marks:-12

Content of Chapter:-

3.1 Inheritance: concept of inheritance Types of Inheritance

3.2 Single Inheritance, multilevel Inheritance. Hierarchical Inheritance, method and constructor overloading and overriding, dynamic method dispatch, final variables, final methods, use of super, abstract methods and classes, static members.

3.3 Interfaces: Define Interface, implementing interface .accessing interface, variables and methods, extending interfaces, interface references, nested interfaces

3.4 Package: Define package, type of package naming and creating packages, accessing package, import statement, static import, adding class and interfaces to a package

1. Which of this keyword can be used in a subclass to call the constructor of superclass?

a) super
b) this
c) extent
d) extends

Answer: a

Explanation: None.

2. What is the process of defining a method in a subclass having same name & type signature as a method in its superclass?

a) Method overloading
b) Method overriding
c) Method hiding
d) None of the mentioned

Answer: b

Explanation: None.

3. Which of these keywords can be used to prevent Method overriding?

a) static
b) constant
c) protected
d) final

Answer: d

Explanation: To disallow a method from being overridden, specify final as a modifier at the start of its declaration. Methods declared as final cannot be overridden.

4. Which of these is correct way of calling a constructor having no parameters, of superclass A by subclass B?

a) super(void);
b) superclass.();
c) super.A();
d) super();

Answer: d

5. At line number 2 in the following code, choose 3 valid data-type attributes/qualifiers among "final, static, native, public, private, abstract, protected"

```
public interface Status
  {
     /* insert qualifier here */ int MY_VALUE = 10;
  }
```

a) final, native, private
b) final, static, protected
c) final, private, abstract
d) final, static, public

Answer: d
Explanation: Every interface variable is implicitly public static and final.

6. Which of these is supported by method overriding in Java?

a) Abstraction
b) Encapsulation
c) Polymorphism
d) None of the mentioned

Answer: c

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

```
class Alligator
{
 public static void main(String[] args)
  {
  int []x[] = {{1,2}, {3,4,5}, {6,7,8,9}};
  int [][]y = x;
  System.out.println(y[2][1]);
  }
}
```

a) 2
b) 3
c) 7
d) Compilation Error

Answer: c
Explanation: Both x,and y are pointing to the same array.

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

```
final class A
 {
    int i;
 }
 class B extends A
 {
    int j;
    System.out.println(j + " " + i);
 }
 class inheritance
```

```
  {
     public static void main(String args[])
     {
        B obj = new B();
        obj.display();
     }
  }
```
a) 2 2
b) 3 3
c) Runtime Error
d) Compilation Error
Answer: d
Explanation: class A has been declared final hence it cannot be inherited by any other class. Hence class B does not have member i, giving compilation error.

9. What will be the output of the following Java program?
```
 class Abc
 {
    public static void main(String[]args)
    {
       String[] elements = { "for", "tea", "too" };
       String first = (elements.length > 0) ? elements[0]: null;
    }
 }
```
a) Compilation error
b) An exception is thrown at run time
c) The variable first is set to null
d) The variable first is set to elements[0]
Answer: d
Explanation: The value at the 0th position will be assigned to the variable first.

10. What will be the output of the following Java program?
```
  class A
  {
     int i;
     public void display()
     {
        System.out.println(i);
     }
  }
  class B extends A
 {
     int j;
     public void display()
     {
        System.out.println(j);
     }
  }
  class Dynamic_dispatch
```

```
  {
      public static void main(String args[])
      {
          B obj2 = new B();
          obj2.i = 1;
          obj2.j = 2;
          A r;
          r = obj2;
          r.display();
      }
  }
```

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

Answer: b

Explanation: r is reference of type A, the program assigns a reference of object obj2 to r and uses that reference to call function display() of class B.

11. Which of these class is superclass of every class in Java?

a) String class
b) Object class
c) Abstract class
d) ArrayList class

Answer: b

Explanation: Object class is superclass of every class in Java.

12. Which of these method of Object class can clone an object?

a) Objectcopy()
b) copy()
c) Object clone()
d) clone()

Answer: c

13. Which of these method of Object class is used to obtain class of an object at run time?

a) get()
b) void getclass()
c) Class getclass()
d) None of the mentioned

Answer: c

14. Which of these keywords can be used to prevent inheritance of a class?

a) super
b) constant
c) class
d) final

Answer: d

Explanation: Declaring a class final implicitly declared all of its methods final, and makes the class inheritable.

15. Which of these keywords cannot be used for a class which has been declared final?
a) abstract
b) extends
c) abstract and extends
d) none of the mentioned
Answer: a
Explanation: A abstract class is incomplete by itself and relies upon its subclasses to provide a complete implementation. If we declare a class final then no class can inherit that class, an abstract class needs its subclasses hence both final and abstract cannot be used for a same class.

16. Which of these class relies upon its subclasses for complete implementation of its methods?
a) Object class
b) abstract class
c) ArrayList class
d) None of the mentioned
Answer: b

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

```
abstract class A
{
   int i;
   abstract void display();
}
class B extends A
{
   int j;
   void display()
   {
      System.out.println(j);
   }
}
class Abstract_demo
{
   public static void main(String args[])
   {
      B obj = new B();
      obj.j=2;
      obj.display();
   }
}
```

a) 0
b) 2
c) Runtime Error
d) Compilation Error
Answer: b

Explanation: class A is an abstract class, it contains a abstract function display(), the full implementation of display() method is given in its subclass B, Both the display functions are the same. Prototype of display() is defined in class A and its implementation is given in class B.

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

```
class A
{
        int i;
        int j;
    A()
    {
       i = 1;
       j = 2;
    }
}
class Output
{
    public static void main(String args[])
    {
        A obj1 = new A();
        A obj2 = new A();
            System.out.print(obj1.equals(obj2));
    }
}
```

a) false
b) true
c) 1
d) Compilation Error

Answer: a

Explanation: obj1 and obj2 are two different objects. equals() is a method of Object class, Since Object class is superclass of every class it is available to every object.

