4. PROFIT, LOSS & DISCOUNT

Introduction to the Topic

In any business/commercial environment the most important concern is the profit/loss of the transaction conducted.
The **Selling Price (S.P.)** and the **Cost Price (C.P.)** of an article determine the profit or loss made on particular transaction.
The appreciation of the concept of profit and loss, discount and mark up ranges from simple calculation in Data Interpretation to complex problems in Quant.

Relevance in CAT

Profit & Loss has been an important chapter for CAT and other management exams since the very beginning. However, the questions asked in CAT from Profit & Loss have gone down in recent years, infact for two-three years no questions were asked from the topic. But, given the unpredictability of CAT, one should always prepare such topics thoroughly.

Basic Terms

Cost Price (C.P.)
Cost Price is the buying price or the price incurred to manufacture any product.

Selling Price (S.P.)
Selling Price is the price at which the product is sold.

Profit or Gain
When the selling price of any product is higher than its cost price, then there is a profit or gain given by
Profit/Gain = SP − CP

Loss
When the cost price of any product is higher than its selling price, then there is a loss given by
Loss = CP − SP

Profit/Loss % ⇒ This is profit/loss as a percentage of C.P.

$$\text{Profit \%} = \frac{\text{Profit}}{\text{Cost Price}} \times 100$$

$$\text{Loss \%} = \frac{\text{Loss}}{\text{Cost Price}} \times 100$$

$$\text{SP} = \text{CP} + \text{Profit} = \text{CP}\left(1 + \frac{\text{P}}{100}\right)$$

Thus we see that we can use the concept of Multiplying Factor and we have the relation SP = CP × MF. The MF in case of a profit will be greater than 1 and in case of a loss will be less than 1.

Important point to be noted:

- Profit and Loss are always calculated on cost price and is represented as a percent of cost price unless otherwise stated.

Example 1: Rohit purchased a car for Rs. 5 lacs and sold it for Rs. 4 lacs. Find profit/loss in this transaction.
Solution:

Here, SP < CP

$\therefore$ Loss is incurred in this case.

According to the formula,

Loss = CP − SP

$\therefore$ Loss = Rs. 5 lac − 4 lac = Rs. 1 lac.

Example 2: A shopkeeper sold $1/4^{th}$ of his stock at 50% profit and the remaining at 80% profit. Find the net profit % he made on his total stock?

Solution:

Let's say the shopkeeper invested in a stock worth Rs. 100. Stock worth Rs. 25 was sold at a 50% profit and thus he would have received Rs. 37.5. For the remaining stock worth Rs. 75, he would have received Rs. 75 × 1.8 = Rs. 135. Thus he receives a total of Rs. 172.5 on an investment of Rs. 100 implying a profit of 72.5%.

$$\left[\frac{72.5}{100} \times 100 = 72.5\%\right]$$

Example 3: By selling a watch for Rs. 1440 a man losses 10%. At what price should he sell it to gain 10%?

Solution:

SP = Rs. 1440, Loss = 10%

SP = 0.9 CP

$$\therefore \quad CP = \frac{10}{9} \times 1440 = \text{Rs. } 1600$$

Now, CP = Rs. 1600, Gain = 10%

$\therefore$ Required SP = 1.1 × 1600 = Rs. 1760

Example 4: Sonu lost 20% by selling a watch for Rs. 3072. What percent will he gain by selling it for Rs. 4080?

Solution:

SP = Rs. 3072, Loss = 20%

SP = 0.8 CP

$$\therefore \quad CP = \frac{10}{8} \times 3072 = \text{Rs. } 3840$$

Now, CP = Rs. 3840, SP = Rs. 4080

Gain = (4080 − 3840) = Rs. 240 (As gain = SP − CP)

$$\therefore \quad \text{Gain \%} = \frac{240}{3840} \times 100 = 6.25\%$$

$$\left(\text{As gain \%} = \frac{\text{Gain}}{\text{CP}} \times 100\right)$$

Example 5: A shopkeeper sells an article at a profit of 20%. If he had bought it at 20% less and sold for Rs. 10 less, he would have gained 25%. Find the cost price of the article.

