PROFIT & LOSS

INTRODUCTION

This chapter can be considered as an extension of percentage with only difference in the terminology usage. The terms used in percentage are CP value, SP value, percentage increase, etc., but the similar terms are used as cost price, selling price, profit percentage, etc. in profit, loss, and discount. Let us understand the different concepts and learn problem-solving methods for these concepts.

TERMINOLOGY

Cost Price

The price (amount) paid to purchase a product or the cost incurred in manufacturing a product is known as the cost price (CP) of that product.

Selling Price

The price at which a product sold is called selling price (SP) of the product.

Marked Price

The marked price or the mark-up price (MP) is the price that the shopkeeper/retailer fixes in the anticipation of some discount that they may be asked by a customer.

Methodology

In any method going forward & backward (both ways) must be easy i.e. CP→SP or SP→CP. So that a student can easily calculate CP or SP as per question requirement. Few methods are discussed below

Percentage change as addition

Thought process:

$$\mathbf{40}(\text{CP}) \xrightarrow[\rightarrow 20\% \text{ of } 40=8 \rightarrow +8]{20\%\uparrow} \mathbf{48}(\text{SP})$$

Now, think in reverse manner:

$$? \xrightarrow{20\%\uparrow} \mathbf{48}(\text{SP})$$

It is difficult to find CP value if SP value is already given in the question.

Percentage change as Multiple

Thought process:

Think % increase and decrease in following way:

20% ↑= 1.20

30%↑=1.30

20%↓ = 0.80

So,

$$40(\text{CP}) \xrightarrow[\rightarrow \times 1.2]{20\%\uparrow} \mathbf{48}\ (\text{SP})$$

This concept is easy and very useful.

Now, think in reverse manner:

$$? \xrightarrow{20\%\uparrow \rightarrow \times 1.2} \mathbf{48}(\text{SP})$$

In case of reverse just divide 48 by 1.2 as rather multiply.

48/1.2 = 40 (CP)

Percentage change as fractions

Thought process:

Think % increase and decrease in following way:

$$20\%\uparrow = \frac{20}{100} = \frac{1(\text{change})}{5} \rightarrow \frac{5+1}{5} \rightarrow \frac{6(\text{SP})}{5(\text{CP})}$$

Now Compare

$$\frac{6(\text{SP}) \xrightarrow{\times 8} ?}{5(\text{CP}) \xrightarrow{\times 8} 40} \rightarrow \frac{48}{40}$$

Finally

$$\mathbf{40}(\text{CP}) \xrightarrow[\frac{1}{5} \rightarrow \frac{6}{5} \rightarrow \frac{?}{40} \rightarrow \frac{48}{40}]{20\%\uparrow} \mathbf{48}(\text{SP})$$

Now, think in reverse manner:

$$? \xrightarrow{20\%\uparrow \rightarrow \frac{6}{5}} \mathbf{48}(\text{SP})$$

If 6→ 48

Then 1→ 8

So, 5→ 40

In all above methods percentage as multiple is quick and easy for profit and loss chapter.

APPLICATION OF % TO PROFIT AND LOSS

Follow two-step process

STEP1 - Always write Percentage (%) terms in decimals (**see table below**)

For profits add into 100 while for loss minus from 100

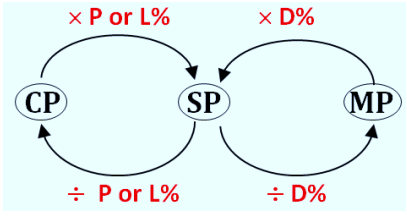
(+) ↑ Profits gain-increase (100+)		(-)↓Loss-decrease Discount (100-)	
5%	1.05	5%	.95
10%	1.10	10%	.90
25%	1.25	25%	.75

STEP2 – If you have to calculate SP always multiply P (decimal) with SP

P = profit

L =Loss

D = discount



Explanation:

Find CP if SP is 420 and loss is 20%.

Solution: 20% → 0.80

From above

$$\text{SP} \xrightarrow{\div L\%} \text{CP}$$

$$420 \xrightarrow{\div 0.80} 525$$

Find SP if MP is 420 and discount is 20%.

Solution: 20% → 0.80

From above

$$\text{SP} \xrightarrow{\times D\%} \text{CP}$$

$$420 \xrightarrow{\times 0.80} 336$$

So using above flow diagram you can jump any way i.e
CP ↔ SP ↔ MP

TYPE

The cost price of 15 articles is same as the selling price of 10 articles. The profit percent is:

Solution:

(c) Given

15 CP = 10 SP

$\frac{CP}{SP} = \frac{10}{15} = \frac{2}{3}$ ⟩ (Profit)

Profit % $= \frac{\text{Profit}}{CP} \times 100 = \frac{1}{2} \times 100 = 50\%$

TYPE

A nan sells two pipes at Rs. 12 each, He gains 20% on one and loses 20% on the other. II, the whole transaction, there is

Solution:

As we know

$SP \xrightarrow{\div P \text{ or } L\%} CP$

$12 \xrightarrow[20\%\uparrow]{\div 1.2} 10$ (Pipe-I)

$12 \xrightarrow[20\%\downarrow]{\div 0.8} 15$ (Pipe-II)

24 → 25

Loss = 25-24 = 1Rs.

