8 PROFIT AND LOSS

Importance : Profit and Loss questions are important from both examination point of view as well as in different, life situations. Different competitive exams include 1 or 2 questions.

Scope of questions : Asked questions are based on per cent Profit/Loss. cost price, selling price, price after increase or decrease in rates, cost price of certain number of things equal to S.P. of certain number of, how much price to increase to get certain profit.

Way to success : Practice is most important here, Remember all calculations on Profit/Loss are on cost price and not on selling price.

C.P. $\rightarrow$ Cost Price (Purchasing Price + Repairing/ Maintenance Cost, if any) S.P $\rightarrow$ Selling Price

RULE 1 : If S.P > C.P. then there will be profit

Profit = S.P. – C.P.

$$\text{Profit\%} = \frac{\text{Profit} \times 100}{\text{C.P.}}$$

Note: Both profit and loss are always calculated on cost price only.

RULE 2 : If C.P > S.P., then there will be Loss

$$\text{Loss} = \text{C.P.} - \text{S.P.}, \ \text{Loss\%} = \frac{\text{Loss} \times 100}{\text{C.P.}}$$

RULE 3 : If an object is sold on r% Profit.

$$\text{then, S.P.} = \text{C.P}\left[\frac{100+\text{Profit\%}}{100}\right] \text{ or C.P.}$$

$$= \text{S.P.}\left[\frac{100}{100+\text{Profit\%}}\right]$$

Similarly, If an object is sold on r% loss, then

$$\text{S.P.} = \left[\frac{100-\text{Loss\%}}{100}\right] \text{ or C.P.} = \text{S.P.}\left[\frac{100}{100-\text{Loss\%}}\right]$$

RULE 4 : Successive Profits : If A sells an article to B at a% profit and B sells it to C at b% profit

OR

If a% and b% are two successive profits

$$\text{then Total Profit\%} = \left(a+b+\frac{ab}{100}\right)\%$$

If A sells an article to B at a% profit and B sells it to C at b% profit and if C paid ₹ x, then amount paid by

$$A = x \times \left(\frac{100}{100+a}\right)\left(\frac{100}{100+b}\right)$$

RULE 5 : If a% and b% are two successive losses then (negative sign shows loss and positive sign shows profit).

$$\text{Total loss\%} = \left(-a-b+\frac{ab}{100}\right)\%$$

RULE 6 : If a% profit and b% loss occur, simultaneously

$$\text{then overall loss or profit\% is } \left(a-b-\frac{ab}{100}\right)\%$$

(-ve sign for loss, +ve sign for profit)

RULE 7 : If a% loss and b% profit occur then, total

$$\text{loss/profit is } \left(-a+b-\frac{ab}{100}\right)\%$$ (negative sign for loss and positive sign for profit)

RULE 8 : If cost price of 'x' articles is equal to selling price of 'y' articles, then Selling Price = x, Cost Price = y

$$\text{Hence, Profit or Loss\%} = \frac{x-y}{y} \times 100$$

RULE 9 : On selling 'x' articles the profit or loss is equal to Selling of 'y' articles, then Profit% $\dfrac{y \times 100}{x-y}$

$$\text{Loss\%} = \frac{y \times 100}{x+y}$$

RULE 10 : If a man sells two similar objects, one at a loss of x% and another at a gain of x%, then he always incurrs loss in this transaction and loss% is $\dfrac{x^2}{100}\%$

RULE 11 : A man sells his items at a profit/loss of x%. If he had sold it for ₹ R more, he would have gained/lost y%. Then.

$$\text{C.P. of items} = \frac{R}{(y \pm x)} \times 100$$

'+' = When one is profit and other is loss.

'–' = When both are either profit or loss.

RULE 12 : If a man purchases 'a' items for ₹ x and sells 'b' items for ₹ y. then his profit or loss per cent is

$$\text{given by } \left(\frac{ay-bx}{bx}\right) \times 100\% \qquad \text{OR}$$

RULE 13 : If the total cost of 'a' articles having equal cost is ₹ x and the total selling price of 'b' articles is ₹ y, then in the transaction gain or loss per cent is given by

$$\left(\frac{ay-bx}{bx}\right) \times 100\%$$

Where positive value signifies 'profit' and negative value signifies 'loss'

RULE 14 : A dishonest shopkeeper sells his goods at C.P. but uses false weight, then his

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

$$\text{or Gain\%} = \frac{\text{Error}}{\text{True value} - \text{Error}} \times 100$$

RULE 15 : If A sells an article to B at a profit (loss) of r_1% and B sells the same article to C at a profit (loss) of r_2% then the cost price of article for C will be given by

C.P of article for C

$$= \text{C.P. of } A \times \left(1 \pm \frac{r_1}{100}\right)\left(1 \pm \frac{r_2}{100}\right)$$

(Positive and negative sign conventions are used for profit and loss.)

RULE 16 : If a vendor used to sell his articles at x% loss on cost price but uses y grams instead of z grams, then his profit or loss% is

$$\left[(100-x)\frac{z}{y} - 100\right]\%$$

(Profit or loss as per positive or negative sign).

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QUESTIONS ASKED IN PREVIOUS SSC EXAMS

TYPE–I

1. A man buys a cycle for ₹ 1400 and sells it at a loss of 15%. What is the selling price of the cycle?
(1) ₹ 1202 (2) ₹ 1190
(3) ₹ 1160 (4) ₹ 1000
(SSC CGL Prelim Exam. 24.02.2002 (First Sitting)

2. On selling an article for ₹ 651, there is a loss of 7%. The cost price of that article is
(1) ₹ 744 (2) ₹ 751
(3) ₹ 793 (4) ₹ 700
(SSC CGL Prelim Exam. 24.02.2002 (Middle Zone)

3. A milkman bought 70 litres of milk for ₹ 630 and added 5 litres of water. If he sells it at ₹ 9.00 per litre, his profit percentage is
(1) $8\frac{1}{5}\%$ (2) 7%
(3) $8\frac{2}{5}\%$ (4) $7\frac{1}{7}\%$
(SSC CISF Constable (GD) Exam. 05.06.2011)

4. In terms of percentage profit, which is the best transaction?

	C.P. (in ₹)	*Profit (In ₹)*
(I)	36	17
(II)	50	24
(III)	40	19
(IV)	60	29

(1) I (2) II
(3) III (4) IV
(SSC CPO S.I. Exam. 12.01.2003)

5. A man bought an old typewriter for ₹ 1200 and spent ₹ 200 on its repair. He sold it for ₹ 1680. His profit per cent is :
(1) 20% (2) 10%
(3) 8% (4) 16%
(SSC CGL Prelim Exam. 11.05.2003 (First Sitting)

6. If the cost price is 95% of the selling price, what is the profit percent ?
(1) 4% (2) 4.75%
(3) 5% (4) 5.26%
(SSC Multi-Tasking (Non-Technical) Staff Exam. 27.02.2011)

7. A merchant buys an article for ₹ 27 and sells it at a profit of 10% of the selling price. The selling price of the article is :
(1) ₹ 29.70 (2) ₹ 30
(3) ₹ 37 (4) ₹ 32
(SSC CPO S.I. Exam. 26.05.2005)

8. If the cost price of an article is 80% of its selling price, the profit per cent is :
(1) 20 % (2) $22\frac{1}{2}\%$
(3) 24% (4) 25%
(SSC CHSL DEO & LDC Exam. 28.11.2010 (Ist Sitting)

9. Krishnan bought a camera and paid 20% less than its original price. He sold it at 40% profit on the price he had paid. The percentage of profit earned by Krishnan on the original price was
(1) 22% (2) 32%
(3) 12% (4) 15%
(SSC CGL Prelim Exam. 04.02.2007 (Second Sitting)

10. By what per cent must the cost price be raised in fixing the sale price in order that there may be a profit of 20% after allowing a commission of 10% ?
(1) 25% (2) $133\frac{1}{3}\%$
(3) $33\frac{1}{3}\%$ (4) 30%
(SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (Second Sitting)

11. By selling an article, a man makes a profit of 25% of its selling price. His profit per cent is
(1) 20% (2) 25%
(3) $16\frac{2}{3}\%$ (4) $33\frac{1}{3}\%$
(SSC CGLTier-I Exam. 16.05.2010 (First Sitting)

12. If there is a profit of 20% on the cost price of an article, the percentage of profit calculated on its selling price will be
(1) 24 (2) $16\frac{2}{3}$
(3) $8\frac{1}{3}$ (4) 20
(SSC CGL Tier-I Exam. 16.05.2010 (Second Sitting)

13. A man purchased a bedsheet for ₹ 450 and sold it at a gain of 10% calculated on the selling price. The selling price of the bedsheet was
(1) ₹ 460 (2) ₹ 475
(3) ₹ 480 (4) ₹ 500
(SSC CHSL DEO & LDC Exam. 28.11.2010 (IInd Sitting)

14. By selling an article for ₹ 960 a man incurs a loss of 4%; what was the cost price ?
(1) ₹1,000 (2) ₹ 784
(3) ₹ 498.4 (4) ₹ 300
(SSC CISF Constable (GD) Exam. 05.06.2011)

15. A salesman expects a gain of 13% on his cost price. If in a month his sale was ₹7,91,000, what was his profit ?
(1) ₹85,659 (2) ₹88,300
(3) ₹91,000 (4) ₹97,786
(SSC CHSL DEO & LDC Exam. 21.10.2012 (Ist Sitting)

16. By selling a car for ₹ 64,000, Mr. Rao lost 20%. Then the cost price of the car is :
(1) ₹ 72,000 (2) ₹ 76,800
(3) ₹ 80,000 (4) ₹ 84,000
(SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting)

17. A retailer buys a radio for ₹ 225. His overhead expenses are ₹ 15. He sells the radio for ₹300. The profit per cent of the retailer is :
(1) 25% (2) $26\frac{2}{3}\%$
(3) 20% (4) $33\frac{1}{3}\%$
(SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting) & (SSC Constable & GD Exam. 12.05.2013)

18. An item when sold for ₹1,690 earned 30% profit on the cost price. Then the cost price is
(1) ₹ 507 (2) ₹ 630
(3) ₹1,300 (4) ₹ 130
(SSC Assistant Grade-III Exam. 11.11.2012 (IInd Sitting)

19. A fan is listed at ₹150 and a discount of 20% is given. Then the selling price is
(1) ₹180 (2) ₹150
(3) ₹120 (4) ₹110
(SSC CHSL DEO & LDC Exam. 28.10.2012, Ist Sitting)

20. By selling 33 metres of cloth, a person gains the cost of 11 metres. Find his gain%.

(1) $33\frac{1}{3}\%$ (2) $33\frac{1}{2}\%$

(3) 33% (4) $34\frac{1}{3}\%$

(SSC CHSL DEO & LDC Exam. 28.10.2012, Ist Sitting)

21. While selling to the retailer, a company allows 30% discount on the marked price of their products. If the retailer sells those products at marked price, his profit % will be :

(1) 30% (2) $42\frac{1}{7}\%$

(3) 40% (4) $42\frac{6}{7}\%$

(SSC Multi-Tasking Staff Exam. 10.03.2013)

22. A merchant purchases a wrist watch for ₹ 450 and fixes its list price in such a way that after allowing a discount of 10%, he earns a profit of 20%. Then the list price of the watch is

(1) ₹ 650 (2) ₹ 700

(3) ₹ 550 (4) ₹ 600

(SSC Multi-Tasking Staff Exam. 17.03.2013, IInd Sitting)

23. The cost price of a radio is ₹ 600. The 5% of the cost price is charged towards transportation. After adding that, if the net profit to be made is 15%, then the selling price of the radio must be

(1) ₹ 704.50 (2) ₹ 724.50

(3) ₹ 664.50 (4) ₹ 684.50

(SSC Multi-Tasking Staff Exam. 17.03.2013, IInd Sitting)

24. If a shirt costs ₹ 64 after 20% discount is allowed, what was its original price in ₹ ?

(1) 76.80 (2) 80

(3) 88 (4) 86.80

(SSC Constable (GD) Exam. 12.05.2013)

25. The total cost of 8 buckets and 5 mugs is ₹ 92 and the total cost of 5 buckets and 8 mugs is ₹ 77. Find the cost of 2 mugs and 3 buckets.

(1) ₹ 35 (2) ₹ 70

(3) ₹ 30 (4) ₹ 38

(SSC Graduate Level Tier-I Exam. 19.05.2013)

26. If books bought at prices from ₹ 150 to ₹ 300 are sold at prices ranging from ₹ 250 to ₹ 350, what is the greatest possible profit that might be made in selling 15 books ?

(1) Cannot be determined

(2) ₹ 750

(3) ₹ 4,250

(4) ₹ 3,000

(SSC CHSL DEO & LDC Exam. 20.10.2013)

27. If there is a profit of 20% on the cost price, the percentage of profit on the sale price is

(1) $16\frac{2}{3}\%$ (2) 12 %

(3) $15\frac{1}{3}\%$ (4) 16 %

(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (IInd Sitting)

28. Nisha bought a number of oranges at 2 for a rupee and an equal number at 3 for a rupee. To make a profit of 20% she should sell a dozen for

(1) ₹ 6 (2) ₹ 8

(3) ₹ 10 (4) ₹ 12

(SSC CGL Tier-I Exam. 19.10.2014 (Ist Sitting)

29. There is a profit of 20% on the cost price of an article. The % of profit, when calculated on selling price is

(1) $16\frac{2}{3}\%$ (2) 20%

(3) $33\frac{1}{3}\%$ (4) None of these

(SSC CGL Tier-II Exam. 21.09.2014)

30. If selling price of an article is $1\frac{1}{3}$ of cost price, find gain %.

(1) 25% (2) $33\frac{1}{3}\%$

(3) 1.33% (4) $66\frac{2}{3}\%$

(SSC CHSL DEO Exam. 02.11.2014 (Ist Sitting)

31. A merchant loses 10% by selling an article. If the cost price of the article is ₹ 15, then the selling price of the article is

(1) ₹ 13.20 (2) ₹ 16.50

(3) ₹ 12.30 (4) ₹ 13.50

(SSC CHSL DEO Exam. 16.11.2014 (Ist Sitting)

32. Pooja wants to sell a watch at a profit of 20%. She bought it at 10% less and sold it at ₹ 30 less, but still she gained 20%. The cost price of watch is

(1) ₹ 240 (2) ₹ 220

(3) ₹ 250 (4) ₹ 225

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

33. A fruit merchant makes a profit of 25% by selling mangoes at a certain price. If he charges Re. 1 more on each mango, he would gain 50%. At first the price of one mango was

(1) Rs. 5 (2) Rs. 7

(3) Rs. 4 (4) Rs. 6

(SSC Constable (GD) Exam, 04.10.2015, Ist Sitting)

34. There is 10% loss if an article is sold at Rs. 270. Then the cost price of the article is

(1) Rs. 300 (2) Rs. 270

(3) Rs. 320 (4) Rs. 250

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IInd Sitting)

35. If bananas are bought at the rate of 4 for a rupee, how many must be sold for a rupee so as to gain $33\frac{1}{3}\%$?

(1) 2.5 (2) 2

(3) 3 (4) 4

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (Ist Sitting) TF No. 6636838)

36. By selling an article for Rs. 450, I lose 20%. For what price should I sell it to gain 20% ?

(1) Rs. 490 (2) Rs. 675

(3) Rs. 470 (4) Rs. 562.50

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IInd Sitting) TF No. 3441135)

37. If the profit on selling an article for Rs. 425 is the same as the loss on selling it for Rs. 355, then the cost price of the article is

(1) Rs. 410 (2) Rs. 380

(3) Rs. 400 (4) Rs. 390

(SSC CGL Tier-II Online Exam.01.12.2016)

38. The C.P of 10 artices is equal to the S.P. of 15 articles. What is the profit or loss percentage ?
(1) 25.5% (2) 35%
(3) 10% (4) 33.3%
(SSC CPO Exam. 06.06.2016) (Ist Sitting)

39. The selling price of 6 bananas is equal to the cost price of 8 bananas. Then the percentage of profit is :
(1) 20 (2) $33\frac{1}{3}$
(3) 25 (4) 30
(SSC CHSL (10+2) Tier-I (CBE) Exam. 08.09.2016) (Ist Sitting)

40. By selling a bag at Rs. 230, profit of 15% is made. The selling price of the bag, when it is sold at 20% profit would be
(1) Rs. 250 (2) Rs. 205
(3) Rs. 240 (4) Rs. 200
(SSC CGL Tier-I (CBE) Exam. 09.09.2016) (Ist Sitting)

41. A man gains 20% by selling an article for a certain price. If he sells it at double the price, the percentage of profi will be
(1) 40% (2) 100%
(3) 120% (4) 140%
(SSC CGL Tier-I (CBE) Exam. 27.08.2016) (IInd Sitting)

42. A trader sold a cycle at a loss of 10%. If the selling price had been increased by Rs. 200, there would have been a gain of 6%. The cost price of the cycle is
(1) Rs. 1200 (2) Rs. 1205
(3) Rs. 1250 (4) Rs. 1275
(SSC CGL Tier-I (CBE) Exam. 31.08.2016) (Ist Sitting)

43. The cost price of 25 books is equal to the selling price of 20 books. The profit per cent is
(1) 20% (2) 22%
(3) 24% (4) 25%
(SSC CGL Tier-I (CBE) Exam. 04.09.2016) (Ist Sitting)

44. If the selling price of 40 articles is equal to the cost price of 50 articles, the loss or gain per cent is
(1) 25% gain (2) 20% gain
(3) 25% loss (4) 20% loss
(SSC CGL Tier-I (CBE) Exam. 06.09.2016) (Ist Sitting)

45. By selling a tape-recorder for Rs. 1040 a man gains 4%. If he sells it for Rs. 950, his loss will be
(1) 5% (2) 4%
(3) 4.5% (4) 9%
(SSC CGL Tier-I (CBE) Exam. 30.08.2016) (IInd Sitting)