Solution:

Let CP = x

Then, SP = $\frac{120x}{100}$ = Rs. $\frac{6x}{5}$

New CP = 80% of $x = \frac{80x}{100} = \frac{4x}{5}$, Gain = 25%

New SP = 125% of $\frac{4x}{5} = \frac{125}{100} \times \frac{4x}{5} = x$

According to the question,

$= \left(\frac{6x}{5} - x\right) = 10$

$\Rightarrow \frac{x}{5} = 10$

$\Rightarrow$ x = Rs. 50

Example 6: A vendor sells oranges at 10 for a rupee gaining 40%. How many oranges did he buy for a rupee?

Solution:

SP of 10 oranges = Rs. 1, gain = 40%

SP = 1.4 CP

So, CP of 10 oranges = $1 \times \frac{10}{14}$ = Rs. $\frac{5}{7}$

$\because$ Rs. $\frac{5}{7}$ yield 10 oranges.

$\therefore$ Rs. 1 will yield $10 \times \frac{7}{5}$ = 14 oranges.

Example 7: Abhinav bought 8 leamons for a rupee, but sells only 6 leamons for a rupee. Find his profit percentage.

Solution:

Cost price of 1 lemon = $\frac{1}{8}$

Selling price of 1 lemon = $\frac{1}{6}$

Now, = $\frac{SP}{CP} = \frac{1/6}{1/8} = \frac{8}{6} = 1.333.....$

Hence, profit percentage = $33\frac{1}{3}\%$

Alternate Method:

Suppose Abhinav purchases 24 leamons (LCM of 8 and 6).

Therefore, cost price of 24 leamons = Rs. 3.

Selling price of 24 leamons = Rs. 4.

Gain = Re. 1

Profit percentage = $\frac{1}{3} \times 100 = 33\frac{1}{3}\%$.

Example 8: Palak sells 40 bottles and gains the selling price of 10 bottles. What is his profit percentage?

Solution:

$SP_{40} - CP_{40} = SP_{10}$

$SP_{30} = CP_{40}$

Let CP_1 = Re 1

So, CP_{30} = Rs. 30

Now $SP_{30} = CP_{40} = 40$

So, Gain % = $\frac{40 - 30}{30} \times 100 = 33\frac{1}{3}\%$

Example 9: A man bought 80 kg of flour for Rs. 88 and sold it at a loss of as much money as he received for 20 kg. At what price did he sell it?

Solution:

C.P. of 80 kg − S.P. of 80 kg = S.P. of 20 kg

S.P. of 100 kg = C.P. of 80 kg = 88

S.P. of 1 kg = 88 paise

He sold it at 88 paise per kg.

Example 10: A shopkeeper buys pens at the rate of 4 for Rs. 20 and sells them at the rate of 5 for Rs. 30. What is his profit percentage?

Solution:

To find the profit percentage we will have to first make numbers of pens bought and sold equal.

Therefore, we take LCM of 4 and 5, *i.e*. 20.

So, the shopkeeper buy 4 pens for Rs. 20, so he will buy 20 pens for 20 × 5 = Rs. 100

Also, the shopkeeper sells 5 pens for Rs. 30, so he will sell 20 pens for 30 × 4 = Rs. 120

Therefore his profit percentage

$= \frac{\text{Profit}}{\text{CP}} \times 100 = \frac{20}{100} \times 100 = 20\%$

Important Point

- If a person sells two articles at the same Selling Price, one at a gain of *a*% and another at a loss of *a*%, then the seller always incurs a loss which is given by

$$\text{Loss \%} = \left(\frac{a}{10}\right)^2 \%$$

Note: In this case, SP is immaterial.

Example 11: A man sold two machines for Rs. 2000 each. On one he gains 16% and on the other he losses 16%. Find his gain or loss percent in the whole transaction.

Solution:

According to the formula,

$\text{Loss \%} = \left(\frac{a}{10}\right)^2 \% = \left(\frac{16}{10}\right)^2 \% = \frac{256}{100} \% = 2.56\%$

Marked Price & Discount

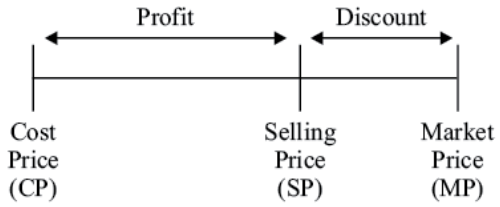
■ **Marked Price (M.P.)**

The price printed on the label is called the Marked price or sometimes it is also known as the List price.

- **Discount**

Reduction given on Marked Price is called discount. A discount is generally given on the Marked Price (M.P.) of an item in percentage terms.