TYPE

By selling an article for Rs. 240, a man incurs a loss of 10%. At what price should he sell it, so that he makes a profit of 20%

Solution:

$$\frac{240}{0.9}(\mathbf{CP}) \xleftarrow[\div 0.9]{10\%\downarrow} 240(\mathbf{SP})$$

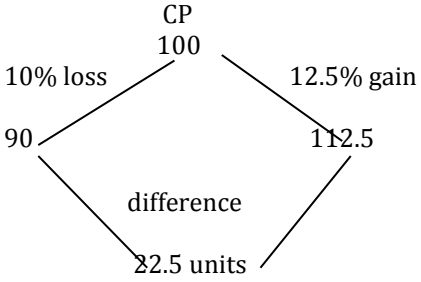
$$\frac{240}{0.9} \xrightarrow[\times 1.2]{20\%\uparrow} \frac{240}{0.9} \times 1.2 = 320$$

TYPE

An article is sold at a loss of 10%. Had it been sold for Rs. 9 more there would have been a gain of 25/2 % on it. The cost price of the article is:

Solution:

(a) According to question,



22.5 units = 9

1 unit $= 9 \times \frac{2}{45}$

100 units 2/5 × 100

= Rs. 40

TYPE

By selling a plot of land for Rs. 45,000 a person loses 10%. At what price should he sell it to gain 15%

Solution:

(c) According to question

100(CP) $\xrightarrow{10\% \text{ loss}}$ 90 (SP) $\xrightarrow{\times 500}$ 45000 (Given)

90 units → 45000

1 unit → 500

100 unit = 500 × 100 = 50000

CP = Rs. 50000

To gain 15% = 15/100 × 50000 = Rs. 7500

Thus, SP = 50000 + 7500 = Rs. 57500

PREVIOUS YEAR QUESTIONS

Q1.

A shopkeeper bought 84, Identical shirts priced at Rs. 240 each. He spent a total of Rs. 3200 on transportation and packaging. He put the label of marked price of Rs. 420 on each shirt. He offered a discount of 15% on each shirt at the marked price. What is the total profit of the shopkeeper in the whole transaction?

(a) Rs. 6258
(b) Rs. 6528
(c) Rs. 6268
(d) Rs. 6628
(e) None of these

Q2.

The profit earned after selling an article for Rs. 1,516 are the same as loss incurred after selling the article for Rs. 1,112. What is the cost price of the article ?

(a) Rs. 1,314
(b) Rs. 1,343
(c) Rs. 1,414
(d) Rs. 1,434
(e) None of these

Q3.

The profit earned after selling an article for Rs. 1,754 is the same as loss incurred after selling the article for Rs. 1,492. What is the cost price of the article ?

(a) Rs. 1,623
(b) Rs. 1,523
(c) Rs. 1,689
(d) Rs. 1,589
(e) None of these

Q4.

An article is sold at a loss of 10%. Its cost price is Rs 800. A discount of 20% was offered on the labeled price while selling. What is the loss per cent at the labeled price?

(a) 10%
(b) 15%
(c) 20%
(d) 0.25%
(e) None of these

Q5.

Vinod makes a profit of Rs. 110 if he sells a certain number of pencils he has at the price of Rs. 2.5 per pencil and incurs a loss of Rs. 55, if he sells the same

number of pencils for Rs. 1.75 per pencil. How many pencils does Vinod have ?
(a)220
(b)240
(c)200
(d) Cannot be determined
(e) None of these

Q6.

A shopkeeper bought 30 kg. of wheat at the rate of Rs. 45 per kg. He sold forty percent of the total quantity at the rate of Rs. 50 per kg. Approximately, at what price per kg, should he sell the remaining quantity to make 25 per cent overall profit ?
(a) Rs. 54
(b) Rs. 52
(c) Rs. 50
(d) Rs. 60
(e) Rs. 56

Q7.

Meenal purchased a car for Rs. 2,50,000 and sold it for Rs. 3,48,000. What is the percent profit she made on the car?
(a)40%
(b)39.20%
(c)38.40%
(d)38%
(e) None of these.

Q8.

