

Question 6.

- Operator are the symbol which are used to perform the operation on two (or) more operands to get the desired output.
- There are two key points to perform operation. One is operator and another one is operands.

There are several types of Operators in Java

① Unary Operator → $++$ (Increment)
 $--$ (Decrement)
 $!$ (Negation)

② Arithmetic Operator → $+$ (Addition) ✓
 $-$ (Subtraction) ✓
 $*$ (Multiplication) ✓
 $/$ (Division) ✓
 $^$ (Exponent) ✓
 $\%$ (Modulus) ✓

③ Assignment Operator → $=$ (Assignment) ✓
 $+=$ (Assignment Addition) ✓
 $-=$ (Assignment Sub) ✓
 $*=$ (Assignment Multiplication) ✓
 $/=$ (Assignment division) ✓
 $\% =$ (Assignment modulus) ✓

④ Logical Operator → $\&\&$ (logical And) ✓
 $||$ (logical OR) ✓
 $!$ (logical Not) ✓

⑤ Bitwise Operator → $\begin{cases} \& \text{(Bitwise And)} \\ | \text{(Bitwise Or)} \\ ^\wedge \text{(Bitwise XOR)} \\ \sim \text{(Bitwise NOT)} \end{cases}$

⑥ Relational Operator → $\begin{cases} > \text{(Greater than)} \\ >= \text{(Greater than or equal to)} \\ < \text{(less than)} \\ <= \text{(less than or equal to)} \\ == \text{(is equal to)} \\ != \text{(not equal to)} \end{cases}$

⑦ Shift Operator → $\begin{cases} >> \text{(left shift)} \\ << \text{(right shift)} \end{cases}$

⑧ Ternary Operator (Conditional Operator)
(Condition?) : (Statement 1) : (Statement 2)

① Unary Operator

→ The operator is performed with the single operands.

→ These operators performed increment, decrement and negation operations.

→ TYPES :- $\begin{array}{ll} ++ \text{(Increment)} & \begin{cases} \rightarrow \text{pre increment} \\ \rightarrow \text{post increment} \end{cases} \\ -- \text{(Decrement)} & \begin{cases} \rightarrow \text{pre decrement} \\ \rightarrow \text{post decrement} \end{cases} \\ ! \text{(Negation)} & \end{array}$

② Arithmetic Operator

→ Arithmetic Operator is also called as mathematical operator.

→ Arithmetic Operator is used to perform addition, subtraction, multiplication, division, modulus operation.

→ Arithmetic Operation is performed on two operands.

→ TYPES:-
+ (Addition) - (Subtraction)
* (Multiplication) / (Division)
^ (Exponential) % (Modulus)

③ Assignment Operator

→ Assignment Operator is used to assign a value to the left most operands.

→ Assignment operation is performed on two operands.

→ TYPES:-
== (Assignment Equal to), += (Assignment Add)
-= (Assignment Subtraction),
/= (Assignment Division),
*= (Assignment Multiplication),
%= (Assignment Modulus).

④ Logical Operator

→ Logical Operation is used to compare two or more logic.

→ Logical operator returns the boolean values of true or false.

→ TYPES:-
&& (Logical AND),
|| (Logical OR),
! (Logical NOT),

⑤ Bitwise Operator

→ Bitwise Operator is used to perform the operation

On the bit string or bit array.

→ Bitwise Operation performs on two operands.

→ TYPES: & (Bitwise AND)
 | (Bitwise OR)
 ^ (Bitwise XOR)
 ~ (Bitwise NOT)

⑥ Relational Operator

→ Relational Operator is used to combine or evaluate the relation between two or more operands.

→ Relational operation is performed on two or more operands.

→ TYPES: > (Greater than), >= (Greater than Equal to)
 < (Less than), <= (Less than Equal to)
 == (Is Equal to), != (Not Equal to)

⑦ Shift Operator

→ Shift Operator is used to shift the bitwise string operation.

→ TYPE: >>, << (left shift and right shift)

⑧ Ternary Operator / Conditional Operator

→ This Operator is used to perform the control of the statement when more than 2 statements are available.

→ (Condition)? (Statement 1) : (Statement 2) ...