Suppose a shopkeeper buys a product for Rs. 100 and he wants to earn a profit of 20% on this product. Therefore, he would like to sell the product at Rs. 120. But a customer wants a discount on the price. If the shopkeeper gives a discount on selling price of Rs. 120, his profit will decrease. Therefore, the shopkeeper prices the product at a price which is higher than Rs. 120. Now when the shopkeeper gives discount, the price again falls to Rs. 120 and the shopkeeper maintains his profit percentage. The hiked price, above the selling price, on which discount is given is known as the **Marked Price**. See the figure below:



As you can see from the figure above,

SP = CP + Profit = MP − Discount

$$SP = CP\left(1 + \frac{\text{Profit }\%}{100}\right)$$

$$= MP\left(1 - \frac{\text{Discount }\%}{100}\right)$$

Note: Always remember that discount and discount percentage are always given on the **Marked Price.**

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Example 12: By giving a discount of 20%, a salesman earns a profit of 20%. By what percentage is the marked price greater than the cost price?

Solution:

Let the cost price be Rs. 100. Therefore, the selling price is Rs. 120 as the salesman is earning 20% profit. Now we need to find the marked price on which giving a 20% discount will result in Rs. 120. We know that the factor for 20% reduction is 0.8.

Therefore, Marked price × 0.8 = Rs. 120

$\Rightarrow$ Marked price = Rs. 150.

Therefore, marked price is 50% more than the cost price.

Example 13: What is the percentage discount on "buy four, get one free" offer?

Solution:

Let the cost price of one product be Rs. 100. If we had to buy all the five products we would be paying Rs. 500. But we had to pay only Rs. 400 (Price of four products). Therefore, we got a discount of Rs. 100 on Rs 500.

Therefore percentage discount = $\frac{100}{500} \times 100 = 20\%$.

Example 14: A single discount equivalent to a series discount of 20%, 10% and 5% is:

Solution:

$0.8 \times 0.9 \times 0.95 \times MP = 0.684 \times MP$

Equivalent discount = $(1 - 0.684) \times 100\%$

= (0.316) × 100% = 31.6%

Example 15: A discount of y% is being offered at the discount store. An additional 12.5% discount is given if the value of purchase is more than Rs. 500. After the discounts, a person pays Rs. 525 for a jean whose list price is Rs. 750. Find the value of y?

Solution:

Final selling price = Rs. 525

$$= \text{Rs. } 750 \times \frac{100 - 12.5}{100} \times \frac{100 - y}{100}$$

$$\Rightarrow (100 - y) = \frac{525}{750} \times \frac{100}{87.5} \times 100 = 80$$

Hence, $y = 20\%$

Alternate Method:

We can also solve the problem by applying the

$a + b + \frac{ab}{100}$ formula.

The net discount = 30%.

(List price = Rs. 750 ; Selling price = Rs. 525)

So, $-y - 12.5 + \frac{12.5y}{100} = -30$.

Solving for y, we get $y = -20$.

Example 16: If a commission of 5% is given on the marked price of an article, the gain is 25%. Find the gain percentage, if the commission is increased to 10%.

Solution:

Let marked price = Rs. 100

Commission = Rs. 5

S.P. = Rs. 95

$$\text{C.P.} = \frac{95}{125} \times 100 = \text{Rs. } 76$$

New commission = Rs. 10

New S.P. = Rs. 90

$$\text{Gain percentage} = \frac{14 \times 100}{76} = 18.42\%$$

Faulty Balances

Consider an example: A shopkeeper sells apples at the same rate at which he purchases them. However he uses a 1 kg weight that actually weighs just 900 gms.

Let's say you as a customer ask for 1 kg of apples. He would weigh the apples with the faulty weight and would actually give you just 900 gms. His cost price will be just for the 900 gms that he is actually giving away. However, since the weight is 61 kg, price he will charge you for 1000 gms. If the selling rate, equal to the purchase price is Rs. x/gm, CP will be 900x and SP will be 1000x and thus profit percentage will be

$$= \frac{100x}{900x} = \frac{1}{9} = 11.11\% .$$

An even more unscrupulous shopkeeper, not only uses a 0.5 kg weight that weighs 0.4 kg but also marks up his selling rate by 10% over the purchase rate. What will be his net profit percentage?

The shopkeeper actually sells 400 gms but charges for 500 gms. His CP is 400x, considering purchase price of Rs. x/gm. His SP will be 500 × 1.1x.