Rajni purchased a mobile phone and a refrigerator for Rs 12,000 and Rs 10,000 respectively. She sold the refrigerator at a loss of 12 per cent and mobile phone at a profit of 8 per cent. What is her overall loss/profit ?
(a) Loss of Rs 280
(b) Profit of Rs 2,160
(c) Loss of Rs 240
(d) Profit of Rs 2,060
(e) None of these

Q9.

A shopkeeper sells notebooks at the rate of Rs 45 each and earns a commission of 4%. He also sells pencil box at the rate of Rs 80 each and earns a commission of 20%. How much amount of commission will he earn in two weeks if he sells 10 notebooks, and 6 pencil boxes a day ?
(a) Rs. 1,956
(b) Rs. 1,586
(c) Rs. 1,496
(d) Rs. 1,596
(e) None of these

Q10.

A man sold a wristwatch for Rs 2,400 at a loss of twenty five per cent. At what rate should he have sold the wristwatch to earn a profit of twenty five per cent ?
(a) Rs 3,600
(b) Rs 4,000
(c) Rs 3,500
(d) Rs 3,800
(e) None of these

Q11.

What profit/loss per cent did Ravi earn if he purchased an item of Rs 5,600 and sold it at three-fourth of its cost price ?
(a) Loss of 20 per cent
(b) Gain of 25 per cent
(c) Neither gain nor loss
(d) Loss of 15 per cent
(e) None of these

Q12.

Prasad sold his work tools for Rs 1850 and earned a profit of 25 per cent. At what price did Prasad buy the work tools?
(a) Rs 1,360
(b) Rs 1,300
(c) Rs 1,240
(d) Rs 1,480
(e) None of these

Q13.

Rehaan purchased a bike for Rs. 54,000.He sold it at a loss of 8 per cent. With that money he again purchased another bike and sold it at a profit of 10 per cent. What is his overall loss/ profit ?
(a) Loss of Rs. 657
(b) Profit of Rs. 567
(c) Loss of Rs. 648
(d) Profit of Rs. 648
(e) None of these

Q14.

Meera purchased an item for Rs. 62,000 and sold it at loss of 25 percent. With that amount she purchased another item and sold it at a gain of 30 percent. What was her overall gain/loss?
(a) Loss of Rs. 1560
(b) Profit of Rs. 1560
(c) Loss of Rs. 1550
(d) Profit of Rs. 1550
(e) None of these

Q15.

Seema purchased an item for Rs. 9,600 and sold it for a loss of 5 percent. From that money she purchased another item and sold it for a gain of 5 percent, What is her overall gain/loss?
(a) Loss of Rs. 36
(b) Profit of Rs. 24
(c) Loss of Rs. 54
(d) Profit of Rs. 36

(e) None of these

Q16.

Kamya purchased an item of Rs. 46,000 and sold it at a loss of 12 percent. With that amount she purchased another item and sold it at a gain of 12 percent. What was her overall gain/loss?

(a) Loss of Rs. 662.40
(b) Profit of Rs. 662.40
(c) Loss of Rs. 642.80
(d) Profit of Rs. 642.80
(e) None of these

Q17.

Three partners A, B and C started a business with an investment of Rs. 14000 each. A withdrew Rs. 2000 after two months. B invested Rs. 2000 more and C invested Rs. 4000 more at the same time. Total profit earned at the end of the year was Rs. 54400. Find A's share in the profit.

(a) Rs. 14800
(b) Rs. 14600
(c) Rs. 14680
(d) Rs. 15800
(e) None of these

Q18.

A man sells calculator at the rate of Rs. 250 each which includes a profit of 14 per cent. What amount of profit will he earn in 19 days if he sells seven calculators per day ?

(a) Rs. 4665
(b) Rs. 4565
(c) Rs. 4545
(d) Rs. 4655
(e) None of these

Q19.

An article was sold for Rs. 5220 at a loss of 42% of the cost price. What will be the selling price of the article for a profit of 42% ?

(a) Rs. 12580
(b) Rs. 17280
(c) Rs. 12780
(d) Rs. 15280
(e) None of these

Q20.

A shopkeeper sells two watches for Rs. 308 each. On one he gets 12% profit and on the other 12% loss. His profit or loss in the entire transaction was ?

(a) 36/25% loss
(b)36/25% gain
(c)77/25 % loss
(d) 77/25 %gain
(e) None of these

Q21.

A merchant buys two items for Rs. 7500. One item he sells at a profit of 16% and the other item at 14% loss. In the deal the merchant makes neither any profit nor any loss. What is the difference between selling price of both the items? (in rupees)

(a)625
(b)610
(c)620
(d)630
(e)615

Q22.

An Item was bought at Rs. X and sold at Rs. Y, there by earning a profit of 20%. Had the value of X been 15% less and the value of Y been Rs. 76 less, a profit of 30 would have been earned. What was the value of X?

(a) Rs. 640
(b) Rs.400
(c) Rs.600
(d) Rs.800
(e) Rs.840

Q23.

