1. Which of the following is the correct syntax for an if statement in Java?
   - a) if condition { statements }
   - b) if (condition) { statements }
   - c) if [condition] { statements }
   - d) if condition then { statements }
2. In Java, which of the following statements is used when you want to execute code only if a condition is false?
   - a) if (condition) { }
   - b) if (!condition) { }
   - c) if (condition != true) { }
   - d) Both b and c
3. What is the output of the following code?

```
int x = 10;
if (x > 5)
    System.out.print("A");
System.out.print("B");
```

   - a) A
   - b) B
   - c) AB
   - d) No output
4. What happens when an if statement has no curly braces { }?
   - a) It will cause a compilation error
   - b) It will execute multiple statements following the if condition
   - c) It will execute only the first statement following the if condition
   - d) It will throw a runtime exception
5. Which statement is true about the if-else statement in Java?
   - a) If the condition is true, only the if block executes
   - b) If the condition is true, both if and else blocks execute
   - c) If the condition is false, both if and else blocks execute
   - d) If the condition is false, neither if nor else blocks execute
6. What is the output of the following code?

```
int score = 85;
if (score >= 90)
```

```
    System.out.print("A");
else if (score >= 80)
    System.out.print("B");
else if (score >= 70)
    System.out.print("C");
else
    System.out.print("F");
```

- a) A
- b) B
- c) C
- d) F

7. In an if-else ladder (else-if), how many "else if" blocks can you have?
   - a) Only one
   - b) Maximum of three
   - c) As many as needed
   - d) Only one "else if" and one "else"
8. What will be the output of the following code?

```
int num = 5;
if (num > 0) {
    System.out.print("Positive");
} else if (num < 0) {
    System.out.print("Negative");
} else {
    System.out.print("Zero");
}
```

   - a) Positive
   - b) Negative
   - c) Zero
   - d) No output
9. In an if-else ladder, which block executes if none of the conditions are true?
   - a) The first if block
   - b) The last else if block
   - c) The else block
   - d) No block executes
10. What is the output of the following code?

```java
int a = 5, b = 10;
if (a > b) {
    System.out.print("A");
} else if (a == b) {
    System.out.print("B");
} else {
    if (a + 5 >= b) {
        System.out.print("C");
    } else {
        System.out.print("D");
    }
}
```

- a) A
- b) B
- c) C
- d) D

11. Which of the following is the correct syntax for a switch statement in Java?
    - a) switch [expression] { case value: statements; }
    - b) switch expression { case value: statements; }
    - c) switch (expression) { case value: statements; }
    - d) switch expression: { case value; statements; }
12. In a Java switch statement, what keyword is used to transfer control to the next case?
    - a) continue
    - b) break
    - c) fallthrough
    - d) next
13. What happens if you don't include a break statement at the end of a case in a switch statement?
    - a) It causes a compilation error
    - b) It causes a runtime error
    - c) Execution falls through to the next case
    - d) The switch statement terminates immediately
14. Which data types can be used as an expression in a switch statement in Java 8?
    - a) Only int and char
    - b) int, char, byte, short, String, and enum
    - c) All primitive types and String
    - d) Only numeric data types
15. What will be the output of the following code?

```
int day = 4;
switch (day) {
    case 1:
        System.out.print("Monday");
        break;
    case 4:
        System.out.print("Thursday");
    case 5:
        System.out.print("Friday");
        break;
    default:
        System.out.print("Other day");
}
```

- a) Monday
- b) Thursday
- c) ThursdayFriday
- d) Other day

16. What is the purpose of the default case in a switch statement?
    - a) It is executed if none of the case values match
    - b) It is executed for all matches
    - c) It is mandatory to have in every switch statement
    - d) It is executed before checking any cases
17. Which of the following statements about the switch statement is false?
    - a) A switch can have multiple cases with the same value
    - b) The default case is optional
    - c) A switch case can only test for equality, not logical conditions
    - d) break statements are mandatory in each case
18. What will be the output of the following code?

```
String fruit = "Apple";
switch (fruit) {
    case "Banana":
        System.out.print("Yellow");
        break;
    case "Apple":
        System.out.print("Red");
        break;
    case "Orange":
        System.out.print("Orange");
```

```
        break;
}
```

- a) Yellow
- b) Red
- c) Orange
- d) Compilation error, String is not supported in switch