Thus $\frac{SP}{CP} = \frac{550}{400} = 1.375$ *i.e.* a net profit percentage of 37.5%.

Important Point

- If a dishonest trader professes to sell his items at CP but uses false weight, then

  $$\text{Gains \%} = \frac{\text{True weight} - \text{False weight}}{\text{False weight}} \times 100\%$$

Example 17: A dishonest dealer professes to sell his goods at cost price but he uses a weight of 930 g for 1 kg weight. Find the gain percent.

Solution:

According to the formula,

$$\text{Gain \%} = \frac{(1000 - 930)}{930} \times 100\%$$

$$= \frac{70}{930} \times 100$$

$$= 7\frac{49}{93}\%$$

Alternate Method:

70 g is gained on 930 g.

$$\therefore \text{ Gain \%} = \left(\frac{70}{930} \times 100\right)\% = 7\frac{49}{93}\%$$

Example 18: A weighing balance shows 900 g for 1 kg. What is the net profit percentage if the trader marks up his cost price by 20%.

Solution:

Initially there is a loss of 10% because of defect in weighing balance. As there is a mark-up of 20%, net profit

$$= -10 + 20 - \frac{10 \times 20}{100} = 8\%$$

here-fore, there is a net profit of 8%.

Example 19: A trader has a weighing balance that shows 1100 g for a kg. He further marks up his CP by 10%. Find the net profit percentage.

Solution:

Due to defect in weighing balance initially there is a profit of 10%.

Now there is a mark-up of 10% in CP.

Therefore, net profit = $10 + 10 + \frac{10 \times 10}{100} = 21\%$ profit

Example 20: A grain seller cheats to the extent of 5% while buying as well as while selling by using false weights. Find the total profit percentage of the seller:

Solution:

Here grain seller gains 5% while buying as well as selling which is equivalent to two successive gains of 5%. Hence total gain = $5 + 5 + \frac{5 + 5}{100} = 10.25\%$

Alternate Method:

Let us say the price of 1 unit of grain is Rs. 1.
Now, he gains 5% while buying.
i.e. CP = Rs. 100,
Grain Value = Rs. 105
Now, he gains 5% while selling,
i.e.

Grain's **Value**	SP
100	105
For Value 105 ⇒	

$$\therefore \text{ Total Profit } \% = \frac{110.25 - 100}{100} \times 100 = 10.25\%$$

Practice Exercise – Easy

1. A person buys a fan for Rs. 400 and sells it for Rs. 450. What will be his gain percent?
   a. 15% b. 18% c. 21% d. 12.5%
2. The cost price of an article is Rs. 20000 and the profit pervent is 14%. What is the selling price?
   a. 24000 b. 22040 c. 26000 d. 22800
3. Find the C.P. when S.P. is Rs. 80 and gain is 30%.
   a. Rs. $\frac{800}{13}$ b. Rs. $\frac{1000}{13}$ c. Rs. $\frac{500}{13}$ d. Rs. $\frac{1250}{13}$
4. A dinner set is bought for Rs. 3000 and sold at a loss of 5%. Find its selling price?
   a. 2610 b. 2850 c. 2840 d. 2820
5. Ranish sold an chair for Rs. 750, gaining 15%. The cost price of the chair is:
   a. Rs. 618.7 b. Rs. 642.8 c. Rs. 652.1 d. Rs. 673.7
6. On selling an article for Rs. 48, one loses 20%. In order to gain 15%, what would be the selling price?
   a. Rs. 54 b. Rs. 56 c. Rs. 68 d. Rs. 69
7. If the man were to sell his table for Rs. 720, he would lose 25%. To gain 20%, he should sell it for:
   a. 1220 b. 1152 c. 1280 d. 1350
8. The ratio of cost price and selling price of an article is 20 : 23. What is the profit percent on it?
   a. 15% b. 12% c. 12.5% d. 13%
9. The selling price of an article is $\frac{5}{4}$ times its cost price. The gain percent is:
   a. 22.50% b. 20% c. $25\frac{1}{4}\%$ d. 25%
10. Tushar buys some pens at 2 for a rupee and sells them at 5 for a rupee. His loss percent is:
    a. 80% b. 90% c. 4% d. 60%
11. A man bought 18 leamons for a rupee and sold them at 12 leamons for a rupee. What is the profit percentage?
    a. 33.33% b. 50% c. 66.66% d. 30%
12. The owner of a furniture shop charges his customer 16% more than the C.P. If a customer paid Rs. 55912 for a sofa set, Find its original price.
    a. 44600 b. 48200 c. 42800 d. 43760
13. A machine is sold for Rs. 6160 at a gain of 10%. What would have been the gain or loss percent if it had been sold for Rs. 6400?
    a. 12.38% gain b. 14.28% gain
    c. 10.71% loss d. 15.32% loss
14. Aman sells a bicycle to Zahid at a profit of 40% and Zahid sells it to Amar at a loss of 20%. If Amar pays Rs. 600 for it, at what price did Aman buy?
    a. 520 b. 536 c. 520 d. 575
15. Suraj purchased a mobile for Rs. 5200, spent Rs. 1000 on it and sold it for Rs. 7000. Find the loss or gain percent?
    a. $12\frac{5}{16}\%$ b. $12\frac{28}{31}\%$ c. $12\frac{4}{13}\%$ d. $12\frac{7}{15}\%$
16. By selling 36 mangoes, a vendor loses the selling price of 4 mangoes. His loss percent is:
    a. $11\frac{2}{5}\%$ b. $12\frac{3}{4}\%$
    c. 10% d. None of these
17. A man sells his old scooter at 5% loss. If he sells it for Rs. 120 more, he gain 5%. The cost price of the old scooter is:
    a. Rs. 1600 b. Rs. 800 c. Rs. 1400 d. Rs. 1200

