PROFIT & LOSS CALCULATION
COURSE OBJECTIVE:

What is Aptitude?

Aptitude literally means a natural talent. It is something that comes with us by our birth. But it is to be explored and developed within by us and that can be achieved by understanding and practicing the concepts of aptitude.

The candidates with good aptitude skills are considered better than others because they are fast at their mind and good at problem solving skills. Thus aptitude has become the most important soft skill these days.

IMPORTANT FACTS:

What is profit and loss?

What is Profit?

When a person does a business transaction and gets more than what he had invested, then he is said to have profit. The profit he gets will be equal to the additional money he gets other than his investment.

So profit can be understood as the extra money one gets other than what he had invested.

Eg: A person bought an article for Rs. 100 and sold it for Rs. 120. Then he got Rs. 20 extra and so his profit is Rs. 20.

What is Loss?

When a person gets an amount less than what he had invested, then he is said to have a loss. The loss will be equal to the deficit he got than the investment.

Eg: A person bought an article at Rs. 100 and sold it for Rs. 90. Then he got a deficit of Rs. 10 and so his loss is Rs. 10.

Cost Price (CP):

The money that the trader puts in his business is called Cost Price. The price at which the articles are bought is called Cost Price.

In other words, Cost Price is nothing but the investment in the business.

Selling Price (SP):

The price at which the articles are sold is called the Selling Price. The money that the trader gets from the business is called Selling Price.

In other words, Selling Price is nothing but the returns from a business.
Marked/Market/List Price (MP):
The price that a trader marks or lists his articles to is called the Marked Price.
This is the only price known to the customer.

Discount:
The waiver of cost from the Marked Price that the trader allows a customer is called Discount.

Note:
1. Profit or loss percentage is to be applied always to the Cost Price only.
2. Discount percentage is to be applied always to the Marked Price only.

Cost Price:
The price, at which an article is purchased, is called its cost price, abbreviated as C.P.

Selling Price:
The price, at which an article is sold, is called its selling prices, abbreviated as S.P.

Profit or Gain:
If S.P. is greater than C.P., the seller is said to have a profit or gain.

Loss:
If S.P. is less than C.P., the seller is said to have incurred a loss.

IMPORTANT FORMULAE:

1. Gain = (S.P.) - (C.P.)
2. Loss = (C.P.) - (S.P.)
3. Loss or gain is always reckoned on C.P.
4. Gain Percentage: (Gain %)
   \[
   Gain \% = \left( \frac{Gain \times 100}{C.P.} \right)
   \]
5. Loss Percentage: (Loss %)
Loss % = \left( \frac{\text{Loss} \times 100}{\text{C.P.}} \right)

6. Selling Price: (S.P.)

SP = \left[ \frac{(100 + \text{Gain} \%)}{100} \times \text{C.P.} \right]

7. Selling Price: (S.P.)

SP = \left[ \frac{(100 - \text{Loss} \%)}{100} \times \text{C.P.} \right]

8. Cost Price: (C.P.)

C.P. = \left[ \frac{100}{(100 + \text{Gain} \%)} \times \text{S.P.} \right]

9. Cost Price: (C.P.)

C.P. = \left[ \frac{100}{(100 - \text{Loss} \%)} \times \text{S.P.} \right]

10. If an article is sold at a gain of say 35%, then S.P. = 135% of C.P.
11. If an article is sold at a loss of say, 35% then S.P. = 65% of C.P.
12. When a person sells two similar items, one at a gain of say \(x\)% and the other at a loss of \(x\)% then the seller always incurs a loss given by:

\[
\text{Loss} \% = \left( \frac{\text{Common Loss and Gain} \%}{10} \right)^2 = \left( \frac{x}{10} \right)^2.
\]

13. If a trader professes to sell his goods at cost price, but uses false weights, then

Gain \% = \left[ \frac{\text{Error}}{(\text{True Value}) - (\text{Error})} \times 100 \right] \%.
SOLVED EXAMPLE QUESTIONS

1. If the cost of an article is x, first discount given is y% of cost, second discount given is z% of cost. The selling price of x is

   \[ \text{Ans. } x \left(1 - \frac{y}{100}\right) \left(1 - \frac{z}{100}\right) \]

   (HCL)

2. A power unit is there by the bank of the river of 750 meters width. A cable is made from power unit to power a plant opposite to that of the river and 1500 mts away from the power unit. The cost of the cable below water is Rs. 15/- per meter and cost of cable on the bank is Rs.12/- per meter. Find the total of laying the cable.

   \[ \text{Ans 1000 (24725 – cost)} \]

   (TCS)