46. If the cost price of 20 books is the same as selling price of 25 books, then the loss percentage is
(1) 20 (2) 25
(3) 22 (4) 24
(SSC CGL Tier-I (CBE) Exam. 02.09.2016) (IInd Sitting)

47. By what fraction selling price (S.P.) must be multiplied to get the cost price (C.P.) if the loss is 20% ?
(1) $\frac{4}{5}$ (2) $\frac{8}{5}$
(3) $\frac{5}{4}$ (4) $\frac{6}{5}$
(SSC CGL Tier-II (CBE) Exam. 30.11.2016)

48. A store sells a watch for a profit of 25% of its cost price. Then the percentage of profit against selling price is :
(1) 22% (2) 20%
(3) 18% (4) 15%
(SSC CGL Tier-I (CBE) Exam. 29.08.2016 (IST Sitting)

49. To make a profit of 20% the selling price of the goods is Rs. 240. The cost price of the goods is :
(1) Rs. 200 (2) Rs. 210
(3) Rs. 220 (4) Rs. 230
(SSC CGL Tier-I (CBE) Exam. 31.08.2016 (IIIrd Sitting)

50. The per cent profit made when an article is sold for Rs. 78 is twice as much as when it is sold for Rs. 69. The cost price of the article is
(1) Rs. 60 (2) Rs. 51
(3) Rs. 55.50 (4) Rs. 70
(SSC CGL Tier-I (CBE) Exam. 01.09.2016 (IIIrd Sitting)

51. The profit (in Rs.) after selling an article for Rs. 524 is the same as the loss (in Rs.) after selling it for Rs. 452. The cost price of the article is:
(1) Rs. 480 (2) Rs. 485
(3) Rs. 488 (4) Rs. 500
(SSC CGL Tier-I (CBE) Exam. 02.09.2016 (IInd Sitting)

TYPE–II

1. The cost price of 36 books is equal to the selling price of 30 books. The gain per cent is :
(1) 20% (2) $16\frac{4}{6}\%$
(3) 18% (4) $82\frac{2}{6}\%$
(SSC CGL Prelim Exam. 04.07.1999 (First Sitting)

2. The cost price of 15 articles is same as the selling price of 10 articles. The profit percent is :
(1) 30% (2) 40%
(3) 50% (4) 45%
(SSC CGL Prelim Exam. 04.07.1999 (Second Sitting)

3. The selling price of 5 articles is the same as the cost price of 3 articles. The gain or loss percent is :
(1) 20% gain (2) 25% gain
(3) 33.33% loss (4) 40% loss
(SSC CGL Prelim Exam. 27.02.2000 (IInd Sitting) & (SSC CGL Tier-I Exam. 16.05.2010 (IInd Sitting) & (SSC SAS Exam. 26.06.2010)

4. If the cost price of 15 tables be equal to the selling price of 20 tables, the loss per cent is :
(1) 20% (2) 30%
(3) 25% (4) 37.5%
(SSC CGL Prelim Exam. 24.02.2002 (First Sitting) and SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (East Zone)

5. The cost price of 18 articles is equal to the selling price of 15 articles. The gain per cent is :
(1) 15% (2) 20%
(3) 25% (4) 18%
(SSC CGL Prelim Exam. 24.02.2002 (Second Sitting)

6. A person sells 400 mangoes at the cost price of 320 mangoes. His percentage of loss is
(1) 10% (2) 15%
(3) 20% (4) 25%
(SSC CHSL DEO & LDC Exam. 11.12.2011(Ist Sitting (Delhi Zone)

7. If the cost price of 50 oranges is equal to the selling price of 40 oranges, then the profit per cent is
(1) 5% (2) 10%
(3) 20% (4) 25%
(SSC CGL Prelim Exam. 11.05.2003 (First Sitting)

8. If the cost price of 12 oranges is equal to selling price of 10 oranges, then the percentage of profit is

(1) $16\frac{2}{3}\%$ (2) 20%

(3) 18% (4) 25%

(SSC CGL Prelim Exam. 11.05.2003 (IInd Sitting) & (SSC SO (Commercial) Exam. 16.11.2003)

9. If the cost price of 10 articles is equal to the selling price of 9 articles, the gain or loss per cent is

(1) $11\frac{1}{9}\%$ profit

(2) $7\frac{6}{17}\%$ profit

(3) $11\frac{1}{9}\%$ loss

(4) $1\frac{12}{13}\%$ loss

(SSC CPO S.I. Exam. 07.09.2003)

10. A man sells 320 mangoes at the cost price of 400 mangoes. His gain percent is :

(1) 15% (2) 20%

(3) 25% (4) 10%

(SSC CGL Prelim Exam. 24.02.2002 & (SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (Delhi Zone)

11. If the cost price of 12 pens is equal to the selling price of 8 pens, the gain per cent is :

(1) $33\frac{1}{3}\%$ (2) $66\frac{2}{3}\%$

(3) 25% (4) 50%

(SSC CGL Prelim Exam. 08.02.2004 (Second Sitting)

12. The cost price of 8 articles is equal to the selling price of 9 articles. The profit or loss per cent in the transaction is

(1) $12\frac{1}{2}\%$ loss (2) $12\frac{1}{2}\%$ profit

(3) $11\frac{1}{9}\%$ loss (4) $11\frac{1}{9}\%$ profit

(SSC CPO S.I. Exam. 05.09.2004)

13. A sold an article to B at 20% profit and B sold to C at 15% loss. If A sold it to C at the selling price of B, then A would make

(1) 5% profit (2) 2% profit

(3) 2% loss (4) 5% loss

(SSC CGL Tier-I Exam. 19.10.2014 TF No. 022 MH 3)

14. If the cost price of 10 articles is equal to the selling price of 7 articles, then the gain or loss per cent is :

(1) 51% gain (2) $42\frac{6}{7}\%$ gain

(3) 35 % loss (4) $42\frac{6}{7}\%$ loss

(SSC CPO S.I. Exam. 26.05.2005)

15. Mahesh purchased a radio at $\frac{9}{10}$ of its selling price and sold it at 8% more than its original selling price. His gain per cent is :

(1) 20 % (2) 18%

(3) 10 % (4) 8 %

(SSC CHSL DEO & LDC Exam. 28.11.2010 (Ist Sitting)

16. A coconut merchant finds that the cost price of 2750 coconuts is the same as the selling price of 2500 coconuts. The loss or gain per cent is

(1) 5% loss (2) 15% loss

(3) 20% gain (4) 10% gain

(SSC CGL Prelim Exam. 04.02.2007 (IInd Sitting) & (SSC CPO S.I. Exam. 03.09.2006)

17. If the cost price of 10 articles is equal to the selling price of 16 articles, then the loss per cent is

(1) 30% (2) 37.5%

(3) 42.5% (4) 45%

(SSC CISF ASI Exam. 29.08.2010 (Paper-1) & (SSC (South Zone) Investigator Exam 12.09.2010) & (SSC CHSL DEO & LDC Exam. 04.12.2011)

18. If the selling price of 4 articles is equal to the cost price of 5 articles, the profit percent is

(1) 20% (2) $22\frac{1}{2}\%$

(3) 25% (4) 30%

(SSC CPO S.I. Exam. 12.12.2010 (Paper-I)

19. The selling price of 10 oranges is the cost price of 13 oranges. Then the profit percentage is

(1) 30% (2) 10%

(3) 13% (4) 3%

(SSC CGL Tier-1 Exam 19.06.2011 (First Sitting)

20. If the selling price of 10 articles is equal to the cost price of 11 articles, then the gain percent is

(1) 10% (2) 11%

(3) 15% (4) 25%

(SSC CGL Tier-1 Exam 26.06.2011 (First Sitting)

21. If the cost price of 10 articles is equal to the selling price of 8 articles, then gain per cent is

(1) 10% (2) 8%

(3) 50% (4) 25%

(SSC CGL Tier-1 Exam 26.06.2011 (Second Sitting)

22. The cost price of 25 articles is equal to the selling price of 20 of them. The gain or loss percent is given by

(1) 20% loss (2) 25% gain

(3) 60% loss (4) 75% gain

(SSC CPO S.I. Exam. 12.01.2003) & (SSC CHSL DEO & LDC Exam. 04.12.2011) & FCI Assistant Grade-III Exam. 25.02.2012 (Paper-I) North Zone (Ist Sitting)

23. The cost price of 24 apples is the same as the selling price of 18 apples. The percentage of gain is :

(1) $12\frac{1}{2}\%$ (2) $14\frac{2}{3}\%$

(3) $16\frac{2}{3}\%$ (4) $33\frac{1}{3}\%$

(SSC CHSL DEO & LDC Exam. 27.11.2010)

24. The cost price of 400 lemons is equal to the selling price of 320 lemons. Then the profit percent is

(1) 15% (2) 20%

(3) 25% (4) 40%

(SSC CHSL DEO & LDC Exam. 04.12.2011 (IInd Sitting (North Zone)

25. The cost price of 20 oranges is same with selling price of 16 oranges. The profit percentage is

(1) 30% (2) 20%

(3) 25% (4) 16%

(SSC CPO S.I. Exam. 05.09.2004) & (SSC CHSL DEO & LDC Exam. 04.12.2011 (IInd Sitting (East Zone)

26. The selling price of 12 articles is equal to the cost price of 15 articles. The gain per cent is

(1) $6\frac{2}{3}\%$ (2) 20%

(3) 25% (4) 80%

(SSC CGL Tier-I Exam. 19.06.2011 & (SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (East Zone)

27. If the cost price of 18 articles is equal to the selling price of 16 articles, the gain or loss is
(1) 25% gain (2) 25% loss
(3) $12\frac{1}{2}$% loss (4) $12\frac{1}{2}$% gain
(SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (Ist Sitting)

28. The cost price of 40 articles is the same as the selling price of 25 articles. Find the gain per cent.
(1) 65% (2) 60%
(3) 15% (4) 75%
(SSC Graduate Level Tier-II Exam.16.09.2012)

29. The cost price of a book is ₹ 150. At what price should it be sold to gain 20% ?
(1) ₹ 120 (2) ₹ 180
(3) ₹ 100 (4) ₹ 80
(SSC CHSL DEO & LDC Exam. 20.10.2013)

30. A cloth merchant on selling 33 metres of cloth obtains a profit equal to the selling price of 11 metres of cloth. The profit percent is
(1) 40% (2) 22%
(3) 50% (4) 11%
(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

31. A shopkeeper buys 144 items at 90 paise each. On the way 20 items are broken. He sells the remainder at ₹ 1.20 each. His gain per cent correct to one place of decimal is
(1) 13.8% (2) 14.6%
(3) 14.8% (4) 15.8%
(SSC CGL Tier-II Exam. 21.09.2014)

32. If goods be purchased for ₹ 450 and one third sold at a loss of 10%. At what gain percent should the remainder be sold so as to gain 20% on the whole transaction ?
(1) 32% (2) 35%
(3) 28% (4) 30%
(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

33. A shoe company sold 50 pairs of shoes on a day costing ₹ 189.50 each for ₹ 10,000. Then the profit obtained in ₹ is
(1) 522 (2) 525
(3) 573 (4) 612
(SSC CHSL DEO & LDC Exam. 16.11.2014)

34. Salim had to sell vegetables worth ₹ 5,750 for ₹ 4,500 due to heavy rainfall. What is the loss percentage that he has incurred ?
(1) 21.74% (2) 23.47%
(3) 20% (4) 23.45%
(SSC CHSL DEO Exam. 02.11.2014 (Ist Sitting)

35. A shopkeeper purchases an article for Rs. 3,550 and spends Rs. 50 on it for its repair. If he then sold the article for Rs. 3,816, the percent of profit is
(1) 6% (2) 6.08%
(3) 7.38% (4) 7.49%
(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014 , Ist Sitting TF No. 333 LO 2)

36. A shopkeeper buys two cameras at the same price. He sells one camera at a profit of 18% and the other at a price 10% less than the selling price of the first. His total profit or loss per cent is
(1) 12.1% profit (2) 12.1% loss
(3) 12.2% profit (4) 11.1% loss
(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IInd Sitting TF No. 545 QP 6)

37. A shopkeeper sold his goods at half the list price and thus lost 20%. If he had sold on the listed price, his gain percentage would be
(1) 60 % (2) 20 %
(3) 72 % (4) 35 %
(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

38. By selling 20 metres of cloth a man gains the selling price of 4 metres of cloth. The gain percent is
(1) 25 (2) 30
(3) 35 (4) 20
(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

39. Ten articles were bought for Rs. 8, and sold at 8 for Rs. 10. The gain percent is
(1) 54.75% (2) 57.25%
(3) 56.25% (4) 55%
(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

40. If a shop–keeper purchases cashewnut at Rs. 250 per kg. and sells it at Rs. 10 per 50 grams, then he will have
(1) 25% Loss (2) 25% Profit
(3) 20% Profit (4) 20% Loss
(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015 (Ist Sitting) TF No. 8037731)

41. Cost price of 100 books is equal to the selling price of 60 books. The gain percentage/loss percentage is
(1) $66\frac{3}{2}$% (2) 67%
(3) 66% (4) $66\frac{2}{3}$%
(SSC CGL Tier-I Exam, 09.08.2015 (IInd Sitting) TF No. 4239378 and SSC CGL Tier-I Exam, 16.08.2015 (Ist Sitting) TF No. 3196279)

42. If the cost price of 10 articles equals selling price of 9 articles, the gain or loss percent will be
(1) $11\frac{1}{9}$% loss (2) $1\frac{1}{9}$% loss
(3) $1\frac{1}{9}$% gain (4) $11\frac{1}{9}$% gain
(SSC CGL Tier-I Re-Exam, 30.08.2015)

43. Ritu purchased $2\frac{1}{2}$ dozen eggs at the rate of Rs. 20 per dozen. She found that 6 eggs were rotten. She sold the remaining eggs at the rate of Rs. 22 per dozen. Then her profit or loss percent is :
(1) 12% loss (2) 12% profit
(3) 10% loss (4) 10% profit
(SSC Constable (GD) Exam, 04.10.2015, IInd Sitting)

44. Ram sold two horses at the same price. In one he gets a profit of 10% and in the other he gets a loss of 10%. Then Ram gets
(1) 2% loss
(2) No loss or profit
(3) 1% loss
(4) 1% profit
(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

45. A man purchases some oranges at the rate of 3 for Rs. 40 and the same quantity at 5 for Rs. 60. If he sells all the oranges at the rate of 3 for Rs. 50, find his gain or loss percent (to the nearest integer).
(1) 32% profit(2) 31% loss
(3) 34% loss (4) 31% profit
(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

46. An article is sold at a profit of 25%. If the selling price is doubled, the profit will be :
(1) 200% (2) 50%
(3) 100% (4) 150%
(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (Ist Sitting) TF No. 6636838)

47. A man purchased an article for Rs. 1500 and sold it at 25% above the cost price. If he has to pay Rs. 75 as tax on it, his net profit percentage will be :
(1) 20% (2) 25%
(3) 30% (4) 15%
(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IInd Sitting) TF No. 7203752)

48. If a man were to sell his hand–cart for Rs. 720, he would lose 25%. At what price must he sell it to gain 25%?
(1) Rs. 1200 (2) Rs. 960
(3) Rs. 1152 (4) Rs. 768
(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IInd Sitting) TF No. 7203752)

49. If the Cost Price of 25 chairs is equal to the selling price of 30 chairs, then the loss % is :
(1) 25% (2) 20%
(3) 5% (4) $16\frac{2}{3}\%$
(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)

50. A fruit seller buys oranges at the rate of Rs. 10 per dozen and sells at the rate of Rs. 12 per dozen. His gain percent is :
(1) 20% (2) 15%
(3) 12% (4) $8\frac{1}{3}\%$
(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (IInd Sitting) TF No. 3441135)

51. If the cost price of 25 pens is equal to the selling price of 20 pens, then the profit per cent is
(1) 20% (2) 25%
(3) 15% (4) 5%
(SSC CGL Tier-I (CBE) Exam.11.09.2016) (Ist Sitting)

52. A shopkeeper sells rice at 10% profit and uses weight 30% less than the actual measure. His gain per cent is
(1) $57\frac{2}{3}\%$ (2) $57\frac{1}{7}\%$
(3) $57\frac{2}{5}\%$ (4) $57\frac{3}{7}\%$
(SSC CGL Tier-II Online Exam.01.12.2016)

53. A man bought 4 dozen eggs at Rs. 24 per dozen and 2 dozen eggs at Rs. 32 per dozen. To gain 20% on the whole, he should sell the eggs at
(1) Rs. 16 per dozen
(2) Rs. 21 per dozen
(3) Rs. 32 per dozen
(4) Rs. 35 per dozen
(SSC CGL Tier-I (CBE) Exam. 28.08.2016 (IST Sitting)

54. If 10% loss is made on selling price, then the percentage of loss on the cost price will be
(1) $11\frac{1}{9}\%$ (2) $9\frac{1}{11}\%$
(3) 10% (4) 11%
(SSC CGL Tier-I (CBE) Exam. 10.09.2016 (IInd Sitting)

55. Sapna purchased a cycle for Rs. 1,000 and sold it for Rs. 1,200. Her gain in percentage is :
(1) 20% (2) 10%
(3) 12% (4) 40%
(SSC CGL Tier-I (CBE) Exam. 27.10.2016 (Ist Sitting)

56. A dishonest shopkeeper professes to sell goods at his cost price but uses a false weight of 950 gms, for each kilogram. His gain per cent is :
(1) $6\frac{1}{4}\%$ (2) $5\frac{5}{19}\%$
(3) $5\frac{3}{17}\%$ (4) $6\frac{2}{7}\%$
(SSC CGL Tier-I (CBE) Exam. 08.09.2016 (IIIrd Sitting)

57. A dishonest dealer defrauds to the extent of x % in buying as well as selling his goods by using faulty weight. What will be the gain per cent on his outlay?
(1) $2x\%$ (2) $\left(\frac{10}{x}+x^2\right)\%$
(3) None of these (4) $\left(x+\frac{x^2}{100}\right)\%$
(SSC CGL Tier-II (CBE) Exam. 12.01.2017)