18. Sheema purchased two dresses each at Rs. 1200. She sold one dress at the loss of 10% and other at the gain of 5%. Find total gain or loss percent.
    a. 2% loss b. 1.25% profit
    c. 2.5 % loss d. 2.5 % profit

19. Dinesh purchased an article at $\frac{7}{10}$th of its selling price and sold it at 10% more than its S.P. Find the gain percent?
    a. 37 b. 42 c. 57 d. 62

20. 60% goods are sold at 5% loss while rest are sold at 10% profit. If there is a total profit of Rs. 400, then the worth of goods sold is?
    a. 24000 b. 32000 c. 40000 d. 52000

21. Profit earned by selling an article for Rs. 1720 is same as the loss incurred by selling the article for Rs. 1250. What is the cost price of the article?
    a. 1845 b. 1458 c. 1854 d. 1485

22. A dishonest dealer professes to sell his goods at cost price but he uses a weight of 930 g. for a kg. weight. Find his gain percent.
    a. 7.45% b. 7.53% c. 7.25% d. 7.61%

23. A shop keeper uses 880 gm in place of one kg to sell his goods. Find his actual gain % when he sells his article on 6% gain on cost price?
    a. $28\frac{3}{17}\%$ b. $20\frac{5}{11}\%$ c. $23\frac{15}{21}\%$ d. $24\frac{8}{16}\%$

24. A shopkeeper offers one pen free on the purchase of 4 pens. Find out the percentage discount given by the shopkeeper?
    a. 22.5% b. 20% c. 25% d. 27.5%

25. A dealer marks his goods 20% above cost price. He then allows some discount on it and makes a profit of 6%. Find the rate of discount?
    a. 14% b. 12% c. 11.67% d. 10%

26. A shopkeeper claims to sell his articles at a discount of 10% but marks his articles by increasing the cost of each by 15%. His gain percent is?
    a. 5% b. 4.5% c. 3.5% d. 6%

27. Find the single discount equivalent to a series of discounts at 20%, 10% and 30%.
    a. 50.4% b. 49.6% c. 52.1% d. 48.2%

28. Which is the better offer:
    I. Three successive discounts of 10%, 15% and 30%
    II. Three successive discounts of 40%, 10% and 5%?
    a. I offfer
    b. II offer
    c. Both offers are equally good
    d. None of these

29. A shopkeeper sells his good at its cost price only. But still he manages to gain profit of 40% because of using false weigh balance. Find by how many grams he is selling at the price of 1000 grams.
    a. 714.3 g b. 1400 g c. 814.3 g d. 689.6 g

30. A shopkeeper sells his goods at its cost price only. But uses 850 g weight at the price of 1000 g weight for a kg. What is his net profit percentage?
    a. 15% b. 17.64% c. 33.33% d. 12.5%

Practice Exercise – Medium

1. By selling 12 notebooks, the seller earns a profit equal to the selling price of 2 notebooks. What is his percentage profit?

