

**KERALA PUBLIC SCHOOLS**  
**HOME ASSIGNMENT (6<sup>TH</sup> to 11<sup>TH</sup> July 2020)**



CLASS	SUBJECT	ASSIGNMENT
X	COMPUTER	<ol style="list-style-type: none"><li>1. Why is Java often termed as a platform? Ans: Platform is the environment in which programs execute. Instead of interacting with the Operating System directly, Java programs runs on a virtual machine provided by Java, therefore Java is often referred to as a platform also.</li><li>2. What is a bytecode? Ans: Bytecode is a set of pseudo mechanic language instructions that are understood by the JVM (Java Virtual Machine) and are independent of the underlying hardware.</li><li>3. What do you understand by JVM? Ans: JVM or Java Virtual Machine is an abstract machine. Programs written in Java are compiled into Java byte-code, which is then interpreted by a special java Interpreter for a specific platform. Actually this Java interpreter is known as Java Virtual Machine (JVM).</li><li>4. What is JDK (Java Development Kit)? Ans: The Java development kit comes with a collection of tools that are used for developing and running java programs.</li><li>5. What are Java APIs? Ans: The Java APIs (Application Program Interface) consist of libraries of pre-compiled code that programmers can use in their application.</li><li>6. Write the five characteristics of Java/BlueJ? Ans: 1. Write Once Run Anywhere 2. Light weight code 3. Security 4. Built in Graphics 5. Object Oriented Language 6. Support Multimedia 7. Platform Independent. 8. Open Product.</li><li>7. What do you know about BlueJ? Ans: BlueJ is a Java development environment. It is an IDE (Integrated Development Environment), which includes an editor a debugger and a viewer.</li><li>8. The two types of Java programs/applications are? [2007]</li></ol>

Ans: The two types of Java Applications are 'Internet Applets' and 'Stand alone application'.

9. State the differences between Syntax errors and Run time errors.

Ans: The compiler can only translate a program if the program is syntactically correct; otherwise the compilation fails and you will not be able to run your program. Syntax refers to the structure of your program and the rules about that structure.

The second type of error is a run-time error, so-called because the error does not appear until you run the program. In Java, run-time errors occur when the interpreter is running the byte code and something goes wrong.

10. "Object is an instance of a class", explain

Ans: Object of a class contains data and functions provided in a class. it possesses all the features of a class. Hence object is termed as instance of a class.

11. Differentiate between Compiler and Interpreter.

Ans: Compiler convert source code to machine language whole at a time. Interpreter converts program from high level language to machine level language line by line or statement by statement.

12. Java uses compiler as well as interpreter, explain.

Ans: Java compiler converts Java source code to byte code. This byte code is further converted into machine code to make it applicable for the specific platform by using interpreter.

13. Differentiate between Source code and Byte code.

Ans: Source code is the program developed in Java Language, which is input to a computer through the keyboard. Compiler converts source code to byte code for interpretation.

14. Differentiate between Testing and Debugging.

Ans: Testing is the process of checking program logic manually to ensure whether it contains any error or not. Debugging is the process of removing errors from a progr

15. What is an Object?

Ans: An Object is an identifiable entity with some characteristics and behavior. E.g. take a class 'Car'. A car class has characteristics like colour, gears, power, length etc. now we create the object of that class 'Car' namely 'Indica'.

16. What are the features/concepts in OOP's? || Name any two OOP'S principles.

Ans: The concepts of OOP's are: (1) Data Abstraction (2) Data Encapsulation (3) Modularity (4) Inheritance (5) Polymorphism.

17. Explain all the Concepts of OOP's?

Ans: Abstraction: It refers to the act of representing essential features without including the background details or explanation.

Encapsulation: It is the way of combining both data and the function that operates on the data under a single unit.

Modularity: It is the property of a system that has been decomposed into a set of cohesive and loosely couple modules. Inheritance: It is the capability of one class of thing to inherit properties from another class.

Polymorphism: It is the ability for a message or data to be processed in more then one form.

Inheritance: It is process by which objects of one class acquire the properties of objects of another class.

18. What is Class? How Object is related to the Class?

Ans: A Class represent a set of Objects that share common characteristics and behavior. Objects are instance of a class. The Object represents the abstraction representation by the class in the real sense.

19. What is an abstraction?

Ans: Abstraction refers to the act of representing essential features without including the background details or explanation.