TYPE–III

1. Oranges are bought at rate of 7 for ₹ 3. At what rate per hundred must they be sold to gain 33%?
(1) ₹ 56 (2) ₹ 60
(3) ₹ 58 (4) ₹ 57
(SSC CGL Prelim Exam. 04.07.1999 (First Sitting)

2. A man buys 12 articles for ₹ 12 and sells them at the rate of ₹ 1.25 per article. His gain percentage is :
(1) 20% (2) 25%
(3) 15% (4) 18%
(SSC CGL Prelim Exam. 04.07.1999 (Second Sitting)

3. 12 copies of a book were sold for ₹ 1800/- thereby gaining cost-price of 3 copies. The cost price of a copy is :
(1) ₹ 120/- (2) ₹ 150/-
(3) ₹ 1200/- (4) ₹ 1500/-
(SSC CGL Prelim Exam. 27.02.2000 (First Sitting)

4. If I would have purchased 11 articles for ₹ 10 and sold all the articles at the rate of 10 for ₹ 11, the profit per cent would have been :
(1) 10% (2) 11%
(3) 21% (4) 100%
(SSC CGL Prelim Exam. 24.02.2002 (First Sitting)

5. A person buys some pencils at 5 for a rupee and sells them at 3 for a rupee. His gain per cent wll be :
(1) $66\frac{2}{3}\%$ (2) $76\frac{2}{3}\%$
(3) $56\frac{2}{3}\%$ (4) $46\frac{2}{3}\%$
(SSC CGL Prelim Exam. 24.02.2002 (Second Sitting)

6. 100 oranges are bought for ₹ 350 and sold at the rate of ₹ 48 per dozen. The percentage of profit or loss is :
(1) 15% loss (2) 15% gain
(3) $14\frac{2}{7}\%$ loss (4) $14\frac{2}{7}\%$ profit
(SSC CGL Prelim Exam. 11.05.2003 (First Sitting)

7. Oranges are bought at the rate of 10 for ₹ 25 and sold at the rate of 9 for ₹ 25. The profit percent is
(1) $9\frac{1}{11}\%$ (2) 10%
(3) $11\frac{1}{9}\%$ (4) $12\frac{1}{2}\%$
(SSC CGL Prelim Exam. 11.05.2003 (Second Sitting)

8. The cost price of two dozen bananas is ₹ 32. After selling 18 bananas at the rate of ₹ 12 per dozen, the shopkeeper reduced the rate to ₹ 4 per dozen. The per cent loss is
(1) 25.2% (2) 32.4%
(3) 36.5% (4) 37.5%
(SSC Section Officer (Commercial Audit) Exam. 16.11.2003)

9. Some articles were bought at 6 for ₹ 5, and sold at 5 for ₹ 6. Gain per cent is :
(1) 5% (2) 6%
(3) 30% (4) 44%
(SSC CGL Prelim Exam. 08.02.2004 & 04.02.2007 (Ist & IInd Sitting)

10. Ramesh bought 10 cycles for ₹500 each. He spent ₹2,000 on the repair of all cycles. He sold five of them for ₹750 each and the remaining for ₹ 550 each. Then the total gain or loss % is
(1) Gain of $8\frac{1}{3}\%$
(2) Loss of $8\frac{1}{3}\%$
(3) Gain of $7\frac{2}{3}\%$
(4) Loss of $7\frac{1}{7}\%$
(SSC Graduate Level Tier-I Exam. 11.11.2012 (Ist Sitting)

11. On selling 17 balls at ₹ 720, there is a loss equal to the cost price of 5 balls. The cost price of a ball is :
(1) ₹ 45 (2) ₹ 50
(3) ₹ 60 (4) ₹ 55
(SSC CGL Prelim Exam. 08.02.2004 (Second Sitting)

12. I purchased 120 exercise books at the rate of ₹ 3 each and sold $\frac{1}{3}$ of them at the rate of ₹ 4 each, $\frac{1}{2}$ of them at the rate of ₹ 5 each and the rest at the cost price. My profit per cent was
(1) 44% (2) $44\frac{4}{9}\%$
(3) $44\frac{2}{3}\%$ (4) 45%
(SSC CPO S.I. Exam. 05.09.2004)

13. A person bought some articles at the rate of 5 per rupee and the same number at the rate of 4 per rupee. He mixed both the types and sold at the rate of 9 for 2 rupees. In this business he suffered a loss of ₹ 3. The total number of articles bought by him was
(1) 1090 (2) 1080
(3) 540 (4) 545
(SSC CPO S.I. Exam. 05.09.2004)

14. A man bought pencils at the rate of 6 for ₹ 4 and sold them at the rate of 4 for ₹ 6. His gain% in the transaction is :
(1) 75% (2) 80%
(3) 125% (4) 100%
(SSC CGL Prelim Exam. 13.11.2005 (First Sitting)

15. Ravi buys some toffees at 2 for a rupee and sells them at 5 for a rupee. His loss percent is
(1) 120% (2) 90%
(3) 30% (4) 60%
(SSC CGL Prelim Exam. 13.11.2005 (Second Sitting)

16. A fruit seller buys lemons at 2 for a rupee and sells them at 5 for three rupees. His profit per cent is
(1) 10% (2) 15%
(3) 20% (4) 25%
(SSC CGL Prelim Exam. 04.02.2007 (First Sitting)

17. By selling a tape-recorder ₹ for 950, I lose 5%. What per cent shall I gain by selling it for ₹ 1040?
(1) 5 (2) 4
(3) 4.5 (4) 9
(SSC CGL Prelim Exam. 11.05.2003 (Second Sitting)

18. A person buys 100 cups at ₹ 10 each. On the way 10 cups are broken. He sells the remaining cups at ₹ 11 each. His loss per cent is
(1) $\frac{1}{2}\%$ (2) 1%
(3) $1\frac{1}{2}\%$ (4) 2%
(SSC CGL Prelim Exam. 04.02.2007 (Second Sitting)

19. Mohan bought 25 books for ₹ 2,000 and sold them at a profit equal to the selling price of 5 books. The selling price of 1 book is
(1) ₹100 (2) ₹120
(3) ₹150 (4) ₹ 200
(SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (Second Sitting)

20. A shopman bought pens at the rate of 7 for ₹10 and sold them at a profit of 40%. How many pens would a customer get for ₹ 10 ?
(1) 6 (2) 4
(3) 5 (4) 3
(SSC CHSL DEO & LDC Exam. 04.12.2011 (Ist Sitting (East Zone)

21. By selling 12 oranges for ₹ 60, a man loses 25%. The number of oranges he has to sell for ₹ 100, so as to gain 25% is
(1) 10 (2) 11
(3) 12 (4) 15
(SSC CHSL DEO & LDC Exam. 04.12.2011 (IInd Sitting (North Zone)

22. A man buys a certain number of oranges at 20 for ₹ 60 and an equal number at 30 for ₹ 60. He mixes them and sells them at 25 for ₹ 60. What is gain or loss per cent ?
(1) Gain of 4%
(2) Loss of 4%
(3) Neither gain nor loss
(4) Loss of 5%
(SSC CPO S.I. Exam. 09.11.2008)

23. A fruit vendor bought bananas at the rate of 5 for a rupee and sold them 4 for a rupee. The percent gain or loss is
(1) $12\frac{1}{2}\%$ gain (2) 25% loss
(3) 25% gain (4) $12\frac{1}{2}\%$ loss
(SSC CPO S.I. Exam. 06.09.2009)

24. A man sold 20 apples for ₹ 100 and gained 20%. How many apples did he buy for ₹100?
(1) 20 (2) 22
(3) 24 (4) 25
(SSC CGL Tier-1 Exam 19.06.2011 (First Sitting)

25. A man purchased some eggs at 3 for ₹ 5 and sold them at 5 for ₹ 12. Thus he gained ₹ 143 in all. The number of eggs he bought is
(1) 210 (2) 200
(3) 195 (4) 190
(SSC CGL Tier-1 Exam 19.06.2011 (Second Sitting)

26. A man bought oranges at the rate of 8 for ₹ 34 and sold them at the rate of 12 for ₹ 57. How many oranges should be sold to earn a net profit of ₹ 45 ?
(1) 90 (2) 100
(3) 135 (4) 150
(SSC CGL Tier-1 Exam 26.06.2011 (Second Sitting)

27. A person bought 50 pens for ₹ 50 each. He sold 40 of them at a loss of 5%. He wants to gain 10% on the whole. Then his gain percent on the remaining pens should be
(1) 15% (2) 40%
(3) 50% (4) 70%
(SSC CPO (SI, ASI & Intelligence Officer) Exam. 28.08.2011 (Paper-I)

28. If toys are bought at ₹ 5 each and sold at ₹ 4.50 each, then the loss percent is :
(1) 10% (2) 11%
(3) 12% (4) 13%
FCI Assistant Grade-III Exam. 05.02.2012 (Paper-I) East Zone (IInd Sitting)

29. By selling 14 watches of equal cost price at the rate of ₹ 450 each, there is a profit equal to the cost price of 4 watches. The cost price of a watch is
(1) ₹ 350 (2) ₹ 360
(3) ₹ 375 (4) ₹ 400
(SSC Data Entry Operator Exam. 31.08.2008)

30. A man buys some articles at ₹ P per dozen and sells them at ₹ $\frac{P}{8}$ per piece. His profit per cent is
(1) 30% (2) 40%
(3) 50% (4) 60%
(SSC Data Entry Operator Exam. 02.08.2009)

31. A vendor sells lemons at the rate of 5 for ₹ 14, gaining thereby 40%. For how much did he buy a dozen lemons ?
(1) ₹ 20 (2) ₹ 21
(3) ₹ 24 (4) ₹ 28
(SSC CHSL DEO & LDC Exam. 28.11.2010 (Ist Sitting)

32. If I purchased 11 books for ₹ 100 and sold 10 books for ₹ 110, the percentage of profit per book sold is
(1) 10% (2) 11·5%
(3) 17·3% (4) 21%
(SSC Multi-Tasking (Non-Technical) Staff Exam. 20.02.2011)

33. A shop-keeper sold a sewing machine for ₹ 1,080 at a loss of 10%. At what price should he has to sold it so as to gain 10% on it ? (in ₹)
(1) 1,069 (2) 1,200
(3) 1,230 (4) 1,320
(SSC CGL Tier-I Re-Exam. (2013) 20.07.2014 (Ist Sitting)

34. A fruit-seller buys some oranges and by selling 40% of them he realises the cost price of all the oranges. As the oranges being to grow over-ripe, he reduces the price and sells 80% of the remaining oranges at half the previous rate of profit. The rest of the oranges being rotten are thrown away. The overall percentage of profit is
(1) 80 (2) 84
(3) 94 (4) 96
(SSC CGL Tier-I Exam. 19.10.2014)

35. An item costing ₹ 200 is being sold at 10% loss. If the price is further reduced by 5%, the selling price will be
(1) ₹ 170 (2) ₹ 171
(3) ₹ 175 (4) ₹ 179
(SSC CGL Tier-II Exam. 21.09.2014)

36. By selling an article for ₹ 102, there is a loss of 15%, when the article is sold for ₹ 134.40, the net result in the transaction is
(1) 12% gain (2) 12% loss
(3) 10% loss (4) 15% gain
(SSC CGL Tier-II Exam. 21.09.2014)

37. Two toys are sold at ₹ 504 each. One toy brings the dealer a gain of 12% and the other a loss of 4%.The gain or loss per cent by selling both the toys is
(1) $3\frac{5}{13}\%$ Profit
(2) $4\frac{5}{13}\%$ Profit
(3) $5\frac{1}{13}\%$ Profit
(4) $2\frac{3}{13}\%$ loss
(SSC CGL Tier-II Exam. 21.09.2014)

38. A sold a horse to B for ₹ 4800 by losing 20%. B sells it to C at a price which would have given A a profit of 15%. B's gain is
(1) ₹ 1800 (2) ₹ 1900
(3) ₹ 2000 (4) ₹ 2100
(SSC CGL Tier-II Exam. 21.09.2014)

39. A fruit vendor buys apples at the rate of 10 for ₹ 100.How many should he sell for ₹ 100, so that he makes a profit of 25% ?
(1) 5 (2) 6
(3) 7 (4) 8
(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

40. A table is sold at a profit of 13%. If it is sold for ₹ 25 more, profit is 18 %. Cost price of table is
(1) ₹ 100 (2) ₹ 500
(3) ₹ 200 (4) ₹ 1, 000
(SSC CHSL DEO & LDC Exam. 02.11.2014 (IInd Sitting)

41. A man sold his watch at a loss of 5%. Had he sold it for ₹ 56.25 more, he would have gained 10%. What is the cost price of the watch (in ₹) ?
(1) 370 (2) 365
(3) 375 (4) 390
(SSC CHSL DEO & LDC Exam. 9.11.2014)

42. Kamala bought a bicycle for ₹ 1,650. She had to sell it at a loss of 8%. She sold it for
(1) ₹ 1, 581 (2) ₹ 1, 518
(3) ₹ 1, 510 (4) ₹ 1, 508
(SSC CHSL DEO & LDC Exam. 16.11.2014)

43. A table is sold at Rs. 1,800 at a loss of 10%. At what price should it be sold to earn a profit of 15%?
(1) ₹ 2,070 (2) ₹ 1,890
(3) ₹ 2,000 (4) ₹ 2,300
(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014 , Ist Sitting TF No. 333 LO 2)

44. A manufacturer sells an item to a wholesale dealer at a profit of 18%. The wholesaler sells the same to a retailer at a profit of 20%. The retailer in turn sells it to a customer for ₹ 15045 thereby earning a profit of 25%. The cost price of the manufacturer is
(1) ₹ 8000 (2) ₹ 8500
(3) ₹ 9000 (4) ₹ 10000
(SSC CHSL (10+2) DEO & LDC Exam. 16.11.2014, IInd Sitting TF No. 545 QP 6)

45. A man sold an article at a gain of 5%. Had he sold it for Rs. 40 more, he would have gained 8%. The cost price of the article is
(1) Rs. 6,000 (2) Rs. 10,000
(3) Rs. 12,000 (4) Rs. 8,000
(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

46. A radio is sold at a profit of 20%. Had it been sold for Rs. 60 more the profit would have been 30%. The cost price of the radio is
(1) Rs. 500 (2) Rs. 600
(3) Rs. 550 (4) Rs. 620
(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015 IInd Sitting)

47. A dealer sold a bicycle at a profit of 10%. Had he bought the bicycle at 10% less price and sold it at a price Rs. 60 more, he would have gained 25%. The cost price of the bicycle was
(1) Rs. 2400 (2) Rs. 2600
(3) Rs. 2000 (4) Rs. 2200
(SSC CGL Tier-I Exam, 16.08.2015 (IInd Sitting) TF No. 2176783)

48. If 3 articles are sold for the cost of 5 articles, then the profit percentage is :
(1) 50 (2) 60
(3) $66\frac{2}{3}$ (4) 65
(SSC CPO Exam. 06.06.2016) (Ist Sitting)

49. A sold a watch at a gain of 5% to B and B sold it to C at a gain of 4%. If C paid Rs. 91 for it, the price paid by A is :
(1) Rs. 83.33 (2) Rs. 84.33
(3) Rs. 83 (4) Rs. 82.81
(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 20.03.2016) (IInd Sitting)

50. Arun buys one kilogram of apples for Rs. 120 and sells it to Swati gaining 25%. Swati sells it to Divya who again sells it for Rs. 198, making a profit of 10%. What is the profit percentage made by Swati?
(1) 25% (2) 20%
(3) 16.67% (4) 15%
(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016) (Ist Sitting)

51. A dealer sold an article at 6% loss. Had he sold it for Rs. 64 more, he would have made a profit of 10%. Then the cost of the article is
(1) Rs. 400 (2) Rs. 200
(3) Rs. 164 (4) Rs. 464
(SSC CGL Tier-I (CBE) Exam. 27.08.2016) (Ist Sitting)

52. If percentage of profit made,when an article is sold for Rs.78, is twice as when it is sold for Rs.69, the cost price of the article is
(1) Rs. 49 (2) Rs. 51
(3) Rs. 57 (4) Rs. 60
(SSC CGL Tier-I (CBE) Exam. 01.09.2016) (Ist Sitting)

53. A shopkeeper buys 80 articles for Rs. 2400 and sells them for a profit of 16%. Find the selling price of one article.
(1) Rs. 36.40 (2) Rs. 34.80
(3) Rs. 35.60 (4) Rs. 33.80
(SSC CGL Tier-I (CBE) Exam. 02.09.2016) (IInd Sitting)

54. Ramesh sold a book at a loss of 30%. If he had sold it for Rs. 140 more, he would have made a profit of 40%. The cost price of the book is
(1) Rs. 280 (2) Rs. 200
(3) Rs. 260 (4) Rs. 300
(SSC CGL Tier-II (CBE) Exam. 30.11.2016)

55. By selling cloth at Rs. 9 per metre, a shopkeeper loses 10%. Find the rate at which it should be sold so as to earn profit of 15%.
(1) Rs.11.20 (2) Rs.11.30
(3) Rs.11.40 (4) Rs.11.50
(SSC CGL Tier-I (CBE) Exam. 06.09.2016 (IInd Sitting)

56. A man bought 30 defective machines for Rs. 1000. He repaired and sold them at the rate of Rs. 300 per machine. He got profit of Rs. 150 per machine. How much did he spend on repairs ? (in Rupees)
(1) 5500 (2) 4500
(3) 3500 (4) 2500
(SSC CGL Tier-I (CBE) Exam. 06.09.2016 (IIIrd Sitting)

57. Kamal has some apples. He sold 40% more than he ate. If he sold 70 apples, how many did he eat ?
(1) 18 (2) 42
(3) 50 (4) 90
(SSC CGL Tier-I (CBE) Exam. 07.09.2016 (IInd Sitting)