A' bought a certain quantity of oranges at total cost of Rs. 1200. He sold 1/3rd of those oranges at 20% loss. If A earns an overall profit of 10%, at what percent profit did A sell the rest of the oranges?

(a)16%
(b)15%
(c)22%
(d)25%
(e)20%

Q24.

A' sold an article for Rs. 8000 and incurred a loss. Had he sold the article for Rs. 9800, his gain would have been twice the amount of loss. At what price should the article be sold to earn 20% profit?

(a) Rs. 10,840
(b) Rs. 9,820
(c) Rs. 10,320
(d) Rs. 9,840
(e) Rs. 10,480)

Q25.

A trader has 400 kg of rice; He sells a part of it at a profit of 36% and remaining part at a loss of 24%. He overall loses 12% in the whole transaction. Find the quantity of rice sold at 24% loss.

(a) 320 kg
(b) 330 kg
(c) 300 kg
(d) 350 kg
(e) None of these

Q26.

A trader has 600 kgs of rice, a part of which he sells at 15% profit and the remaining quantity at 20% loss. On the whole, he incurs an overall loss of 6%. What is the quantity of rice he sold at 20% loss?

(a) 250 kgs

(b) 320 kgs
(c) 420 kgs
(d) 360 kgs
(e) 480 kgs

Q27.

A shopkeeper bough a table marked at Rs. 200 at successive discounts of 10% and 15% respectively. He spent Rs. 7 on transport and sold the table for Rs. 208. What will be his profit percentage?

(a)35
(b)40
(c)30
(d)45
(e)32

Q28.

A trader marks up his goods by 50%. However, he could sell only-third of his stock at this price. The half of the remaining stock was sold at a discount of 7.14% and the remaining at a discount of 16.67%. Find the overall percentage profit of the trader.

(a)38%
(b)42%
(c)29%
(d)34%
(e)40%

Q29.

Two mobile phones were purchased at the same price. One was sold at a profit of 30% and the second was sold at a price which was Rs. 2500 less than the price at which the first was sold. If the overall profit earned by selling both the mobile phones was 5%, what was the cost price of one mobile phone?

(a) Rs. 8000
(b) Rs. 5000
(c) Rs. 6000
(d) Rs. 4500
(e) Rs. 5500

Q30.

Mr. X, a businessman had the income in the year 1995, such that he earned a profit of 20% on his investment in the business. In the year 1996 his investment was less by Rs. 5,000 but still had the same income (Income = Investment + Profit) as that in 1995. Thus the per cent profit earned in 1996 increased by 6%. What was his investment in 1995 ?

(a) Rs. 1,02,000
(b) Rs. 150,500
(c) Rs. 1,05,000
(d) Data inadequate
(e) None of these

Q31.

Suresh bought 25 kg of wheat at Rs. 30 per kg. and 15 kg of wheat at Rs. 40 per kg. He mixed the two varieties together and sold it at Rs. 45.50 per kg. Find out the profit he got.

(a) Rs. 470
(b) Rs. 480
(c) Rs. 460
(d) Rs. 370
(e) None of these

Q32.

If on selling 12 notebooks any seller makes a profit equal to the selling price of 4 notebooks, what is his per cent profit?

(a)50%
(b)25%
(c)50/3 %
(d) Data inadequate
(e) None of these

Q33.

The profit after selling a pair of trousers for Rs. 863 is the same as the loss incurred after selling the same pair of trousers for Rs. 631. What is the cost price of the pair of trousers?

(a) Rs. 750
(b) Rs. 800
(c) Rs 763
(d) Cannot be determined
(e) None of these

Q34.

A trader sells 145 metres of cloth for Rs 12,325 at the profit of Rs 10 per metre of cloth. What is the cost price of 1 metre of cloth?

(a) Rs 65
(b) Rs 75
(c) Rs 95
(d) Rs 85
(e) None of these

Q35.

The profit earned after selling an article for Rs 878 is the same as loss incurred after selling the article for Rs 636. What is the cost price of the article?

(a) Rs 797
(b) Rs 787
(c) Rs 767
(d) Rs 757
(e) None of these

Q36.

The value of machine depreciates at the rate of 12 per cent per annum. It was purchased three years ago. Its present value is Rs 29644.032, what was the purchase price of the machine?