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

```
class Output
{
    public static void main(String args[])
    {
        Object obj = new Object();
            System.out.print(obj.getclass());
    }
}
```

a) Object
b) class Object
c) class java.lang.Object
d) Compilation Error

Answer: c

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

```
class A
{
    int i;
        int j;
    A()
    {
       i = 1;
       j = 2;
    }
}
class Output
{
    public static void main(String args[])
    {
        A obj1 = new A();
            System.out.print(obj1.toString());
    }
}
```

a) true
b) false
c) String associated with obj1
d) Compilation Error
Answer: c
Explanation: toString() is method of class Object, since it is superclass of every class, every object has this method. toString() returns the string associated with the calling object.

21. Which of this keyword must be used to inherit a class?
a) super
b) this
c) extent
d) extends
Answer: d

22. A class member declared protected becomes a member of subclass of which type?
a) public member
b) private member
c) protected member
d) static member
Answer: b
Explanation: A class member declared protected becomes a private member of subclass.

23. Which of these is correct way of inheriting class A by class B?
a) class B + class A {}
b) class B inherits class A {}
c) class B extends A {}
d) class B extends class A {}
Answer: c

24. Which two classes use the Shape class correctly?

A.
```
public class Circle implements Shape
 {
  private int radius;
 }
```
B.
```
public abstract class Circle extends Shape
 {
  private int radius;
 }
```
C.
```
public class Circle extends Shape
 {
 private int radius;
 public void draw();
 }
```
D.
```
public abstract class Circle implements Shape
 {
  private int radius;
  public void draw();
 }
```
E.
```
public class Circle extends Shape
 {
  private int radius;
  public void draw()
  {
   /* code here */
  }
 }
```
a) B,E
b) A,C
c) C,E
d) T,H

Answer: a

Explanation: If one is extending any class, then they should use extends keyword not implements.

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

```
class A
{
    int i;
    void display()
    {
        System.out.println(i);
    }
}
class B extends A
{
    int j;
    void display()
    {
        System.out.println(j);
```

```
    }
  }
  class inheritance_demo
  {
    public static void main(String args[])
    {
      B obj = new B();
      obj.i=1;
      obj.j=2;
      obj.display();
    }
  }
```

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.

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

```
  class A
  {
    int i;
  }
  class B extends A
  {
    int j;
    void display()
    {
      super.i = j + 1;
      System.out.println(j + " " + i);
    }
  }
  class inheritance
  {
    public static void main(String args[])
    {
      B obj = new B();
      obj.i=1;
      obj.j=2;
      obj.display();
    }
  }
```

a) 2 2
b) 3 3
c) 2 3
d) 3 2

Answer: c

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

```
class A
{
   public int i;
   public int j;
   A()
   {
      i = 1;
      j = 2;
       }
}
class B extends A
{
   int a;
   B()
   {
      super();
   }
}
class super_use
{
   public static void main(String args[])
   {
      B obj = new B();
      System.out.println(obj.i + " " + obj.j)
   }
}
```

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.

28. What is not type of inheritance?
a) Single inheritance
b) Double inheritance
c) Hierarchical inheritance
d) Multiple inheritance
Answer: b
Explanation: Inheritance is way of acquiring attributes and methods of parent class. Java supports hierarchical inheritance directly.

29. Using which of the following, multiple inheritance in Java can be implemented?
a) Interfaces
b) Multithreading
c) Protected methods
d) Private methods
Answer: a
Explanation: Multiple inheritance in java is implemented using interfaces. Multiple interfaces can be implemented by a class.
30. All classes in Java are inherited from which class?
a) java.lang.class
b) java.class.inherited
c) java.class.object
d) java.lang.Object
Answer: d
Explanation: All classes in java are inherited from Object class. Interfaces are not inherited from Object Class.

31. In order to restrict a variable of a class from inheriting to subclass, how variable should be declared?
a) Protected
b) Private
c) Public
d) Static
Answer: b
Explanation: By declaring variable private, the variable will not be available in inherited to subclass.

32. If super class and subclass have same variable name, which keyword should be used to use super class?
a) super
b) this
c) upper
d) classname
Answer: a
Explanation: Super keyword is used to access hidden super class variable in subclass.

33. Static members are not inherited to subclass.
a) True
b) False
Answer: b
Explanation: Static members are also inherited to subclasses.

34. Which of the following is used for implementing inheritance through an interface?
a) inherited
b) using
c) extends
d) implements
Answer: d
Explanation: Interface is implemented using implements keyword. A concrete class must implement all the methods of an interface, else it must be declared abstract.

35. Which of the following is used for implementing inheritance through class?
a) inherited
b) using
c) extends

Answer: c
Explanation: Class can be extended using extends keyword. One class can extend only one class. A final class cannot be extended.

36. What would be the result if a class extends two interfaces and both have a method with same name and signature? Lets assume that the class is not implementing that method.
a) Runtime error
b) Compile time error
c) Code runs successfully
d) First called method is executed successfully
Answer: b
Explanation: In case of such conflict, compiler will not be able to link a method call due to ambiguity. It will throw compile time error.

37. Does Java support multiple level inheritance?
a) True
b) False
Answer: a
Explanation: Java supports multiple level inheritance through implementing multiple interfaces.

38.Which of these keywords is used to define packages in Java?
a) pkg
b) Pkg
c) package
d) Package
Answer: c

39. Which of these is a mechanism for naming and visibility control of a class and its content?
a) Object
b) Packages
c) Interfaces
d) None of the Mentioned.
Answer: b
Explanation: Packages are both naming and visibility control mechanism. We can define a class inside a package which is not accessible by code outside the package.

40. Which of this access specifies can be used for a class so that its members can be accessed by a different class in the same package?
a) Public
b) Protected
c) No Modifier
d) All of the mentioned
Answer: d
Explanation: Either we can use public, protected or we can name the class without any specifier.

41. Which of these access specifiers can be used for a class so that its members can be accessed by a different class in the different package?
a) Public
b) Protected
c) Private
d) No Modifier
Answer: a

42. Which of the following is the correct way of importing an entire package „pkg"?
a) import pkg.
b) Import pkg.
c) import pkg.*
d) Import pkg.*
Answer: c
Explanation: Operator * is used to import the entire package.

43. Which of the following is an incorrect statement about packages?
a) Package defines a namespace in which classes are stored
b) A package can contain other package within it
c) Java uses file system directories to store packages
d) A package can be renamed without renaming the directory in which the classes are stored
Answer: d
Explanation: A package can be renamed only after renaming the directory in which the classes are stored.