58. A man bought 25 crates of oranges for Rs. 10,000. He lost 5 crates. In order to earn a total profit of 25% of the total cost, he would have to sell each of the remaining crates at
(1) Rs. 650 (2) Rs. 625
(3) Rs. 600 (4) Rs. 575
(SSC CGL Tier-I (CBE) Exam. 08.09.2016 (IInd Sitting)

59. A man sells an article at 15% profit. If he had sold it for Rs. 6 more, he would have gained 18%. The man bought the article for
(1) Rs. 100 (2) Rs. 150
(3) Rs. 200 (4) Rs. 250
(SSC CGL Tier-I (CBE) Exam. 08.09.2016 (IIIrd Sitting)

TYPE–IV

1. The ratio of cost price and selling price is 5 : 4, the loss per cent is :
(1) 20% (2) 25%
(3) 40% (4) 50%
(SSC CGL Prelim Exam. 24.02.2002 (First Sitting)

2. The ratio of the C.P. and S.P. of an article is 20 : 21. What is the gain per cent ?
(1) 5% (2) 5.5%
(3) 6% (4) 6.25%
(SSC CGL Prelim Exam. 24.02.2002 (Middle Zone) & (SSC CPO SI Exam. 03.09.2006 & SSC CISF ASI Exam. 29.08.2010)

3. The cash difference between selling prices of an article at a profit of 4% and 6% is ₹ 3. The ratio of the two selling prices is
(1) 51 : 52 (2) 52 : 53
(3) 51 : 53 (4) 52 : 55
(SSC CPO S.I. Exam. 12.01.2003

4. A milkman makes 20% profit by selling milk mixed with water at ₹ 9 per litre. If the cost price of 1 litre pure milk is ₹ 10, then the ratio of milk and water in the said mixture is
(1) 3 : 1 (2) 4 : 1
(3) 3 : 2 (4) 4 : 3
(SSC CHSL DEO & LDC Exam. 28.10.2012, Ist Sitting)

5. The prices of a refrigerator and a television set are in the ratio 5 : 3. If the refrigerator costs ₹ 5500 more than the television set, then the price of the refrigerator is:
(1) ₹ 27500 (2) ₹ 8250
(3) ₹ 13750 (4) ₹ 16500
(SSC CHSL DEO & LDC Exam. 21.10.2012, IInd Sitting)

6. Nita blends two varieties of tea—one costing ₹ 180 per kg and another costing ₹ 200 per kg in the ratio 5 : 3. If she sells the blended variety at ₹ 210 per kg, then her gain percent is
(1) 10% (2) 11%
(3) 12% (4) 13%
(SSC Section Officer (Commercial Audit) Exam. 26.11.2006 (Second Sitting)

7. Partha earns 15 per cent on an investment but loses 10 per cent on another investment. If the ratio of two investments is 3 : 5, then the combined loss per-cent is

(1) $\frac{5}{4}\%$ (2) $\frac{4}{5}\%$

(3) $\frac{8}{5}\%$ (4) $-\frac{5}{8}\%$

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006 (Second Sitting)

8. The ratio of cost price and selling price of an article is 8 : 9. The profit per cent is

(1) 20% (2) 15%

(3) 12.5% (4) 10%

(SSC CGL Prelim Exam. 04.02.2007 (Second Sitting)

9. A shopkeeper earns a profit of 12% on selling a book at 10% discount on the printed price. The ratio of the cost price and the printed price of the book is

(1) 99 : 125 (2) 25 : 37

(3) 50 : 61 (4) 45 : 56

(SSC CGL Prelim Exam. 27.07.2008 (Ist Sitting) & (SSC CGL Exam.19.05.2013)

10. If an article is sold at 200% profit, then the ratio of its cost price to its selling price will be

(1) 1 : 2 (2) 2 : 1

(3) 1 : 3 (4) 3 : 1

(SSC CGL Tier-I Exam. 16.05.2010 (Second Sitting)

11. An article is sold at 5% profit. The ratio of selling price and cost price will be

(1) 1 : 5 (2) 20 : 21

(3) 21 : 20 (4) 5 : 1

(SSC (South Zone) Investigator Exam 12.09.2010)

12. If the ratio of cost price and the selling price is 5 : 6, the gain per cent is

(1) 20% (2) $33\frac{1}{3}\%$

(3) 25% (4) 30%

(SSC CGL Prelim Exam. 11.05.2003 (IInd Sitting) & (SSC CPO S.I. Exam. 07.09.2003) & (SSC CPO S.I. Exam. 12.12.2010)

13. If the cost price and selling price of an article are in the ratio 10 : 11, then the percentage of profit is :

(1) 10% (2) 9%

(3) 3% (4) 1%

(SSC CGL Tier-I Exam.16.05.2010) & SSC CHSL DEO & LDC Exam. 27.11.2010)

14. The cost price : selling price of an article is a : b. If b is 200% of a then the percentage of profit on cost price is

(1) 75% (2) 125%

(3) 100% (4) 200%

(SSC CHSL DEO & LDC Exam. 11.12.2011 (Ist Sitting (Delhi Zone)

15. A invests ₹ 64,000 in a business. After few months B joined him with ₹ 48,000. At the end of year, the total profit was divided between them in the ratio 2 : 1. After how many months did B join?

(1) 8 (2) 4

(3) 6 (4) 7

(SSC CHSL DEO & LDC Exam. 20.10.2013)

16. The ratio, in which tea costing ₹ 192 per kg is to be mixed with tea costing ₹ 150 per kg so that the mixed tea, when sold for ₹ 194.40 per kg, gives a profit of 20%, is

(1) 2 : 5 (2) 3 : 5

(3) 5 : 3 (4) 5 : 2

(SSC CGL Prelim Exam. 27.07.2008 (First Sitting)

17. In what ratio Darjeeling Tea costing ₹ 320 per kg be mixed with Assam Tea costing ₹ 250 per kg so that there is a gain of 20% by selling the mixture at ₹ 324 per kg ?

(1) 1 : 2 (2) 2 : 3

(3) 3 : 2 (4) 2 : 5

(SSC SAS Exam 26.06.2010 (Paper-1)

18. The ratio of the quantities of sugar, in which sugar costing ₹ 20 per kg. and ₹ 15 per kg. should be mixed so that there will be neither loss nor gain on selling the mixed sugar at the rate of ₹ 16 per kg, is

(1) 2 : 1 (2) 1 : 2

(3) 4 :1 (4) 1 : 4

(SSC Data Entry Operator Exam. 31.08.2008)

19. The ratio in which the Darjeeling tea at ₹32 per kg is mixed with the Assam tea at ₹25 per kg so as to gain 20% by selling the mixture at ₹32.40 per kg is

(1) 4 : 3 (2) 3 : 4

(3) 5 : 2 (4) 2 : 5

(SSC Multi-Tasking Staff Exam. 24.03.2013, Ist Sitting)

20. In what ratio must a grocer mix tea at ₹ 60 a kg, and ₹ 65 a kg, so that by selling the mixture at ₹ 68.20 a kg, he may gain 10%?

(1) 3 : 2 (2) 3 : 4

(3) 3 : 5 (4) 4 : 5

(SSC CGL Prelim Exam. 08.02.2004 (First Sitting)

21. 7 kg of tea costing ₹ 280 per kg is mixed with 9 kg of tea costing ₹ 240 per kg. The average price per kg of the mixed tea is

(1) ₹ 255.80 (2) ₹ 257.50

(3) ₹ 267.20 (4) ₹ 267.50

(SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (Second Sitting)

22. A shopkeeper bought 15kg of rice at the rate of ₹29 per kg and 25kg of rice at the rate of ₹20 per kg. He sold the mixture of both types of rice at the rate of ₹27 per kg. His profit in this transaction is

(1) ₹125 (2) ₹150

(3) ₹ 140 (4) ₹145

(SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting)

23. A, B and C are partners of a company. During a particular year A received one-third of the profit, B received one-fourth of the profit and C received the remaining ₹ 5,000. How much did A receive?

(1) ₹ 5,000 (2) ₹ 4,000

(3) ₹ 3,000 (4) ₹ 1,000

(SSC CGL Prelim Exam. 27.02.2000 (Second Sitting)

24. A, B and C entered into a partnership. A invested ₹ 2,560 and B ₹ 2,000. At the end of the year, they gained ₹ 1,105, out of which A got ₹ 320. C's capital was

(1) ₹ 4,280 (2) ₹ 2,840

(3) ₹ 4,820 (4) ₹ 4,028

(SSC Section Officer (Commercial Audit) Exam. 26.11.2006 (Second Sitting)

25. A, B and C entered into partnership in a business. A got $\frac{3}{5}$ of the profit and B and C distributed the remaining profit equally. If C got ₹ 400 less than A, the total profit was
(1) ₹ 1600 (2) ₹ 1200
(3) ₹ 1000 (4) ₹ 800
(SSC CPO S.I. Exam. 09.11.2008)

26. ₹ 864 is divided among A, B and C such that 8 times A's share is equal to 12 times B's share and also equal to 6 times C's share. How much did B get ?
(1) ₹ 399 (2) ₹ 192
(3) ₹ 288 (4) ₹ 72
(SSC Graduate Level Tier-II Exam.16.09.2012)

27. At the beginning of a partnership business, the capital of B was $\frac{3}{2}$ times that of A. After 8 months B withdrew $\frac{1}{2}$ of his capital and after 10 months A withdrew $\frac{1}{4}$th of his capital. At the end of the year, if the profit incurred is ₹ 53,000, find the amount received by A.
(1) ₹ 30,800 (2) ₹ 32,000
(3) ₹ 30,000 (4) ₹ 23,000
(SSC CHSL DEO & LDC Exam. 10.11.2013, IInd Sitting)

28. A, B and C rent a pasture. A puts in 10 oxen for 7 months, B 12 oxen for 5 months and C 15 oxen for 3 months for grazing. If the rent of the pasture is ₹ 175/-, how much must C pay as his share of rent?
(1) ₹ 45/- (2) ₹ 50/-
(3) ₹ 55/- (4) ₹ 60/-
(SSC CGL Prelim Exam. 27.02.2000 (First Sitting)

29. A, B, C enter into a partnership. A contributes ₹ 3,20,000 for 4 months, B contributes ₹ 5,10,000 for 3 months and C contributes ₹ 2,70,000 for 5 months. If the total profit be ₹ 1,24,800, then A's share in the profit is
(1) ₹ 38,400 (2) ₹ 45,900
(3) ₹ 40,500 (4) ₹ 41,500
(SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (Second Sitting)

30. A started a business with a capital of ₹ 1,00,000. One year later, B joined him with a capital of ₹ 2,00,000. At the end of 3 years from the start of the business, the profit earned was 84,000. The share of B in the profit exceeded the share of A by
(1) ₹ 10,000 (2) ₹ 12,000
(3) ₹ 14,000 (4) ₹ 15,000
(SSC CGL Prelim Exam. 27.07.2008 (Second Sitting)

31. A, B and C started a business by investing ₹ 40500, ₹ 45000 and ₹ 60000 respectively. After 6 months C withdrew ₹ 15000 while A invested ₹ 4500 more. In annual profit of ₹ 56100, the share of C will exceed that of A by
(1) ₹ 900 (2) ₹1100
(3) ₹ 3000 (4) ₹ 3900
(SSC CGL Prelim Exam. 27.07.2008 (First Sitting)

32. In a business partnership among A, B, C and D, the profit is shared as follows:

$$\frac{\text{A's share}}{\text{B's share}} = \frac{\text{B's share}}{\text{C's share}}$$

$$= \frac{\text{C's share}}{\text{D's share}} = \frac{1}{3}$$

If the total profit is ₹ 4,00,000, then, the share of C is
(1) ₹ 1,12,500 (2) ₹ 1,37,500
(3) ₹ 90,000 (4) ₹ 2,70,000
(SSC CGL Tier-1 Exam 26.06.2011 (First Sitting)

33. A starts business with ₹ 3500/- and after 5 months, B joins with A as his partner. After a year, the profit is divided in the ratio 2 : 3. What is B's contribution in the capital?
(1) ₹ 8000/- (2) ₹ 8500/-
(3) ₹ 9000/- (4) ₹ 7500/-
(SSC CGL Prelim Exam. 27.02.2000 (First Sitting)

34. A began business with ₹ 45000 and was joined afterwards by B with ₹ 54000. After how many months did B join if the profits at the end of the year were divided in the ratio 2 : 1 ?
(1) 4 (2) 5
(3) 6 (4) 7
(SSC CGL Prelim Exam. 13.11.2005 (First Sitting)

35. A, B and C entered into a business and their investments ratio was 5 : 4 : 3. After 4 months B invested ₹ 1,000 more and after 8 months C invested ₹ 2,000 more. At the end of one year the profit ratio was 15 : 14 : 11, then the investment of C at the beginning was
(1) ₹ 3000 (2) ₹ 6000
(3) ₹ 4500 (4) ₹ 7500
(SSC CHSL DEO Exam. 27.10.2013 IInd Sitting)

36. A, B and C started a business with their investments in the ratio 1 : 2 : 4. After 6 months A increased his capital by 50% and B invested twice the amount as before, while C withdrew $\frac{1}{4}$ of his own investment. The ratio of their profits at the end of the year was
(1) 10 : 5 : 9 (2) 5 : 12 : 14
(3) 6 : 9 : 17 (4) 5 : 14 : 16
(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

37. A total profit of ₹ 3,600 is to be distributed amongst A, B and C such that A : B = 5 : 4 and B : C = 8 : 9. The share of C in the profit is
(1) ₹ 1, 200 (2) ₹ 1, 500
(3) ₹ 1, 650 (4) ₹ 1, 700
(SSC CHSL DEO & LDC Exam. 9.11.2014)

38. Two types of tea costing ₹ 180 per kg and ₹ 280 per kg should be mixed in the ratio so that the mixture obtained, sold at ₹ 320 per kg to earn a profit of 20% is
(1) 3:13 (2) 1:13
(3) 4:13 (4) 2:13
(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

39. A profit of 12% is made when a mobile phone is sold at ₹ P and there is 4% loss when the phone is sold at ₹ Q. Then Q : P is
(1) 1 : 1 (2) 4 : 5
(3) 6 : 7 (4) 3 : 1
(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

40. If the ratio of cost price to selling price is 10 : 11, then the rate of per cent of profit is
(1) 1.1% (2) 0.1%
(3) 10% (4) 1%
(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

41. If a sum of Rs. 1,170 was distributed among A, B and C in the ratio 2 : 3 : 4, by mistake, in place of $\frac{1}{2} : \frac{1}{3} : \frac{1}{4}$, who was benefited most and by how much ?

(1) B, Rs. 220 (2) C, Rs. 250

(3) B, Rs. 270 (4) A, Rs. 280

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

42. Costs of two watches were in the ratio of 16 : 23. The cost of first watch increases by 10% and that of second by Rs. 477. Now the costs of two watches are in a ratio of 11 : 20. The price of the second watch (in Rs.) in the beginning was

(1) 932 (2) 1219

(3) 1696 (4) 848

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

43. The liquids, X and Y are mixed in the ratio of 3 : 2 and the mixture is sold at Rs. 11 per litre at a profit of 10%. If the liquid X costs Rs. 2 more per litre than Y, the cost of X per litre is (in Rs.) :

(1) 10.80 (2) 11.75

(3) 9.50 (4) 11

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)

44. In what proportion must water be added with milk to gain 20% by selling the mixture at cost price?

(1) 1 : 5 (2) 4 : 1

(3) 5 : 1 (4) 1 : 1

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)

45. A and B invest in a business in the ratio 3 : 2. If 5% of the total profit goes to charity and A's share in profit is Rs. 8,550, then total profit is

(1) Rs. 15,760 (2) Rs.15,735

(3) Rs. 14,250 (4) Rs. 15,000

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015 (Ist Sitting) TF No. 9692918)

46. If the ratio of cost price and selling price of an article be 10:11, the profit percentage is

(1) 1% (2) 10%

(3) 5% (4) 8%

(SSC CGL Tier-I (CBE) Exam.10.09.2016)

47. A and B jointly made a profit of Rs.1650 and they decided to share it such that $\frac{1}{3}$ of A's profit is equal to $\frac{2}{5}$ of B's profit. Then profit of B is

(1) Rs. 700 (2) Rs. 750

(3) Rs. 850 (4) Rs. 800

(SSC CGL Tier-II Online Exam.01.12.2016)

48. 4% of the selling price of an article is equal to 5% of its cost price. Again 20% of the selling price is Rs.120 more than 22% of its cost price. The ratio of cost price and selling price is

(1) 2 : 3 (2) 3 : 2

(3) 4 : 5 (4) 5 : 4

(SSC CGL Tier-II Online Exam.01.12.2016)

49. Anil started a business with an investment of Rs. 25,000. After 3 months, Vishal joined his business with a capital of Rs. 30,000. At the end of the year, they have made a profit of Rs. 19,000. What will be Anil's share in the profit?

(1) Rs. 10,000 (2) Rs. 12,500

(3) Rs. 10,250 (4) Rs. 14,000

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016) (Ist Sitting)

50. Instead of dividing 391 cookies among 3 children A, B , C in the ratio $\frac{1}{5}:\frac{1}{4}:\frac{1}{8}$, it was divided in to the ratio 5 : 4 : 8. Who gains the most and how many ?

(1) A, 21 cookies

(2) B, 78 cookies

(3) C, 99 cookies

(4) C, 78 cookies

(SSC CPO SI & ASI, Online Exam. 06.06.2016) (IInd Sitting)

51. If the ratio between the profit and selling price of an article is 1 : 5, then the ratio between the selling price and the cost price of that article is :

(1) 3 : 2 (2) 4 : 3

(3) 5 : 4 (4) 6 : 5

(SSC CGL Tier-I (CBE) Exam. 03.09.2016) (IInd Sitting)

52. If the loss per cent on an article is 15%, then the ratio of the cost price and the selling price will be :

(1) 17 : 20 (2) 20 : 17

(3) 23 : 15 (4) 15 : 23

(SSC CGL Tier-I (CBE) Exam. 30.08.2016 (IIIrd Sitting)

53. A, B and C enter into a partnership, investing Rs. 6000. A invests Rs. 1000 and B and C invests in the ratio of 2 : 3. Find the profit of C, when the annual profit is Rs. 2400.