19. In Java, which conditional statement is more efficient for handling multiple conditions with exact matching values?
    - a) if-else if ladder
    - b) Nested if statements
    - c) switch statement
    - d) All have the same efficiency
20. What will be the output of the following code?

```
boolean isRaining = true;
if (isRaining)
    System.out.print("Take umbrella");
    System.out.print("Wear boots");
```

- a) Take umbrella
- b) Wear boots
- c) Take umbrellaWear boots
- d) No output

21. What is the output of the following nested if code?

```
int x = 10, y = 20;
if (x > 5) {
    if (y > 15) {
        System.out.print("A");
    } else {
        System.out.print("B");
    }
} else {
    System.out.print("C");
}
```

- a) A
- b) B
- c) C

- d) No output

22. Which statement about switch cases is true?
    - a) case labels must be compile-time constants
    - b) case labels can be variables
    - c) case labels can be expressions that evaluate at runtime
    - d) case labels can be floating-point numbers
23. What will be the output of the following code?

```
char grade = 'B';
switch (grade) {
    case 'A':
        System.out.print("Excellent");
        break;
    case 'b':
    case 'B':
        System.out.print("Good");
        break;
    case 'C':
        System.out.print("Average");
        break;
    default:
        System.out.print("Invalid");
}
```

    - a) Excellent
    - b) Good
    - c) Average
    - d) Invalid
24. What is the dangling else problem in if-else statements?
    - a) When an else has no matching if
    - b) When an if has no matching else
    - c) Ambiguity about which if an else belongs to in nested if statements
    - d) When else statements cause infinite loops
25. How does Java resolve the dangling else problem?
    - a) It gives a compilation error
    - b) It associates an else with the nearest previous if that doesn't have an else
    - c) It associates an else with the outermost if statement
    - d) It requires explicit braces to avoid the problem
26. What is the output of the following code?

```
int num = 2;
switch (num) {
    default:
        System.out.print("Default");
        break;
    case 1:
        System.out.print("One");
        break;
    case 2:
        System.out.print("Two");
        break;
}
```

- a) Default
- b) One
- c) Two
- d) No output

27. Which of the following is not a valid expression for the if condition?
    - a) if (a == b)
    - b) if (a = b)
    - c) if (a != b)
    - d) if (a <= b)
28. What will be the output of the following code?

```
int a = 5;
if (a > 0)
    if (a > 10)
        System.out.print("A");
else
    System.out.print("B");
```

- a) A
- b) B
- c) AB
- d) No output

29. Which of the following statements about switch expressions in Java 12+ is true?
    - a) They can use the arrow syntax (case L -> X)
    - b) They require break statements for each case
    - c) They cannot have a default case
    - d) They can only contain primitive types as case values

30. What is the output of the following code?

```
final int x = 1;
final int y = 2;
int z = 3;
switch (z) {
    case x:
        System.out.print("A");
        break;
    case y:
        System.out.print("B");
        break;
    case x+y:
        System.out.print("C");
        break;
    default:
        System.out.print("D");
}
```

- a) A
- b) B
- c) C
- d) D

31. What is the output of the following code?

```
int x = 5, y = 10;
if (x == y || x > y) {
    System.out.print("Condition met");
} else if (x < y && x != 0) {
    System.out.print("Alternative condition met");
} else {
    System.out.print("No condition met");
}
```

- a) Condition met
- b) Alternative condition met
- c) No condition met
- d) Compilation error

---

32. What will be the output of the following code?

```
int num = 10;
if (num++ == 10) {
    System.out.print("Incremented");
} else {
    System.out.print("Not incremented");
}
```

- a) Incremented
- b) Not incremented
- c) No output
- d) Compilation error

---

33. What is the output of the following code?

```
int x = 5, y = 10;
if (x != y && x < y) {
    System.out.print("Both conditions met");
} else if (x == y) {
    System.out.print("Equal");
} else {
    System.out.print("None met");
}
```

- a) Both conditions met
- b) Equal
- c) None met
- d) No output

---

34. What will be the output of the following code?

```
int num = 0;
if (num++ == 0) {
    System.out.print("Zero");
} else {
    System.out.print("Non-zero");
}
```

- a) Zero
- b) Non-zero
- c) No output
- d) Compilation error

---

35. What is the output of the following code?

```
int x = 10, y = 20;
if (x > y) {
    System.out.print("X is greater");
} else if (x < y) {
    System.out.print("Y is greater");
} else {
    System.out.print("X and Y are equal");
}
```