3. X sold an article to Y. Y gave X Rs.20. X gives the 20 rupee to Z and gets change. He gives Rs.12 back to Y. Y left with the article. Now Z comes back to X and says that the 20 rupee note was counterfiet and demanded refund. X gave 20 rupees to Z. Now, if X had been selling the article at 100% profit, how much has X lost in the whole transaction?

   \[ \text{Soln: 12 rupees + cost price of article = 12 rupees + 4 rupees (bcoz 100% profit) = 16 rupees.} \]

   (INFOSYS)

4. A coffee seller has two types of coffee Brand A costing 5 bits per pound and Brand B costing 3 bits per pound. He mixes two brands to get a 40 pound mixture. he sold this at 6 bits per pound. the seller gets a profit of 33 ½ percent. how much he has used Brand A in the mixture?

   \[ \text{Ans: 30 pounds} \]

   (INFOSYS)

5. If a radio is purchased for Rs 490 and sold for Rs 465.50 Find the loss%?

   \[ \text{Sol: Loss = 490 – 465.5 = 24.5 loss in % = 24.5/ 490 *100 = 5%} \]

6. Find S.P when C.P=Rs 56.25 and Gain=20%

   \[ \text{Sol:56.25 * 1.2 = 67.5 answer} \]

7. Find S.P when C.P=Rs 80.40,loss=5%

   \[ \text{Sol:80.4 ( (1-.05) = 76.38 answer} \]

8. Find C.P when S.P=Rs 40.60,gain=16%?

   \[ \text{Solution : 40.6 *100/116 = 35} \]

9. Find C.P when S.P=Rs 51.70 ,loss=12%?

   \[ \text{Solution :51.7 * 100/88 =58.75} \]
10. A person incurs 5% loss by selling a bat for Rs 1140. At what price should the watch be sold to earn 5% profit?
Solution: $1140 \times \frac{105}{95} = 1260$

11. If the cost price is 96% of the selling price, then what is the profit percent?
Solution: $\frac{4}{96} \times 100 = 4.17\%$

12. If an article is sold at 5% gain instead of 5% loss, the seller gets Rs 6.72 more. The C.P of the article is?
Solution: $100 \times \frac{6.72}{10} = 148.81$ answer

13. The price of an article including the sales tax is Rs 616. The rate of sales tax is 10%, if the shopkeeper has made a profit of 12%, then the cost price of the article is?
Solution: $616 \times \frac{100}{110} = 560$ price before sales tax = 560

14. Mayank Bothra purchased 20 dozens of toys at the rate of 375 Rs per dozen. He sold each one of them at the rate of Rs 33. What was his percentage profit?
Solution: $375 \times 20 = 7500$ sale price $33 \times 20 \times 12 = 7920$ profit $= 420$ profit in % $= \frac{420}{7500} \times 100 = 5.6\%$

15. Vipin bought paper sheets for Rs 7200 and spent Rs 200 on transport. Paying Rs 600, he had 330 boxes made, which he sold at Rs 28 each. His profit percentage is
Solution: His cost = 7200 + 200 + 600 = 8000 revenue = 330 * 28 = 9240 profit = 9240 - 8000 = 1240 profit in 5% = $\frac{1240}{8000} \times 100 = 15.5\%$

16. A person earns 15% on investment but loses 10% on another investment. If the ratio of the two investments be 3:5, what is the gain or loss on the two investments taken together?
Solution: Suppose he invested 300 & 500 respectively profit: 15% of 300 = 45 loss = 500 * 10 = 50 net loss = $-\frac{50}{500} \times 100 = 10\%$

17. The profit earned by selling an article for Rs 900 is double the loss incurred when the same article is sold for Rs 450. At what price should the article be sold to make 25% profit?
Solution: Difference between the two prices: $900 - 450 = 450$ let us take 2/3 of this (because the ratio of profit and loss is 2:1) $450 \times \frac{2}{3} = 300$ COST = 900 - 300 = 600 TO EARN 25% PROFIT: $600 \times 1.25 = 750$

18. If an article is sold at 5% gain instead of 5% loss, the seller gets Rs 6.72 more. The C.P of the article is?
Solution: Let us assume the cost = 100 difference in selling prices: $105 - 95 = 10$ so the actual cost should be: $6.72/10 \times 100 = 67.2$
EXERCISE PROBLEMS

1. What is the Selling price of x? if the profit % =5% ,and the cost price = 100 (Ans: 105)  
   (CTS)

2. A person sells 2 items for Rs. 12 each. For one he profits 25% and for the other he losses 20%.  
   Altogether did he loss or gain? And by how much?  
   (INFOSYS)  
   Solution: He losses by 60 paise

3. A man bought at the cost of 5 plums a rupee and 2 oranges a rupee. He sells 10 plums and 6  
   oranges at the selling price of 4 plums a rupee and 3 oranges a rupee. What is his gain or loss?  
   (CTS 2003)  
   Sol: loss of 50p

4. Swapna bought 15 apples for Rs.10 and sold them at the rate of 12 apples for Rs.12. What is  
   the percentage of profit made by her?  
   1) 100%  
   2) 150%  
   3) 125%  
   4) None of these  
   Solution: She got profit => profit % = 15/10 X 12/12 = 1.5 => 50%.