(a) Rs 48700
(b) Rs 43500
(c) Rs 38900

(d) Rs 39000
(e) None of these

Q37.
Profit earned by an organization is distributed among officers and clerks in the ratio of 5 : 3 respectively. If the number of officers is 45 and the number of clerks is 80 and the amount received by each officer is Rs 25,000, what was the total amount of profit earned ?
(a) Rs 22 lakhs
(b) Rs 18.25 lakhs
(c) Rs 18 lakhs
(d) Rs 23.25 lakhs
(e) None of these

Q38.
A sells an item at 20% profit to B. B sells it to C at 10% profit. C sells it to D at Rs. 116 profit. Difference between the cost price of D and Cost price of A was Rs. 500. How much did B pay to A for the item ?
(a) Rs. 1,240
(b) Rs. 1,250
(c) Rs. 1,440
(d) Rs. 1,450
(e) Rs. 1,400

Q39.
A wholesaler blends two varieties of tea, one costing Rs. 60 per kilogram and another costing Rs.110.5 per kilogram. The respective ratio of quantities they were mixed in was 7 : 2. If he sold the mixed variety at Rs. 100 per kilogram, how much was his profit percentage?
(a) 240/7
(b)192/5
(c)162/5
(d)300/7
(e) 342/7

Q40.
Ram has two articles A and B. The total cost of both articles is Rs. 8000. Ram sells article A at the profit of 20% and article B at a loss of 12%. There is neither profit nor loss in the whole transaction. At what price should the article B be sold to gain 25%?
(a) Rs. 6250
(b) Rs. 6350
(c) Rs. 3750
(d) Rs. 3850
(e) None of these

Q41.
If a shirt costing Rs. 385 is sold at a loss of 5% of the cost price, find the selling price.
(a) Rs. 364
(b) Rs. 364.74
(c) Rs. 365
(d) Rs. 365.75
(e) None of these

Q42.
If the cost price of 24 articles is equal to the selling price of 21 articles, what is the percentage gain or loss?
(a)100/7 % gain
(b)100/7 % loss
(c)12.5% loss
(d)12.5% gain
(e) None of these

Q43.
Of the two varieties of rice available, variety A is bought at Rs. 32 per kg. and variety B at Rs. 80 per kg. Two varieties of rice are mixed together in the respective ratio of 8:5 and the mixture is sold at Rs. 72 per kg. What per cent of profit approximately the Seller receives ?
(a)43%
(b)46%
(c)38%
(d)39%
(e) None of these

Q44.
If the manufacturer gains 10%, the wholesale dealer 15% and the retailer 25%, then the cost of production of an article Whose retail price is Rs. 1265, is:
(a) Rs. 632.50
(b) Rs. 800
(c) Rs. 814
(d) Rs. 834.34
(e) None of these

Q45.
The income of a broker remains unchanged though the rate of commission is increased from 4 per cent to 5 per cent. The percentage of slump in business is:
(a)10 percent
(b)15 percent
(c)20 percent
(d)30 percent
(e) None of these

Q46.
A watch is sold at a profit of 20%. If both the cost price and the selling price of the watch are decreased by Rs. 100, the profit would be 5% more. Original cost price of the watch is
(a) Rs. 450
(b) Rs. 500
(c) Rs. 550
(d) Rs. 600
(e) None of these

Q47.
A vendor sells calculators at the rate of Rs. 250 each and earns d commission of 20% on each- He also sells pens at the rate of Rs. 50 each and earns a commission of 10% on each. How much amount of

commission will he earn in three days if he sells 10 calculators and 5 pens a day ?

(a) Rs.1575
(b) Rs. 1445
(c) Rs. 1550
(d) Rs. 1450
(e) None of these

Q48.

A person bought 864 articles and sold 800 of them for the price he paid for 864 articles. He sold the remaining articles at the same price per article as the other 800, The percentage gain on the entire transaction is

(a)7.50%
(b)8%
(c)8.50%
(d)9%
(e) None of these

Q49.

Prof. Chatterjee bought a car and got 15% of its original price as a dealer's discount. He then sold It at 20% profit on his purchase price. What percentage profit did he get on the original price ?

(a)2%
(b)12%
(c)5%
(d)17%
(e) None of these

Q50.

Cost of 4 fans and 3 blowers is Rs. 16,500. Also cost of 2 fans, 2 tables and 2 blowers is Rs. 12.000. Cost of one table is Rs. 1000.What is the cost of 3 fans and one blower?

(a) Rs. 8,000
(b) Rs. 7,500
(c) Rs. 8,500
(d) Cannot be determined
(e) None of these

Q51.

By selling 18 chocolates, a vendor loses the selling price of 2 chocolates. Find his loss percent.

