Class 9

Chapter 6

Input in Java

A. Tick (✓) the correct answer

1. `int a = 30 contains which type of error?`
   ☞ **d. None** (no error)
2. `Scanner sc = new Scanner(System.in)` is a error
   ☞ **d. None** (correct syntax)
3. `int a = 5.6` is a error
   ☞ **a. Syntax** (wrong data type assignment)
4. Which of the following is a comment?
   ☞ **a. //**
5. Which method is used to input a word using Scanner?
   ☞ **a. next()**

B. Fill in the blanks

1. Three types of errors are **Syntax, Runtime and Logical**.
2. Using **InputStreamReader** class values are taken from the users whenever required at the time of **execution**.
3. The word **Exception** inform the compiler that an error has occurred.
4. **java.util** package is used for Scanner class.
5. **nextFloat()** is used to input values in **float** format in the main() method.

C. Short Answer Questions

1. Difference between comments:

- **Single-line comment**: `//` comment until end of line.
- **Multiline comment**: `/* … */` covers many lines.
- **Documentation comment**: `/** … */` used to generate JavaDocs.

2. Difference between errors:

- **Syntax error**: Wrong code structure (compiler detects).
- **Runtime error**: Error during execution (e.g. divide by zero).
- **Logical error**: Program runs but gives wrong result.

3. InputStreamReader:
A bridge from byte stream to character stream; reads input from keyboard as characters.

4. Difference between try and catch:

- **try**: Block of code that may cause an exception.
- **catch**: Handles the exception thrown in try block.

5. Java Comments:
Non-executable text in program for explanation (`//`, `/*…*/`, `/**…*/`).

6. Runtime error:
Error during program execution.
Example: `int x = 10/0;` → ArithmeticException.

7. Package containing Scanner class:
☞ **java.util**

8. Methods of Scanner class:
a. Integer value → **nextInt()**
b. Sentence → **nextLine()**
c. Character → **next().charAt(0)**
d. Real number (64-bit) → **nextDouble()**
e. Short integer → **nextShort()**

9. Use of `import` keyword:
To include external classes or packages into a Java program.

10. Define:

- **nextInt()** → Inputs an integer value.
- **nextFloat()** → Inputs a floating-point number (32-bit).

D. More Unsolved Programs (Solved)

1. Total and Average of 3 subjects

```
import java.util.Scanner;
class Marks {
  public static void main(String args[]) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter 3 subjects marks: ");
    int a = sc.nextInt(), b = sc.nextInt(), c = sc.nextInt();
    int total = a + b + c;
    double avg = total / 3.0;
    System.out.println("Total = " + total);
    System.out.println("Average = " + avg);
  }
}
```

---

2. Interchange values (3rd variable)

```
import java.util.Scanner;
class Swap {
  public static void main(String args[]) {
    Scanner sc = new Scanner(System.in);
    int a = sc.nextInt(), b = sc.nextInt();
    int temp = a; a = b; b = temp;
    System.out.println("a=" + a + ", b=" + b);
  }
}
```

---

3. Selling price and profit %

```
import java.util.Scanner;
class Profit {
  public static void main(String args[]) {
    Scanner sc = new Scanner(System.in);
    double cp = sc.nextDouble();
    double sp = cp + 50;
    double profitPercent = (50 / cp) * 100;
    System.out.println("Selling Price = " + sp);
    System.out.println("Profit % = " + profitPercent);
  }
}
```

---

4. Compound Interest & Amount

```
import java.util.Scanner;
class Compound {
  public static void main(String args[]) {
    Scanner sc = new Scanner(System.in);
    double p = sc.nextDouble(), r = sc.nextDouble(), t =
sc.nextDouble();
    double ci = p * (Math.pow((1 + r / 100), t) - 1);
    double amt = p + ci;
    System.out.println("CI = " + ci + ", Amount = " + amt);
  }
}
```

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5. Convert days → years, months, days

```
import java.util.Scanner;
class DaysConvert {
  public static void main(String args[]) {
    Scanner sc = new Scanner(System.in);
    int days = sc.nextInt();
    int years = days / 365;
    int months = (days % 365) / 30;
    int d = (days % 365) % 30;
    System.out.println(years+" years "+months+" months "+d+" days");
  }
}
```

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6. Square side → diagonal & perimeter

```
import java.util.Scanner;
class Square {
  public static void main(String args[]) {
    Scanner sc = new Scanner(System.in);
    double side = sc.nextDouble();
    double diag = side * Math.sqrt(2);
    double peri = 4 * side;
    System.out.println("Diagonal = " + diag);
    System.out.println("Perimeter = " + peri);
  }
}
```

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7. Labour monthly income & tax

```
import java.util.Scanner;
class Labour {
  public static void main(String args[]) {
    Scanner sc = new Scanner(System.in);
    String name = sc.nextLine();
    double daily = sc.nextDouble();
    double income = daily * 30;
    if(income > 10000) income -= 500;
    System.out.println("Name: "+name+" Monthly Income: "+income);
  }
}
```

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8. Discount & GST

```
import java.util.Scanner;
class Discount {
  public static void main(String args[]) {
    Scanner sc = new Scanner(System.in);
    String name = sc.nextLine();
    double price = sc.nextDouble();
    double discount = price * 0.15;
    double net = price - discount;
    double gst = net * 0.18;
    double amt = net + gst;
    System.out.println("Customer: "+name+" Amount: "+amt);
  }
}
```

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9. Distance → Cost

```
import java.util.Scanner;
class Travel {
  public static void main(String args[]) {
    Scanner sc = new Scanner(System.in);
    double m = sc.nextDouble();
    double km = m / 1000;
    double cost = km * 10;
    System.out.println("Distance = " + km + " km, Cost = Rs." + cost);
  }
}
```

10. Fahrenheit ↔ Celsius

```
import java.util.Scanner;
class Temp {
  public static void main(String args[]) {
    Scanner sc = new Scanner(System.in);
    System.out.print("Enter 1 for F→C, 2 for C→F: ");
    int ch = sc.nextInt();
    if(ch==1){
      double f = sc.nextDouble();
      double c = (f-32)*5/9;
      System.out.println("Celsius = "+c);
    }
    else if(ch==2){
      double c = sc.nextDouble();
      double f = (c*9/5)+32;
      System.out.println("Fahrenheit = "+f);
    }
    else System.out.println("Invalid choice");
  }
}
```