5. By selling some cloth at the cost price a merchant still gained 19 1/21%. How much less cloth  
   does he measure for a meter?  
   1) 15cm  
   2) 16cm  
   3) 20cm  
   4) None of these  
   Solution: Profit % = 19 1/21 => 1.19047. Let he measure x cm for 100 cm. Then, 100/x =  
   1.19047 => x=84 cm So he measures 16 cm less for every meter

6. 30% loss on cost price in what percent loss on selling price?  
   1) 30%  
   2) 20%  
   3) 15%  
   4) None of these  
   Solution: Loss = 30% on CP i.e., 0.3CP => SP = 0.7CP Loss % on SP = loss/SP X 100 =  
   0.3CP/0.7CP X 100 = 42.85%.

7. Arun purchased a house for Rs.75000 and a site for Rs.15000 respectively, if he sold the house  
   for Rs.83000 and the site for Rs.10000, then find the resultant percentage of gain?  
   1) 3%  
   2) 31/3%  
   3) 30%  
   4) 331/3%  
   Solution: Total CP = 90000 & total SP = 93000 => gain = SP/CP = 93000/90000 =1.0333 =  
   3.33%  

8. The manufacturing cost of a watch is Rs.180 and the transportation lost is Rs.500 for 100  
   watches. What will be the selling price if it is sold at 20% gains  
   1) Rs.222  
   2) Rs.216  
   3) Rs.221  
   4) Rs.220
9. A person, by selling an article at three-fourths of the list price incurs a loss of 20%. Find the profit percentage if he sells at the list price?

1) 25%  2) 6.66%  3) 111/9%  4) None of these

Solution : $0.75 \times MP = 0.8 \times CP$ (since 20% loss) So, $MP = 1.0666 \times CP$ => 6.66% gain

10. A sells an article to B at a gain of 20%. B sells it to C at a gain of 25% and C in turn sells it to D at a loss of 33 1/3%. If D paid Rs.1000 for it, then what is the cost price of A.?

1) Rs.1000  2) Rs.2000  3) Rs.3000  4) Rs.4000

Solution : $1.2 \times 1.25 \times 0.6666 \times CP = 1000 \Rightarrow CP = 1000$ (profits of 20%, 25% & loss of 33.33%)

11. Ajay had purchased a second hand scooter for 18,000 and spent Rs.1800 for repairs. After one year he wanted to sell the scooter. At what price should he sell it to gain 111/9%, if 91/11% is to be deducted at the end of every year on account of depreciation?

1) Rs.18000  2) Rs.19800  3) Rs.20000  4) Rs.22500

Solution : Total $CP = 18000 + 1800 = 19800$. Depreciation = 9.09% and gain = 11.11% => $SP = (0.9091) \times (1.1111) \times 19800 = 20000$.

12. After getting three equal successive discount percentages over a marked price of Rs.1000 a customer has to pay 729 for an article. What is the rate of each of the successive discounts?

1) 10%  2) 20%  3) 30%  4) 40%

Solution : Let ‘f’ be the factor of discount => $1000 \times f \times f \times f = 729 \Rightarrow f = 0.9 \Rightarrow 10\%$ decrease

13. One-fifth of the cost price, one-seventh of the marked price and one-sixth of the selling price are all equal. What is the gain or loss to the trader?

1) 20% gain  2) 162/3% loss  3) 142/7%gain  4) 10% loss

Solution : $CP/5 = SP/6 => SP/CP=1.2 \Rightarrow 20\%$ gain

14. Due to a slump in the market, A, while selling 12 apples to B, allows him to count them as 9. But due to an overnight demand A is forced to buy them back at the same rate as he sold and allows B to count 9 apples as 12. What is overall gain percentage of B?

1) 777/9%  2) 75%  3) 50%  4) 662/3%

Solution : In two transactions B is gaining => $SP > CP$ for B in two transactions. So, gain% = $12/9 \times 12/9 = 1.7777 \Rightarrow 77.77\%$. 