44. Which of the following package stores all the standard java classes?
a) lang
b) java
c) util
d) java.packages
Answer: b

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

```
package pkg;
class display
{
   int x;
   void show()
   {
      if (x > 1)
         System.out.print(x + " ");
   }
}
class packages
{
   public static void main(String args[])
   {
      display[] arr=new display[3];
      for(int i=0;i<3;i++)
```

```
            arr[i]=new display();
         arr[0].x = 0;
         arr[1].x = 1;
         arr[2].x = 2;
         for (int i = 0; i < 3; ++i)
            arr[i].show();
      }
   }
```
Note : packages.class file is in directory pkg;
a) 0
b) 1
c) 2
d) 0 1 2
Answer: c

46. What will be the output of the following Java program?
```
   package pkg;
   class output
   {
      public static void main(String args[])
      {
         StringBuffer s1 = new StringBuffer("Hello");
         s1.setCharAt(1, x);
         System.out.println(s1);
      }
   }
```
a) xello
b) xxxxx
c) Hxllo
d) Hexlo
Answer: c

47. What will be the output of the following Java program?
```
   package pkg;
   class output
   {
      public static void main(String args[])
      {
         StringBuffer s1 = new StringBuffer("Hello World");
         s1.insert(6 , "Good ");
         System.out.println(s1);
      }
  }
```
Note : Output.class file is not in directory pkg.
a) HelloGoodWorld
b) HellGoodoWorld
c) Compilation error
d) Runtime error
Answer: d

Explanation: Since output.class file is not in the directory pkg in which class output is defined, program will not be able to run

48.Which of these keywords is used to define interfaces in Java?
a) interface
b) Interface
c) intf
d) Intf
Answer: a

49. Which of these can be used to fully abstract a class from its implementation?
a) Objects
b) Packages
c) Interfaces
d) None of the Mentioned
Answer: c

50. Which of these access specifiers can be used for an interface?
a) Public
b) Protected
c) private
d) All of the mentioned
Answer: a
Explanation: Access specifier of an interface is either public or no specifier. When no access specifier is used then default access specifier is used due to which interface is available only to other members of the package in which it is declared, when declared public it can be used by any code.

51. Which of these keywords is used by a class to use an interface defined previously?
a) import
b) Import
c) implements
d) Implements
Answer: c
Explanation: interface is inherited by a class using implements.

52. Which of the following is the correct way of implementing an interface salary by class manager?
a) class manager extends salary {}
b) class manager implements salary {}
c) class manager imports salary {}
d) none of the mentioned
Answer: b
.

53. Which of the following is an incorrect statement about packages?
a) Interfaces specifies what class must do but not how it does
b) Interfaces are specified public if they are to be accessed by any code in the program
c) All variables in interface are implicitly final and static
d) All variables are static and methods are public if interface is defined pubic
Answer: d
Explanation: All methods and variables are implicitly public if interface is declared public.

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

```
interface calculate
{
   void cal(int item);
}
class display implements calculate
{
   int x;
   public void cal(int item)
   {
      x = item * item;
   }
}
class interfaces
{
   public static void main(String args[])
   {
      display arr = new display;
      arr.x = 0;
      arr.cal(2);
      System.out.print(arr.x);
   }
}
```

a) 0
b) 2
c) 4
d) None of the mentioned
Answer: c

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

```
interface calculate
{
   void cal(int item);
}
class displayA implements calculate
{
   int x;
   public void cal(int item)
   {
      x = item * item;
   }
}
class displayB implements calculate
{
   int x;
   public void cal(int item)
   {
```

```
        x = item / item;
      }
   }
   class interfaces
   {
      public static void main(String args[])
      {
         displayA arr1 = new displayA;
         displayB arr2 = new displayB;
         arr1.x = 0;
         arr2.x = 0;
         arr1.cal(2);
         arr2.cal(2);
         System.out.print(arr1.x + " " + arr2.x);
      }
   }
```

a) 0 0
b) 2 2
c) 4 1
d) 1 4

Answer: c

Explanation: class displayA implements the interface calculate by doubling the value of item, where as class displayB implements the interface by dividing item by item, therefore variable x of class displayA stores 4 and variable x of class displayB stores 1.

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

```
interface calculate
{
        int VAR = 0;
        void cal(int item);
}
      class display implements calculate
      {
         int x;
        public void cal(int item)
        {
            if  (item<2)
               x = VAR;
            else
               x = item * item;
         }
      }
 class interfaces
{

        public static void main(String args[])
        {
           display[] arr=new display[3];
```

```
        for(int i=0;i<3;i++)
        arr[i]=new display();
        arr[0].cal(0);
        arr[1].cal(1);
        arr[2].cal(2);
        System.out.print(arr[0].x+" " + arr[1].x + " " + arr[2].x);
      }
}
```

a) 0 1 2
b) 0 2 4
c) 0 0 4
d) 0 1 4

Answer: c

04 – Exception Handling and Multithreading	Marks:-12

Content of Chapter:-

4.1 Errors and Exception :Types of errors, exceptions, try and catch statement, nested try statement, throws and Finally statement, build-in exceptions, chained exceptions, creating own exception(throw clause), subclasses.

4.2 Multithreaded Programming Creating a Thread: By extending to thread class and by implementing runnable Interface. Life cycle of thread: Thread Methods: wait(), sleep(), notify(), resume(), suspend(), stop().Thread exceptions, thread priority and methods, synchronization, inter-thread communication, deadlock.

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 cached 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?

```
class exception_handling
{
   public static void main(String args[])
   {
      try
      {
         System.out.print("Hello" + " " + 1 / 0);
      }
      catch(ArithmeticException e)
      {
       System.out.print("World");
      }
   }
}
```

a) Hello
b) World
c) HelloWorld
d) Hello World
Answer: b
Explanation: System.ou.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 cached by catch block printing just “World”.

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

```
class exception_handling
{
   public static void main(String args[])
   {
      try
     {
         int a, b;
         b = 0;
         a = 5 / b;
         System.out.print("A");
      }
      catch(ArithmeticException e)
```

```
        {
         System.out.print("B");
        }
      }
   }
```
a) A
b) B
c) Compilation Error
d) Runtime Error
Answer: b

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

```
class exception_handling
{
   public static void main(String args[])
   {
      try
      {
         int a, b;
         b = 0;
         a = 5 / b;
         System.out.print("A");
      }
      catch(ArithmeticException e)
      {
       System.out.print("B");
      }
      finally
      {
            System.out.print("C");
      }
   }
}
```
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.

