

## CHAPTER-3 | Number Play

### QUIZ PART-12

1. In the Collatz rule, if a number is even, we

- A. add 1
- B. double it
- C. take half
- D. subtract 1 (C)

**Explanation :** The rule says that if the number is even, we divide it by 2.

2. In the Collatz rule, if a number is odd, we

- A. multiply by 2
- B. multiply by 3 and add 1
- C. subtract 1
- D. divide by 3 (B)

**Explanation:** The rule says that if the number is odd, we do  $3 \times \text{number} + 1$ .

3. What comes after 12 in the sequence?

- A. 3
- B. 6
- C. 24
- D. 13 (B)

**Explanation:** 12 is even, so we take half:  $12 \div 2 = 6$ .

4. What comes after 3 in the sequence?

- A. 2
- B. 6
- C. 10
- D. 12 (C)

**Explanation:** 3 is odd, so  $3 \times 3 + 1 = 10$ .

5. What comes after 17 in the sequence?

- A. 18
- B. 34
- C. 52
- D. 8 (C)

**Explanation :** 17 is odd, so  $3 \times 17 + 1 = 52$ .

6. What comes after 21 in the sequence?

- A. 22
- B. 42
- C. 63
- D. 64 (D)

**Explanation :** 21 is odd, so  $3 \times 21 + 1 = 64$ .

7. What comes after 22 in the sequence?

- A. 11
- B. 44
- C. 23
- D. 12 (A)

**Explanation :** 22 is even, so half of 22 is 11.

8. Who made the Collatz conjecture mentioned in the chapter?

- A. Aryabhata
- B. Lothar Collatz
- C. Kaprekar
- D. Ramanujan (B)

**Explanation :** The chapter says that German mathematician Lothar Collatz made this conjecture.

9. According to the chapter, the Collatz sequence is conjectured to always reach

- A. 0
- B. 2
- C. 1
- D. 10 (C)

**Explanation :** The chapter states that the sequence will always reach 1.

10 Which of the following is a correct Collatz sequence from the chapter?

- A. 12, 24, 48, 96
- B. 21, 64, 32, 16, 8, 4, 2, 1
- C. 17, 18, 19, 20
- D. 22, 44, 88, 176 (B)

**Explanation :** This exact sequence is given in the chapter as a Collatz example.