Solution : Total cost of a watch = $180 + (500/100) = 185$. Gain = 20% => $SP = 1.2 \times CP = 1.2 \times 185 = 222$
15. A trader offers to give two articles free for every 10 articles I purchase. I get a total of 10 articles free for my purchase and I sell them all at a rate such that I get back my investment from the sale of just 10 of the articles. What is my overall percentage of profit

1) 100%  
2) 150%  
3) 500%  
4) 250%

Solution: 2 articles free for every 10 articles bought. So 10 free articles => 50 articles bought. Money of 60 articles (10 articles free) is obtained by selling only 10 articles. So SP of 10 articles = CP of 60 articles => SP/CP = 6 => 500% gain

16. A mechanic purchases a cooler for Rs.32000 and incurs Rs.13000 on installation and repairs. After one year he sold it for Rs.40000. What is the profit or loss percentage, if the depreciation rate of the machine is 20% per annum?

1) 81/3%  
2) 121/12%  
3) 161/4%  
4) 111/9%

Solution: Total CP = 45000. Depreciation = 20% => new CP = 0.8 X 45000 = 36000. SP = 40000 => SP/CP = 40/36 = 1.1111 => 11.11% gain

17. Ramya bought a certain number of apples at 6 apples for Rs.10 and sold them at 4 apples for Rs.10. Find the number of apples she bought if total gain is Rs.60

1) 30  
2) 31  
3) 62  
4) None of these

Solution: CP => 6 apples for Rs. 10. SP => 4 apples for Rs. 10 => 6 apples for Rs. 15 So, for 6 apples, gain is Rs.5 => Rs. 60 gain requires 72 apples

18. 5kg of ghee was bought by Venu for Rs.300. One kg becomes spoilt. He sells the remaining in such a way that on the whole he incurs a loss of 10%. At what price per kg does he sell the ghee?

1) Rs.46.25  
2) Rs.45.70  
3) Rs.46.60  
4) Rs.67.50

Solution: CP of 5 kg ghee = 300. Loss = 10% => SP = 0.9 CP = 270. For Rs. 270, 4 kg are sold SP for 1 kg = 270/4 = Rs. 67.5

19. A trader professes to lose 10% in selling 2kgs of rice. He uses 2 weighing stones, each of which is marked 1kg but weighs less. If the percentage of profit is 2\%/; and one of the two stones weighs only 800 gm, how much does the second stone weigh

1) 800gm  
2) 850gm  
3) 900gm  
4) 950gm

Solution: Let w be the weight of the second stone. Now, 0.9 X (1000/800) X (1000/w) = 1.0285 (since profit is 2.85%) w = 900 gm (nearly)

20. A girl sold her pen for Rs.39 and got a percentage of profit numerically equal to the cost price. The cost price of that pen is...
1) Rs.25   2) Rs.20   3) Rs.30   4) None of these

Solution :\( SP = 39 \). Profit \( % = CP \). \( CP + (CP\% \text{ of } CP) = SP \Rightarrow CP = 30/-.

Solution : Let each article costs \( x \) \( \Rightarrow \) Total \( CP = 2x \) and \( SP = 1.3 \times 2x = 2.6x \). New total \( CP = 0.8x + 1.1x = 1.9x \), New \( SP = SP - 48 = 2.6x - 48 \) and gain = 20\% \( \Rightarrow 2.6x - 48 = 1.2 \times 1.9x \Rightarrow 2x = 300 \).

By selling 33m of cloth, one gains the selling price of 11m. Find the gain percent?
Ans: 50\%

22. The price of a jewel, passing through three hands, rises on the whole by 65\%. If the first and second sellers earned 20\% and 25\% profit respectively, find the percentage profit earned by the third seller?
Ans: 150

23. When a producer allows 36\% commission on the retail price of his product, he earns a profit of 8.8\% what would be his profit percent if the commission rate is changed to 12\%?
Ans: 59.42\%

24. If the cost price is 96\% of the selling price, then what is the profit percent? Ans: 4.17\%

25. A discount dealer professes to sell his goods at cost price but uses a weight of 960 gms for a Kg weight. Find his gain \%? Ans: 4.17\%

26. A trader marks up the price of the product by 40\%. If the discount is increased from 15\% to 25\%, his profit comes down by Rs.42. What is the cost price?
1) Rs.150   2) Rs.200   3) Rs.250   4) Rs.300

Solution : \( MP = 1.4CP \). Also 10\% change is discount \( \Rightarrow \) Rs. 42 gain \( \Rightarrow 10\% \text{ of } 1.4CP = 42 \text{ CP} = 300 \).

27. The catalogue price of an article is Rs.15000. If the discount is increased from 15\% to 20\%, then profit falls from 27.5\% to 20\%. Find the cost price of the article?
1) Rs.12000   2) Rs.10000   3) Rs.12250   4) Rs.1750

Solution : \( MP = 15000 \). 5\% change in discount i.e., 5\% of \( MP = 7.5 \% \text{ of } CP \) (profit change) \( \Rightarrow \) \( CP = 5/7.5 \times MP = 10000 \).

