

CLASS -10 (2025-26)

Values and Types

CHAPTER 3

Assignments:-

A. Tick (✓) the correct answers

1. To store character values, a corresponding numeric value is generated in:

Answer: d. Unicode

2. Which of the following is the correct way to declare a constant variable in Java?

Answer: b. `final int MAX_VALUE = 100;`

3. Which escape sequence is used to represent a tab in a string?

Answer: b. `\t`

4. Which of the following is an example of a reference data type?

Answer: b. array

5. Which of the following can be used while creating an identifier?

Answer: d. All of these

6. Which of the following escape sequences is used to insert a backslash character (\) inside a string in Java?

Answer: b. `\\`

7. Which of the following is true about primitive data types in Java?

Answer: d. They are directly stored in memory

8. Which of the following statements correctly initializes a String variable?

Answer: d. `String str = new String("Hello");`

9. Which of the following is required for an explicit type conversion?

Answer: c. Type casting

10. Which of the following is NOT a valid explicit type conversion in Java?

Answer: c. `boolean b = (boolean) 1;`

B. Fill in the blanks

1. Characters set in Java consists of letters, digits and _____ characters.

Answer: special

2. Implicit type conversion takes place when the two types are _____.

Answer: compatible

3. Non-primitive data types are also called _____ data types.

Answer: reference

4. The size of the 'short' data type is _____ data types.

Answer: 2 bytes

5. The _____ is a special Java literal which represents a null value.

Answer: null

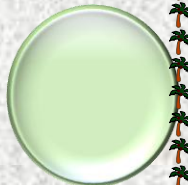
C. Answer the following questions

1. Define String literals and boolean literals.

Answer:

- **String literal:** A sequence of characters enclosed in double quotes. Example: "Hello"
- **Boolean literal:** Represents truth values: true or false

2. Write the difference between declaration and initialization.



Answer:

- **Declaration:** Defining a variable with its data type. Example: `int a;`
- **Initialization:** Assigning value to a variable. Example: `a = 10;`

3. Name the various tokens used in Java.

Answer:

- Keywords
- Identifiers
- Literals
- Operators
- Punctuators

4. Explain the difference between primitive and non-primitive data types in Java.

Answer:

- **Primitive:** Stores simple values (int, float, char, etc.), stored directly in memory
- **Non-primitive:** Stores reference/address (arrays, objects, String)

5. What is the difference between variables and identifiers?

Answer:

- **Variable:** A storage location that holds a value
- **Identifier:** The name given to a variable, class, or method

D. Assertion and Reasoning based questions

Options:

- a. Both A and R are true, and R is correct explanation of A
- b. Both A and R are true, but R is not correct explanation of A
- c. A is true, but R is false
- d. A is false, but R is true

1.

Assertion (A): ASCII stands for American Standard Code for Information Interchange and is a character encoding standard for text files.

Reason (R): It is made of 512 symbols and consists all letters used in all vernacular languages.

Answer: c. A is true, but R is false

2.

Assertion (A): The escape sequence `\t` in Java is used to represent a horizontal tab.

Reason (R): When `\n` is encountered, it inserts a newline and moves text to next line.

Answer: b. Both A and R are true, but R is not correct explanation of A

Previous Years' Questions

1. Identify the type of operator && :

Answer: c. logical

2. A data type which contains integer as well as fractional part and occupies 32 bits space is:

Answer: a. float

3. Which keyword is used to create symbolic constants in Java?

Answer: a. final

4. State whether the statement is True or False:

char is a non-primitive data type.

Answer: b. False

5. Give the output:

```
int x = 2, y = 4, z = 1;
int result = (++z) + y + (++x) + (z++);
```

Answer: a. 11

6. Write memory capacity of short and float:

Answer:

- short = 2 bytes
- float = 4 bytes

7. Identify and name the tokens:

- public → Keyword
- 'a' → Character Literal
- == → Operator
- { } → Punctuator

8.

```
char ch = '9';  
res = Character.isDigit(ch);
```

Answer:

- Data type: boolean
- Value: true

9. Classify the following as primitive or non-primitive data types:

- String
- arrays
- int
- classes

Answer:

- String → Non-primitive
- arrays → Non-primitive
- int → Primitive
- classes → Non-primitive

10. int x = 'A'; What will be the value of res?

Answer: 65

(ASCII value of 'A' is 65)

11. Name the operators listed below:

- <=
- ++
- &&
- ?:

Answer:

- Less than or equal to operator
- Increment operator
- Logical AND operator
- Conditional (Ternary) operator

12. State the number of bytes occupied by char and int data types.

Answer:

- char → 2 bytes
- int → 4 bytes

13. What are keywords? Give one example.

Answer:

Keywords are predefined words reserved by Java compiler for a specific purpose.

Example: public

14. Write one difference between primitive and non-primitive data type.

Answer:

- Primitive data types store actual values directly.
- Non-primitive data types store reference (address) of the value.

15. What is type casting? Show with example.

Answer:

Type casting is converting one data type into another.