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

```
class exception_handling
{
   public static void main(String args[])
   {
      try
      {
         int i, sum;
         sum = 10;
```

```
            for (i = -1; i < 3 ;++i)
                sum = (sum / i);
        }
        catch(ArithmeticException  e)
        {
         System.out.print("0");
        }
        System.out.print(sum);
    }
  }
```

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.

10. Which of the following keywords is used for throwing exception manually?
a) finally
b) try
c) throw
d) catch
Answer: c
Explanation: "throw" keyword is used for throwing exception manually in java program. User defined exceptions can be thrown too.

11. Which of the following classes can catch all exceptions which cannot be caught?
a) RuntimeException
b) Error
c) Exception
d) ParentException
Answer: b
Explanation: Runtime errors cannot be caught generally. Error class is used to catch such errors/exceptions.

12. Which of the following is a super class of all exception type classes?
a) Catchable
b) RuntimeExceptions
c) String
d) Throwable
Answer: d
Explanation: Throwable is built in class and all exception types are subclass of this class. It is the super class of all exceptions.

13. Which of the following operators is used to generate instance of an exception which can be thrown using throw?
a) thrown
b) alloc
c) malloc
d) new
Answer: d
Explanation: new operator is used to create instance of an exception. Exceptions may have parameter as a String or have no parameter.

14. Which of the following keyword is used by calling function to handle exception thrown by called function?
a) throws
b) throw
c) try
d) catch
Answer: a
Explanation: A method specifies behaviour of being capable of causing exception. Throws clause in the method declaration guards caller of the method from exception.

15. Which of the following handles the exception when a catch is not used?
a) finally
b) throw handler
c) default handler
d) java run time system
Answer: c
Explanation: Default handler is used to handle all the exceptions if catch is not used to handle exception. Finally is called in any case.

16. Which part of code gets executed whether exception is caught or not?
a) finally
b) try
c) catch
d) throw
Answer: a
Explanation: Finally block of the code gets executed regardless exception is caught or not. File close, database connection close, etc are usually done in finally.

17. Which of the following should be true of the object thrown by a thrown statement?
a) Should be assignable to String type
b) Should be assignable to Exception type
c) Should be assignable to Throwable type
d) Should be assignable to Error type
Answer: c
Explanation: The throw statement should be assignable to the throwable type. Throwable is the super class of all exceptions.

18. At runtime, error is recoverable.
a) True
b) False
Answer: b
Explanation: Error is not recoverable at runtime. The control is lost from the application.
19. Which of these is a super class of all exceptional type classes?
a) String
b) RuntimeExceptions
c) Throwable
d) Cacheable
Answer: c
Explanation: All the exception types are subclasses of the built in class Throwable.

20. Which of these class is related to all the exceptions that can be caught by using catch?
a) Error
b) Exception
c) RuntimeExecption
d) All of the mentioned
Answer: b
Explanation: Error class is related to java run time error that can"t be caught usually, RuntimeExecption is subclass of Exception class which contains all the exceptions that can be caught.

21. Which of these class is related to all the exceptions that cannot be caught?
a) Error
b) Exception
c) RuntimeExecption
d) All of the mentioned
Answer: a
Explanation: Error class is related to java run time error that can"t be caught usually, RuntimeExecption is subclass of Exception class which contains all the exceptions that can be caught.

22. Which of these handles the exception when no catch is used?
a) Default handler
b) finally
c) throw handler
d) Java run time system
Answer: a

23. What exception thrown by parseInt() method?
a) ArithmeticException
b) ClassNotFoundException
c) NullPointerException
d) NumberFormatException
Answer: d
Explanation: parseInt() method parses input into integer. The exception thrown by this method is NumberFormatException.

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

```
class exception_handling
{
   public static void main(String args[])
   {
      try
      {
         System.out.print("Hello" + " " + 1 / 0);
      }
      finally
      {
       System.out.print("World");
      }
   }
}
```

a) Hello
b) World
c) Compilation Error
d) First Exception then World

Answer: d

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

```
class exception_handling
{
   public static void main(String args[])
   {
      try
      {
         int i, sum;
         sum = 10;
         for (i = -1; i < 3 ;++i)
         {
            sum = (sum / i);
         System.out.print(i);
         }
      }
      catch(ArithmeticException e)
      {
         System.out.print("0");
      }
   }
}
```

a) -1
b) 0
c) -10
d) -101

Answer: c

Explanation: For the 1st iteration -1 is displayed. The 2nd exception is caught in catch block and 0 is displayed.

26.Which of these keywords is used to generate an exception explicitly?
a) try
b) finally
c) throw
d) catch
Answer: c

27. Which of these class is related to all the exceptions that are explicitly thrown?
a) Error
b) Exception
c) Throwable
d) Throw
Answer: c

28. Which of these operator is used to generate an instance of an exception than can be thrown by using throw?
a) new
b) malloc
c) alloc
d) thrown
Answer: a
Explanation: new is used to create an instance of an exception. All of java"s built in run-time exceptions have two constructors: one with no parameters and one that takes a string parameter.

29. Which of these keywords is used to by the calling function to guard against the exception that is thrown by called function?
a) try
b) throw
c) throws
d) catch
Answer: c
Explanation: If a method is capable of causing an exception that it does not handle. It must specify this behaviour the behaviour so that callers of the method can guard themselves against that exception. This is done by using throws clause in methods declaration.

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

```
class exception_handling
{
   public static void main(String args[])
   {
      try
      {
         int a = args.length;
         int b = 10 / a;
         System.out.print(a);
```

```
            try
            {
               if (a == 1)
                  a = a / a - a;
               if (a == 2)
               {
                  int []c = {1};
                  c[8] = 9;
               }
            }
            catch (ArrayIndexOutOfBoundException e)
            {
               System.out.println("TypeA");
            }
            catch (ArithmeticException e)
            {
               System.out.println("TypeB");
            }
         }
      }
   }
```

a) TypeA
b) TypeB
c) Compile Time Error
d) 0TypeB
Answer: c
Explanation: Because we can"t go beyond array limit

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

```
   class exception_handling
   {
      public static void main(String args[])
      {
         try
         {
            System.out.print("A");
            throw new NullPointerException ("Hello");
         }
         catch(ArithmeticException e)
         {
            System.out.print("B");
         }
      }
   }
```

a) A
b) B
c) Hello
d) Runtime Exception
Answer: d

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

```
public class San
 {
   public static void main(String[] args)
   {
      try
      {
         return;
      }
```

```
      finally
      {
         System.out.println( "Finally" );
      }
   }
}
```

a) Finally
b) Compilation fails
c) The code runs with no output
d) An exception is thrown at runtime
Answer: a
Explanation: Because finally will execute always.