28. The marked price of an article is Rs.300. If the selling price is 50\% more than the amount of discount allowed, find the selling price?
1) Rs.180   2) Rs.150   3) Rs.200   4) Rs.175

Solution : \( MP = 300 \), \( SP = 1.5 \times \text{discount} \). Now, \( SP = MP - \text{discount} \Rightarrow SP = 180 \).
29. The cost of an apple is $33\frac{1}{3}$% less than the cost of 1 mango. If a man sells four apples at the cost price of 5 mangoes, what is his percentage of profit?

1) 75%  
2) 81%  
3) 87.5%  
4) 90%

Solution: \[CP\text{ of apple } = 0.6666 \times CP\text{ of mango}\ldots\text{1 Man sold 4 apples for CP of 5 mangoes} \]
\[=> \text{his CP} = 4 \times \text{CP of apple} \text{ And his SP} = 5 \times \text{CP of mango}. \text{ So, SP/CP} = (5\text{CP of mango})/(4\text{XC of apple}) = 1.875 => 87.5\%.

30. A merchant professed to sell 20 articles at a loss which is equals to the cost price of 2 articles but sold 18 articles at the cost price of 20 articles. What is the gain percent?

1) 191/11\%  
2) 10\%  
3) 111/9\%  
4) 0\%

Solution: \[SP\text{ of 18 articles} = CP\text{ of 20 articles} \implies SP/CP = 20/18 = 1.1111 => 11.11\% \text{ gain}\]

31. A sells X to B at 5% and B sells it to C at 10% profit, what % of profit can be derived by A, if he sells it at this price? Ans: 15.5\%

32. By selling X for 1536, Kapil lost 20%, what % profit will be there by selling it at 2000?

Ans: 4.16\%

33. Kapil sells a calculator at 17% profit to X, who sells it to Y at 25% loss, if Y pays 1842.75, what is the cost of Kapil?  
Ans: 2100

34. An item is marked at 65, a customer purchased it at 56.16 and got 2 successive discounts. The first discount was of 10%, what was the other discount?  
Ans: 5.61\%

35. An item is marked at 65, a customer purchased it at 56.16 and got 2 successive discounts. The second discount was of 10%, what was the first discount?  
Ans: 4\%

36. Kapil sold X at 266 after giving 5% discount on marked price. If he had given no discount, he would have earned 12% profit on cost. What was the cost?  
Ans: 250

37. You pay for 50 caps @ 250 per cap. You are allowed 20% + 15% discount + 5% cash discount. You make cash payment of how much amount?  
Ans: 8075

38. Selling price of 2/3 rd of Bhujia is equal to its cost, what is the gain in % of the seller?  
Ans: 50\%

39. Two third of consignment was sold at a profit of 5% and the remainder at a loss of 2%.If the total profit was Rs 400, the value of the consignment was? Ans: 15000

40. Kunal bought a suitcase with 15% discount on the labelled price. He sold the suitcase for Rs 2880 with 20% profit on the labelled price. At what price did he buy the suitcase? Ans: 2040
41. Find C.P when S.P = Rs 51.70 loss = 12%?
   Solution: \( \frac{51.7 \times 100}{88} = 58.75 \)

42. Find C.P when S.P = Rs 40.60, gain = 16%?
   Solution: \( \frac{40.6 \times 100}{116} = 35 \)

43. Find S.P when C.P = Rs 80.40, loss = 5%
   Solution: \( \frac{80.4 \times 95}{100} = 76.39 \)

44. If a radio is purchased for Rs 490 and sold for Rs 465.50 Find the loss%?
   Solution: Loss = 490 – 465.5 = 24.5  
   \( \frac{24.5 \times 100}{490} = 5\% \)

### QUESTION BANK FOR MOCK TEST

1. A Kg of tea costs Rs 49.50. But the supplier gives 10 gms less for every Kg he sold. What is the actual cost.
   (HCL)
   (a) 49.001  (b) 49.005  (c) 49.01  (d) Same

2. An article is listed at Rs.65. A customer bought this article for Rs.56.16 and got two successive discounts of which one is 10%. Find the other discount of this scheme.
   a) 4%  b) 3%  c) 6%  d) None

3. A cash payment that will settle a bill for 250 chairs at Rs.50 per chair less 20% and 15% with a further discount of 5% on cash payment is ……
   a) Rs.7025  b) Rs.8075  c) Rs.8500  d) None

4. A person sells walkmans at Rs.1134 each after giving a discount of 19% on the marked price. Had he not given the discount, he would have earned a profit of 40% on the cost price. The C.P. of each walkman is ……
   a) Rs.1000  b) Rs.1200  c) Rs.1400  d) None

