Variables and Data types

Q1) What is statically typed and Dynamically typed programming language?

Ans) Statically and dynamically typed languages are two different approaches to how variables are checked for type correctness in programming languages.

In statically typed language, the type of a variable is determined at compile-time & cannot changed at runtime.
Eg- Java, C, C++ and Swift.

In dynamically typed language, the type of a variable is determined at runtime and can be changed during the execution of the program.
Eg- Python, Ruby, Javascript and PHP.

Q2) What is the variable in Java?

Ans) A variable is a container that stores a value of a specific data type, such as a number, a string of characters, or a boolean (true or false). Variables are used to hold data that can be accessed and manipulated throughout the program.

Q3) How to assign a Value to Variable?

Ans) by using the assignment operator (=).

eg - int num = 20 ;

Q4) What are primitive data types in Java?

Ans) Primitive data types are basic data types that represent the most fundamental data types that can be stored in a Variable. Their are 8 primitive data types.

i) byte - 1 byte default Value 0.
ii) short - 2 byte default Value 0
iii) int - 4 byte default Value 0
iv) long - 8 byte. default Value 0L
v) float - 4 byte default Value 0.0f
vi) double - 8 byte default Value 0.0d
vii) boolean - 1 bit default Value false
viii) Char - 2 byte default Value '\u0000'

1 byte = 8 bits.
range formula = 2^n , n is bits.
0 to $(2^n - 1)$

Q5) What are the identifiers in Java?

Ans) An identifier is a name given to a Variable, method, Class, or other programming Construct.

Q6) List the operators in Java?

Ans)

i) Arithmetic (+, -, *, /, %)
ii) Relational ==, <, >, <=, >=, !=
iii) logical &&, ||, !
iv) Assignment =, +=, -=
v) Unary i++, i+-, ++i, --i
vi) Bitwise &, ^, |
(And, Exclusive OR, inclusive OR)

Q7) Explain about increment and decrement operators and give an examples.

Ans) This are unary operators, meaning they are applied to a single operand. These operators are used to increase or decrease the value of a variable by one.
their are two ways

i) postfix i++, i--
ii) prefix ++i, --i

Eg

```
int i = 5;
int j = i++;
```

⇒ i = 6, j = 5

↓

first assign then increment

```
int i = 5
int j = ++i;
```

i = 6, j = 6.

↓

first increment then assign.