

1. What is the key requirement for a `while` loop to terminate?

- 1. The loop body must be empty
- 2. Loop must contain a break statement
- ☒ 3. Condition must become false eventually
- 4. Counter must reach 100

2. What type of problems are best suited for `for` loops?

- 1. Unknown iteration count
- ☒ 3. Known sequence or range
- 2. Infinite loops
- 4. Recursive functions

3. Guess the output:

```
int n = 3;
while (n > 0) {
    System.out.print(n);
    n--;
}
```

- ☒ 1. 321
- 2. 123
- 3. Error
- 4. Infinite Loop

4. Which statement will immediately stop the execution of a loop?

- 1. return
- ☒ 2. break
- 3. continue
- 4. stop

5. What does the following code do?

```
for (int i = 0; i < 5; i++) {
    if (i == 2) continue;
    System.out.print(i);
}
```

- 1. 01234
- ☒ 3. 0134
- 2. 0123
- 4. 014

6. Which loop is best for input validation until a valid value is entered?

- 1. for loop
- ☒ 2. while loop
- 3. do-while loop
- 4. foreach loop

7. Guess the output:

```
for (int i = 1; i <= 3; i++) {
    for (int j = 1; j <= 2; j++) {
        System.out.print(i + "," + j + " ");
    }
}
```

- ☒ 1. 1,1,2,2,1,2,2,3,1,3,2
- 2. 123456
- 3. Error
- 4. ijijlj

8. Which loop type ensures the loop body runs at least once?

- 1. while
- ☒ 2. do-while
- 3. for
- 4. None

9. Debug the code: What is missing?

```
int i = 0;
while (i < 3) {
    System.out.println(i);
}
```

- 1. Initialization
- ☒ 2. Update statement
- 3. Condition
- 4. Curly braces

10. What is the output?

```
for (int i = 1; i <= 5; i++) {
    System.out.print(i * 2 + " ");
}
```

- ☒ 1. 2 4 6 8 10
- 2. 1 2 3 4 5
- 3. 10 8 6 4 2
- 4. Error

11. Which of the following avoids code duplication best when printing something multiple times?

- 1. if statement
- ☒ 2. recursion
- 3. loop
- 4. switch case

12. What does this print?

```
for (int i = 5; i >= 1; i--) {
    System.out.print(i + " ");
}
```

- 1. 1 2 3 4 5
- ☒ 2. 5 4 3 2 1
- 3. 0 1 2 3 4
- 4. Infinite Loop

13. Which loop would you use to sum numbers until the user enters 0?

- 1. for
- ☒ 2. while
- 3. do-while
- 4. if

14. Find the output:

```
String str = "loop";
for (int i = 0; i < str.length(); i++) {
    System.out.print(str.charAt(i));
}
```

- ☒ 1. loop
- 2. looploop
- 3. loop
- 4. pool

15. What is true about nested loops?

- 1. They cannot be used in Java
- 3. Only for infinite loops

- ☒ 2. One loop inside another
- 4. Used only for recursion

16. How many times will the following loop run?

```
int i = 0;  
do {  
    i++;  
} while (i < 5);
```

- 1. 4
- 3. 6

- ☒ 2. 5
- 4. 0

17. Debug this: What's the issue?

```
for (int i = 1; i <= 5;) {  
    System.out.println(i);  
}
```

- 1. Condition missing
- 3. Initialization missing

- ☒ 2. Update missing
- 4. All missing

18. Guess the output:

```
for (int i = 0; i < 3; i++) {  
    for (int j = 0; j < 2; j++) {  
        System.out.print("**");  
    }  
    System.out.println();  
}
```

- 1. *****

- 3. ****

- ☒ 2. **
 **
 **

- 4. Error

19. Which loop is preferable for pattern printing (like triangle, pyramid)?

- 1. while

- ☒ 2. for

- 2. do-while

- 4. switch

20. What is an off-by-one error?

- ☒ 1. Not declaring loop variable
- 3. Forgetting break

- 2. Loop runs 1 extra/less time
- 4. Infinite recursion

21. What is printed?

```
for (int i = 1; i <= 3; i++) {  
    System.out.print(i*i + " ");  
}
```

- 1. 123
- 3. 1827

- ☒ 2. 149
- 4. 136

22. Guess the output:

```
int i=1;
while (i < 3) {
    System.out.print(i);
    i++;
}
```

1. 123
3. Error

~~2. 12~~
4. Infinite loop

23. What does `continue` do inside a loop?

1. Exit loop
3. Pause loop
~~2. Go to end of loop and start next iteration~~
4. Restart loop

24. Which keyword stops a loop immediately?

1. continue
3. return
~~2. break~~
4. exit

25. Which of the following loops is most likely to result in an infinite loop if not updated correctly?

1. for
3. do-while
~~2. while~~
4. switch

26. A and B invest Rs. 5000 and Rs. 3000 respectively in a business. What is their profit ratio?

~~1. 5:3~~
3. 10:3
2. 3:5
4. 3:8

27. If $a:b = 2:3$ and $b:c = 4:5$, then $a:c = ?$

~~1. 8:15~~
3. 3:5
2. 2:5
4. 4:5

28. Three partners A, B, and C share profit in ratio 2:3:5. If the total profit is Rs. 1000, what is B's share?

1. Rs. 200
3. Rs. 500
~~2. Rs. 300~~
4. Rs. 100

29. If x is directly proportional to y and $x = 10$ when $y = 5$, then $x = ?$ when $y = 15$

1. 20
3. 15
~~2. 30~~
4. 5

30. A and B enter a partnership. A invests Rs. 8000 for 12 months, B invests Rs. 12000 for 6 months. Ratio of profit is:

1. 2:3
3. 1:1
~~2. 4:3~~
4. 1:2