SSC GD Constable Exam: Profit and Loss Syllabus Summary

Overview:
The Profit and Loss topic is a key component of the Mathematics section in the SSC GD Constable Exam, contributing approximately 2–4 questions (4–8 marks out of 160 total marks) in the Computer-Based Examination (CBE). The syllabus focuses on understanding and calculating profit, loss, cost price, selling price, marked price, and discounts, along with their applications in real-world business scenarios. Questions test computational accuracy, formula application, and problem-solving skills at a 10th-grade level. The exam includes 80 questions (2 marks each, 0.50 negative marking per wrong answer) to be completed in 60 minutes.

Key Topics in Profit and Loss:

1. Basic Concepts: Cost Price (CP), Selling Price (SP), Profit, Loss, and Marked Price (MP).
2. Profit and Loss Calculations: Determining profit/loss amount and percentage.
3. Discounts: Calculating discount amount and selling price after discount.
4. Marked Price: Understanding the relationship between marked price, discount, and selling price.
5. Successive Discounts: Finding the net effect of multiple discounts.
6. Word Problems: Real-world applications involving buying, selling, discounts, and pricing strategies.
7. Profit/Loss on False Weights: Problems involving dishonest sellers using incorrect weights.
8. Break-Even Point: Cases where CP equals SP (no profit, no loss).

Important Formula and Techniques:

1. Basic Definitions:
   - Cost Price (CP): The price at which an item is purchased.
   - Selling Price (SP): The price at which an item is sold.
   - Profit = SP − CP (if SP > CP).
   - Loss = CP − SP (if CP > SP).

- Marked Price (MP): The price listed before any discount.
- Discount = MP − SP.

2. Profit and Loss Percentages:
- Profit % = [(SP − CP) / CP] × 100.
  - Example: CP = ₹80, SP = ₹100, Profit % = [(100 − 80) / 80] × 100 = 25%.
- Loss % = [(CP − SP) / CP] × 100.
  - Example: CP = ₹100, SP = ₹80, Loss % = [(100 − 80) / 100] × 100 = 20%.

3. Finding CP or SP:
- SP = CP × (1 + Profit%/100) for profit.
  - Example: CP = ₹200, Profit % = 20%, SP = 200 × (1 + 20/100) = 200 × 1.2 = ₹240.
- SP = CP × (1 − Loss%/100) for loss.
  - Example: CP = ₹200, Loss % = 20%, SP = 200 × (1 − 20/100) = 200 × 0.8 = ₹160.
- CP = SP / (1 + Profit%/100) for profit.
  - Example: SP = ₹240, Profit % = 20%, CP = 240 / (1 + 20/100) = 240 / 1.2 = ₹200.
- CP = SP / (1 − Loss%/100) for loss.
  - Example: SP = ₹160, Loss % = 20%, CP = 160 / (1 − 20/100) = 160 / 0.8 = ₹200.

4. Discount Calculations:
- Discount % = [(MP − SP) / MP] × 100.
  - Example: MP = ₹200, SP = ₹160, Discount % = [(200 − 160) / 200] × 100 = 20%.
- SP = MP × (1 − Discount%/100).
  - Example: MP = ₹200, Discount % = 20%, SP = 200 × (1 − 20/100) = 200 × 0.8 = ₹160.
- MP = SP / (1 − Discount%/100).
  - Example: SP = ₹160, Discount % = 20%, MP = 160 / (1 − 20/100) = 160 / 0.8 = ₹200.

5. Successive Discounts:
- For two successive discounts d_1% and d_2%, net discount % = $d_1 + d_2 - (d_1 \times d_2) / 100$.
- Example: Discounts 10% and 20%, Net discount % = 10 + 20 − (10 × 20) / 100 = 30 − 2 = 28%.
- SP after successive discounts = MP × $(1 - d_1/100) \times (1 - d_2/100)$.
- Example: MP = ₹100, discounts 10% and 20%, SP = 100 × (1 − 10/100) × (1 − 20/100) = 100 × 0.9 × 0.8 = ₹72.

6. Profit/Loss on False Weights:
- If a seller uses false weight W_1 instead of true weight W_2, Profit % = $[(W_2 - W_1) / W_1] \times 100$.
- Example: Sells 800g instead of 1000g, Profit % = [(1000 − 800) / 800] × 100 = 25%.

7. Word Problem Applications:
- Example (Profit): An item bought for ₹500 is sold for ₹600. Profit % = [(600 − 500) / 500] × 100 = 20%.
- Example (Discount): MP = ₹1000, two successive discounts of 10% and 5%, SP = 1000 × (1 − 10/100) × (1 − 5/100) = 1000 × 0.9 × 0.95 = ₹855.
- Example (False Weight): A shopkeeper sells 900g instead of 1000g for ₹1000, Profit % = [(1000 − 900) / 900] × 100 = 11.11%.

Key Points for SSC GD Preparation:

- Focus Areas: Calculating profit/loss percentages, discounts, successive discounts, and solving word problems (e.g., selling price, cost price, false weights) are frequently tested.
- Question Types: Direct calculations (e.g., profit % for CP = ₹100, SP = ₹120), discount problems, successive discounts, and word problems (e.g., final price after discounts).
- Difficulty Level: 10th-grade level, requiring accurate formula application and quick calculations.

- Practice Tips: Memorize profit/loss and discount formulas, practice successive discount calculations, and solve word problems from past SSC GD papers to improve speed and accuracy.

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