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

```
public class San
{
   public static void main(String args[])
   {
      try
      {
         System.out.print("Hello world ");
      }
      finally
      {
         System.out.println("Finally executing ");
      }
   }
}
```

a) The program will not compile because no exceptions are specified
b) The program will not compile because no catch clauses are specified
c) Hello world
d) Hello world Finally executing
Answer: d

34. 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.

35. 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.

36. Which of these exceptions handles the divide by zero error?
a) ArithmeticException
b) MathException
c) IllegalAccessException
d) IllegarException
Answer: a

37. 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.

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

```
class exception_handling
{
   public static void main(String args[])
   {
      try
      {
         int a = args.length;
         int b = 10 / a;
         System.out.print(a);
      }
      catch (ArithmeticException e)
      {
            System.out.println("1");
      }
   }
}
```

Note : Execution command line : $ java exception_handling

a) 0 b) 1
c) Compilation Error d) Runtime Error
Answer: b

.

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

```
class exception_handling
{
    public static void main(String args[])
    {
        try
        {
            throw new NullPointerException ("Hello");
        }
        catch(ArithmeticException  e)
        {
         System.out.print("B");
        }
    }
}
```

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.

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

```
class exception_handling
    {
        public static void main(String args[])
        {
            try
            {
                int a = 1;
                int b = 10 / a;
                try
                {
                    if (a == 1)
                        a = a / a - a;
                    if (a == 2)
                    {
                        int c[] = {1};
                        c[8] = 9;
                    }
                }
                finally
```

```
            {
                System.out.print("A");
            }
        }
        catch (Exception e)
        {
            System.out.println("B");
        }
    }
}
```

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

Answer: a

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

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

```
class exception_handling
{
    public static void main(String args[])
    {
        try
        {
            int a = args.length;
            int b = 10 / a;
            System.out.print(a);
            try
            {
                if (a == 1)
                    a = a / a - a;
                if (a == 2)
                {
                    int []c = {1};
                    c[8] = 9;
                }
            }
            catch (ArrayIndexOutOfBoundException e)
            {
                System.out.println("TypeA");
            }
        catch (ArithmeticException e)
        {
            System.out.println("TypeB");
        }
    }
```

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

a) TypeA
b) TypeB
c) Compilation Error
d) Runtime Error
Answer: c

42. 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

43. 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 checked for exception.

44. 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

45. Which of these keywords are used for generating an exception manually?
a) try
b) catch
c) throw
d) check
Answer: c

46. 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.

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

```
class Output
{
   public static void main(String args[])
   {
      try
      {
         int a = 0;
         int b = 5;
         int c = b / a;
         System.out.print("Hello");
      }
      catch(Exception e)
      {
         System.out.print("World");
      }
   }
}
```

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

Answer: b

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

```
class Output
{
   public static void main(String args[])
   {
      try
      {
         int a = 0;
         int b = 5;
         int c = a / b;
         System.out.print("Hello");
      }
      catch(Exception e)
      {
         System.out.print("World");
      }
   }
}
```

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

Answer: a

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

```
class Output
{
   public static void main(String args[])
   {
     try
     {
        int a = 0;
        int b = 5;
        int c = b / a;
        System.out.print("Hello");
     }
   }
}
```

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

Answer: d

Explanation: try must be followed by either catch or finally

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

```
class Output
{
   public static void main(String args[])
   {
     try
     {
        int a = 0;
        int b = 5;
        int c = a / b;
        System.out.print("Hello");
     }
     finally
     {
        System.out.print("World");
     }
   }
}
```

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

Answer: c

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

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

```
class Output
{
   public static void main(String args[])
   {
      try
      {
         int a = 0;
         int b = 5;
         int c = b / a;
         System.out.print("Hello");
      }
      catch(Exception e)
      {
         System.out.print("World");
      }
      finally
      {
         System.out.print("World");
      }
   }
}
```

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

52.Which of this method can be used to make the main thread to be executed last among all the threads?

a) stop()
b) sleep()
c) join()
d) call()

Answer: b

Explanation: By calling sleep() within main(), with long enough delay to ensure that all child threads terminate prior to the main thread.

53. Which of this method is used to find out that a thread is still running or not?

a) run()
b) Alive()
c) isAlive()
d) checkRun()

Answer: c

Explanation: The isAlive( ) method returns true if the thread upon which it is called is still running. It returns false otherwise.

54. What is the default value of priority variable MIN_PRIORITY AND MAX_PRIORITY?
a) 0 & 256
b) 0 & 1
c) 1 & 10
d) 1 & 256

Answer: c.

55. Which of these method waits for the thread to terminate?
a) sleep()
b) isAlive()
c) join()
d) stop()
Answer: c

56. Which of these method is used to explicitly set the priority of a thread?
a) set()
b) make()
c) setPriority()
d) makePriority()
Answer: c
Explanation: The default value of priority given to a thread is 5 but we can explicitly change that value between the permitted values 1 & 10, this is done by using the method setPriority().

57. What is synchronization in reference to a thread?
a) It"s a process of handling situations when two or more threads need access to a shared resource
b) It"s a process by which many thread are able to access same shared resource simultaneously
c) It"s a process by which a method is able to access many different threads simultaneously
d) It"s a method that allow too many threads to access any information require
Answer: a
Explanation: When two or more threads need to access the same shared resource, they need some way to ensure that the resource will be used by only one thread at a time, the process by which this is achieved is called synchronization

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

```
class newthread extends Thread
{
        newthread()
    {
            super("My Thread");
            start();
        }
        public void run()
    {
            System.out.println(this);
        }
}
class  multithreaded_programing
{
    public static void main(String args[])
```

```
    {
       new newthread();
    }
  }
```
a) My Thread
b) Thread[My Thread,5,main]
c) Compilation Error
d) Runtime Error
Answer: b
Explanation: Although we have not created any object of thread class still we can make a thread pointing to main method, we can refer it by using this.

