DISCOUNT

Complete SSC CGL Master Notes

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1. DISCOUNT FUNDAMENTALS

Basic Concepts

Discount is the reduction in the price of goods or services offered by shopkeepers to attract customers.

Key Terms:

- **Marked Price (MP):** Original price printed on the item
- **Selling Price (SP):** Actual price after discount
- **Discount:** Reduction amount from marked price
- **Discount %:** Discount expressed as percentage of MP

Basic Formulas

Discount Amount: $\text{Discount} = MP - SP$

Discount Percentage: $\text{Discount}\% = (\text{Discount}/MP) \times 100$

Selling Price: $SP = MP \times (1 - \text{Discount}\%/100)$

Marked Price: $MP = SP/(1 - \text{Discount}\%/100)$

2. SINGLE DISCOUNT CALCULATIONS

Basic Problems

Example 1: Marked price ₹800, discount 20%. Find selling price.

Solution:

- Discount = 20% of 800 = 0.20 × 800 = ₹160
- Selling Price = 800 - 160 = **₹640**
- Alternatively: SP = 800 × (1 - 0.20) = 800 × 0.80 = ₹640

Example 2: Selling price ₹680 after 15% discount. Find marked price.

Solution:

- SP = MP × (1 - 15/100) = MP × 0.85
- 680 = MP × 0.85
- MP = 680/0.85 = **₹800**

Finding Discount Percentage

Example: Marked price ₹500, selling price ₹400. Find discount percentage.

Solution:

- Discount = 500 - 400 = ₹100
- Discount% = (100/500) × 100 = **20%**

3. SUCCESSIVE DISCOUNTS

Multiple Discount Formula

Successive Discounts Formula:

```
Net Discount% = a + b - (a×b)/100
where a% and b% are successive discounts
```

For three discounts:

```
Net Discount% = a + b + c - (ab+bc+ca)/100 +
(abc)/10000
```

Successive Discount Problems

Example 1: Successive discounts 20% and 10%. Find net discount.

Solution:

- Net Discount = 20 + 10 - (20×10)/100
- = 30 - 2 = **28%**

Example 2: Marked price ₹1000, discounts 10%, 20%, 10%. Find selling price.

Solution:

- Method 1: Net discount = 10+20+10 - (200+100+200)/1000 + (2000)/100000
- = 40 - 0.5 + 0.02 = 35.2% (complicated)
- Method 2: SP = 1000 × 0.90 × 0.80 × 0.90 = 1000 × 0.648 = **₹648**

4. DISCOUNT VS MARKUP

Comparison

Aspect	Discount	Markup
Definition	Reduction from marked price	Increase from cost price
Base	On marked price	On cost price
Formula	Discount% = (MP-SP)/MP × 100	Markup% = (SP-CP)/CP × 100
Purpose	Attract customers	Earn profit

Relationship Problems

Example: Cost price ₹600, marked 25% above CP, sold at 10% discount. Find profit.

Solution:

- Marked Price = 600 + 25% of 600 = 600 + 150 = ₹750
- Selling Price = 750 - 10% of 750 = 750 - 75 = ₹675
- Profit = 675 - 600 = **₹75**
- Profit% = (75/600)×100 = **12.5%**

5. CASH DISCOUNT & TRADE DISCOUNT

Types of Discount

Trade Discount:
- Offered to wholesalers/retailers
- Based on quantity purchased
- Usually not shown in accounts
- Given on list price

Cash Discount:
- Offered for prompt payment
- Encourages early payment
- Shown in accounts
- Given on net price after trade discount

Trade & Cash Discount Examples

Example: List price ₹1000, trade discount 20%, cash discount 10%. Find net amount paid.

Solution:

- After trade discount: 1000 - 20% of 1000 = ₹800
- After cash discount: 800 - 10% of 800 = ₹720
- **Net amount paid: ₹720**

6. FALSE WEIGHT & DISCOUNT

Cheating by False Weight

When shopkeeper uses false weight:

```
Actual Profit% = [(True Weight - False Weight)/False Weight] × 100
```

When selling at discount with false weight:

```
Overall Profit/Loss% = [100 - Discount%] × [True Weight/False Weight] - 100
```

False Weight Problems

Example: Shopkeeper uses 900gm instead of 1kg and gives 10% discount. Find profit%.

Solution:

- Let CP of 1000gm = ₹1000
- He sells 900gm as 1000gm
- MP of 900gm = ₹1000 (but he claims it's 1000gm)
- After 10% discount, SP = ₹900
- But CP of 900gm = ₹900
- Profit = 0, Profit% = **0%**

7. DISCOUNT & PROFIT/LOSS

Integrated Problems

Example: Article marked 40% above CP. Sold at 20% discount, profit ₹240. Find CP.

Solution:

- Let CP = ₹100
- MP = 100 + 40% = ₹140
- SP after 20% discount = 140 × 0.80 = ₹112
- Profit = 112 - 100 = ₹12
- When profit ₹12, CP = ₹100
- When profit ₹240, CP = (100/12) × 240 = **₹2000**

Break-even Discount

Example: Marked 25% above CP. What max discount to avoid loss?

Solution:

- Let CP = ₹100
- MP = ₹125
- To avoid loss, SP ≥ CP = ₹100
- Maximum discount = (125-100)/125 × 100 = **20%**

8. SSC CGL PRACTICE PROBLEMS

Problem Set with Solutions

Problem 1: Successive discounts 20% and 30% equivalent to single discount of?

Solution:

- Net discount = 20 + 30 - (20×30)/100
- = 50 - 6 = **44%**

Problem 2: Marked price ₹800. After two successive discounts, SP ₹544. If first discount 15%, find second.

Solution:

- After 15% discount: 800 × 0.85 = ₹680
- Let second discount be x%
- 680 × (100-x)/100 = 544
- (100-x)/100 = 544/680 = 0.8
- 100-x = 80 ⇒ x = **20%**

Problem 3: Shopkeeper marks goods 50% above CP but allows discount such that profit is 20%. Find discount%.

Solution:

- Let CP = ₹100
- MP = ₹150
- Required SP for 20% profit = ₹120
- Discount = 150 - 120 = ₹30
- Discount% = (30/150)×100 = **20%**

Problem 4: Difference between discounts of 30% and two successive discounts of 20% and 10% on ₹2000.

Solution:

- Single 30% discount: 2000 × 0.30 = ₹600
- Successive discounts: Net = 20+10-(20×10)/100 = 28%
- Discount = 2000 × 0.28 = ₹560
- Difference = 600 - 560 = **₹40**

Important Shortcuts

Discount Shortcuts:
1. Single discount D% = (Discount/MP)×100
2. Successive discounts: a% + b% - (a×b)/100
3. MP = SP/(1 - Discount%)
4. When MP is x% above CP and sold at y% discount:
   Profit% = x - y - (xy)/100
5. For no profit no loss: Max discount = Markup%

Common Mistake Points

Avoid These Mistakes:
- Discount is always calculated on Marked Price, not Cost Price
- In successive discounts, don't simply add percentages
- For profit/loss calculations, always use Cost Price as base
- In false weight problems, compare actual weight with claimed weight
- Trade discount applied before cash discount