(1) Rs. 600 (2) Rs.1200

(3) Rs.1800 (4) Rs.1950

(SSC CGL Tier-I (CBE) Exam. 31.08.2016 (IIIrd Sitting)

54. If the ratio of the cost price and the selling price of an article be 4 : 5, then the percentage of profit is :

(1) $27\frac{1}{2}$ (2) 25

(3) 15 (4) 10

(SSC CGL Tier-I (CBE) Exam. 07.09.2016 (IIIrd Sitting)

55. A and B invest Rs. 3000 and Rs. 2400 respectively in a business. If after one year there is a loss of Rs. 720, how much loss will B bear? (Loss or profit is in proportion to their investments)

(1) Rs. 72 (2) Rs. 320

(3) Rs. 400 (4) Rs. 360

(SSC CGL Tier-I (CBE) Exam. 09.09.2016 (IInd Sitting)

56. The ratio of cost price and selling price of an article is 20 : 21. Then gain per cent on it is

(1) 7 (2) 5

(3) 6 (4) 4

(SSC CGL Tier-II (CBE) Exam. 12.01.2017)

57. The ratio of cost price and selling price of an article is 25 : 26. The per cent of profit will be

(1) 26% (2) 25%

(3) 1% (4) 4%

(SSC CGL Tier-II (CBE) Exam. 12.01.2017)

TYPE–V

1. Find the selling price of an article if a shopkeeper allows two successive discounts of 5% each on the marked price of ₹ 80.

(1) ₹ 70.20 (2) ₹ 70.10

(3) ₹ 72.00 (4) ₹ 72.20

(SSC CPO S.I. Exam. 12.01.2003)

2. An item costing ₹ 840 was sold by a shopkeeper at a gain of 10% and it was again sold by the new buyer at a loss of 5%. Final selling price of the item is :

(1) ₹ 877.80 (2) ₹ 798

(3) ₹ 924 (4) ₹ 37.80

(SSC CGL Prelim Exam. 11.05.2003 (First Sitting)

3. A shopkeeper gains 20% while buying the goods and 30% while selling them. Find his total gain per cent.
(1) 50% (2) 36%
(3) 56% (4) 40%
(SSC CPO S.I. Exam. 26.05.2005)

4. Salary of a person is increased by 20%, then it is decreased by 20%. Change in his salary is :
(1) 4% decreased
(2) 4% increased
(3) 8% decreased
(4) neither decrease nor increase
(SSC CGL Prelim Exam. 13.11.2005 (First Sitting)

5. A grocery dealer cheats to the extent of 10% while buying as well as selling by using false weight. What is his increase in the profit % ?
(1) 20% (2) 21%
(3) 22% (4) None of these
(SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting)

6. A balance of a trader weighs 20% less than it should be. Still the trader mark-up his goods to get the overall profit of 35%. What is mark-up on the cost price ?
(1) 7% (2) 8%
(3) 9% (4) 8.5%
(SSC CPO SI & ASI, Online Exam. 06.06.2016) (IInd Sitting)

TYPE–VI

1. By selling an article for ₹ 240, a man incurs a loss of 10%. At what price should he sell it, so that he makes a profit of 20% ?
(1) ₹ 264 (2) ₹ 288
(3) ₹ 300 (4) ₹ 320
(SSC CGL Prelim Exam. 04.07.1999 (IInd Sitting) & SSC S.O. Exam. 16.11.2003)

2. By selling an article for ₹ 480 a person lost 20%. For what should he sell it to make a profit of 20%?
(1) ₹ 800 (2) ₹ 760
(3) ₹ 720 (4) ₹ 680
(SSC CGL Prelim Exam. 27.02.2000 (Second Sitting)

3. By selling an article for ₹ 72, there is a loss of 10%. In order to gain 5%, its selling price should be :
(1) ₹ 87 (2) ₹ 85
(3) ₹ 80 (4) ₹ 84
(SSC CGL Prelim Exam. 24.02.2002 (First Sitting)

4. If an article is sold for ₹ 178 at a loss of 11%, what should be its selling price in order to earn a profit of 11%?
(1) ₹ 222.50 (2) ₹ 267
(3) ₹ 435 (4) ₹ 222
(SSC CGL Prelim Exam. 24.02.2002 (Second Sitting)

5. On selling an article for ₹ 105 a trader loses 9%. To gain 30% he should sell the article at
(1) ₹ 126 (2) ₹ 144
(3) ₹ 150 (4) ₹ 139
(SSC CGL Prelim Exam. 24.02.2002 (Middle Zone)

6. A shopkeeper bought 80kg of sugar at the rate of ₹ 13.50 per kg. He mixed it with 120kg of sugar costing ₹ 16 per kg. In order to make a profit of 20%, he must sell the mixture at
(1) ₹ 18 per kg
(2) ₹ 17 per kg
(3) ₹ 16.40 per kg
(4) ₹ 15 per kg
(SSC CGL Prelim Exam. 27.07.2008 (Second Sitting)

7. To gain 10% on selling sample milk at the cost price of pure milk, the quantity of water to be mixed with 50 kg. of pure milk is
(1) 2.5 Kg. (2) 5 Kg.
(3) 7.5 Kg. (4) 10 Kg.
(SSC CPO S.I. Exam. 09.11.2008)

8. By selling an article for ₹ 69, there is a loss of 8%, when the article is sold for ₹ 78, the gain or loss per cent is :
(1) neither loss nor gain
(2) 4% gain
(3) 4% loss
(4) 40% gain
(SSC CGL Prelim Exam. 08.02.2004 (Second Sitting)

9. A loss of 20% is incurred when 6 articles are sold for a rupee. To gain 20% how many articles should be sold for a rupee ?
(1) 1 (2) 2
(3) 3 (4) 4
(SSC Section Officer (Commercial Audit) Exam. 25.09.2005)

10. By selling a plot of land for ₹ 45,000 a person loses 10%. At what price should he sell it to gain 15%?
(1) ₹ 50,000 (2) ₹ 55,000
(3) ₹ 57,500 (4) ₹ 60,000
(SSC CGL Prelim Exam. 13.11.2005 (First Sitting)

11. A radio is sold for ₹ 990 at a profit of 10%. What would have been the actual profit or loss on it, had it been sold for Rs. 890 ?
(1) ₹ 10 loss (2) ₹ 10 profit
(3) ₹ 90 loss (4) ₹ 90 profit
(SSC CGL Prelim Exam. 13.11.2005 (Second Sitting)

12. By selling a table for ₹ 1140, a man loses 5%. in order to gain 5%, the table must be sold for
(1) ₹ 1260 (2) ₹ 1320
(3) ₹ 1180 (4) ₹ 1250
(SSC Multi-Tasking Staff Exam. 17.03.2013, Ist Sitting)

13. A radio dealer sold a radio at a loss of 2.5%. Had he sold it for ₹100 more, he would have gained $7\frac{1}{2}\%$. In order to gain $12\frac{1}{2}\%$, he should sell it for
(1) ₹ 1080 (2) ₹ 1125
(3) ₹ 850 (4) ₹ 925
(SSC Multi-Tasking Staff Exam. 17.03.2013, Ist Sitting)

14. By selling a fan for ₹ 600, a man loses 10%. To make a gain of 20%, the selling price of the fan should be
(1) ₹ 900 (2) ₹ 1000
(3) ₹ 700 (4) ₹ 800
(SSC Multi-Tasking Staff Exam. 17.03.2013, IInd Sitting)

15. A man sells a car to his friend at 10% loss. If the friend sells it for ₹ 54,000 and gains 20%, the original cost price of the car was
(1) ₹ 25,000 (2) ₹ 35,000
(3) ₹ 45,000 (4) ₹ 50,000
(SSC Multi-Tasking Staff Exam. 24.03.2013, Ist Sitting)

16. On selling an article for ₹ 170, a shopkeeper loses 15%. In order to gain 20%, he must sell that article at :
(1) ₹ 215.50 (2) ₹ 212.50
(3) ₹ 240 (4) ₹ 210
(SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting)

17. If a man were to sell his chair for ₹ 720, he would lose 25%. To gain 25% he should sell it for
(1) ₹ 1,200 (2) ₹ 1,000
(3) ₹ 960 (4) ₹ 900
(SSC CGL Prelim Exam. 04.02.2007 (First Sitting)

18. By selling a basket for ₹ 19.50, a shopkeeper gains 30%. For how much should he sell it to gain 40% ?
(1) ₹ 21 (2) ₹ 21.50
(3) ₹ 24 (4) ₹ 23
(SSC CPO S.I. Exam. 06.09.2009)

19. A man bought 20 dozen eggs for ₹ 720. What should be the selling price of each egg if he wants to make a profit of 20% ?
(1) ₹ 3.25 (2) ₹ 3.30
(3) ₹ 3.50 (4) ₹ 3.60
(SSC CISF ASI Exam. 29.08.2010 (Paper-1)

20. By selling an article for ₹ 665, there is a loss of 5%. In order to make a profit of 12%, the selling price of the article must be
(1) ₹ 812 (2) ₹ 800
(3) ₹ 790 (4) ₹ 784
(SSC Data Entry Operator Exam. 31.08.2008)

21. By selling an article for ₹ 700 a man lost 30%. At what price should he have sold it to gain 30% ?
(1) ₹ 910 (2) ₹ 1200
(3) ₹ 1232 (4) ₹ 1300
(SSC CHSL DEO & LDC Exam. 28.11.2010 (IInd Sitting)

22. If a man were to sell his wristwatch for ₹720, he would lose 25%. What price must he sell at for to gain 25% ?
(1) ₹960 (2) ₹900
(3) ₹1000 (4) ₹1200
(SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting) & 04.11.2012

23. An article was sold at a profit of 12%. If the cost price would be 10% less and selling price would be ₹ 5.75 more, there would be profit of 30%. Then at what price it should be sold to make a profit of 20% ?
(1) ₹ 115 (2) ₹ 120
(3) ₹ 138 (4) ₹ 215
(SSC CHSL DEO & LDC Exam. 27.10.2013 IInd Sitting)

24. By selling 80 ball pens for ₹ 140 a retailer loses 30%. How many ball pens should he sell for ₹104 so as to make a profit of 30%?
(1) 32 (2) 52
(3) 48 (4) 42
(SSC FCI Assistant Grade-III Main Exam. 07.04.2013)

25. By selling 90 ball pens for ₹ 160 a person loses 20%. The number of ball pens, which should be sold for ₹ 96 so as to have a profit of 20% is
(1) 36 (2) 37
(3) 46 (4) 47
(SSC Constable (GD) Exam. 12.05.2013)

26. Sourav purchased 30 kg of rice at the rate of ₹ 10 per kg and 35 kg at the rate of ₹ 11 per kg. He mixed the two. At what price per kg (in ₹) should he sell the mixture to make a 30% profit in the transaction ?
(1) 12.5 (2) 13
(3) 13.7 (4) 14.25
(SSC Graduate Level Tier-II Exam. 29.09.2013

27. Mr. Y purchased a flat for ₹ 9,25, 000 and spent ₹ 35, 000 for its renovation. If he sold the flat for ₹ 10, 80, 000 then his profit percent is
(1) 15.0 (2) 17.5
(3) 20.0 (4) 12.5
(SSC CHSL DEO & LDC Exam. 02.11.2014 (IInd Sitting)

28. The selling price of an article is $\frac{8}{5}$th of its cost price. Then the gain percentage is
(1) 20% (2) 28%
(3) 60% (4) 68%
(SSC CGL Tier-I (CBE) Exam. 01.09.2016) (IInd Sitting)

29. 12 copies of a book were sold for Rs. 1800 thereby gaining cost price of 3 copies. The cost price of a copy of the book is :
(1) Rs. 120 (2) Rs. 150
(3) Rs. 1200 (4) Rs. 1500
(SSC CGL Tier-I (CBE) Exam. 04.09.2016 (IInd Sitting)

30. After selling 5% of a quantity of sugar, 5 kg. of sugar remains. Find the total quantity of sugar.
(1) 19 kg. (2) $5\frac{5}{19}$ kg.
(3) 100 kg. (4) 95 kg.
(SSC CGL Tier-I (CBE) Exam. 06.09.2016 (IInd Sitting)

TYPE–VII

1. If the sales tax be reduced from $3\frac{1}{2}\%$ to $3\frac{1}{3}\%$, what difference does it make to a person who purchases an article whose marked price is ₹ 8,400 ?
(1) ₹ 20 (2) ₹ 15
(3) ₹ 14 (4) ₹. 10
(SSC CGL Prelim Exam. 24.02.2002 (Second Sitting)

2. By selling an article at $\frac{2}{3}$ of the marked price, there is a loss of 10%. The profit percent, when the article is sold at the marked price, is
(1) 20% (2) 30%
(3) 35% (4) 40%
(SSC CPO S.I. Exam. 07.09.2003)

3. A tradesman allows a discount of 15% on the marked price. How much above the cost price must he mark his goods as to gain 19%?
(1) 34% (2) 40%
(3) 25% (4) 30%
(SSC CPO S.I. Exam. 09.11.2008)

4. Rita bought a television set with 20% discount on the labelled price. She made a profit of ₹ 800 by selling it for ₹ 16,800. The labelled price of the set was
(1) ₹ 18,000 (2) ₹ 20,000
(3) ₹ 20,800 (4) ₹ 24,000
(SSC CPO S.I. Exam. 09.11.2008)

5. The cost price of an article is ₹ 800. After allowing a discount of 10%, a gain of 12.5% was made. Then the marked price of the article is
(1) ₹ 1,000 (2) ₹ 1,100
(3) ₹ 1,200 (4) ₹ 1,300
(SSC CGL Tier-1 Exam 19.06.2011 (First Sitting)

6. A shopkeeper allows 23% commission on his advertised price and still makes a profit of 10%. If he gains ₹ 56 on one item, his advertised price of the item, (in ₹) is
(1) 820 (2) 780
(3) 790 (4) 800
(SSC CGL Tier-1 Exam 26.06.2011 (Second Sitting)

7. At what per cent above the cost price, must a shop–keeper marks his goods so that he gains 20% even after giving a discount of 10% on the marked price ?
(1) 25% (2) 30%
(3) $33\frac{1}{3}\%$ (4) $37\frac{1}{2}\%$
(SSC CGL Prelim Exam. 08.02.2004 (Second Sitting)

8. The marked price of an article is 10% higher than cost price. A discount of 10% is given on marked price. In this kind of sale, the seller bears :
(1) no loss, no gain
(2) a loss of 5%
(3) a gain of 1%
(4) a loss of 1%
(SSC CGL Prelim Exam. 08.02.2004 (Second Sitting)

9. The marked price of an article is 50% above cost price. When marked price is increased by 20% and selling price is increased by 20%, the profit doubles. If original marked price is ₹ 300, then original selling price is
(1) ₹ 200 (2) ₹ 250
(3) ₹ 240 (4) ₹ 275
(SSC CHSL DEO & LDC Exam. 04.12.2011 (IInd Sitting (East Zone)

10. The cost of manufacture of a tape recorder is ₹ 1,500. The manufacturer fixes the marked price 20% above the cost of manufacture and allows a discount in such a way as to get a profit of 8%. The rate of discount is
(1) 12% (2) 8%
(3) 20% (4) 10%
(SSC CGL Tier-I Exam. 11.11.2012 (Ist Sitting) & (SSC MTS Exam. 17.03.2013 (Kolkata)

11. How much percent above the cost price should a shopkeeper mark his goods so as to earn a profit of 32% after allowing a discount of 12% on the marked price ?
(1) 50% (2) 40%
(3) 60% (4) 45%
(SSC Graduate Level Tier-I Exam. 11.11.2012 (Ist Sitting)

12. A dealer purchased a washing machine for ₹7,660. After allowing a discount of 12% on its marked price, he still gains 10%. Find the marked price of the washing machine.
(1) ₹9,575 (2) ₹8,426
(3) ₹8,246 (4) ₹9,755
(SSC Assistant Grade-III Exam. 11.11.2012 (IInd Sitting)

13. A publisher printed 2000 copies of a book at a cost of ₹ 70,000. He distributes 400 copies free as specimen copies. He gave 30% discount on printed price and the printed price of each book is ₹ 75. What is his gain or loss percentage ?
(1) 20% gain (2) 20% loss
(3) 10% loss (4) 10% gain
(SSC CHSL DEO & LDC Exam. 04.11.2012, IInd Sitting)

14. Richa purchased an article at $\frac{4}{5}$ of its list price and sold it at 20% more than the list price. Richa's profit percent was
(1) 50% (2) 40%
(3) 30% (4) 25%
(SSC CHSL DEO & LDC Exam. 28.11.2010 (IInd Sitting)

15. To gain 8% after allowing a discount of 10%, by what per cent cost price should be hiked in the list price ?
(1) 9% (2) 11%
(3) 18% (4) 20%
(SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting)

16. A shopkeeper sold sarees at ₹ 266 each after giving 5% discount on labelled price. Had he not given the discount, he would have earned a profit of 12% on the cost price. What was the cost price of each saree?
(1) ₹ 280 (2) ₹ 260
(3) ₹ 240 (4) ₹ 250
(SSC Multi-Tasking Staff Exam. 17.03.2013, Kolkata Region)

17. Arvind purchased a wrist watch with 30% discount on the labelled price. He sold it with 40% profit on the price he bought. What was his percent loss on the labelled price?
(1) 2% (2) 6%
(3) 4% (4) 8%
(SSC Graduate Level Tier-I Exam. 21.04.2013)

18. The profit percent of a book seller if he sells book at marked price after enjoying a commission of 25% on marked price will be :
(1) 30% (2) 25%
(3) 20% (4) $33\frac{1}{3}\%$
(SSC CHSL DEO& LDC Exam. 04.11.2012, Ist Sitting)

19. A shopkeeper offers a discount of 10% on his articles. The marked price of the article is ₹ 450. The selling price should be
(1) ₹ 395 (2) ₹ 410
(3) ₹ 405 (4) ₹ 400
(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