5. Rajesh sells tape recorder to Harish at a loss of 10% and Harish sells it to Karim at a loss of 20%. If Karim pays Rs.1440 for it, at what price did Rajesh buy?
   a) Rs.1920  b) Rs.1200  c) Rs.1800  d) None

6. Andrew sells a scooter to his friend at 10% loss. If the friend sells it for Rs.54000 and gains 20%, find the original cost price of the scooter.
   a) Rs.50000  b) Rs.45000  c) Rs.40000  d) None

7. A sells an article to B at a profit of 10% and B sells it to C at a profit of 20%. Find the resultant profit.
   a) 35%  b) 20%  c) 32%  d) None
8. A manufacturer sells an article to a wholesale dealer at a profit of 20% and the wholesale dealer sells it to a retail merchant at a loss of 5%. Find the resultant profit or loss%.
   a) 14% loss  
   b) 14% gain  
   c) 12% gain  
   d) None

9. A man sold two watches for Rs.3750 each; on one he gained 5% and on the other he lost 20%. Find his gain or loss% in the whole transaction.
   a) 1 1/4% loss  
   b) 1/2% gain  
   c) 1/4% gain  
   d) None

10. A man sells two articles, each for the same price of Rs.640. He earns 20% profit on the first and 40% profit on the second. Find his overall profit %.
    a) 29 1/2%  
    b) 28 1/2%  
    c) 29 3/13%  
    d) None

11. Raju buys a watch for Rs.350 and sells it for Rs.392. Find his profit percentage.
    a) 9%  
    b) 12%  
    c) 14%  
    d) None

12. Kumar purchased an article for Rs.5200 and spent Rs.800 on its repair. He had to sell it for Rs.5500. Find his profit or loss percentage.
    a) 8 1/3 % loss  
    b) 7 1/2 % profit  
    c) 9% loss  
    d) None

13. A tooth paste marked Rs.80 is sold for Rs.68. Find the rate of discount.
    a) 12%  
    b) 14%  
    c) 15%  
    d) None

14. Mr. Sharma bought 200 dozen mangoes at Rs.10 per dozen. He spent Rs.500 on transportation. He sold them at Rs.1 each. Find the profit or loss%.
    a) 4%  
    b) 6%  
    c) 5%  
    d) None

15. Mr. Shekar sold his bike for Rs.10500 at a profit of 5%. Find the C.P. of the bike.
    a) Rs.10300  
    b) Rs.10700  
    c) Rs.10000  
    d) None

16. Sujan buys a binocular for Rs.1800 and sells it at 10% loss. Find its S.P.
    a) Rs.1620  
    b) Rs.1730  
    c) Rs.1650  
    d) None

17. Ravi purchased 120 rims of paper at Rs.80 per rim. He spent Rs.280 on transportation, paid tax at the rate of 40 paise per rim and also paid Rs.72 to the workers. He wants to gain 8% then find the S.P. per rim.
    a) Rs.89  
    b) Rs.90  
    c) Rs.95  
    d) None

18. A shopkeeper loses 7% by selling an item for Rs.31. For how much should he sell the ball so as to gain 5%?
    a) Rs.50  
    b) Rs.65  
    c) Rs.35  
    d) None

19. A shopkeeper sold some articles at Rs.35 per article and gained 40% on it. What would be the S.P. of each article if he wants to gain 60% profit?
    a) Rs.40  
    b) Rs.45  
    c) Rs.50  
    d) None
20. A man bought oranges at the rate of 6 for Rs.20 and sold them at 4 for Rs.16. Find his estimated profit%.
   a) 23%  b) 18%  c) 20%  d) None

21. The percentage by which the marked price exceeds the cost price of an article and the percentage of discount allowed on the article are in the ratio of 3:2. If it is sold at the cost price, what is the percentage of discount allowed?
   a) 20%  b) 25%  c) 33.33%  d) 50%

22. The purchase prices of three articles are in the ratio 3:4:5 the first one is sold at a profit of 10% and the second at a loss of 7.5%. If the overall percentage of profit or loss of the first two articles is the same as the percentage profit or loss of all the articles taken together, what is the percentage of profit or loss in the case of the third article?
   a) 8.75%  b) 1.25%  c) 0%  d) Can’t be determined.