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

```
  class newthread extends Thread
  {
        Thread t;
        newthread()
    {
          t = new Thread(this,"My Thread");
          t.start();
        }
        public void run()
    {
       try
       {
          t.join()
             System.out.println(t.getName());
       }
       catch(Exception e)
       {
       System.out.print("Exception");
       }
        }
  }
  class multithreaded_programing
  {
     public static void main(String args[])
     {
        new newthread();
     }
  }
```
a) My Thread
b) Thread[My Thread,5,main]
c) Exception
d) Runtime Error
Answer: d
Explanation: join() method of Thread class waits for thread being called to finish or terminate, but here we have no condition which can terminate the thread, hence code „t.join()" leads to runtime error and nothing will be printed on the screen.

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

```
class newthread extends Thread
{
        Thread t;
        newthread()
    {
            t = new Thread(this,"New Thread");
            t.start();
        }
        public void run()
    {
          System.out.println(t.isAlive());
        }
}
class multithreaded_programing
{
    public static void main(String args[])
    {
       new newthread();
    }
}
```

a) 0
b) 1
c) true
d) false

Answer: c

Explanation: isAlive() method is used to check whether the thread being called is running or not, here thread is the main() method which is running till the program is terminated hence it returns true.

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

```
class newthread extends Thread
{
        Thread t1,t2;
        newthread()
    {
            t1 = new Thread(this,"Thread_1");
            t2 = new Thread(this,"Thread_2");
            t1.start();
            t2.start();
        }
        public void run()
    {
            t2.setPriority(Thread.MAX_PRIORITY);
            System.out.print(t1.equals(t2));
    }
}
class multithreaded_programing
```

```
  {
     public static void main(String args[])
     {
        new newthread();
     }
  }
```

a) true
b) false
c) truetrue
d) falsefalse

Answer: d

Explanation: This program was previously done by using Runnable interface; here we have used Thread class. This shows both the method are equivalent, we can use any of them to create a thread.

05 – Java Applet and Graphics Programming	Marks:-10

Content of Chapter:-

5.1 Introduction to applets: Applet, Applet Life cycle(skeleton), Applet tag, Adding Applet to HTML file. Passing parameter to applet, embedding <applet> tags in java code, adding controls to applets.

5.2 Graphics programming : Graphics classes, lines, rectangles, ellipse, circle, arcs, polygons, color and fonts, setColor(), getColor(), setForeGround(), setBackGround(), font class variable defined by font class: name, pointSize, style, font methods: getFamily(), getFont(), getFontname(), getSize(), getStyle(), getAllFonts() and get available font family name() of the graphics environment class.

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

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

```
import java.awt.*;
import java.applet.*;
public class myapplet extends Applet
{
   public void paint(Graphics g)
   {
      g.drawString("A Simple Applet", 20, 20);
   }
}
```

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

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

```
import java.awt.*;
import java.applet.*;
public class myapplet extends Applet
{
   public void paint(Graphics g)
   {
      g.drawString("A Simple Applet", 20, 20);
   }
}
```

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?

```
import java.awt.*;
import java.applet.*;
public class myapplet extends Applet
{
   Graphic g;
   g.drawString("A Simple Applet", 20, 20);
}
```

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?

```
import java.io.*;
class Chararrayinput
{
   public static void main(String[] args)
   {
         String obj = "abcdefgh";
      int  length =  obj.length();
      char c[] = new char[length];
      obj.getChars(0, length, c, 0);
      CharArrayReader input1 = new CharArrayReader(c);
      CharArrayReader input2 = new CharArrayReader(c, 1, 4);
      int i;
      int j;
      try
      {
               while((i = input1.read()) == (j = input2.read()))
        {
           System.out.print((char)i);
        }
         }
      catch (IOException e)
      {


       }
}
```

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

Answer: d

Explanation: No output is printed. CharArrayReader object input1 contains string “abcdefgh” 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.

10. When the.....method of the Applet class is called, it displays the result of the Applet code on the screen.

a) paint( )
b) repaint( )
c) update( )
d) reupdate( )

Answer:a

11. Before we try to write applets, we must make sure that Java is installed properly and also ensure that either the java is installed properly and also ensure that either the java.....or a java-enabled browser is available.

a) viewer( )
b) appletviewer( )
c) appletrunner( )
d) browserviewer( )

Answer: b

12. Arrange the steps involved in developing and testing the applet in correct order.

i) creating an executable applet (.classfile)
ii) preparing <APPLET> tag
iii) creating HTML file
iv) building an applet code (.java file)
v) testing the applet code

a) 1-i, 2-ii, 3-iii, 4-iv, 5-v
b) 1-ii, 2-iii, 3-iv, 4-v, 5-i
c) 1-iv, 2-i, 3-ii, 4-iii, 5-v
d) 1-iii, 2-iv, 3-v, 4-i, 5-ii

Answer: c

13. State whether the following statements about the Applets are True or False.

i) Applets can communicate with other services on the network.
ii) Applets cannot run any program from the local computer.

A) True, False
B) False, True
C) True, True
D) False, False

Answer: b

14. Applet class is a subclass of the panel class, which is again a subclass of the …….. class.

a) object
b) component
c) awt
d) container

Answer: d

15. The ..... method called the first time an applet is loaded into the memory of a computer.

a) init( )
b) start( )
c) stop( )
d) destroy( )

Answer: a

16. The ..... method is called every time the applet receives focus as a result of scrolling in the active window.

a) init( )
b) start( )
c) stop( )
d) destroy( )

Answer: b

17. Which of the following applet tags is legal to embed an applet class named Test into a webpage?

a) <applet class=Test width=200 height=100> </applet>
b) <applet> code=Test.class width=200 height=100> </applet>
c) <applet code=Test.class width=200 height=100> </applet>
d) <applet param=Test.class width=200 height=100> </applet>

Answer: c

18. If you want to assign a value of 88 to the variable year, then which of the following lines can be used within an <applet> tag.

a) number = getParameter(88)
b) <number=99>
c) <param = radius value=88>
d) <param name=number value=88>

