

# **Logical Reasoning Handbook**

# A Guide to Mastering Logical Reasoning for Competitive Exams

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### 1. Number Series

### **Definition:**

A sequence of numbers following a particular pattern or logic.

### **Common Types:**

- **Geometric Series**: Each term is multiplied or divided by a fixed number. (e.g., 3, 6, 12, 24, ... \( \text{\mathbb{N}} \) \( \times 2 \) pattern)
- Fibonacci Series: Each term is the sum of the previous two terms. (e.g., 1, 1, 2, 3, 5, 8, ...)
- Prime Numbers: A sequence of prime numbers. (e.g., 2, 3, 5, 7, 11, ...)

# **Example Question:**

Find the missing number: 2, 6, 12, 20, \_\_, 42

 $\[ \]$  Solution: The pattern follows  $n^2 + n$ , so the missing term is 30.

### 2. Blood Relations

#### **Definition:**

Determining family relationships based on given information.

### **Common Relations:**

- Parent-Child
- Siblings
- Grandparents
- Uncle/Aunt
- Cousins

### **Example Question:**

A is the father of B. B is the mother of C. What is A to C? Solution: A is C's grandfather.

# 3. Coding-Decoding

### **Definition:**

Replacing letters or numbers using a specific pattern.

### Types:

- Letter shifting: CAT \( \text{DBU} \) DBU (Each letter shifted +1)
- Reverse Order: HELLO 

  OLLEH
- Number Coding: A = 1, B = 2, C = 3, etc.

# **Example Question:**

If CAT = DBU, what is DOG?

# 4. Ages

#### **Definition:**

Problems involving calculations of present, past, or future ages.

### **Example Question:**

A is twice B's age. In 10 years, A will be 40. Find B's present age. 

Solution: A is currently 30. So, B is 15 years old.

### 5. Odd Man Out - Numbers

### **Definition:**

Finding the element that does not fit in a pattern.

# **Example Question:**

Find the odd one out: 3, 5, 7, 9, 11 Solution: 9 (It's not a prime number).

# 6. Distance and Directions

### **Definition:**

Determining positions based on movements in different directions.

# **Example Question:**

A moves 5 km North, then 3 km East. Find the shortest distance from the starting point. 

■ Solution: Using Pythagoras theorem, the answer is √34 km.

### 7. Statement & Conclusion

#### **Definition:**

Deriving conclusions from given statements.

# **Example Question:**

Statement: "All birds can fly." Conclusion: Penguins can fly.

# 8. Seating Arrangement

### **Definition:**

Arranging people based on given seating conditions.

# **Example Question:**

A, B, C, D sit in a row. B is left of C. Who is at the right end? Solution: The order is A, B, C, D D is at the right end.

# 9. Analogy

#### **Definition:**

Finding a logical relationship between two pairs of words.

# **Example Question:**

Doctor: Stethoscope:: Painter:?

Solution: Brush (A doctor uses a stethoscope, a painter uses a brush).

# 10. Mathematical Operations & Symbols

### **Definition:**

Understanding equations and logical operations in reasoning.

# **Example Question:**

If 
$$P * Q = P^2 + Q^2$$
, find  $3 * 4$ .   
Solution:  $(3^2 + 4^2) = 9 + 16 = 25$ 

# **Final Thoughts**

This handbook provides a structured approach to mastering logical reasoning with clear examples and solutions. Practice regularly to improve your problem-solving skills.