20. A shopkeeper marked the selling price of his goods in such a way that after giving a discount of 10% he gains 17%. How much per cent above the cost price is the marked price?
(1) 36% (2) 27%
(3) 30% (4) 40%
(SSC Constable (GD) Exam. 12.05.2013 & (SSC CAPFs SI & CISF ASI Exam. 23.06.2013)

21. A tradesman marks his goods 30% more than the cost price. If he allows a discount of $6\frac{1}{4}\%$, then his gain percent is
(1) $23\frac{3}{4}\%$ (2) 22%
(3) $21\frac{7}{8}\%$ (4) 30%
(SSC Graduate Level Tier-II Exam. 29.09.2013

22. A trader marked the price of a commodity so as to include a profit of 25%, but allowed a discount of 16% on the marked price. His actual profit will be
(1) 16% (2) 25%
(3) 5% (4) 9%
(SSC Multi-Tasking Staff Exam. 17.03.2013, Ist Sitting)

23. A got 30% concession on the label price of an article sold for ₹ 8,750 with 25% profit on the price he bought. The label price was
(1) ₹ 13,000 (2) ₹ 16,000
(3) ₹ 12,000 (4) ₹ 10,000
(SSC CHSL DEO & LDC Exam. 20.10.2013)

24. A shopkeeper allows a rebate of 12% on the marked price of an article such that the selling price is ₹ 440. Then the marked price of the article is
(1) ₹ 490 (2) ₹ 500
(3) ₹ 600 (4) ₹ 550
(SSC CHSL DEO & LDC Exam. 02.11.2014 (IInd Sitting)

25. Pratap buys a watch at $\frac{4}{5}$ th of its marked price and sells it for 17% more than its marked price. His profit based on its cost is

(1) Rs. 20 (2) Rs. 25

(3) Rs. 37 (4) Rs. 17

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

26. Mohan purchased a bag with 20 percent discount on the labelled price. He sold it at 40 percent profit on the price he bought. The percentage of profit on the labelled price is :

(1) 20% (2) 12%

(3) 18% (4) 24%

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 06.12.2015 (Ist Sitting) TF No. 1375232)

27. The marked price of an article is Rs. 5000. But due to a special festive offer a certain per cent of discount is declared. Mr. X availed this opportunity and bought the article at reduced price. He then sold it at Rs. 5000 and thereby made a profit of $11\frac{1}{9}$ %. The percentage of discount allowed was

(1) 10 (2) $3\frac{1}{3}$

(3) $7\frac{1}{2}$ (4) $11\frac{1}{9}$

(SSC CGL Tier-II (CBE)z Exam. 30.11.2016)

TYPE–VIII

1. Profit after selling a commodity for ₹ 524 is the same as loss after selling it for ₹ 452. The cost price of the commodity is

(1) ₹ 480 (2) ₹ 500

(3) ₹ 488 (4) ₹ 485

(SSC CGL Prelim Exam. 11.05.2003 (Second Sitting)

2. A clock was sold for ₹ 144. If the percentage of profit was numerically equal to the cost price, the cost of the clock was

(1) ₹ 72 (2) ₹ 80

(3) ₹ 90 (4) ₹ 100

(SSC CGL Prelim Exam. 13.11.2005 (Ist Sitting) & (SSC CPO SI. Exam. 16.09.2009) & (SSC CGL Tier-I Exam. 26.06.2011 (IInd Sitting)

3. By selling 144 hens Mahesh suffered a loss equal to the selling price of 6 hens. His loss per cent is

(1) 4% (2) 3%

(3) 9% (4) $4\frac{1}{2}$ %

(SSC CGL Prelim Exam. 04.02.2007 (Second Sitting)

4. If the profit per cent got on selling an article is numerically equal to its cost price in rupees and the selling price is ₹ 39, then cost price (in ₹) will be

(1) 20 (2) 22

(3) 28 (4) 30

(SSC CPO S.I. Exam. 09.11.2008)

5. By selling 1 dozen ball pens, a shopkeeper earned the profit equal to the selling price of 4 ball pens. His profit per cent is

(1) 50% (2) 40%

(3) $33\frac{1}{3}$ % (4) $31\frac{1}{4}$ %

(SSC Data Entry Operator Exam. 02.08.2009)

6. A merchant sold an article for ₹ 75 at a profit percent equal to its cost price. The cost price of the article was :

(1) ₹ 45 (2) ₹ 50

(3) ₹ 54 (4) ₹ 60

(SSC CHSL DEO & LDC Exam. 27.11.2010)

7. If the profit on selling an article for ₹ 425 is the same as the loss on selling it for ₹ 355, then the cost price of the article is

(1) ₹ 370 (2) ₹ 380

(3) ₹ 390 (4) ₹ 400

(SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (Ist Sitting)

8. The loss incurred on selling 21 articles equals the selling price of 3 articles. Then the loss per cent is

(1) $9\frac{1}{11}$ % (2) 10%

(3) $12\frac{1}{2}$ % (4) $11\frac{1}{9}$ %

(SSC Multi-Tasking Staff Exam. 10.03.2013, Ist Sitting : Patna)

9. A man sold 250 chairs and had a gain equal to selling price of 50 chairs. His profit per cent is :

(1) 20% (2) 25%

(3) 50% (4) 15%

(SSC CAPFs SI & CISF ASI Exam. 23.06.2013)

10. On selling 17 balls at ₹ 720, there is a loss equal to the cost price of 5 balls. The cost price (in ₹) of a ball is

(1) 45 (2) 50

(3) 55 (4) 60

(SSC Graduate Level Tier-II Exam. 29.09.2013

11. A vendor loses the selling price of 4 oranges on selling 36 oranges. His loss per cent is

(1) $12\frac{1}{2}$ % (2) 9%

(3) 10% (4) $11\frac{1}{2}$ %

(SSC CHSL DEO & LDC Exam. 10.11.2013, IInd Sitting)

12. Last year Mr. A bought two paintings. This year he sold them for Rs. 20,000 each. On one, he made a 25% profit and on the other he had a 25% loss. Then his net profit or loss is

(1) He lost more than Rs. 2000

(2) He lost less than Rs. 2000

(3) He earned more than Rs. 2000

(4) He earned less than Rs. 2000

(SSC CGL Tier-II Online Exam.01.12.2016)

13. If the cost price of 28 articles is equal to the sale price of 21 articles, then the percentage of profit is :

(1) 12% (2) $33\frac{1}{3}$ %

(3) 20% (4) 22%

(SSC CGL Tier-I (CBE) Exam. 10.09.2016 (IIIrd Sitting)

14. If by selling an article for Rs. 390 a shopkeeper gains 20%, then the cost price is

(1) Rs. 370 (2) Rs. 325

(3) Rs. 350 (4) Rs. 300

(SSC CGL Tier-I (CBE) Exam. 11.09.2016 (IInd Sitting)

15. Loss of 20% on selling price is equal to x% loss on cost price. What is the value of x?
(1) 20 (2) 20
(3) $16\frac{2}{3}$ (4) 16
(SSC CGL Tier-I (CBE) Exam. 11.09.2016 (IIIrd Sitting)

16. An article is sold at a certain price. If it is sold at half of the previous selling price, then there is a loss of $25\frac{1}{2}\%$. The profit after selling the article at the previous selling price is:
(1) 51% (2) 49%
(3) $12\frac{3}{4}\%$ (4) $24\frac{1}{2}\%$
(SSC CGL Tier-I (CBE) Exam. 27.10.2016 (Ist Sitting)

TYPE–IX

1. An article is sold at a loss of 10%. Had it been sold for ₹ 9 more, there would have been a gain of $12\frac{1}{2}\%$ on it. The cost price of the article is :
(1) ₹ 40 (2) ₹ 45
(3) ₹ 50 (4) ₹ 35
(SSC CGL Prelim Exam. 24.02.2002 (First Sitting)

2. A man sold an article at a loss of 20%. If he has sold that article for ₹ 12 more he would have gained 10%. Find the cost price of that article :
(1) ₹ 60 (2) ₹ 40
(3) ₹ 30 (4) ₹ 22
(SSC Section Officer (Commercial Audit) Exam. 25.09.2005)

3. If an article is sold for ₹ 178 at a loss of 11%, what should be its selling price in order to earn a profit of 11% ?
(1) ₹ 222.50 (2) ₹ 267
(3) ₹ 222 (4) ₹ 220
(SSC CGL Prelim Exam. 13.11.2005 (First Sitting)

4. A man sells an article at 10% loss. If he had sold it at ₹ 10 more, he would have gained 10%. The cost price of the article is
(1) ₹ 50 (2) ₹ 55
(3) ₹ 100 (4) ₹ 110
(SSC CPO S.I. Exam. 03.09.2006)

5. A book seller sells a book at a profit of 10%. If he had bought it at 4% less and sold it for ₹ 6 more, he would have gained $18\frac{3}{4}\%$. The cost price of the book is
(1) ₹ 130 (2) ₹ 140
(3) ₹ 150 (4) ₹ 160
(SSC CGL Prelim Exam. 04.02.2007 (First Sitting)

6. A man sells his typewriter at 5% loss. If he sells it for ₹ 80 more, he will gain 5%. The cost price of the typewriter is
(1) ₹ 1,600 (2) ₹ 1,200
(3) ₹ 1,000 (4) ₹ 800
(SSC CGL Prelim Exam. 04.02.2007 (First Sitting)

7. A businessman sells a commodity at 10% profit. If he had bought it at 10% less and sold it for ₹ 2 less, then he would have gained $16\frac{2}{3}\%$. The cost price of the commodity is
(1) ₹ 32 (2) ₹ 36
(3) ₹ 40 (4) ₹ 48
(SSC CGL Prelim Exam. 27.07.2008 (First Sitting)

8. A cooker is sold at a gain of 16%. If it has been sold for ₹ 20 more, 20% would have been gained. The cost price of the cooker is
(1) ₹ 350 (2) ₹ 400
(3) ₹ 500 (4) ₹ 600
(SSC CPO S.I. Exam. 06.09.2009)

9. On selling an almirah for ₹ 2576, a person got a profit of 12%. Had it been bought for ₹ 100 less, the profit per cent would have been
(1) $11\frac{1}{9}\%$ (2) $13\frac{1}{3}\%$
(3) $17\frac{1}{11}\%$ (4) $17\frac{9}{11}\%$
(SSC SAS Exam 26.06.2010 (Paper-1)

10. A man sold an article at a loss of 20%. If he had sold it for ₹ 50 more, he would have gained 5%. The cost price of the article was
(1) ₹ 250 (2) ₹ 300
(3) ₹ 180 (4) ₹ 200
(SSC Data Entry Operator Exam. 31.08.2008)

11. When an article is sold at a gain of 20%, it yields ₹ 60 more than when it is sold at a loss of 20%. The cost price of the article is
(1) ₹ 200 (2) ₹ 150
(3) ₹ 140 (4) ₹ 120
(SSC Data Entry Operator Exam. 02.08.2009)

12. Aniruddha sold a bicycle at a gain of 8%. Had it been sold for ₹75 more, the gain would have been 14%. The cost price of the bicycle was
(1) ₹ 1200 (2) ₹ 1250
(3) ₹ 1350 (4) ₹ 1500
(SSC CHSL DEO & LDC Exam. 28.11.2010 (IInd Sitting)

13. A book vendor sold a book at a loss of 20%. Had he sold it for ₹ 108 more, he would have earned a profit of 30%. Find the cost price of the book ?
(1) ₹ 216 (2) ₹ 648
(3) ₹ 240 (4) ₹ 432
(SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting)

14. If an article is sold at 5% gain instead of 5% loss, the man gains ₹ 5 more. Find the cost price of that article
(1) ₹ 100 (2) ₹ 105
(3) ₹ 50 (4) ₹ 110
(SSC CGL Prelim Exam. 24.02.2002 (Middle Zone)

15. An article is sold at a gain of 15%. Had it been sold for ₹ 27 more, the profit would have been 20%. The cost price of the article is
(1) ₹ 500 (2) ₹ 700
(3) ₹ 540 (4) ₹ 545
(SSC Graduate Level Tier-II Exam. 29.09.2013

16. A man sells an article at a gain of 15%. If he had bought it at 10% less and sold it for ₹ 4 less, he would have gained 25%. The cost price of the article is
(1) ₹ 140 (2) ₹ 150
(3) ₹ 160 (4) ₹ 185
(SSC Multi-Tasking Staff Exam. 10.03.2013, Ist Sitting : Patna)

17. An article is sold at a loss of 10%. Had it been sold for ₹ 90 more, there would have been a gain of 5%. The original sale price of the article (in ₹) is :
(1) 540 (2) 600
(3) 628 (4) 650
(SSC Multi-Tasking Staff Exam. 10.03.2013)

18. A man sold an article at a loss of 20%. If he could sell it for ₹ 200 more , he would make a profit of 5%. The cost price of the article is

(1) ₹ 700 (2) ₹ 800

(3) ₹ 850 (4) ₹ 900

(SSC Multi-Tasking Staff Exam. 17.03.2013, Kolkata Region)

19. A businessman bought an article and sold it at a loss of 5%. If he had bought it for 10% less and sold it for ₹ 33 more, he would have had a profit of 30%. The cost price of the article is

(1) ₹ 330 (2) ₹ 155

(3) ₹ 150 (4) ₹ 300

(SSC Multi-Tasking Staff Exam. 24.03.2013, Ist Sitting)

20. An article was sold at 16% gain. Had it been sold for ₹200 more, the gain would have been 20%. Then the cost price of the article is:

(1) ₹ 5000 (2) ₹ 4800

(3) ₹4500 (4) ₹ 5200

(SSC CAPFs SI & CISF ASI Exam. 23.06.2013)

21. A man purchased 150 pens at the rate of ₹12 per pen. He sold 50 pens at a gain of 10%. The percentage gain at which he must sell the remaining pens so as to gain 15% on the whole outlay is

(1) $21\frac{1}{2}\%$ (2) 20%

(3) 17% (4) $17\frac{1}{2}\%$

(SSC Graduate Level Tier-II Exam.16.09.2012)

22. By selling 4 articles for 1 rupee, a man loses 4%. Had he sold three articles per rupee, the profit would have been :

(1) 30% (2) 28%

(3) 16% (4) 12%

(SSC Multi-Tasking Staff Exam. 10.03.2013)

23. A shopkeeper sells an article at a loss of $12\frac{1}{2}\%$. Had he sold it for ₹ 51.80 more, he would have earned a profit of 6%. The cost price of the article is

(1) ₹ 280 (2) ₹ 300

(3) ₹ 380 (4) ₹ 400

(SSC Section Officer (Commercial Audit) Exam. 16.11.2003)

24. Mohan sold his watch at 10% loss. If he had sold it for ₹ 45 more, he would have made 5% profit. The selling price (in ₹) of the watch was

(1) 300 (2) 900

(3) 110 (4) 270

(SSC CHSL DEO & LDC Exam. 10.11.2013, IInd Sitting)

25. Yogita sold a plasma TV at 20% gain to Shyamla. Shyamla sold it to Deepa at 10% profit. If Deepa had to pay ₹ 33,000 for the plasma TV, find the cost price of the plasma TV for Yogita.

(1) ₹ 30,000 (2) ₹ 25,000

(3) ₹ 35,000 (4) ₹ 40,000

(SSC CHSL DEO Exam. 16.11.2014 (Ist Sitting)

26. A sells a cycle to B at a profit of 20% and B sells it to C at a loss of 25%. If C bought the cycle for ₹ P, then the cost price of it for A was

(1) $₹\frac{1}{20}P$ (2) $₹\frac{9}{10}P$

(3) $₹\frac{9}{20}P$ (4) $₹\frac{10}{9}P$

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

27. The profit obtained by selling an article for Rs. 625 is same as the loss incurred if it is sold for Rs. 545. The price at which it is to be sold to realize a profit of Rs. 65 on the cost price is

(1) Rs. 640 (2) Rs. 630

(3) Rs. 650 (4) Rs. 660

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

28. There would be a 10% loss, if rice is sold at Rs. 54 per kg. To earn a profit of 20%, the price of rice per kg will be

(1) Rs. 65 (2) Rs. 70

(3) Rs. 63 (4) Rs. 72

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

29. A merchant has 1000 kg sugar, part of which sells at 8% profit and the rest at 18% profit. He gain 14% on the whole. The quantity sold at 8% profit is :

(1) 560 kg. (2) 600 kg.

(3) 640 kg. (4) 400 kg.

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 15.11.2015 (IInd Sitting) TF No. 7203752)

30. By selling 12 kg of potatoes for Rs. 63, a shopkeeper gains 5%. What does he gain or lose percent by selling 50 kg of the same potatoes for Rs. 247.50?

(1) 1% loss

(2) No profit, no loss

(3) 2.5% loss

(4) 1% profit

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015 (Ist Sitting) TF No. 9692918)

31. A shopkeeper sold an article at a loss of 20%. But if he could sell it at Rs. 200 more, he could earn a profit of 5%. The cost price of the article is

(1) Rs. 800 (2) Rs. 1,000

(3) Rs. 1,200 (4) Rs. 600

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 20.12.2015 (Ist Sitting) TF No. 9692918)

32. A shopkeeper purchases two items for Rs. 520. One of them is sold gaining 16% and the other at a loss of 10%, thus making no profit or loss. What is the selling price of the item sold at loss?

(1) Rs. 288 (2) Rs. 232

(3) Rs. 320 (4) Rs. 200

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016) (Ist Sitting)

33. Sandeep sells an article at a loss of 10%. Had he bought it at 20% less and sold it for Rs. 55 more, he could have gained 40%. What is the cost price of the article ?

(1) Rs. 200 (2) Rs. 225

(3) Rs. 250 (4) Rs. 275

(SSC CPO SI & ASI, Online Exam. 06.06.2016) (IInd Sitting)

34. A T.V was sold at a profit of 5%. If it had been sold at a profit of 10%, the profit would have been Rs. 1000 more. What is its cost price ?