Answer: d

19. The.....class is an abstract class that represents the display area of the applet.

a) display
b) graphics
c) text
d) area

Answer: b

20. The graphics class provides methods to draw a number of graphical figure including

i) Text ii) Lines iii) Images iv) Ellipse

a) i, ii and iii only
b) ii, iii and iv only
c) i, iii and iv only
d) All i, ii, iii and iv

Answer: d

21. The..... method is called to clear the screen and calls the paint( ) method.

a) update( )
b) paint( )
c) repaint( )
d) reupdate( )

Answer: a

22. The .....method is automatically called the first time the applet is displayed on the screen and every time the applet receives focus.

a) update( )
b) paint( )
c) repaint( )
d) reupdate( )

Answer: b

23. The ..... method is defined by the AWT which causes the AWT runtime system to execute a call to your applet"s update( ) method.

a) update( )
b) paint( )
c) repaint( )
d) reupdate( )

Answer: c

24. Text field can be created by which of the following methods.

i) TextField( ) ii) TextFieldString( )
iii) TextField(int) iv) TextField(string, int)

a) i, ii and iii only
b) ii, iii and iv only
c) i, ii and iv only
d) All i, ii, iii and iv

Answer: c

25. In java applet, we can display numerical values by first converting them into string and then using the .....method.

a) paint( )
b) drawstring( )
c) draw( )
d) convert( )

Answer: b

26. We can change the text to be displayed by an applet by supplying new text to be displayed by an applet by supplying new text to the applet through a ..... tag.

a) <EDIT>
b) <CHANGE>
c) <REPLACE>
d) <PARAM>

Answer: d

27. Which of the following is/are the possible values for alignment attribute of Applet tag.

i) Top ii) Left iii) Middle iv) Baseline

a) i, ii and iii only
b) ii, iii and iv only
c) i, iii and iv only
d) All i, ii, iii and iv

Answer: d

28. The …….. attribute of applet tag specifies the amount of horizontal blank space the browser should leave surrounding the applet.

a) SPACE=pixels
b) HSPACE=piexls
c) HWIDTH=piexls
d) HBLANK=pixels

Answer: b

29. ……. attribute of applet tag specify the width of the space on the HTML page that will reserved for the applet.

a) WIDTH=pixels
b) HSPACE=piexls
c) HWIDTH=piexls
d) HBLANK=pixels

Answer: a

30. An applet is a Java class that extends the?

a) java.Applet class
b) java class
c) Applet class
d) java.applet.Applet class

Answer: d

31. Applets are designed to be embedded within an_____.

a) Javascript
b) Css
c) HTML
d) SQL

Answer: c

32. Which of the following is required to view an applet?

a) JCM
b) JDM
c) JVM
d) Java class

Answer: c

33. Which method is automatically called after the browser calls the init method?

a) start
b) stop
c) destroy
d) paint

Answer: a

34. Which method is only called when the browser shuts down normally?

a) start
b) stop
c) destroy
d) paint

Answer:c

06 – Managing Input, Output, Files in Java	Marks:-08

Content of Chapter:-

6.1 Introduction and Concept of Streams.
6.2 Stream Classes.
6.3 Byte Stream Classes: Input Stream Classes, Output Stream Classes.
6.4 Character Stream Classes, Using streams.
6.5 Using File Class: I/O Exceptions, Creation of Files, Reading/Writing characters, Reading/Writing Bytes, Handling Primitive Data types.

1. What does AWT stands for?
a) All Window Tools
b) All Writing Tools
c) Abstract Window Toolkit
d) Abstract Writing Toolkit
Answer: c
Explanation: AWT stands for Abstract Window Toolkit, it is used by applets to interact with the user.

2. Which of these is used to perform all input & output operations in Java?
a) streams
b) Variables
c) classes
d) Methods
Answer: a
Explanation: Like in any other language, streams are used for input and output operations.

3. Which of these is a type of stream in Java?
a) Integer stream
b) Short stream
c) Byte stream
d) Long stream
Answer: c
Explanation: Java defines only two types of streams - Byte stream and character stream.

4. Which of these classes are used by Byte streams for input and output operation?
a) InputStream
b) InputOutputStream
c) Reader
d) All of the mentioned
Answer: a
Explanation: Byte stream uses InputStream and OutputStream classes for input and output operation.

5. Which of these classes are used by character streams for input and output operations?
a) InputStream
b) Writer
c) ReadStream
d) InputOutputStream
Answer: b
Explanation: Character streams uses Writer and Reader classes for input & output operations.

6. Which of these class is used to read from byte array?
a) InputStream
b) BufferedInputStream
c) ArrayInputStream
d) ByteArrayInputStream
Answer: d

7. What will be the output of the following Java program if input given is „abcqfghqbcd‟?

```
class Input_Output
{
   public static void main(String args[]) throws IOException
   {
      char c;
      BufferedReader obj = new BufferedReader(new InputStreamReader(System.in));
      do
      {
         c = (char) obj.read();
             System.out.print(c);
      } while(c != 'q');
   }
}
```

a) abcqfgh
b) abc
c) abcq
d) abcqfghq
Answer: c

8. What will be the output of the following Java program if input given is “abc‟def/‟egh”?

```
class Input_Output
{
   public static void main(String args[]) throws IOException
   {
      char c;
      BufferedReader obj = new BufferedReader(new InputStreamReader(System.in));
      do
      {
         c = (char) obj.read();
             System.out.print(c);
      } while(c!='\'');
   }
}
```

a) abc‟
b) abcdef/‟
c) abc‟def/‟egh
d) abcqfghq
Answer: a
Explanation: \‟ is used for single quotes that is for representing „ .

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

```
class output
{
   public static void main(String args[])
   {
      StringBuffer c = new StringBuffer("Hello");
      System.out.println(c.length());
   }
}
```

a) 4
b) 5
c) 6
d) 7

Answer: b
Explanation: length() method is used to obtain length of StringBuffer object, length of “Hello” is 5

10. Which of these class contains the methods print() & println()?
a) System
b) System.out
c) BUfferedOutputStream
d) PrintStream
Answer: d
Explanation: print() and println() are defined under the class PrintStream, System.out is the byte stream used by these methods .