- a) X is greater
- b) Y is greater
- c) X and Y are equal
- d) No output

---

36. What will be the output of the following code?

```
int num = 15;
if (num % 2 == 0) {
    System.out.print("Even");
} else if (num % 3 == 0) {
    System.out.print("Multiple of 3");
} else {
    System.out.print("Odd");
}
```

- a) Even
- b) Multiple of 3
- c) Odd
- d) No output

37. What will be the output of the following code?

```
int a = 8, b = 3;
if ((a * b) % 2 == 0) {
    System.out.print("Even product");
} else {
    System.out.print("Odd product");
}
```

- a) Even product
- b) Odd product
- c) Zero
- d) Compilation error

---

38. What is the output of the following code?

```
int val = 7;
if (val % 2 == 0 || val % 7 == 0) {
    System.out.print("Divisible");
} else {
    System.out.print("Not divisible");
}
```

- a) Divisible
- b) Not divisible
- c) Error
- d) No output

---

39. What will be printed by the following code?

```
int score = 70;
if (score > 90) {
    System.out.print("A");
} else if (score > 75) {
    System.out.print("B");
} else if (score > 60) {
```

```
    System.out.print("C");
} else {
    System.out.print("F");
}
```

- a) A
- b) B
- c) C
- d) F

---

40. What will be the output of the following code?

```
int x = 3;
if (x++ == 3 && x == 4) {
    System.out.print("Valid");
} else {
    System.out.print("Invalid");
}
```

- a) Valid
- b) Invalid
- c) Compilation error
- d) No output

---

41. What will be printed by the following code?

```
int x = 2;
if (x++ > 2 || ++x == 4) {
    System.out.print("True block");
} else {
    System.out.print("False block");
}
```

- a) True block
- b) False block
- c) No output
- d) Compilation error

42. What will be the output of the following code?

```
int a = 0, b = 1;
if ((a == 0 && b != 0) || (a != 0 && b == 0)) {
    System.out.print("Exclusive");
} else {
    System.out.print("Not exclusive");
}
```

- a) Exclusive
- b) Not exclusive
- c) Compilation error
- d) No output

---

43. What is the output of the following code?

```
int number = 25;
if (number % 5 == 0 && number % 2 != 0) {
    System.out.print("Odd Multiple of 5");
} else {
    System.out.print("Other");
}
```

- a) Odd Multiple of 5
- b) Other
- c) Compilation error
- d) No output

---

44. What is the output of the following code?

```
int a = 5;
if (a > 0)
    if (a < 10)
        System.out.print("Single digit");
```

```
    else
        System.out.print("Double digit");
```

- a) Single digit
- b) Double digit
- c) No output
- d) Compilation error

---

45. What will be printed by the following code?

```
int a = 5, b = 5;
if (a == b)
    System.out.print("Equal");
else
    System.out.print("Not Equal");
```

- a) Equal
- b) Not Equal
- c) Compilation error
- d) No output

---

46. What will be printed by the following code?

```
int num = 12;
if (num % 2 == 0 && num % 3 == 0) {
    System.out.print("Divisible by 6");
} else {
    System.out.print("Not divisible by 6");
}
```

- a) Divisible by 6
- b) Not divisible by 6
- c) Compilation error
- d) No output

---

47. What is the output of the following code?

```
int x = 4;
if (x++ == 4 && x++ == 5) {
    System.out.print("Sequence matched");
} else {
    System.out.print("Sequence not matched");
}
```

- a) Sequence matched
- b) Sequence not matched
- c) Compilation error
- d) No output

---

48. What will be the output of the following code?

```
int val = 10;
if ((val & 1) == 0) {
    System.out.print("Even");
} else {
    System.out.print("Odd");
}
```

- a) Even
- b) Odd
- c) Compilation error
- d) No output

---

49. What is the output of the following code?

```
int a = 5;
if (!(a > 0)) {
    System.out.print("Negative");
} else {
    System.out.print("Positive");
}
```

- a) Negative
- b) Positive
- c) Compilation error
- d) No output

---

50. What will be printed by the following code?

```
int a = 1, b = 2, c = 3;
if (a + b > c && b + c > a && c + a > b) {
    System.out.print("Valid triangle");
} else {
    System.out.print("Invalid triangle");
}
```

- a) Valid triangle
- b) Invalid triangle
- c) Compilation error
- d) No output