20. What is inheritance and how it is useful in Java.

Ans: It is process by which objects of one class acquire the properties of objects of another class. Inheritance supports the concepts of hierarchical representation. In OOP the concepts of inheritance provides the idea of reusability.

21. What is Data hiding?

Ans: Data Hiding means restricting the accessibility of data associated with an object in such a way that it can be used only through the member methods of the object.

22. What are keywords? can keywords be used as a identifiers?

Ans: Keywords are the words that convey a special meaning to the language compiler. No, keywords can never be used as identifiers.

23. What is an identifier? What is the identifier formatting rule of Java? OR What are the rules for naming a variable?

Ans: Identifiers are names given to different parts of a program e.g. variables, functions, classes etc. The identifiers in Java.

- a. Can contains alphabets, digits, dollar sign and underscore.
- b. Must not start with a digit.
- c. Can not be a Java keywords.

d. Can have any length and are case-sensitive.

24. What are literals? How many types of integer literals are available in Java?

Ans: A literal is sequence of characters used in a program to represent a constant value. For example 'A' is a literal that represents the value A of type char, and 17L is a literal that represents the number 17 as value of type long.

Different types of literals available in Java, they are: Integer literal, Float literal, Boolean literal, Character literal, String literal and null literal.

25. What is a 'Data Type'?

Ans: A data type represents a set of possible values. When we specify that a variable has certain type, we are saying what values the expression can have. For example to say that a variable is of type int says that integer values in a certain range can be stored in that variable.

26. What is primitive data type? Name its different types.

Ans: Primitive data types are those that are not composed of other data types. Numeric Integral, Fractional, character and boolean are different primitive data types

27. State the two kind on data types?

Ans: The two types of data types are: Primitive and non-primitive/composite/user define data types. The primitive data types are: byte, short, int, long, float, double, char and Boolean. The non-primitive/reference data types are: class, array and interface.

28. Write down the names of three primitive and three non-primitive/reference data types in Java/BlueJ.

Ans: The primitive data types are: byte, short, int, long, float, double, char and Boolean. The non-primitive/reference data types are: class, array and interface.

29. How many bytes occupied by the following data types: byte, short, int, long, float, double, char, boolean.

Ans: char-2 byte, byte-1 byte, short-2 bytes, int-4 bytes, long-8 bytes, float-4 bytes, double-8 bytes, boolean-Java reserve 8 bits but only use 1 bit.

30. What is Token? What are the tokens available in Java?

Ans: The smallest individual unit of a program is known as Token. The following Tokens are available in Java:- Keywords, Identifiers, Literals, Punctuations, Operators.

31. What do you mean by variables?

Ans: A variable is a named memory location, which holds a data value of a particular data types. E.g. double p;

32. What do you mean by variables? What do you mean by dynamic initialization of a variable?

Ans: A variable is a named memory location, which holds a data value of a particular data types. When a method or functions is called and the return value is initialise to a variable is called dynamic initialisation. example double  
p=Math.pow(2,3);

33. What is the function of an operator?

Ans: Operators are special symbols that represent operations that can be carried out on variables, constants or expressions.

34. What do you mean by operator and write the name of all operators.

Ans: The operations are represented by operators and the object of the operations are referred to as operands. The types of Operators available in Java are:

1. Arithmetic 2. Increment/Decrement 3. Relational 4. Logical 5. Shift 6. Bitwise 7. Assignment 8. Conditional 9. [ ] operator 10. new operator

35. What are arithmetic operators?

Ans: Arithmetical operators are used for various mathematical calculations. The result of an arithmetical expression is a numerical values. Arithmetical operators are of following types: Unary and Binary operators.

36. Write major difference between the unary and binary operators?

Ans: The operators that acts on one operand are referred to as Unary Operator. There are two Unary operators Unary + operator and Unary – operator. The operators that acts upon two operands are referred to as Binary Operator. The Binary Operators are Addition(+), Subtraction (-), Multiplication (\*), Division (/) and Modulus (%).

37. What is increment operator? What are postfix and prefix increment operators?

Ans: The ‘++’ operator is called increment operator. The increment operators add 1 to its operand. These are two types (i) Prefix and (ii) Postfix The prefix version comes before the operand for e.g. ++a, where as postfix comes after the operand e.g. a++

38. What do you mean by Relational Operators.

Ans: Relational operators are used to determine the relationship between different operands. These are used in work of compression also. The relational expression (condition) returns 0 if the relation is false and return 1 if the relation is true. < (less then), > (greater then), <= (less then equals to), >= (greater then equals to), == (equals to), != (not equals to).