(a)9%
(b)10%
(c)11%
(d)12%
(e) None of these

ANSWERS :

1 d	**2** a	**3** a	**4** c	**5** a	**6** d
7 b	**8** c	**9** d	**10** b	**11** e	**12** d
13 d	**14** c	**15** e	**16** a	**17** a	**18** e
19 c	**20** a	**21** c	**22** d	**23** d	**24** c
25 a	**26** d	**27** c	**28** a	**29** b	**30** c

31 a	**32** a	**33** e	**34** b	**35** d	**36** b
37 d	**38** c	**39** d	**40** a	**41** d	**42** a
43 a	**44** b	**45** c	**46** b	**47** a	**48** b
49 a	**50** a	**51** b			

Total actual cost
= Rs. (84 × 240 + 3200)
= Rs. (20160 + 3200)
= Rs. 23360
S.P. of each shirt
= 420 × 85/100 = Rs. 357
S.P of 84 shirts = 84 × 357
= Rs. 84 shirts = 84 × 357
= Rs. 29988
Profit = 29988 – 23360
= Rs. 6628

2.(1) Let the cost price of the article be Rs. x
According to the equation,
1516 – x = x – 1112
= 2x = 1516 + 1112
= 2628
x = 2628/2 = Rs. 1314

3.(1) Let the CP of the article be Rs. x
According to the question.
1754 – x = x – 1492=
2x = 1754 + 1492 = 3246
= x = 3246/2 = Rs. 1623

4.(3) First S.P. = 90/100 × 800
= Rs. 720
If the market price be Rs. x, then
= x × 80/100 = Rs.720
= x = 720 × 100/100 = Rs. 900

1.(4)

∴ Required loss per cent
= 900 – 720/900 × 100 = 20%

5.(1) Let Vinod have x pencils.
∴ 2.5 × x – 1.75 × x = 110 + 55
= 0.75 × x = 165
= x= 165/0.75 = 220

6.(4) Cost price of 30 kg of wheat = 30 × 45
= Rs. 1350
Total SP for an overall profit of
= 25% = 1350 × 125/100
= Rs. 1687.5
SP of 12 kg (30 × 40/100) of wheat
= 12 × 50 = Rs. 600
Expected SP of 18 kg of remaining wheat
= 1687.5 – 600 = Rs. 1087.5
Required selling price per kg
= 1087.5/18 = Rs. 60

7.(2) **(Tricky Approach)**
Gain per cent
(348000 – 250000)/250000 × 100
= 39.2%

8.(3) Total CP
= Rs. (12000 + 10000)
=Rs. 22000
Total S.P.
= Rs. (12000 × 108/100 + 10000 × 88/100)
= Rs. (12960 + 8800)

= Rs. 21760
∴ Loss = Rs. (22000 - 21760)
= Rs. 240
9.(4) Commission earned in one day
= Rs. (10 × 45 × 4)/100 + Rs. (80 × 20 × 6)/100
=Rs. 114
∴ Commission earned in two weeks
= Rs. 114 × 14 = Rs. 1596
10.(2) C.P. of wristwatch
= 100/100 – loss % × S.P.
= Rs. (100/75 × 2400)
= 3200 Rs.
∴ Required S.P. of wristwatch
= (125/100 × 3200)
= Rs. 4000
11.(5) S.P. = 5600 × ¾
= Rs. 4200
Loss = 5600 – 4200
= Rs. 1400
∴ Loss percentage
= Loss/ Cost price × 100
= 1400/5600 × 100 = 25%
12.(4) C.P = 100/(100 + Profit per cent) × S.P.
= 100/125 × 1850 = Rs. 1480
13.(4) First S.P.
= 54000 × 92/100 = Rs.49680
Second SP = 49680 × 110/100
= Rs. 54648
∴ Profit = 54680 – 54000
= Rs. 648
14.(3) Last selling price
= 62000 × 75/100 × 130/100
= Rs. 60450
∴ Loss = Rs. (62000 - 60450)
= Rs.1550
15.(5) First S.P.= 9600 × 95/100
= Rs. 9120
Second S.P.= 9120 × 105/100
= Rs. 9576
∴ Loss = Rs. (9600 - 9576)
=Rs. 24
16.(1) First S.P = 46000 × 88/100
= Rs. 40480
Second S.P. = 40480 × 112/100
=Rs. 45337.6
∴ Loss = Rs. (46000 – 45337.6)
= Rs. 662.4
17.(1) Ratio of equivalent capitals of A,B and C for one month =
(2 × 14000 + 10 × 12000) : (2 × 14000 + 10 × 16000) : (2 × 14000 + 10 × 18000)
= (28000 + 120000) : (28000 + 160000) : (28000 + 180000)
= 148000 : 188000 : 208000
= 37 : 47 : 52
Sum of ratios = 37 + 47 + 52
= 136
A's share = 37/136 × 54400
= Rs. 14800
18.(5) Profit on one calculator
= Rs. (250 × 14/114)
∴ Total profit
= (7 × 19 × 250 × 14)/114
= Rs. 4083
19.(3) C.P. of article
= 5220 × 100/(100 - 42)
= (5220 × 100)/58 = Rs. 9000
∴ Required S.P.
= 9000 × 142/100 = Rs. 12780
20.(1) Loss per cent
= [(Common gain or loss)/10]²%
= (12/10)² % = 36/25%
21.(3) C.P of first article
Rs. x(let)
∴ C.P of second article
= Rs. (7500 - x)
According to the question,
16x/100 = (7500 - x) × 14/100
= 16x = 7500 × 14 - 14x
= 16x + 14x = 7500 × 14
= 30x = 7500 × 14
x = 7500 × 14/30 = Rs. 620
22.(4) C.P. of article
= 120x/100 = Rs. 6x/5 = Rs.y
CaseII,
C.P = 85x/100 = Rs. 17x/20
S.P.. = y – 76
=Rs. (6x/ 5 - 76)
According to the question,
6x/ 5 – 76 = 17x/20 × 130/100
= 221x/200
= [(6x/5) – (221x/100)] = 76
= (240x – 221x)/200 = 76
= 19x/ 200 = 76
= x= (76 × 200)/19 = Rs. 800
23.(4) Let C.P. of each orange be Rs. 100.
∴ Number of oranges
= 1200/100 = 12
According to the question
S.P. of 12 oranges
= 1200 × 110/100 = Rs. 1320
4 oranges are sold on 20% loss.
∴ Their S.P. = 400 × 80/100
=Rs. 320
∴ Required S.P. of remaining8 orange 1320 – 320
= Rs. 1000
∴ Required profit per cent
= (1000 - 800)/800 × 100 = 25%
24.(3) Loss = Rs. x (let)
∴ Profit = Rs. 2x
According to the question,
C.P of article = Rs. (8000 + x)
or, Rs. (9800 - 2x)
∴8000 + x = 9800 – 2x
= 2x + x = 9800 – 8000
= 3x = 1800
x = 1800/3 = Rs. 600
∴ C.P. of article
= Rs. (8000 + 600)
= Rs. 8600
For a profit of 20%,
S.P. of article = 8600 × 120/100