Example:

```
char c = (char) 120;
```

16. What are the default values of int and float?

Answer:

- int → 0
- float → 0.0

17. Identify the literals listed below:

- 0.5
- 'A'
- false
- "a"

Answer:

- Floating-point literal
- Character literal
- Boolean literal
- String literal

18. Arrange the following primitive data types in ascending order of their size:

- char
- double
- int
- byte

Answer:

byte < char < int < double

19. Name the primitive data type in Java that is:

- capable of storing large values
- a single 16-bit Unicode character whose default value is '\u0000'

Answer:

- long
- char

20. State one difference between float and double.

Answer:

- float → occupies 32 bits
- double → occupies 64 bits

Answers of 2025-26_Book

A. Tick (✓) the correct answers.

1. To store character values, a corresponding numeric value is generated in

- Decimal form

- b. Binary form
- c. ASCII
- d. UNICODE

Answer:- c. ASCII

2. **How many escape sequence characters are there in Java?**

- a. 7
- b. 10
- c. 8
- d. 12

Answer:- c. 8

3. **Consider the following code:**

```
datatype variable = (datatype) variable_to_be_converted;
```

Which of the following is represented in the preceding code?

- a. Type conversion
- b. Initialization
- c. Declaration
- d. Operation

Answer:- a. Type conversion

4. **Which of the following is an example of a reference data type?**

- a. int
- b. array
- c. float
- d. double

Answer:- b. array

5. **Which of the following can be used while creating an identifier?**

- a. Letters
- b. Underscore (_)
- c. Dollar (\$)
- d. All of these

Answer:- d. All of these

B. Fill in the blanks.

1. Character set in Java consists of **letters, digits, and special characters**.
Answer:- letters, digits, and special characters
2. Implicit type conversion takes place when the two types are **compatible**.
Answer:- compatible
3. Non-primitive data types are also called **reference** data types.
Answer:- reference
4. The size of the "short" data type is **less** than the "long" data type.
Answer:- less
5. **null** is a special Java literal which represents a null value.
Answer:- null

C. Short Answer Type Questions

1. **Define String literals and boolean literals.**
Answer:-
 - **String literals** are sequences of characters enclosed in double quotes, such as "Hello".
 - **Boolean literals** represent truth values in Java and can only be true or false.
2. **Write the difference between declaration and initialization.**
Answer:-
 - **Declaration** is when a variable is defined with a type but not necessarily given a value (e.g.,
`int x;`).

- **Initialization** is when a declared variable is assigned a value (e.g., `x = 5;`).

3. **Name the various types of tokens used in Java.**

Answer:-

The different types of tokens in Java are:

- I. Keywords
- II. Identifiers
- III. Literals
- IV. Operators
- V. Separators

4. **What is the use of "\n" in Java?**

Answer:-

\n is an escape sequence used in Java to move the output cursor to the next line. It is used to break lines in console output.

5. **What is the difference between variables and identifiers?**

Answer:-

- A **variable** is a named location in memory used to store data during program execution.
- An **identifier** is the name given to elements like variables, classes, methods, etc.
So, all variables are identifiers, but not all identifiers are variables.

Assertion and Reason Questions with Options

1.

Assertion (A): Java uses UNICODE to represent character values.

Reason (R): UNICODE can represent characters from multiple languages around the world.

Options:

- a) Both A and R are true, and R is the correct explanation of A
- b) Both A and R are true, but R is not the correct explanation of A
- c) A is true, but R is false
- d) A is false, but R is true

Answer:- a) Both A and R are true, and R is the correct explanation of A

2.

Assertion (A): Escape sequences in Java help in formatting output.

Reason (R): \n adds a new line, and \t adds a tab space in output.

Options:

- a) Both A and R are true, and R is the correct explanation of A
- b) Both A and R are true, but R is not the correct explanation of A
- c) A is true, but R is false
- d) A is false, but R is true

Answer:- a) Both A and R are true, and R is the correct explanation of A

3.

Assertion (A): The expression `(datatype) variable_to_be_converted` is an example of type casting.

Reason (R): Type casting allows conversion of one data type into another in Java.

Options:

- a) Both A and R are true, and R is the correct explanation of A
- b) Both A and R are true, but R is not the correct explanation of A
- c) A is true, but R is false
- d) A is false, but R is true

Answer:- a) Both A and R are true, and R is the correct explanation of A

4.

Assertion (A): Arrays are primitive data types in Java.

Reason (R): Arrays store a fixed number of elements of the same data type.

Options:

- a) Both A and R are true, and R is the correct explanation of A
- b) Both A and R are true, but R is not the correct explanation of A
- c) A is false, but R is true
- d) A is true, but R is false

Answer:- c) A is false, but R is true

5.

Assertion (A): Identifiers in Java can start with a digit.

Reason (R): Identifiers may only contain letters, digits, underscores, and dollar signs.

Options:

- a) Both A and R are true, and R is the correct explanation of A
- b) Both A and R are true, but R is not the correct explanation of A
- c) A is false, but R is true
- d) A is true, but R is false

Answer:- c) A is false, but R is true

6.