39. What is Logical operators?

Ans: The logical operators combine the result of or more then two expressions. The mode of connecting relationship in these expressions refers as logical and the expressions are called logical expression. The logical expression returns 1 if the result is true otherwise 0 returns. The logical operators provided by Java are && Logical AND, || Logical OR, ! Logical NOT.

40. What do you man by Assignment Statement or Assignment Operator?

Ans: Assignment operator is represent by symbol '='. It takes the value on the right and stores it in the variable on the left side. for example  $x = y + 30$

41. What is the purpose of new operator? [2006]

Ans: We can use new operator to create a new objects or new array.

Ex. myClass obj = new myClass();

int arr[] = new int[5];

42. What do you mean by precedence? Illustrate with the help of example.

Ans: Precedence is the order in which a program evaluates the operations in a formula or expression. All operators have precedence value. An operator with higher precedence value is evaluated first then the operator having lower precedence value. consider the following example

$x = 5 + 4 * 6;$

The value of this expression is 29 not 54 or 34. Multiplication has been performed first in this expression.

43. What is operands?

Ans: An operator acts on different data items/entities called operands.

44. What do you mean by constant? How you declare a variable as constant variables.

Ans: The memory variables/locations whose values can not be changed within the program is called constants. The keyword final makes a variable as constants.

45. Which class is used for using different mathematical function in Java program? [2007]

Ans: The class used for different mathematical functions in Java is java.lang.Math

46. What do you mean by type conversion? What is the difference between implicit and explicit type conversion explain with example.

Ans: The process of converting one predefined type into another is called Type Conversion.

A implicit type conversion is a conversion performed by the compiler. The Java compiler converts all operands up to the type of the largest operand. This is also known as type promotion. e.g. 'c'-32 is converted to int type. Where as an explicit type conversion is user defined that forces an expression to be of specific type, this also known as type casting. e.g. (float)(x+y/2)

47. What is coercion?

Ans: Implicit type conversion of an expression is termed as coercion. A implicit type conversion is a conversion performed by the compiler. The Java compiler converts all operands up to the type of the largest operand. This is default type conversion.

48. What do you mean by type casting? What is the type cast operator?

Ans: The explicit conversion of an operand to a specific type is called type casting. The operator that converts its operand to a specified type is called the typecast operator. The typecast operator is ( ) in Java and is used as (type-to-be-converted-in)

49. Explain the methods print() and println()?

Ans: A computer program is written to manipulate a given set of data and to display or print the results. Java supports two output methods that can be used to send the results to the screen. print() method println() method.

The print() method sends information into a buffer. This buffer is not flushed until a new line (or end-of-line) character is sent. As a result print() method prints output on one line.

The println() method by contrast takes the information provided and displays it on a line followed by a line feed.

50. What is an Expression?

Ans: An Expression is any statement which is composed of one or more operands and return a vale. It may be combination of operators, variables and constants.

51. Mention two different styles of expressing a comment in a program. [2005]

Ans: The two ways of inserting a comments in a program are:

(i) using // single line comments

(ii) using /\* \*/ multiple line comments

52. Differentiate between operator and expression. [2005]

Ans: The operations are represented by operators and the object of the operations are referred to as operands. The expression is any valid combination of operators, constant and variables.

53. What is a compound Statement? Give an Example. [2005]

Ans: It is a block of code containing more than one executable statement. In Java the { } is called block and the statements written under { } is called compound statements or block statement. The { } opening and closing braces indicates the start and end of a compound statement.

```
for(int i=1;i<=5;i++)  
{  
System.out.println("Hello");  
System.out.println("How");  
System.out.println("are you?");  
}
```

54. What is a statement?

Ans: Statements are the instructions given to the computer to perform any kind of action, as data movements, making decision or repeating action. Statements form the smallest executable unit and terminated with semi-colon.

55. What are the three constructs that govern statement flow?

Ans: The three constructs that governs statement flow are: Sequence, Selection and Iteration constructs.

56. What is a selection/conditional statement? Which selection statements does Java provides?

Ans: A selection statement is the one that is used to decide which statement should be execute next. This decision is based upon a test condition. The selection statements provided by Java are: if-else and switch. The conditional operator ?: can also be used to take simple decision.

