Chapter- 3 VALUES AND DATA TYPES Assignment Questions with Answers

1. Write any two Separators (punctuators) used in Java.

Answer: `;` (semicolon), `{}` (curly braces)

2. What do you understand by variables? Give an example.

Answer: A variable is a name given to a memory location that holds data during program execution.
Example: `int age = 18;`

3. **Identify the name of the following tokens:**
   a. public
   b. 'a'
   c. ==
   d. {}

Answer:
a. Keyword
b. Character Literal
c. Relational Operator
d. Separators or Braces

4. **Write the number of bytes occupied by the following primitive data types:**
   a. long
   b. float
   c. double
   d. short

Answer:
a. 8 bytes
b. 4 bytes
c. 8 bytes
d. 2 bytes

5. Distinguish between:

a. char and boolean: char stores a single character (e.g., 'A'); boolean stores true or false.
b. int and char: int stores numbers (e.g., 5); char stores characters (e.g., 'B').
c. \t and \n: \t inserts a tab; \n inserts a new line.
d. Token and Identifier: Token is smallest unit (e.g., keyword), Identifier is user-defined name.
e. Keyword and Identifier: Keyword is reserved (e.g., int), Identifier is user-defined (e.g., total).

6. Write the variables used and their data type in the following program:

Variables:
a - int
b - int
c - int

7. **Write the output of the following code:**

```
char x = 'a';
System.out.println(x + x);
System.out.println((int)x + (int)x);
```

Output:
194
194

8. What is the result of evaluating the following expression? (1 + 2 * 2) / 2 + 2

Answer: 4

9. Why can't you use a keyword as a variable name?

Answer: Because keywords have predefined meanings in Java and are reserved for special use.

10. Which of the following are Java keywords? input, class, public, int, x, y, radius

Answer: class, public, int

11. Distinguish between "A" and 'A':

Answer: "A" is a String literal; 'A' is a Character literal.

12. What is variable initialisation in Java? What are the default values of the following types of variables: short, int, long, float, double and char.

Answer:
short - 0
int - 0
long - 0L
float - 0.0f
double - 0.0d
char - '\u0000'
boolean - false

13. What do you understand by type conversion?

Answer: Type conversion is the process of converting one data type to another.

14. What is type casting in Java? Give an example.

Answer: Explicitly converting a data type to another.
Example: double d = (double) 5 / 2; // 2.5

15. How is an implicit type conversion different from explicit type conversion?

Answer:
Implicit: done by compiler, no data loss (e.g., int to double).
Explicit: done by programmer, may lose data (e.g., double to int).