Day 3 ASSESSMENT

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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
   2. Infinite loops
   3. Known sequence or range
   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
   2. 0123
   3. 0134
   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 1,2 2,1 2,2 3,1 3,2
   2. 1 2 3 4 5 6
   3. Error
   4. i j i j I j

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. Condition
3. Update statement
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. l o o p
4. p o o l

15. What is true about nested loops?

1. They cannot be used in Java
2. One loop inside another
3. Only for infinite loops
4. Used only for recursion

16. How many times will the following loop run?

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

1. 4
2. 5
3. 6
4. 0

17. Debug this: What's the issue?

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

1. Condition missin
2. Update missing
3. Initialization 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. ** ** **
2. **
   **
   **
3. ****
4. Error

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

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

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

1. Not declaring loop variable
2. Loop runs 1 extra/less time
3. Forgetting break
4. Infinite recursion

21. What is printed?

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

1. 1 2 3
2. 1 4 9
3. 1 8 27
4. 1 3 6

22. Guess the output:

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

1. 123
2. 12
3. Error
4. Infinite loop

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

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

24. Which keyword stops a loop immediately?

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

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

1. for
2. while
3. do-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
2. 3:5
3. 10:3
4. 3:8

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

1. 8:15
2. 2:5
3. 3:5
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
2. Rs. 300
3. Rs. 500
4. Rs. 100

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

1. 20
2. 30
3. 15
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
2. 4:3
3. 1:1
4. 1:2