= Rs. 10320

25.(1) Let the cost price of rice per kg be Rs. 1
Quantity of rice sold at 24% loss = x kg
∴ Quantity of rice sold at 36%
profit = (400 - x) kg
According to the question,
x × (100 - 24)% + (400 - x) × 136/100 = 400 × (100 – 12%)
= x × 76/100 + (400 - x) × 136/100
= 400 × 88/100
= 76x + 400 × 136 – 136x
= 400 × 88
= 136x – 76x = 400(136 - 88)
= 60x = 400 × 48
= x = 400 × 48/60= 320 kg

26.(4) Quantity of rice sold at 20% loss= x kg (let)
∴ Quantity of rice sold at 15% gain = (600 – x) × 115/100 + (x × 80)/100
= 600 × 94/100
= 115 × 600 – 115x + 80x
= 600 × 94
= 69000 – 35x = 56400
=35x = 69000 – 56400
= 35x = 12600
= x = 12600/35
= 360 kg

27.(3) Single equivalent discount for 10% and 15%
= [15 + 10 – 15 × 10/100]%
= 23.5%
∴ C.P. of table
= 200 × (100 – 23.5)%
= 200 × 76.5/100 = Rs. 153
Expense on transport = Rs. 7
∴ Actual C.P. = 153 + 7 = Rs. 160
∴ Profit Per cent
= (208 - 160)/160 × 100
= 4800/160 = 30%

28.(1) Total C.P. = Rs. 100
Marked price = Rs. 150
S.P of one third stock =Rs. 50
Remaining stock = Rs. 100
S.P of half stock
= 50 × 92.86/100
= Rs. 46.43
S.P of remaining half stock
= 50 × 83.33/100 = Rs. 41.665
Total S.P.
= (50 + 46.43 + 41.665)
= Rs. 138.095
∴ Profit per cent
= 38%

29.(2) Let the C.P of each mobile phone be Rs. x.
According to the question,
x × 130/100 + x × 130/100 – 2500
=50x/100 = 2500
= x = 2500 × 100/50 = Rs. 5000

30.(3) Let the investment in1995 be Rs. x
∴ Income in 1995 with 20% profit = 1.20x
Also the income in1996 = 1.20x
Investment in 1996
= Rs. (x - 5000)
Profit in1996 = (20 + 6)% = 26%
Income in1996 with 26% profit
= 1.26 (x - 5000)
∴ 1.26 (x – 5000) = 1.20x
0.06x = 1.26 × 5000
x = 6300/00.6
x = Rs. 105000

31.(1) C.P. of 40 kg. of wheat
= Rs. (30 × 25 + 40 × 15)
= Rs. (750+ 600)
= Rs.1350
S.P of mixture of wheat
= Rs. (40 × 45.5)
=Rs. 1820
Gain = 1820 – 1350 = Rs. 470