57. What is an 'if' statement? Explain with an example.

Ans: the 'if' statement helps in selecting one alternative out of the two. The execution of 'if' statement starts with the evaluation of condition. The 'if' statement therefore helps the programmer to test for the condition. General form of 'if' statement.

```
if(expression) statement  
if(marks>=80)  
System.out.println("Grade A");
```



58. What is the significance of a test-condition in a if statement?

Ans: It is the test condition of an if statement that decides whether the code associated with the if part or the one associated with the else part should be executed. The former is executed if the test condition evaluates to true and the latter works if the condition evaluates to false.

59. Write one advantage and one disadvantage of using ?: in place of an if.

Ans: Advantage: It leads to a more compact program. Disadvantage: Nested ?: becomes difficult to understand or manage.

60. What do you understand by nested 'if' statements?

Ans: A nested 'if' is an statement that has another 'if' in its body or in it's appearance. It takes the following general form.

```
if(ch>='A')
{
if(ch<='Z')
++upcase;
else
++other;
```

61. What is a switch statement? How is a switch statement executed?

Ans: Switch statement successively tests the value of an expression against a set of integers or character constants. When a match is found, the statements associated with the constants are executed. The syntax `switch(expression)`

```
{
case constants : statements; break;
case constants : statements; break;
}
```

The expression is evaluated and its values are matched against the value of the constants specified in the case statements. When a match is found, the statements sequence associated with that case is executed until the break statement or the end of switch statement is reached.

62. What is the significance of break statement in a switch statement?

Ans: In switch statement when a match is found the statement sequence of that case is executed until a 'break' statement is found or the end of switch is reached, when a 'break' statement is found program execution jumps to the line of code following the switch statement.

63. What is a control variable in a switch case?

Ans: A control variable in switch case is one which guides the control to jump on a specified case. e.g. switch(x), here 'x' is the control variable.

64. What is a "fall through"?

Ans: The term "fall through" refers to the way the switch statement executes its various case sections. Every statement that follows the selected case section will be executed unless a break statement is encountered.

65. What is the effect of absence of break in a switch statement?

Ans: Absence of break statement in a switch statement leads to situation called "fall through" where once a matching case is found the subsequence case blocks are executed unconditionally

66. Write one limitation and one advantage of switch statement?

Ans: Advantage: More efficient in case a value is to be tested against a set of constants. Disadvantage: switch can test only for equality, so for the rest of comparisons one needs to use if-else.

67. What are iteration statements? Name the iteration statements provided by Java?

Ans: Iteration statements are statements that allows a set of instructions to be executed repeatedly till some condition is satisfied. The iteration statements provided by Java are: for loop, while loop, do-while loop.

68. What is the difference between entry controlled and exit controlled loop? or

What is the difference between while and do-while loop?

Ans: while loop is known as entry controlled loop and do-while loop is known as exit-controlled loop. The differences between these two loops are: (1) In while loop the test expression is evaluated at the beginning where as in do-while loop test expression is evaluated at the bottom, after the body of the loop. (2) In while loop if the test expression is false loop does not continued but in do-while what ever the test expression the loop execute at least once.

69. Explain the difference between break and continue with an example.

Ans: Both statements are used as a jumped statement. But there is a difference between Break and Continue statement. The break statement terminate the loop, but the continue statement skip the rest of the loop statement and continued the next iteration of the loop.

EXAMPLE SHOUL BE GIVEN WITH OUTPUT

70. Explain the term for loop with an example. [2005]

Ans: In Java the 'for' statement is the most common iterative statement. the general syntax of the for loop is,  
for(initialization; test-expression; increment)

```
{  
body of the loop  
}
```

This loop is executed at initial value, condition and increment. Three statement separated by semi colons are placed with in the parenthesis. for example:

71. State one similarity and one difference between while and do-while loop.

Ans: Similarity: In both loops there is a chances to forget the increment statement inside the loop. Difference: In while loop the test expression is evaluated at the beginning where as in do-while loop test expression is evaluated at the bottom, after the body of the loop.

72. What do you meant by an infinite loop? Give an example. || What do you meant by an endless loop? Give an example.

Ans: Infinite loop is an endless loop whose number of iterations are not fixed.

eg: for(;;)  
System.out.println("java");

73. Differentiate Null loop and Infinite loop.

Ans: A Null loop does not contains any statement to repeat where as infinite loop repeats execution of the statements for endless iterations.

e.g. of null loops for(int i=1;i<=10;i++);  
e.g. for infinite loop for(int i=10;i>=1;i++)

74. What do you mean by delay loop?

Ans: A null loop is also called delay loop which does not repeat the execution of any statement but keeps the control engaged until the iterations are completed.

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