a. 25% b. 20%

c. $16\frac{2}{3}\%$ d. Data inadequate

2. A machine is sold at a profit of 10%. Had it been sold for Rs. 40 less, there would have been a loss of 10%. What was the cost price?
   a. Rs. 175 b. Rs. 200
   c. Rs. 225 d. None of these
3. The cost price of an article *X* is Rs. 160 and selling price of another article *Y* is Rs. 240. If the selling price of *X* will be equal to the cost price of *Y*, then the profit after selling *X* is 20%. What is the profit on *Y*?
   a. 33.33% b. 25%
   c. 40% d. None of these
4. A retailer bought a certain number of CDs for Rs. 1800. Keeping one to himself, he sold the rest at a profit of Rs. 6 each. In total, he earned a profit of Rs. 114. The number of CDs he bought is?
   a. 20 b. 28 c. 32 d. 30
5. A man sells a book at a profit of 20%. If he had bought it at 20% less and sold it for Rs. 18 less, he would have gained 25%. The cost price of the book is?
   a. Rs. 80 b. Rs. 70 c. Rs. 60 d. Rs. 90
6. Each of Ajit and Mohit sold their article at Rs. 3636 but Ajit incurred a loss of 10% while Mohit gained by 1%. What is the ratio of cost price of the articles of Ajit to that of Mohit?
   a. 101 : 90 b. 89 : 92 c. 85 : 71 d. 87.99
7. A shopkeeper sold an article at a profit of 17.5%. If he had bought it at 8% less and sold it at 30% profit, he would have earned Rs. 11.55 more as profit. Cost price of the article is?
   a. Rs. 550 b. Rs. 675 c. Rs. 750 d. Rs. 1475
8. The retail price of a water geyser is Rs. 1265. If the manufacturer gain 10%, the wholesale dealer gains 15% and the retailer gains 25%, then the cost of the product is?
   a. Rs. 800 b. Rs. 900 c. Rs. 700 d. Rs. 600
9. A man wants to sell his scooter. There are two offers, one at Rs. 12000 cash and the other at a credit of Rs. 12880 to be paid after 8 months, money being at 18% per annum. Which is the better offer?
   a. Rs. 12000 in cash b. Rs. 12880 at credit
   c. Both are equal d. None of these
10. A person bought two tables for Rs. 2200. He sells one at 5% loss and the other at 6% profit and thus on the whole he neither gains nor loses. Find the cost price of each table.
    a. Rs. 1500, Rs. 700 b. Rs. 2000, Rs. 200
    c. Rs. 1200, Rs. 1000 d. Rs. 1100, Rs. 1100
11. I sold two watches for Rs. 300 each, one at the loss of 10% and the other at the profit of 10%. What is the net Profit/Loss that resulted from the transaction?
    a. 10% profit b. 1% profit
    c. 1% loss d. No Profit, No Loss
12. After allowing a discount of 11.11%, a trader still makes a gain of 14.28%. At how many percentage above the cost price does he mark on his goods?
    a. 28.56% b. 35%
    c. 22.22% d. None of these
13. A balance of a dealer weights 10% less than it should be. Still the trader marked - up his goods to get an overall profit of 20%. What is the markup done by the dealer on the cost price?
    a. 4% b. 8% c. 12% d. 16%
14. A person by means of a false balance defrauds 5% in selling goods and 10% in buying as well. What % does he gain if he sells the goods at cost price?
    a. 8.33% b. 12.52% c. 15.78% d. 17.33%

15. A milkman mixes 10% water in pure milk but he is not content with it. So, he again mixes 20% more water in the previous mixture. What is the profit percentage of milkman if he sells it at cost price:
    a. 21% b. 32% c. 12.5% d. 9.99%

16. Vanita bought a watch with 24% discount on the selling price. If the watch cost her Rs. 779, what is the original selling price of the watch?
    a. Rs. 1000 b. Rs. 950
    c. Rs. 1025 d. Cannot be determined

17. A shopkeeper marks the prices of his goods at 25% higher than the original price. After that, he allows a discount of 12% discount. What profit or loss did he get?
    a. 15% profit b. 10% profit
    c. 10% loss d. 15% loss

18. Even after reducing the marked price of a pen by Rs. 32, a shopkeeper makes a profit of 15%. If the cost price be Rs. 320, what percentage of profit does he make if he sells the pen at the marked price?
    a. 25% b. 20% c. 10% d. 30%

