Study Guide for Reasoning

1. Seating Arrangements & Puzzles

This is the most important area in modern reasoning sections. The key is a systematic approach.

1.1 Universal Strategy for Arrangements & Puzzles

1. **Read and Skim:** Quickly read the entire puzzle to understand the context, number of variables (e.g., people, floors, months, colors), and structure (linear, circular, table).

2. **Draw the Framework:**

   - **Linear Arrangement:** Draw dashes in a row _ _ _ _ _.

   - **Circular Arrangement:** Draw a circle with positions marked.

   - **Floor/Scheduling Puzzle:** Create a table or vertical list.

3. **Find and Plot Definite Clues:** Start with concrete information (e.g., "A sits at one of the extreme ends," "C lives on the 4th floor").

4. **Connect Relative Clues:** Use definite clues as anchors for relative information (e.g., "B sits second to the right of A").

5. **Note Down Negative Information:** Track what *cannot* be true (e.g., "C is not a neighbor of A," "D does not like Red"). This is crucial for elimination.

6. **Consider All Cases:** For two possibilities (e.g., "A sits at either end"), draw parallel diagrams and work on both. One case will eventually contradict a clue.

1.2 Specific Tips

- **Circular Arrangement:** Be cautious with "left" and "right". If people face the center, their left/right is counter-intuitive. Assume facing the center unless stated otherwise.

- **Puzzles:** A well-drawn table is 50% of the work. Use a large, clear grid.

2. Syllogisms

The best method is using Venn Diagrams.

2.1 Core Concepts

- **All A are B:** Draw a small circle 'A' completely inside a larger circle 'B'.

- **Some A are B:** Draw two overlapping circles for 'A' and 'B'.

- **No A is B:** Draw two separate circles for 'A' and 'B' that do not touch.

2.2 Key Rules & Strategies

- **Draw the Basic Diagram:** Represent all statements with a standard Venn diagram.

- **Check Conclusions:** A conclusion is **definitely true** only if valid in *all possible diagrams*. If one alternative diagram disproves it, the conclusion is false.

- **Possibility:** A "possibility" conclusion is true if it occurs in *at least one diagram* without violating statements.

- **"Only a few A are B":** Means **Some A are B** AND **Some A are not B**. Both must hold.

- **"Only A is B":** Means **All B are A**. Draw circle 'B' inside 'A'. 'B' cannot relate to other elements.

3. Inequalities

This is a high-scoring topic with a simple shortcut.

3.1 The Gate Method

- Think of > and < as **open gates**. You can pass through.

- Think of and as **gates with a doormat**. You can pass and pick up the '='.

- = is an open path.

- A blocked path occurs when gates face opposite directions (e.g., > < or < >).

3.2 How to Solve

1. **Check the Path:** For a conclusion like `A > C`, check if you can travel from A to C (e.g., `A > B > C`).

2. **Check the Signs:**

   - For > or <, all gates must be open (at least one must be > or <).

   - For or , all gates must have the 'equal to' sign (, , =) along the path.

3. **Either/Or Case:**

   - **Combined Elements:** If conclusions are `A > B` and `A = B`, and the statement is `A  B`, its Either/Or.

   - **No Relation:** If no clear relation exists (blocked path), and conclusions cover all possibilities (e.g., `A  B` and `A < B`), its Either/Or.

4. Blood Relations

Never assume gender from names. Always use a family tree diagram.

4.1 Standard Symbols

- **Male:** + or a square .

- **Female:** – or a circle .

- **Married Couple:** A double line `A = B`.

- **Siblings:** A single horizontal line `A  B`.

- **Generations:** Vertical lines, e.g.,

      A(+) = B(-)
        |
      C(+)

(A and B are married with a son C).

5. Direction Sense

Visual representation is key.

- **Draw the Compass:** Start with a small compass diagram.
- **Track Movement:** Trace the path on paper as you read.
- **Pythagoras Theorem:** For the shortest distance, use a right-angled triangle and $a^2+b^2=c^2$.
- **Shadow Rule:**
  - At **Sunrise**, the sun is East, so shadows fall **West**.
  - At **Sunset**, the sun is West, so shadows fall **East**.

6. Coding-Decoding

- **Write it Down:** Write A–Z with numbers (A=1, B=2, ..., Z=26) and reverse pairs (A–Z, B–Y, C–X, etc.).
- **Identify the Pattern:**
  - **Shifting:** Moving +2, -3, etc.
  - **Reversing:** Word written backward.
  - **Pairing:** Using opposite letter pairs (A for Z).
  - **Positional:** Based on vowel/consonant position.

7. Order & Ranking

- **Total Number Formula:** Total $=$ (Rank from Left) $+$ (Rank from Right) -1.
- **Finding Rank from the Other End:** Rank from Other End $=$ (Total$+1$)$-$Rank from Given End.
- **Interchange Case:** When two people swap positions, use the new position of one and the old position of the other to calculate the total number.