(1) Rs. 20000 (2) Rs. 5000

(3) Rs. 10000 (4) Rs. 15000

(SSC CGL Tier-I (CBE) Exam. 29.08.2016) (IInd Sitting)

35. 5% more is gained by selling a watch for Rs. 350 than by selling it for Rs. 340. The cost price of the watch is

(1) Rs. 110 (2) Rs. 140

(3) Rs. 200 (4) Rs. 250

(SSC CGL Tier-I (CBE) Exam. 02.09.2016) (Ist Sitting)

36. The profit earned by a shopkeeper by selling a bucket at a gain of 8% is Rs. 28 more than when he sells it at a loss of 8%. The cost price (in Rupees) of the bucket is

(1) 170 (2) 190

(3) 175 (4) 165

(SSC CGL Tier-II (CBE) Exam. 12.01.2017)

TYPE–X

1. A sells a bicycle to B at a profit of 20%. B sells it to C at a profit of 25%. If C pays ₹ 225/- for it, the cost price of the bicycle for A is :
(1) ₹ 110 (2) ₹ 125
(3) ₹ 120 (4) ₹ 150
(SSC CGL Prelim Exam. 27.02.2000 (First Sitting)

2. A saleable article passes successively in the hands of three traders. Each trader sold it further at a gain of 25% of the cost price. If the last trader sold it for Rs. 250 then what was the cost price for the first trader ?
(1) ₹ 128 (2) ₹ 150
(3) ₹ 192 (4) ₹ 200
(SSC Section Officer (Commercial Audit) Exam. 25.09.2005)

3. A car worth ₹ 1,50,000 was sold by X to Y at 5% profit. Y sold the car back to X at 2% loss. In the entire transaction
(1) X gained ₹ 4,350
(2) Y lost ₹ 4,350
(3) X gained ₹ 3,150
(4) X lost ₹ 3,150
(SSC CPO S.I. Exam. 16.12.2007)

4. A manufacturer sells an article to a wholesale dealer at a profit of 10%. The wholesale dealer sells it to a shopkeeper at 20% profit. The shopkeeper sells it to a customer for ₹ 56,100 at a loss of 15%. Then the cost price of the article to the manufacturer is
(1) ₹ 25,000 (2) ₹ 10,000
(3) ₹ 50,000 (4) ₹ 55,000
(SSC Graduate Level Tier-II Exam.16.09.2012)

5. A sells an article to B making a profit of $\frac{1}{5}$ of his outlay. B sells it to C, gaining 20%. If C sells it for ₹ 600 and incurs a loss of $\frac{1}{6}$ of his outlay, the cost price of article for A is
(1) ₹ 600 (2) ₹ 500
(3) ₹ 720 (4) ₹ 800
(SSC Graduate Level Tier-II Exam.16.09.2012)

6. A sells a cycle to B at a profit of 5% and B sells it to C at a profit of 10%. If C pays ₹ 2310 for it, the cost price of A is
(1) ₹ 2000 (2) ₹ 2100
(3) ₹ 1900 (4) ₹ 2010
(SSC CHSL DEO & LDC Exam. 28.10.2012 (Ist Sitting)

7. A sells a cycle to B at a profit of 10%, B sells to C at a profit of 20%. If C pays ₹ 264 for it, how much did A pay for it?
(1) ₹ 200 (2) ₹ 220
(3) ₹ 225 (4) ₹ 234
(SSC CHSL DEO & LDC Exam. 04.11.2012 (IInd Sitting)

8. A man purchased an article and sold it to B at a profit of 25% and B sold it to C at a loss of 10% and C paid ₹675 for it. For how much did A purchase it (in ₹) ?
(1) 625 (2) 575
(3) 600 (4) 550
(SSC Assistant Grade-III Exam. 11.11.2012 (IInd Sitting)

9. A sold a tape-recorder to B for ₹4,860 at a loss of 19%. Again B sold it to C at a price that would give A a profit of 17%. The gain% of B is
(1) $22\frac{2}{9}\%$ (2) $33\frac{1}{3}\%$
(3) $44\frac{4}{9}\%$ (4) $66\frac{2}{3}\%$
(SSC Assistant Grade-III Exam. 11.11.2012 (IInd Sitting)

10. A piece of land came to a person through three middleman each gaining 20%. If the person purchased the land for ₹ 3,45,600 the original cost of the land was
(1) ₹ 1,00,000 (2) ₹ 1,50,000
(3) ₹ 1,75,800 (4) ₹ 2,00,000
(SSC CGL Prelim Exam. 27.07.2008 (Second Sitting)

11. A sells an article to B at a gain of 10%, B sells it to C at a gain of 5%. If C pays ₹ 462 for it, what did it cost to A ?
(1) ₹ 500 (2) ₹ 450
(3) ₹ 600 (4) ₹ 400
(SSC CHSL DEO & LDC Exam. 04.11.2012, Ist Sitting)

12. A sells an article to B at a gain of 10%. B sells it to C at a gain of $7\frac{1}{2}\%$. C disposes of it at a loss of 25%. If the prime cost to the manufacturer A was ₹ 3200 then the price obtained by C is
(1) ₹ 2800 (2) ₹ 2580
(3) ₹ 2670 (4) ₹ 2838
(SSC Multi-Tasking Staff Exam. 17.03.2013, Kolkata Region)

13. A sells an article to B at a gain of 20% and B sells it to C at a gain of 10% and C sells it to D at a gain of $12\frac{1}{2}\%$. If D pays ₹ 29.70, A purchased the article for
(1) ₹ 40 (2) ₹ 10
(3) ₹ 20 (4) ₹ 30
(SSC FCI Assistant Grade-III Main Exam. 07.04.2013)

14. A sells a suitcase to B at 10% profit. B sells it to C at 30% profit. If C pays ₹ 2,860 for it, then the price at which A bought it is
(1) ₹ 1,000 (2) ₹ 1,600
(3) ₹ 2,000 (4) ₹ 2,500
(SSC Graduate Level Tier-II Exam. 29.09.2013

TYPE–XI

1. A house and a shop were sold for ₹ 1 lakh each. In this transaction, the house sale resulted into 20% loss whereas the shop sale into 20% profit. The entire transaction resulted in :
(1) no loss no gain
(2) gain of ₹ $\frac{1}{24}$ lakh
(3) loss of ₹ $\frac{1}{12}$ lakh
(4) loss of ₹ $\frac{1}{18}$ lakh
(SSC CGL Prelim Exam. 04.07.1999 (Second Sitting)

2. A shopkeeper sells two T.V. sets at the same price. There is a gain of 20% on one TV and a loss of 20% on the other. State which of the following statement is correct :
(1) The shopkeeper makes no net gain or profit
(2) The shopkeeper loses by 2%
(3) The shopkeeper gains by 4%
(4) The shopkeeper loses by 4%
(SSC CGL Prelim Exam. 24.02.2002 (First Sitting)

3. A man sells two articles at ₹ 99 each. On one he gains 10% and on the other he loses 10%. What is his gain or loss per cent on the whole transaction ?
(1) Loss, 1% (2) Loss, 1.5%
(3) Profit, 1% (4) Profit, 1.5%
(SSC CGL Prelim Exam. 24.02.2002 (Second Sitting)

4. A man sells two pipes at ₹ 12 each. He gains 20% on one and loses 20% on the other. In the whole transaction, there is
(1) neither loss nor gain
(2) profit of ₹ 1
(3) loss of ₹ 1
(4) Profit of ₹ 2
(SSC CGL Prelim Exam. 24.02.2002 (Middle Zone) & (SSC CGL Prelim Exam. 13.11.2005 (IInd Sitting)

5. Kewal sells two tape recorders at the same price. On one, he gains 10% and on the other he loses 10%. The total gain or loss in the transaction is
(1) 1% gain
(2) 1% loss
(3) No loss or gain
(4) 2% loss
(SSC CPO S.I. Exam. 12.01.2003)

6. A person sells two machines at ₹ 396 each. On one he gains 10% and on the other he loses 10%. His profit or loss in the whole transaction is :
(1) no gain no loss
(2) 1% loss
(3) 1% profit
(4) 8% profit
(SSC CGL Prelim Exam. 04.07.1999 (First Sitting)

7. A dealer sold two types of goods for₹ 10,000 each. On one of them, he lost 20% and on the other he gained 20%. His gain or loss per cent in the entire transaction was
(1) 2% loss (2) 2% gain
(3) 4% gain (4) 4% loss
(SSC Graduate Level Tier-II Exam.16.09.2012)

8. A television and a refrigerator were sold for ₹ 12,000 each. If the television was sold at a loss of 20% of the cost and the refrigerator at a gain of 20% of the cost, the entire transaction resulted in
(1) No loss or gain
(2) Loss of ₹ 1,000
(3) Gain of ₹ 1,000
(4) Loss of ₹ 1,200
(SSC CPO S.I. Exam. 07.09.2003)

9. A man had 100 kgs of sugar, part of which he sold at 7% profit and rest at 17% profit. He gained 10% on the whole. How much did he sell at 7% profit ?
(1) 65 kg (2) 35 kg
(3) 30 kg (4) 70 kg
(SSC CGL Prelim Exam. 08.02.2004 (First Sitting)

10. A man bought two goats for ₹ 1008. He sold one at a loss of 20% and other at a profit of 44%. If each goat was sold for the same price, the cost price of the goat which was sold at loss, was :
(1) ₹ 648 (2) ₹ 360
(3) ₹ 568 (4) ₹ 440
(SSC CGL Prelim Exam. 08.02.2004 (Second Sitting)

11. Two bicycles were sold for ₹ 3990 each, gaining 5% on one and losing 5% on other. The gain or loss per cent on the whole transaction is :
(1) neither gain nor loss
(2) 2.5% gain
(3) 2.5% loss
(4) 0.25% loss
(SSC CPO S.I. Exam. 26.05.2005)

12. A man sold two watches for ₹ 240 each. On one he gains 20% and incurs a loss of 20% on another. What is his gain or loss per cent in this transaction ?
(1) 1% profit (2) 2% loss
(3) 4% profit (4) 4% loss
(SSC Section Officer (Commercial Audit) Exam. 25.09.2005)

13. When the price of cloth was reduced by 25%, the quantity of cloth sold increased by 20%. What was the effect on gross receipt of the shop?
(1) 5% increase (2) 5% decrease
(3) 10% increase (4) 10% decrease
(SSC Multi-Tasking (Non-Technical) Staff Exam. 22.02.2011)

14. A cloth merchant sold half of his cloth at 20% profit, half of the remaining cloth at 20% loss and the rest was sold at his cost price. In the total transaction, his gain or loss will be
(1) 5% profit
(2) Neither loss nor gain
(3) 5% loss
(4) 10% profit
(SSC SAS Exam 26.06.2010 (Paper-1)

15. The total cost price of two watches is ₹ 840. One is sold at a profit of 16 per cent and the other at a loss of 12 per cent. There is no loss or gain in the whole transaction. The cost price of the watch on which the shopkeeper gains, is
(1) ₹ 360 (2) ₹ 370
(3) ₹ 380 (4) ₹ 390
(SSC Section Officer (Commercial Audit) Exam. 26.11.2006 (Second Sitting)

16. A car and a jeep were sold for ₹ 121000 each. The car was sold at a loss of 20% while the jeep at a gain of 20%. The entire transaction resulted in
(1) neither loss nor gain
(2) gain of ₹ 1000
(3) loss of ₹ 10000
(4) gain of ₹ 500
(SSC CGL Prelim Exam. 04.02.2007 (Second Sitting)

17. Two-third of a consignment was sold at a profit of 5% and the remainder at a loss of 2%. If the total profit was ₹ 400, then the value of the consignment was
(1) ₹ 15,000 (2) ₹ 15,500
(3) ₹ 16,000 (4) ₹16,500
(SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (Second Sitting)

18. A man buys a field of agricultural land for ₹ 3,60,000. He sells one-third at a loss of 20% and two-fifths at a gain of 25%. At what price must he sell the remaining field so as to make an overall profit of 10 % ?
(1) ₹ 1,00,000 (2) ₹ 1,15,000
(3) ₹ 1,20,000 (4) ₹ 1,25,000
(SSC CPO S.I. Exam. 16.12.2007)

19. A trader bought two horses for ₹19,500. He sold one at a loss of 20% and the other at a profit of 15%. If the selling price of each horse is the same, then their cost price are respectively.
(1) ₹ 10,000 and ₹ 9,500
(2) ₹ 11,500 and ₹ 8,000
(3) ₹ 12,000 and ₹ 7,500
(4) ₹ 10,500 and ₹ 9,000
(SSC CGL Tier-1 Exam 26.06.2011 (First Sitting)

20. A person bought two articles A and B for ₹ 5,000. He sold A at 20% profit and B at 10% loss. He thus gained 2% on his outlay. The cost price of A was
(1) ₹ 3,000 (2) ₹ 2,500
(3) ₹ 2,000 (4) ₹ 3,500
(SSC Data Entry Operator Exam. 31.08.2008)

21. A man sold two articles at ₹ 375 each. On one, he gains 25% and on the other, he loses 25%. The gain or loss% on the whole transaction is
(1) 6% (2) $4\frac{1}{6}\%$
(3) 5% (4) $6\frac{1}{4}\%$
(SSC CHSL DEO & LDC Exam. 04.11.2012, Ist Sitting)

22. A man bought a horse and a carriage for ₹ 40,000. He sold the horse at a gain of 10 % and the carriage at a loss of 5%. He gained 1% on his whole transaction. The cost price of the horse was :
(1) ₹ 15000 (2) ₹ 16000
(3) ₹ 18000 (4) ₹ 20000
(SSC Multi-Tasking Staff Exam. 10.03.2013)

23. A person bought two bicycles for ₹ 1600 and sold the first at 10% profit and the second at 20% profit. If he sold the first at 20% profit and the second at 10% profit, he would get ₹ 5 more. The difference of the cost price of the two bicycles was :
(1) ₹ 50 (2) ₹ 40
(3) ₹ 25 (4) ₹ 75
(SSC Graduate Level Tier-I Exam. 21.04.2013)

24. A shopkeeper sells an article at 15% gain. Had he sold it for ₹18 more, he would have gained 18%. The cost price (in ₹) of the article is
(1) 540 (2) 318
(3) 600 (4) 350
(SSC CHSL DEO & LDC Exam. 10.11.2013, Ist Sitting)

25. Two items A and B are sold at a profit of 10% and 15% respectively. If the amount of profit received is the same, then the cost price of A and B may be
(1) ₹ 1,000, ₹ 1,500
(2) ₹ 5,000 ₹ 2,000
(3) ₹ 3,000, ₹ 2,000
(4) ₹ 3,000, ₹ 5,000
(SSC Graduate Level Tier-II Exam. 29.09.2013

26. A cloth merchant sold half of his cloth at 40% profit, half of remaining at 40% loss and the rest was sold at the cost price. In the total transaction his gain or loss will be
(1) 20% gain (2) 25% loss
(3) 10% gain (4) 15% loss
(SSC Multi-Tasking (Non-Technical) Staff Exam. 22.02.2011)

27. A man sells two chairs at ₹ 120 each and by doing so gains 25% on one chair and loses 25% on the other. His loss on the whole in ₹ is
(1) 20 (2) 16
(3) 25 (4) 30
(SSC CHSL DEO & LDC Exam. 28.10.2012, Ist Sitting)

28. A man purchases two fans for ₹ 2,160. By selling one fan at a profit of 15% and the other at a loss of 9% he neither gains nor loses in the whole transaction. Find the cost price of each fan in ₹.
(1) 710,1450 (2) 1530,630
(3) 810, 1350 (4) 1340,820
(SSC CHSL DEO & LDC Exam. 04.11.2012 (IInd Sitting)

29. A shopkeeper purchased a TV for ₹ 2,000 and a radio for ₹ 750. He sells the TV at a profit of 20% and the radio at a loss of 5%. The total loss or gain is
(1) Gain ₹ 352.50
(2) Gain ₹ 362.50
(3) Loss ₹ 332
(4) Loss ₹ 300
(SSC Constable (GD) Exam. 12.05.2013 Ist Sitting)

30. Some toffees were bought at the rate of 11 for ₹ 10 and the same number at the rate of 9 for ₹ 10. If the whole lot was sold at one rupee per toffee, then the gain or loss in the whole transaction was
(1) loss of 1%
(2) gain of 1%
(3) neither gain nor loss
(4) gain of 1.5%
(SSC CGL Prelim Exam. 27.07.2008 (IInd Sitting) & SSC CHSL DEO & LDC Exam. 04.12.2011(Ist Sitting)

31. A fruit seller buys some oranges at the rate of 4 for₹ 10 and an equal number more at 5 for₹ 10. He sells the whole lot at 9 for₹ 20. What is his loss or gain per cent ?
(1) Loss per cent $1\frac{19}{81}\%$
(2) Gain percent $1\frac{19}{81}\%$
(3) No loss or no profit
(4) Loss per cent 2%
(SSC Graduate Level Tier-I Exam. 21.04.2013)

32. A shopkeeper blends two varieties of tea costing ₹ 18 and ₹ 13 per 100 gm in the ratio 7 : 3. He sells the blended variety at the rate of ₹ 18.15 per 100 gm. His percentage gain in the transaction is
(1) 10% (2) 12%
(3) 14% (4) 8%
(SSC CHSL DEO & LDC Exam. 20.10.2013)

33. Nikita bought 30 kg of wheat at the rate of ₹ 9.50 per kg and 40 kg of wheat at the rate of ₹ 8.50 per kg and mixed them. She sold the mixture at the rate of ₹ 8.90 per kg. Her total profit or loss in the transaction was :
(1) ₹ 2 loss (2) ₹ 2 profit
(3) ₹ 7 loss (4) ₹ 7 profit
(SSC CGL Prelim Exam. 13.11.2005 (First Sitting)

34. Krishna purchased a number of articles at ₹10 for each and the same number for ₹ 14 each. He mixed them together and sold them for ₹ 13 each. Then his gain or loss percent is
(1) Loss $8\frac{1}{3}\%$ (2) Gain $8\frac{2}{3}\%$
(3) Loss $8\frac{2}{3}\%$ (4) Gain $8\frac{1}{3}\%$
(SSC CGL Tier-1 Exam 26.06.2011 (First Sitting)

35. A shopkeeper bought 15kg of rice at the rate of ₹29 per kg and 25kg of rice at the rate of ₹20 per kg. He sold the mixture of both types of rice at the rate of ₹27 per kg. His profit in this transaction is
(1) ₹125 (2) ₹150
(3) ₹ 140 (4) ₹145
(SSC CHSL DEO & LDC Exam. 28.10.2012, Ist Sitting)

36. A dealer sold $\frac{3}{4}$ th of his articles at a gain of 24% and the remaining at the cost price. Percentage of gain in the whole transaction is

(1) 15% (2) 18%

(3) 24% (4) 32%

(SSC Multi-Tasking (Non-Technical) Staff Exam. 27.02.2011) & SSC MTS Exam.10.03.2013, Patna (Ist Sitting)

37. A man buys a toy for ₹ 25 and sells it for ₹ 30. His gain per cent is

(1) 20% (2) 5%

(3) 10% (4) 2.5%

(SSC CGL Tier-II Exam. 12.04.2015 TF No. 567 TL 9)

38. A man buys a table and a chair for Rs. 500. He sells the table at a loss of 10% and the chair at a gain of 10%. He still gains Rs.10 on the whole. The cost price of chair in rupees is :

(1) Rs. 200 (2) Rs. 250

(3) Rs. 300 (4) Rs. 350

(SSC CGL Tier-I (CBE) Exam. 07.09.2016 (IInd Sitting)

39. Mr. Kapur purchased two toy cycles for Rs 750 each. He sold these cycles, gaining 6% on one and losing 4% on the other. The gain or loss per cent in the whole transaction is

(1) 1% loss (2) 1% gain

(3) 1.5% loss (4) 1.5% gain

(SSC CGL Tier-II (CBE) Exam. 12.01.2017)

40. A man bought 500 metres of electronic wire at 50 paise per metre. He sold 50% of it at a profit of 5%. At what per cent should he sell the remainder so as to gain 10% on the whole transaction?