19. By selling an article at 80% of its marked price, a merchant makes a loss of 12%. What will be the percent profit or loss made by the merchant if he sales the article at 95% of its marked price?
    a. 5.5% profit b. 1% loss
    c. 5% profit d. 4.5% profit

20. An article is listed at Rs. 65. A customer bought this article for Rs. 56.16 with two successive discounts of which one is 10%. The other discount of this discount scheme that was allowed by the shopkeeper is?
    a. 4% b. 3% c. 6% d. 2.5%

21. Two shopkeepers announce the same price of Rs. 700 for a shirt. The first offers successive discounts of 30% and 6% while the second offers successive discount of 20% and 16%. the shopkeeper that offers better discount is more of
    a. Rs. 22.40 b. Rs. 16.80
    c. Rs. 9.80 d. Rs. 36.40

22. A dealer buys a water cooler, listed at Rs. 10000 and gets 10% and 20% successive discounts. He spends 5% of his C.P. on transport. At what price (in rupees) should he sell the water cooler to earn a profit of 15%?
    a. 8694 b. 8715 c. 8842 d. 7982

23. Kingfisher and Bisleri, there are two companies, selling the packs of cold - drinks. For the same selling price Kingfisher gives two successive discounts of 10% and 15%. While Bisleri sells it by giving two successive discounts of 15% and 25%. What is the ratio of their marked price?
    a. 5 : 4 b. 3 : 2 c. 5 : 6 d. 2 : 5

24. Two bags are sold at the same price. One at a profit of 75% and another one at a loss of 30%. What is the overall profit or loss?
    a. 18.75% profit b. 57.5 % profit
    c. 6% loss d. No Profit, No Loss

25. A man invested Rs. 8000 for a year in the share market. At the end of the years, he gained 15% and he invested the amount with profit again for the second year. At the end of the second year, he suffered a loss of 15%. Find the gain or loss percent in the investment after two years.
    a. Gain 3.25% b. Loss 2.25%
    c. No loss no gain d. Loss 5%

26. A manufacturer of a certain item can sell all he can produce at the selling price of Rs. 60 each. It costs him Rs. 40 in materials and labour to produce each item and he has overhead expenses of Rs. 3000 per week in order to operate that plant. The number of units he should produce and sell in the order to make a profit of at least Rs. 1000 per week is
    a. 250 b. 300 c. 400 d. 200

27. *A*, *B* and *C* went to market to purchase the mobile phone whose costs were same. But each mobile phone was available with two successive discounts. *A* availed two successive discounts of 10% and 20%. *B* availed two successive discounts of 20% and 15% while *C* availed two successive discounts of 15% and 13%. Who among *A*, *B* and *C* gets the maximum possible discount?
    a. *A* b. *B* c. *C* d. All of these

28. A certain manufacture sells a product to the distributor at 10% profit. Then distributor sells it to the dealer and the dealer sells to the retailer at a mark up of 10% and 20% respectively. the retailer marks up his cost by 20% and then offers a 10% discount tot he customer. If the customer had bought it from distributor directly, then how much reduction in price would he have got with respect to buying it from the retailer?
    a. 29.6% b. 20% c. 33.33% d. 22.8%

29. A shopkeeper marks up his goods by 20% and then gives a discount of 20%. Besides he cheats both his supplier and customer by 100 g *i.e*. he takes 1100 g from his supplier and sells only 900 g to his customer. What is his net profit percentage?
    a. 25% b. 24.5% c. 17.33% d. 32.5%

30. Sunny marks up his goods by 40% and gives a discount of 10%. Apart from this, he uses a faulty balance which reads 800 g for 1000 g. What is his net profit / loss percentage?
    a. 0.8% b. 57.2% c. 37.6% d. 25%

Practice Exercise – Difficult

1. A dealer offers a cash discount of 20% and still makes a profit of 20%, when he further allows 16 articles to a dozen to a particularly sticky bargainer. How much percent above the cost price were his wares listed?
    a. 100% b. 80% c. 75% d. 66 2/3%

2. Profit on selling 10 pencil equals selling price of 3 pens.While loss on selling 10 pens equal selling price of 4 pencil. Also profit percentage equals to the loss percentage and cost of a pencil is half of the cost of a pen. What is the ratio of selling price of pencil to the selling price of a pen?
    a. 4 : 5 b. 3 : 2 c. 3 : 1 d. 5 : 3