23. A dishonest oil merchant claims that he gets a profit of only 5% but he gives only one liter of oil instead of 1kg. If 1.25 liter of oil weighs 1kg what is his overall percentage of profit
   a) 31.25%  b) 25%  c) 26%  d) None of these

24. A fruit vendor sells mangoes and bananas and gets equal revenue from each. He gets a profit of 20% on each mango and a profit of 25% on each banana. If the ratio of the number of bananas sold to the number of mangoes sold is 4:1, what is the ratio of the cost price of a banana to that of a mango?
   a) 1:5  b) 6:25  c) 2:9  d) Can’t be determined

25. A trader buys 150 pens for Rs.1000 and he marks each of them at Rs.10. He gives a discount of 20% on each pen and he gives 1 pen free on bulk purchases of 9 pens. What is his minimum overall percentage of profit?
   a) 8%  b) 10%  c) 20%  d) 5%

26. A trader gives a discount on an article such that the profit as a percent of marked price is the same as the discount as a percent of cost price. What is the ratio of the actual profit percentage to the actual discount percentage on the article?
   a) 4:1  b) 2:1  c) 1:2  d) Can’t be determined

27. The cost price of a computer is Rs.1000 less than the selling price of a television and the selling price of the computer is 30% more than the cost price of the television. If the selling price of the computer is 4% more than the selling price of the television, what is the percentage of profit on selling the television?
   a) 20%  b) 25%  c) 162/3%  d) Can’t be determined.

28. The marked prices of two articles are in the ratio of 1:2, their discount percentages are also in the ratio of 1:2 and the profit they get is also in the ratio of 1:2. What is the ratio of their cost price
REASONING AND QUANTITATIVE APTITUDE

PROFIT AND LOSS

29. A trader purchases two watches. He marks the first one up by Rs.200 over the cost price and gives a discount of 20% on it. The second one he marks up by 50% and gives a discount of Rs.160. If he gains 15% on both the watches put together and 8% on the first alone, what is the percentage of profit on the second watch?

a) 21%        b) 22%        c) 18.5%        d) Can’t be determined

30. Jawed sells 2,000 mangoes in a week. He recovers his total cost by selling first 1,200 Mangoes. He sells the next 300 Mangoes for a loss of 20% and he sells the last 500 Mangoes for a loss of 40%. What is his overall percentage of profit?

a) 45%        b) 35%        c) 27%        d) 12.5%

31. The percentage by which the marked price exceeds the cost price of an article and the percentage of discount allowed on the article are in the ratio of 3:2. If it is sold at the cost price, what is the percentage of discount allowed?

a) 20%        b) 25%        c) 33\(\frac{1}{3}\)%        d) 50%

Solution: If CP is raised by 3x %, the discount should be 2x %. Also, after discount SP=CP => increase of 3x% X decrease of 2x%. From inspection, 33.33% discount => 50% increase (since 3:2) and 1.5 X 0.6666 = 1.

32. The purchase prices of three articles are in the ratio 3:4:5 the first one is sold at a profit of 10% and the second at a loss of 7.5%. If the overall percentage of profit or loss of the first two articles is the same as the percentage profit or loss of all the articles taken together, what is the percentage of profit or loss in the case of the third article?

a) 8.75        b) 1.25        c) 0        d) Can’t be determined.

Solution: CP of first two articles is in ration of 3:4. So for 2 articles, gain/loss % = (3/7) X10 – (4/7) X7.5 = 0. So, overall profit/loss% = 0 => (3/12) X10 – (4/12) X7.5 + (5/12) x = 0 => x=0%.

33. A dishonest oil merchant claims that he gets a profit of only 5% but he gives only one liter of oil instead of 1kg. If 1.25 liter of oil weighs 1kg what is his overall percentage of profit?

a) 31.25%        b) 25%        c) 26%        d) None of these

Solution: Overall profit = 1.05 X (1.25/1) = 1.3125 => 31.25% gain

34. A fruit vendor sells mangoes and bananas and gets equal revenue from each. He gets a profit of 20% on each mango and a profit of 25% on each banana. If the ratio of the number of bananas sold to the number of mangoes sold is 4:1, what is the ratio of the cost price of a banana to that of a mango?
35. A trader buys 150 pens for Rs.1000 and he marks each of them at Rs.10. He gives a discount of 20% on each pen and he gives 1 pen free on bulk purchases of 9 pens. What is his minimum possible overall percentage of profit?

a) 8%  b) 10%  c) 20%  d) 5%

Solution: 150 pens for Rs.1000 => total CP = 1000. 1 pen free for every 9 pens => he can sell 135 pens (for least possible profit) SP of each pen = 10 and discount = 20% => SP = 8. Total SP = 135 x 8 = 1080 => SP/CP = 1080/1000 = 1.08 => 8%.

36. A trader gives a discount on an article such that the profit as a percent of marked price is the same as the discount as a percent of cost price. What is the ratio of the actual profit percentage to the actual discount percentage on the article?

a) 4:1  b) 2:1  c) 1:2  d) Can’t be determined

Solution: Profit% of MP = discount% of CP => profit%/discount% cant be determined without the values of MP and CP.