32.(1) Profit = Selling price of 4 notebooks cost price= selling price of (12 – 8)
= 4 notebooks,
∴% Profit = 4/8 × 100 = 50%

33.(5) Let the cost price of the trouser be Rs. x.
According to the question,
863 – x = x – 631
= 2x = 863 + 631 = 1494
x = 1494/2 = Rs. 747

34.(2) Cost price of 145m long cloth
= Rs. (12325 – 145 × 10)
= Rs.10875
∴ CP of 1 meter long cloth
= 10875/145 = Rs.75

35.(4) let the C.P. of the article be Rs. x
According to the question
878 - x = x – 636
= 2x = 878 + 636 = 1514
= x = 1514/2 = Rs. 757

36.(2) $29644.032 = P [1 - (12/100)]^3$
$= 29644.032 = P (0.88)^3$
= P = 26644.032/(0.88 × 0.88 × 0.88)
= Rs. 43500

37.(4) Profit received by each officer= Rs.25000
∴ Profit received by each clerk
3/5 × 25000 = Rs. 15000
∴ Total earned profit
= Rs.(45 × 25000 + 80 × 15000)
= Rs. (11250000 + 1200000)
=Rs.23.25 lakh

38.(3) C.P for A = Rs. x
C.P. ford
= x × 120/100 × 110/100 + 116
= 1.32 x + 116
∴ According to the question,
1.32x + 116 - x = 500
= 0.32x + 116 – x = 500
= 0.32x = 500 – 116 = 384
x = 384/0.32 = Rs. 1200
∴ C.P. for B = 1200 × 120/100
= Rs. 1440

39.(4) Cost of 9 kg of mixture
=Rs. (60 × 7 + 105 × 2)
= Rs. (420 + 210) = Rs. 630
S.P.of9 kg of mixture

= 9 × 10 = 900
∴ Profit percent
= 900 – 630/630 × 100
= 270/63 = 300/7%

40.(1) Let the C.P. of article B be Rs. x.
∴ C.P. of article A
= Rs. (8000 - x)
According to the question,
(8000 - x) × 120/100 + (x × 88)/100
= 8000
= 960000 – 120x + 88x
= 800000
= 960000 -32x = 800000
= 32x = 960000 – 800000
= 32x = 160000
= x= 160000/32 = Rs.5000
∴ For profit of 25%
S.P of article B
= 5000 × 121/100 = Rs. 6250

41.(4) Required answer
= 95/100 × 385 = Rs. 365.75

42.(1) Percentage gain
= (24 - 21)/21 × 100 = 100/7%

43.(1) Let 8 kg of first variety of rice and 5 kg of second variety is mixed
∴ Cost price of 13 kg of rice
= Rs. (8 × 32 + 5× 80)
= Rs. (256 + 400)
= Rs. 656
S.P. of 13 kg of rice
= 72 × 13
= Rs. 936
Gain = 936 – 656 = Rs. 280
Gain per cent = 280/656 × 100
= 43%

44.(2) C.P of article
= 1265 × 110/110 × 100/115 × 100/125
= Rs. 800

45.(3) Let the business value changes from Rs. x to Rs. y.
∴ 4% of x = 5% of y
= 4x/100 = 5y/100
y = 4/5x
Change in business
= (x – 4x/5) = x/5
∴ Percentage slump in business
= x/ 5 × 1/x × 100 = 20%

46.(2) Let the CP of the watch be Rs. x,
Case I
∴ SP = 120x / 100 = Rs. 6x/5
Case II,
CP = Rs. (x - 100)
SP = Rs. (6x/5 - 100)
Profit = (6x/5 - x) = Rs. x/5
∴ x/5/(x - 100) × 100 =25
= 25x – 2500 = 20x
= 5x = 2500
x = 2500/5 = Rs. 500

47.(1) Commission on 1 calculator
= 250 × 20/100 = Rs.50
Commission on1 calculator
= 50 × 10/100 = Rs. 5
∴ Required amount of commission
= Rs.3 (10 × 50 + 5 × 5)
= Rs. 1575

48.(2) Profit per cent
= (864 – 800)/800 × 100
= 64/800 × 100 = 8%

49.(1) 1m/150 = 0.6n /400
= 1m = 0.6/400 × 150n = 0.225n

50.(1) Gain per cent
= [20-15 - (20 × 15/100)]% = 2%

51.(1) Let C.P. of 1 fan = Rs. x
CP of 1 blower = Rs. y
CP of 1 table = Rs. 1000 (given)
∴ 4x + 3y = 16500 ..... (i)
2x + 2y + 2 × 1000 = 12000
=2x + 2y = 12000 – 2000
=10000
= x + y = 5000 ..... (ii)
y=20000 – 16500 = 3500
x= 5000 – 3500 = 1500
∴ 3x + y = 3 × 1500 + 3500
= Rs. 8000