Assertion (A): Implicit type conversion happens when types are incompatible.

Reason (R): Java automatically converts smaller types to larger compatible types.

Options:

- a) Both A and R are true, and R is the correct explanation of A
- b) Both A and R are true, but R is not the correct explanation of A
- c) A is false, but R is true
- d) A is true, but R is false

Answer:- c) A is false, but R is true

7.

Assertion (A): The size of the `short` data type is greater than the `long` data type.

Reason (R): `long` takes 8 bytes whereas `short` takes only 2 bytes in Java.

Options:

- a) Both A and R are true, and R is the correct explanation of A
- b) Both A and R are true, but R is not the correct explanation of A
- c) A is false, but R is true
- d) A is true, but R is false

Answer:- c) A is false, but R is true

8.

Assertion (A): `null` is a special keyword used for primitive data types.

Reason (R): `null` represents a value that points to no object in Java.

Options:

- a) Both A and R are true, and R is the correct explanation of A
- b) Both A and R are true, but R is not the correct explanation of A
- c) A is false, but R is true
- d) A is true, but R is false

Answer:- c) A is false, but R is true

9.

Assertion (A): Declaration and initialization in Java are the same thing.

Reason (R): Declaration reserves memory, while initialization assigns a value to that memory.

Options:

- a) Both A and R are true, and R is the correct explanation of A
- b) Both A and R are true, but R is not the correct explanation of A
- c) A is false, but R is true
- d) A is true, but R is false

Answer:- c) A is false, but R is true

10.

Assertion (A): In Java, variables and identifiers are different concepts.

Reason (R): Identifiers are names given to various program elements, and variables are just one of them.

Options:

- a) Both A and R are true, and R is the correct explanation of A
- b) Both A and R are true, but R is not the correct explanation of A
- c) A is true, but R is false
- d) A is false, but R is true

Answer:- a) Both A and R are true, and R is the correct explanation of A

One-word questions and answers

- 1. **Q:** Character encoding used in Java?
A: UNICODE
- 2. **Q:** Special literal representing no value?
A: null
- 3. **Q:** Type of conversion done automatically by Java?
A: Implicit
- 4. **Q:** Data type category of array in Java?
A: Reference
- 5. **Q:** Symbol for new line in Java?
A: \n
- 6. **Q:** Category of data types like int, char, float?
A: Primitive
- 7. **Q:** What starts variable names in Java?
A: Letter
- 8. **Q:** Token type for +, -, *, / in Java?
A: Operator
- 9. **Q:** Data type that uses 8 bytes in Java?
A: long
- 10. **Q:** Grouping of keywords, identifiers, literals, etc.?
A: Tokens
- 11. **Q:** What symbol is used for tab space in Java?
A: \t
- 12. **Q:** What is the smallest integer data type in Java?
A: byte
- 13. **Q:** What keyword is used to define a constant in Java?
A: final
- 14. **Q:** What type of data type is String in Java?
A: Reference

15. **Q:** What is the process of converting one data type to another manually?
A: Casting
16. **Q:** Which data type holds true or false values?
A: boolean
17. **Q:** Which escape character is used for backspace?
A: \b
18. **Q:** What keyword is used to declare a variable in Java?
A: int (or any other datatype like float, char, etc.)
19. **Q:** What do you call a name used to represent variables, methods, or classes?
A: Identifier
20. **Q:** What is the default value of an uninitialized reference variable?
A: null

Fill in the Blanks (with Answers)

1. Java uses **UNICODE** to store character values.
Answer: UNICODE
2. The special literal that represents a null value in Java is **null**.
Answer: null
3. **Implicit** type conversion is automatically performed by Java when compatible types are used.
Answer: Implicit
4. Arrays are examples of **reference** data types in Java.
Answer: reference
5. The escape character \n is used to insert a **new line**.
Answer: new line
6. Java character set includes letters, digits, and **special characters**.
Answer: special characters
7. **Tokens** are the smallest meaningful elements in a Java program.
Answer: Tokens
8. A variable name in Java must begin with a **letter**, underscore, or dollar sign.
Answer: letter
9. Java keywords like if, class, and while are reserved **words**.
Answer: words
10. The keyword used to declare a constant value is **final**.
Answer: final
11. The default value of an uninitialized reference variable is **null**.
Answer: null
12. The process of manually converting one data type to another is called **casting**.
Answer: casting
13. The escape character \t is used to insert a **tab space**.
Answer: tab space
14. A data type that holds true or false values is called **boolean**.
Answer: boolean
15. **Byte** is the smallest integer data type in Java.
Answer: byte
16. A **primitive** data type is predefined by the language and is not an object.
Answer: primitive
17. Identifiers are the **names** given to variables, methods, classes, etc.
Answer: names
18. The data type that uses 8 bytes of memory is **long**.
Answer: long

19. The escape character used for backspace is \b.

Answer: \b

20. A reference data type refers to an object or array in memory.

Answer: reference