3. A seller earns 25% profit in general. Once his 25% consignment was abducted forever on the way. Trying to compensate his loss he sold the rest amount by increasing his selling price by 15%. What is the new percentage profit or loss?
    a. 8% loss b. 7.8% profit
    c. 10% profit d. 12% loss

4. A manufacturer sold a machine to a wholesale dealer at a profit of Rs. 10%. the wholesale dealer sold it to a retailer at a profit of 20%. While transporting some derect occurred in the machine and hence the retailer sold it at a loss of 5%. The customer paid Rs. 672. Find the cost of the machine for the manufacturer?
    a. Rs. 672 b. Rs. 500
    c. Rs. 572 d. None of these

5. Ashraf has two types of grapes. One is the fresh grapes containing 80% water and the other is dry grapes containing 25% water. He sells 40 kg. dry grapes, by adding water to the dry grapes, at cost price. What is the total profit percentage when after adding water the weight of 40 kg dry grapes increased in the proportion of water in fresh grapes?
    a. 145% b. 275% c. 120% d. 125%

6. If a seller wishes to make a profit of 10% after providing for a wastage of 5%, by how much should he mark his goods up?
    a. 14.33% b. 17.84% c. 15.8% d. 22.22%

7. A stockist wants to make some profit by selling sugar. He contemplates about various methods . Which of the following would maximize his profit?
    I. Sell sugar at 10% profit.
    II. Use 900 g of weight instead of 1 kg.
    III. Mix 10% impurities in sugar and selling sugar at cost price.
    IV. Increase the price by 5% and reduce weights by 5%.
    a. I or III b. II
    c. II, III and IV d. Profits are same

8. A tradesman gives 4% discount on the marked price and 1 article free with every 15 articles bought and still gain 35%. The marked price is more than the cost price by?
    a. 40% b. 39% c. 20% d. 50%

9. A garment company declared 15% discount for wholesale buyers. Mr. Chopra bought garments from the company for Rs. 25000 after getting discount. He fixed up the selling price of garments in such a way that he earned a profit of 8% on original company price. What is the approximate total selling price?
   a. Rs. 28000 b. Rs. 29000
   c. Rs. 31000 d. Rs. 29500

10. Sovina Industries develops calendars expecting to earn a profit of 40% by selling on the marked price. But during transportation 8% calendar were got spoiled due to at random rain but 32% could be sold only at 60% of the cost price. Thus the remaining 60% calendars could be sold at the expected price. What is the net profit or loss in the whole consignment for Sovina Industries?
   a. 6.5% b. 8%
   c. 10% d. None of these

11. Instead of a metre scale, a cloth merchant uses a 120 cm scale while buying, but uses an 80 cm scale while selling the same cloth. If he offers a discount of 20% on cash payment, what is his overall profit percentage?
   a. 20% b. 25% c. 40% d. 15%

Directions for questions 12 and 13: Answer the questions based on the following information.

A watch dealer incurs an expense of Rs. 150 for producing every watch. He also incurs an additional expenditure of Rs. 30,000, which is independent of the number of watches produced. If he is able to sell a watch during the season, he sells it for Rs. 250. If he fails to do so, he has to sell each watch for Rs. 100.

12. If he is able to sell only 1,200 out of 1,500 watches he has made in the season, then he has made a profit of ?
   a. Rs. 90,000 b. Rs. 75,000
   c. Rs. 45,000 d. Rs. 60,000

13. If he produces 1,500 watches, what is the number of watches that he must sell during the season in order to break-even, given that he is able to sell all the watches produced?
   a. 500 b. 700 c. 800 d. 1,000

Directions for questions 14 and 15: Answer the questions based on the following information.

A company purchases components *A* and *B* from Germany and USA respectively. *A* and *B* form 30% and 50% of the total production cost. Current gain is 20%. Due to change in the international scenario, cost of the German mark increased by 30% and that of USA dollar increased by 22%. Due to market conditions, the selling price cannot be increased beyond 10%.

14. What is the maximum current gain possible?
   a. 10% b. 12.5% c. 0% d. 7.5%

15. If the USA dollar becomes cheap by 12% over its original cost and the cost of German mark increased by 20%, what will be the gain? (The selling price is not altered.)
   a. 10% b. 20% c. 15% d. 7.5%