11. Which of these methods can be used to writing console output?
a) print()
b) println()
c) write()
d) all of the mentioned
Answer: d

12. Which of these classes are used by character streams output operations?
a) InputStream
b) Writer
c) ReadStream
d) InputOutputStream
Answer: b
Explanation: Character streams uses Writer and Reader classes for input & output operations.

13. Which of these class is used to read from a file?
a) InputStream
b) BufferedInputStream
c) FileInputStream
d) BufferedFileInputStream
Answer: c

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

```
class output
{
   public static void main(String args[])
   {
      String a="hello i love java";
      System.out.println(indexof('i')+" "+indexof('o')+" "+lastIndexof('i')+" "+lastIndexof('o') ));
   }
}
```

a) 6 4 6 9
b) 5 4 5 9
c) 7 8 8 9
d) 4 3 6 9

Answer: a

Explanation: indexof(„c") and lastIndexof(„c") are pre defined function which are used to get the index of first and last occurrence of the character pointed by c in the given array.

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

```
class output
{
   public static void main(String args[])
   {
      char c[]={'a','1','b',' ','A','0'];
      for (int i = 0; i < 5; ++i)
      {
            if(Character.isDigit(c[i]))
             System.out.println(c[i]" is a digit");
         if(Character.isWhitespace(c[i]))
           System.out.println(c[i]" is a Whitespace character");
         if(Character.isUpperCase(c[i]))
           System.out.println(c[i]" is an Upper case Letter");
         if(Character.isUpperCase(c[i]))
           System.out.println(c[i]" is a lower case Letter");
         i = i + 3;
      }
   }
}
```

a) a is a lower case Letter
is White space character
b) b is a lower case Letter
is White space characte
c)a is a lower case LetterA
is a upper case Letter
d) a is a lower case Letter
0 is a digit

Answer: a

Explanation: Character.isDigit(c[i]),Character.isUpperCase(c[i]),Character.isWhitespace(c[i]) are the function of library java.lang they are used to find weather the given character is of specified type or not. They return true or false i:e Boolean variable.

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

```
class output
{
   public static void main(String args[])
   {
     StringBuffer s1 = new StringBuffer("Hello");
     StringBuffer s2 = s1.reverse();
     System.out.println(s2);
   }
}
```

a) Hello
b) olleH
c) HelloolleH
d) olleHHello
Answer: b
Explanation: reverse() method reverses all characters. It returns the reversed object on which it was called.

17. Which of these class contains the methods used to write in a file?
a) FileStream
b) FileInputStream
c) BUfferedOutputStream
d) FileBufferStream
Answer: b

18. Which of these exception is thrown in cases when the file specified for writing is not found?
a) IOException
b) FileException
c) FileNotFoundException
d) FileInputException
Answer: c
Explanation: In cases when the file specified is not found, then FileNotFoundException is thrown by java run-time system, earlier versions of java used to throw IOException but after Java 2.0 they throw FileNotFoundException.

19. Which of these methods are used to read in from file?
a) get()
b) read()
c) scan()
d) readFileInput()
Answer: b
Explanation: Each time read() is called, it reads a single byte from the file and returns the byte as an integer value. read() returns -1 when the end of the file is encountered.

20. Which of these values is returned by read() method is end of file (EOF) is encountered?
a) 0
b) 1
c) -1
d) Null
Answer: c
Explanation: Each time read() is called, it reads a single byte from the file and returns the byte as an integer value. read() returns -1 when the end of the file is encountered.

21. Which of these exception is thrown by close() and read() methods?
a) IOException
b) FileException
c) FileNotFoundException
d) FileInputOutputException
Answer: a
Explanation: Both close() and read() method throw IOException.

22. Which of these methods is used to write() into a file?
a) put()
b) putFile()
c) write()
d) writeFile()
Answer: c

23. What will be the output of the following Java program?
```
import java.io.*;
class filesinputoutput
{
   public static void main(String args[])
   {
      InputStream obj = new FileInputStream("inputoutput.java");
      System.out.print(obj.available());
   }
}
```
Note: inputoutput.java is stored in the disk.
a) true
b) false
c) prints number of bytes in file
d) prints number of characters in the file
Answer: c
Explanation: obj.available() returns the number of bytes.

24. What will be the output of the following Java program?
```
import java.io.*;
public class filesinputoutput
{
      public static void main(String[] args)
   {
         String obj = "abc";
```

```
        byte b[] = obj.getBytes();
        ByteArrayInputStream obj1 = new ByteArrayInputStream(b);
        for (int i = 0; i < 2; ++ i)
        {
           int c;
           while((c = obj1.read()) != -1)
           {
            if(i == 0)
              {
               System.out.print(Character.toUpperCase((char)c));
                 obj2.write(1);
            }
           }
           System.out.print(obj2);
        }
      }
   }
```

a) AaBaCa
b) ABCaaa
c) AaaBaaCaa
d) AaBaaCaaa
Answer: d

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

```
   import java.io.*;
   class Chararrayinput
   {
      public static void main(String[] args)
      {
            String obj   = "abcdef";
         int length = obj.length();
         char c[] = new char[length];
         obj.getChars(0, length, c, 0);
         CharArrayReader input1 = new CharArrayReader(c);
         CharArrayReader input2 = new CharArrayReader(c, 0, 3);
         int i;
         try
         {
                  while((i = input2.read()) != -1)
           {
              System.out.print((char)i);
           }
            }
         catch (IOException e)
         {
            e.printStackTrace();
            }
        }
   }
```

a) abc
b) abcd
c) abcde
d) abcdef
Answer: a

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

```
import java.io.*;
class Chararrayinput
{
   public static void main(String[] args)
   {
         String obj = "abcdefgh";
      int  length =  obj.length();
      char c[] = new char[length];
      obj.getChars(0, length, c, 0);
      CharArrayReader input1 = new CharArrayReader(c);
      CharArrayReader input2 = new CharArrayReader(c, 1, 4);
      int i;
      int j;
      try
      {
               while((i = input1.read()) == (j = input2.read()))
        {
           System.out.print((char)i);
        }
         }
      catch (IOException e)
      {
        e.printStackTrace();
         }
    }
}
```

a) abc
b) abcd
c) abcde
d) none of the mentioned
Answer: d
Explanation: No output is printed. CharArrayReader object input1 contains string “abcdefgh” 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.

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