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## **Add-On Course: Certificate Course in Quantitative Aptitude**

**Course Duration: 30 Hours**

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### **Syllabus**

Module I: HCF, LCM, Percentage, and Average (15 Hrs)

Learning Objectives:

- Understand and apply the concepts of HCF and LCM in solving real-world problems.
- Develop the ability to calculate percentages and apply them in various contexts.
- Accurately calculate averages and interpret their significance in different scenarios.

Session 1: Introduction to HCF and LCM (1 Hr)

- Topics Covered:
  - Definition of HCF (Highest Common Factor) and LCM (Least Common Multiple).
  - Real-life applications of HCF and LCM.
- Activities:
  - Introduction and discussion of basic concepts with examples.

Session 2: Methods to Find HCF (2 Hrs)

- Topics Covered:
  - Prime Factorization method.
  - Division Method.
  - Euclidean Algorithm.
- Activities:
  - Step-by-step demonstration and practice problems on finding HCF using different methods.

Session 3: Methods to Find LCM (2 Hrs)

- Topics Covered:
  - Prime Factorization method.
  - Division Method.
- Activities:
  - Practice problems using different methods of finding LCM.
  - Group activities to solve LCM-related problems.

Session 4: Problems Involving HCF and LCM (3 Hrs)

- Topics Covered:
  - Word problems involving the application of HCF and LCM.
  - Solving problems related to time, work, and arrangement using HCF and LCM.
- Activities:
  - Practice and discussion of complex problems involving both HCF and LCM.

Session 5: Understanding and Calculating Percentages (2 Hrs)

- Topics Covered:
  - Definition and importance of percentages in daily life.

- Conversion between percentages, decimals, and fractions.
  - Finding percentages of quantities.
- Activities:
  - Examples and practice problems on calculating percentages.

#### Session 6: Advanced Percentage Problems (2 Hrs)

- Topics Covered:
  - Increase and decrease in percentages.
  - Percentage change.
  - Successive percentage problems.
- Activities:
  - Group discussions and solving real-life scenarios involving percentages.

#### Session 7: Introduction to Averages (2 Hrs)

- Topics Covered:
  - Definition and concept of averages.
  - Different types of averages (mean, median, mode).
  - Calculating the average of a series of numbers.
- Activities:
  - Basic problems on finding averages.

#### Session 8: Complex Problems Involving Averages (1 Hr)

- Topics Covered:
  - Weighted average.
  - Average speed, average marks, and other real-life average problems.
- Activities:
  - Problem-solving session with real-life examples and complex average problems.

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### Module II: Ratio, Proportion, Profit, and Loss (15 Hrs)

#### Learning Objectives:

- Gain a thorough understanding of ratios and proportions and their practical applications.
- Develop problem-solving skills in contexts involving profit and loss.
- Understand and solve partnership-related financial problems.

#### Session 1: Introduction to Ratios (2 Hrs)

- Topics Covered:
  - Definition and types of ratios.
  - Simplification of ratios.
  - Comparison of ratios.
- Activities:
  - Basic problems and examples to understand the concept of ratios.

#### Session 2: Types of Ratios (2 Hrs)

- Topics Covered:
  - Duplicate, triplicate, and sub-duplicate ratios.
  - Inverse ratios.
  - Continued ratios.
- Activities:
  - Practice problems to differentiate and work with various types of ratios.

#### Session 3: Introduction to Proportion (2 Hrs)

- Topics Covered:
  - Definition of proportion.
  - Direct and inverse proportion.
  - Problems involving proportion.
- Activities:
  - Solving problems related to direct and inverse proportions with real-life applications.

#### Session 4: Problems Involving Ratios and Proportions (3 Hrs)

- Topics Covered:
  - Real-life problems involving the application of ratios and proportions.
  - Mixture and alligation problems.
- Activities:
  - Group exercises on solving complex ratio and proportion problems.

#### Session 5: Introduction to Profit and Loss (2 Hrs)

- Topics Covered:
  - Basic concepts of cost price, selling price, profit, and loss.
  - Calculation of profit percentage and loss percentage.
- Activities:
  - Basic problems on profit and loss calculations.

#### Session 6: Advanced Problems in Profit and Loss (2 Hrs)

- Topics Covered:
  - Marked price and discount.
  - Successive discounts.
  - Profit and loss in the context of partnerships.
- Activities:
  - Solving practical problems involving multiple transactions and scenarios.

#### Session 7: Partnership Problems (2 Hrs)

- Topics Covered:
  - Types of partnerships (simple and compound).
  - Distribution of profit in partnership.
  - Problems on dividing profit or loss among partners.
- Activities:
  - Case studies and problems involving partnership scenarios.

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Assessment and Evaluation:

- Regular quizzes after each session.
- Problem-solving assignments after each major topic.
- Final assessment involving a mix of objective and subjective questions.