37. The cost price of a computer is Rs.1000 less than the selling price of a television and the selling price of the computer is 30% more than the cost price of the television. If the selling price of the computer is 4% more than the selling price of the television, what is the percentage of profit on selling the television?

a) 20%  b) 25%  c) 162/3%  d) Can’t be determined.

Solution: CP computer = SP TV – 1000 and SP computer = 1.3 X CP TV. SP Computer = 1.04 SP TV => 1.3 CP TV = 1.04 SP TV => SP/CP = 1.25 => 25% gain.

38. The marked prices of two articles are in the ratio of 1:2, their discount percentages are also in the ratio of 1:2 and the profit they get is also in the ratio of 1:2. What is the ratio of their cost price?

a) 1:2  b) 5:8  c) 2:5  d) Can’t be determined

Solution: Without the knowledge of at least one of the prices the ratio of CP’s can’t be determined

39. A trader purchases two watches. He marks the first one up by Rs.200 over the cost price and gives a discount of 20% on it. The second one he marks up by 50% and gives a discount of
Rs.160. If he gains 15% on both the watches put together and 8% on the first alone, what is the percentage of profit on the second watch?

a)21%   b) 22%   c) 18.5%   d) Can’t be determined

Solution : MP1 = CP1 + 200 and discount = 20%. Also MP2 = 1.5CP2 and discount = Rs. 160. Also SP1/CP1 = 8% gain. With this information it can’t be said what is the profit % on 2nd watch

40. Jawed sells 2,000 mangoes in a week. He recovers his total cost by selling first 1,200 Mangoes. He sells the next 300 Mangoes for a loss of 20% and he sells the last 500 Mangoes for a loss of 40%. What is his overall percentage of profit?

a)45%   b) 35%   c) 27%   d) 12.5%

Solution : 300 sold at loss of 20% and 500 old at a loss of 40% => loss% = (3/8)X20 + (5/8)X40 = 32.5 => loss factor = 0.675 Already he got a gain by SP of 1200 = CP of 2000. So overall profit % = (2000/1200) X 0.675 = 1.125 => 12.5% gain.

41. A person loses 10% on one investment but gains 20% on another. If the ratio of the investments is 3:4, what is the percentage of gain or loss on the two investments taken together?

a) 61/8%  b) 71/7%  c) 111/9%  d) None of these

42. A trader professes to sell all articles at a loss of 25%, but sells three-fifth of them at again of 25% and the remaining at a loss of 25%. What is his overall percentage of gain or loss?

a) 5% loss  b) 10% gain  c) 5% gain  d) No loss, No gain

43. A man sells an article at a profit of 20%. If he had bought it at 10% less and sold it for Rs.18 more, he would have gained 40%. Find the cost price of the article.

a) Rs.500  b) Rs.300  c) Rs.400  d) Rs.550

44. An article was sold at a profit of 20%. If both cost price and selling price are Rs.100 less each, then magnitude of the percentage of profit would have been 4 percentage points more than that in the first case. Then the cost price is

a) Rs.500  b) Rs.600  c) Rs.800  d) None of these

45. A man bought 2 articles at the same price and sells them together at 30% gain. Had he bought the first article at 20% less and the second article at 10% more and then sold them together for Rs.48 less, he would have gained 20% on the whole. What is the total cost of 2 articles

a) Rs.200  b) Rs.300  c) Rs.400  d) Rs.500
46. A merchant sells an item at a 20 percent discount, but still makes a gross profit of 20 percent of the cost. What percent of cost would be gross profit on the item have been if it had been sold without the discount? (HCL)

(a)20%  (b)40%  (c)50%  (d)60%  (e)66.6%

47. A dealer professes to sell his goods at cost price and uses an 880gm weight instead of a kg. What is his percentage of gain?

a)13.13%  b) 13.33%  c) 13.36%  d) 13.63%

Solution: Gain % = 1000/880 => 1.1363 => 13.63%

48. P sold an article for Rs.1080 thereby losing 10% Q sold another article for Rs.1800 at a loss of 10%. Who incurred a greater loss?

a)P  b) Q  c) Cannot say  d) Both have equal

Solution: For P, SP=1080 and loss=10% => CP = 1080/0.9 =1200 => loss = 1200-1080 = 120. For Q, SP=1800 and loss=10% => CP = 1800/0.9 = 2000 => loss = 2000-1800 = 200.

Answers:

1-b  2-a  3-b  4-a  5-b  6-a  7-c  8-b  9-c  10-c
11-b  12-a  13-c  14-b  15-c  16-a  17-b  18-c  19-a  20-c
21-d  22-c  23-a  24-b  25-a  26-d  27-b  28-d  29-d  30-d
31-d  32-c  33-a  34-b  35-a  36-d  37-b  38-d  39-a  40-a
41-b  42-c  43-b  45-b  45-b  46-c  47-c  48-b