(1) 13% (2) 12.5%

(3) 15% (4) 20%

(SSC CGL Tier-II (CBE) Exam. 12.01.2017)

41. A shopkeeper sold one-third of his goods at a loss of 15%. To get a profit of 10% on the whole transaction, he should sell the remaining articles at a profit of

(1) $22\frac{1}{2}\%$ (2) $16\frac{2}{3}\%$

(3) 15% (4) 25%

(SSC Multi-Tasking Staff Exam. 30.04.2017)

TYPE–XII

1. The difference between the selling prices of an article at a profit of 15% and at a profit of 10% is ₹ 10. The cost price of the article is

(1) ₹ 100 (2) ₹ 120

(3) ₹ 150 (4) ₹ 200

(SSC CISF ASI Exam. 29.08.2010 (Paper-1)

2. The difference between the selling price and cost price of an article is ₹ 210. If the profit percent is 25, then the selling price of the article is

(1) ₹ 950 (2) ₹1,050

(3) ₹1,150 (4) ₹1,250

(SSC CPO S.I. Exam 12.12.2010 (Paper-I)

3. If the difference between the selling prices of an article at profit of 6% and 4% is ₹ 3, then the cost price of the article should be :

(1) ₹100 (2) ₹150

(3) ₹175 (4) ₹200

(SSC CHSL DEO & LDC Exam. 27.11.2010)

4. The difference between the selling prices of an article sold at 4% and 3% profits is Rs. 3. The cost price of the article is :

(1) Rs. 400 (2) Rs. 350

(3) Rs. 300 (4) Rs. 100

(SSC CGL Tier-I (CBE) Exam. 03.09.2016 (IIIrd Sitting)

5. Rahul buys a book for ₹ 400 and sells it for ₹ 500. The difference between his profit as a percentage of the buying price and then as a percentage of the selling price is

(1) 25% (2) 5%

(3) 0% (4) 20%

(SSC Multi-Tasking Staff Exam. 30.04.2017)

TYPE–XIII

1. A trader bought 10 kg of apples for ₹ 405 out of which 1 kg of apples were found to be rotten. If he wishes to make a profit of 10%, at what rate should he sell the remaining apples per kg?

(1) ₹ 45 (2) ₹ 49.50

(3) ₹ 50 (4) ₹ 51

(SSC CGL Prelim Exam. 04.07.1999 (First Sitting)

2. A reduction of 20% in the price of salt enabled a purchaser to obtain 4 kg. more for ₹ 100. The reduced price of salt per kg is :

(1) ₹ 4 (2) ₹ 5

(3) ₹ 6.25 (4) ₹ 6.50

(SSC CGL Prelim Exam. 11.05.2003)

3. If the cost of pins reduces by ₹ 4 per dozen, 12 more pins can be purchased for ₹ 48. The cost of pins per dozen after reduction is:

(1) ₹ 8 (2) ₹ 12

(3) ₹ 16 (4) ₹ 20

(SSC CPO S.I. Exam.16.12.2007) (First Sitting)

4. A tradesman sold an article at a loss of 20%. If the selling price had been increased by ₹ 100, there would have been a gain of 5%. The cost price of the article was :

(1) ₹ 200 (2) ₹ 25

(3) ₹ 400 (4) ₹ 250

(SSC CGL Prelim Exam. 08.02.2004 (First Sitting)

5. If the price of eraser is reduced by 25% a person can buy 2 more erasers for a rupee. How many erasers are available for a rupee ?

(1) 8 (2) 6

(3) 4 (4) 2

(SSC Section Officer (Commercial Audit) Exam. 25.09.2005)

6. A reduction of 15% in the price of apples would enable a purchaser to get 2 kg more apples for ₹ 240. The new price (per kg) of apples is

(1) ₹ 15 (2) ₹ 18

(3) ₹ 20 (4) ₹ 36

(SSC CPO S.I. Exam. 03.09.2006)

7. An increase of 20% in the price of mangoes enables a person to purchase 4 mangoes less for ₹ 40. The price of 15 mangoes before increase was

(1) ₹ 10 (2) ₹ 15

(3) ₹ 20 (4) ₹ 25

(SSC CPO S.I. Exam. 09.11.2008)

8. The reduction of ₹ 12 in the selling price of an article will change 5% gain into $2\frac{1}{2}\%$ loss. The cost price of the article is

(1) ₹ 140 (2) ₹ 160

(3) ₹ 80 (4) ₹ 100

(SSC Multi-Tasking Staff Exam. 17.03.2013 (Ist Sitting)

9. A tradesman marks his goods at 25 p.c. above the cost price. If he reduces the marked price by $12\frac{1}{2}$ p.c., then his profit will be

(1) $9\frac{3}{8}$ p.c. (2) $7\frac{3}{5}$ p.c.

(3) $6\frac{3}{8}$ p.c. (4) $5\frac{1}{3}$ p.c.

(SSC CHSL DEO & LDC Exam. 02.11.2014 (IInd Sitting)

10. If a man reduces the selling price of a fan from Rs. 1,250 to Rs. 1,000, his loss increases by 20%. The cost price of the fan is

(1) Rs. 2,400 (2) Rs. 2,450

(3) Rs. 2,500 (4) Rs. 2,350

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

11. A manufacturer fixes his selling price at 33% over the cost of production. If cost of production goes up by 12% and manufacturer raises his selling price by 10%, his percentage profit is

(1) $28\frac{3}{8}\%$ (2) $30\frac{5}{8}\%$

(3) $36\frac{5}{9}\%$ (4) 35%

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

12. A reduction of 20% in the price of rice enables a buyer to buy 5 kg more for rupees 1200. The reduced price per kg of rice will be:

(1) 36 (2) 45

(3) 48 (4) 60

(SSC CGL Tier-I (CBE) Exam. 02.09.2016) (IInd Sitting)

TYPE–XIV

1. A man wanted to sell an article with 20% profit; but he actually sold at 20% loss for ₹ 480. At what price he wanted to sell it to earn the profit?

(1) ₹ 720 (2) ₹ 840

(3) ₹ 600 (4) ₹ 750

(SSC CGL Prelim Exam. 04.07.1999 (First Sitting)

2. If a man estimates his loss as 20% of the selling price, then his loss per cent is :

(1) 20% (2) 25%

(3) $\frac{40}{3}\%$ (4) $\frac{50}{3}\%$

(SSC CGL Prelim Exam. 04.07.1999 (IInd Sitting) & (SSC CGL Exam. 19.06.2011)

3. If 3 toys are sold at the cost price of 4 toys of the same kind, the profit will be :

(1) 25% (2) $33\frac{1}{3}\%$

(3) $66\frac{2}{3}\%$ (4) 50%

(SSC CGL Prelim Exam. 27.02.2000 (First Sitting)

4. A house worth ₹ 1,50,000 is sold by X at a 5% profit to Y, Y sells the house back to X at a 2% loss. Then in the entire transaction?

(1) X gains ₹ 4,350

(2) X loses ₹ 4,350

(3) X gains ₹ 3,150

(4) X loses ₹ 3,150

(SSC CGL Prelim Exam. 27.02.2000 (Second Sitting)

5. A book-seller bought 200 textbooks for ₹ 12,000. He wanted to sell them at a profit so that he got 20 books free. At what profit percent should he sell them?

(1) 10% (2) 11%

(3) 11.5% (4) 12%

(SSC CGL Prelim Exam. 27.02.2000 (Second Sitting)

6. By selling a table for ₹ 350 instead of ₹ 400, loss per cent increases by 5%. The cost price of table is :

(1) ₹ 1,050 (2) ₹ 417.50

(3) ₹ 435 (4) ₹ 1,000

(SSC CGL Prelim Exam. 24.02.2002 (Second Sitting)

7. If selling price of an article is $\frac{8}{5}$ times its cost price, the profit per cent on it is :

(1) 120% (2) 160%

(3) 40% (4) 60%

(SSC CGL Prelim Exam. 24.02.2002 (Second Sitting)

8. The price of a jewel, passing through three hands, rises on the whole by 65%. If the first and the second sellers earned 20% and 25% profit respectively, the profit earned by the third seller is

(1) 20% (2) 15%

(3) 10% (4) 5%

(SSC CPO S.I. Exam. 12.01.2003

9. A merchant fixes the sale price of his goods at 15% above the cost price. He sells his goods at 12% less than the fixed price. His percentage of profit is :

(1) $2\frac{1}{2}\%$ (2) $1\frac{1}{5}\%$

(3) $1\frac{1}{2}\%$ (4) 2%

(SSC CGL Prelim Exam. 11.05.2003 (First Sitting)

10. A person sells a table at a profit of 10%. If he had bought the table at 5% less cost and sold for ₹ 80 more, he would have gained 20%. The cost price of the table is

(1) ₹ 3,200 (2) ₹ 2,500

(3) ₹ 2,000 (4) ₹ 200

(SSC CPO S.I. Exam. 07.09.2003)

11. Joseph's salary is reduced by 10%. In order to have his salary back to his original amount, it must be raised by

(1) 12.5% (2) $11\frac{1}{9}\%$

(3) 10% (4) 11%

(SSC CPO S.I. Exam. 07.09.2003) & (SSC S.O. (Commercial Audit) Exam. 16.11.2003)

12. A man bought a certain quantity of rice at the rate of ₹650 per quintal. 20% of the rice was spoiled. At what rate should he sell the remaining rice to gain 20% on the outlay?

(1) ₹775 (2) ₹850

(3) ₹890 (4) ₹975

(SSC Delhi Police S.I. (SI) Exam. 19.08.2012)

13. A person sells an article for ₹ 75 and gains as much per cent as the cost price of the article in rupees. The cost price of the article is

(1) ₹ 37.50 (2) ₹ 40

(3) ₹ 50 (4) ₹ 150

(SSC Section Officer (Commercial Audit) Exam. 16.11.2003)

14. An article is sold at a profit of 20%. If it had been sold at a profit of 25%, it would have fetched ₹ 35 more. The cost price of the article is :
(1) ₹ 650 (2) ₹ 700
(3) ₹ 750 (4) ₹ 800
(SSC CGL Prelim Exam. 08.02.2004 (First Sitting)

15. A man gains 20% by selling an article for a certain price. If he sells it at double the price, the percentage of profit will be :
(1) 40% (2) 140%
(3) 100% (4) 120%
(SSC CGL Prelim Exam. 08.02.2004 (Second Sitting)

16. A dealer makes a profit of 20% even after giving a 10% discount on the advertised price of a scooter. If he makes a profit of ₹ 7500 on the sale of the scooter, the advertised price was
(1) ₹ 45000 (2) ₹ 47500
(3) ₹ 50000 (4) ₹ 52500
(SSC CPO S.I. Exam. 05.09.2004)

17. A man gets ₹ 13 more by selling an article at a profit of $12\frac{1}{2}\%$ and than selling it at a loss of $12\frac{1}{2}\%$. The cost price of the article is :
(1) ₹ 25.50 (2) ₹ 38
(3) ₹ 52 (4) ₹ 65
(SSC CPO S.I. Exam. 26.05.2005)

18. By selling a table for ₹ 350 instead of ₹ 400, loss per cent increases by 5%. The cost price of the table is :
(1) ₹ 1050 (2) ₹ 417.50
(3) ₹ 435 (4) ₹ 1000
(SSC CGL Prelim Exam. 13.11.2005 (First Sitting)

19. The percentage of loss when an article is sold at ₹ 50 is the same as that of the profit when it is sold at ₹ 70. The above-mentioned percentage of profit or loss on the article is
(1) 10% (2) $16\frac{2}{3}\%$
(3) 20% (4) $22\frac{2}{3}\%$
(SSC CGL Prelim Exam. 13.11.2005 (Second Sitting)

20. If an article is sold at a gain of 5% instead of being sold at a loss of 5%, one gets ₹ 5 more. What is the cost price of the article ?
(1) ₹ 100 (2) ₹ 105
(3) ₹ 50 (4) ₹ 110
(SSC CGL Prelim Exam. 13.11.2005 (Second Sitting)

21. Raghavan purchased a scooter at $\frac{13}{15}$ of its selling price and sold it at 12% more than its selling price. His gain is.
(1) 20% (2) 30%
(3) $38\frac{1}{13}\%$ (4) $29\frac{3}{13}\%$
(SSC CGL Prelim Exam. 13.11.2005 (Second Sitting)

22. An article passing through two hands is sold at a profit of 38% at the original cost price. If the first dealer makes a profit of 20%, then the profit per cent made by the second is
(1) 15% (2) 12%
(3) 10% (4) 5%
(SSC CPO S.I. Exam. 03.09.2006)

23. If a manufacturer gains 10 per cent, wholesaler 15 per cent and retailer 25 per cent, then the production cost of an article, whose retail price is ₹ 1,265, is
(1) ₹ 700 (2) ₹ 750
(3) ₹ 800 (4) ₹ 900
(SSC Section Officer (Commercial Audit) Exam. 26.11.2006 (Second Sitting)

24. A tradesman, by means of a false balance defrauds 10 per cent in buying goods and also defrauds 10 per cent in selling. His gain percent is
(1) 10% (2) 11%
(3) 21% (4) 100%
(SSC Section Officer (Commercial Audit) Exam. 26.11.2006 (Second Sitting)

25. By selling 100 pencils, a shopkeeper gains the selling price of 20 pencils. His gain per cent is
(1) 25% (2) 20%
(3) 15% (4) 12%
(SSC CGL Prelim Exam. 04.02.2007 (First Sitting)

26. A dealer sold $\frac{3}{4}$ of his articles at a gain of 20% and the remaining at cost price. The gain per cent earned by him in the whole transaction is
(1) 13% (2) 14%
(3) 15% (4) 16%
(SSC Section Officer (Commercial Audit) Exam. 30.09.2007 (Second Sitting)

27. An increase of ₹ 3 in the selling price of an article turns a loss of $7\frac{1}{2}\%$ into a gain of $7\frac{1}{2}\%$. The cost price (in ₹) of the article is:
(1) 25 (2) 20
(3) 15 (4) 10
(SSC CPO S.I. Exam. 16.12.2007)

28. One trader calculates the percentage of profit on the buying price and another calculates on the selling price. When their selling prices are the same, then the difference of their actual profits is ₹ 85 and both claim to have made 20% profit. What is the selling price of each ?
(1) ₹ 1700 (2) ₹ 2100
(3) ₹ 2550 (4) ₹ 2750
(SSC CGL Prelim Exam. 27.07.2008 (First Sitting)

29. A sells a article to B at a profit of 10% B sells the article back to A at a loss of 10%. In this transaction
(1) A neither loses nor gains
(2) A makes a profit of 11%
(3) A makes a profit of 20%
(4) B loses 20%
(SSC CGL Prelim Exam. 27.07.2008 (First Sitting)

30. If the selling price of an article is doubled, then its loss per cent is converted into equal profit per cent. The loss per cent on the article is
(1) $26\frac{2}{3}\%$ (2) 33%
(3) $33\frac{1}{3}\%$ (4) 34%
(SSC CGL Prelim Exam. 27.07.2008 (First Sitting)

31. A man sold some articles at a gain of 10%. He spent his total sale proceeds to purchase such articles again. This time, while selling them, he incurred a loss of 10%. His loss or gain in the transaction was
(1) 1% loss
(2) 1% gain
(3) no profit no loss
(4) 2% loss
(SSC CGL Prelim Exam. 27.07.2008 (Second Sitting)

32. A merchant finds his profit as 20% of the selling price. His actual profit percent is
(1) 20% (2) 22%
(3) 25% (4) 30%
(SSC CGL Prelim Exam. 27.07.2008 (Second Sitting)

33. A person sold a TV for ₹ 9,400 and he lost a particular amount. When he sold another TV of the same type at ₹ 10,600, his gain was double the former loss. What was the cost price of each TV ?
(1) ₹ 9,800 (2) ₹ 10,000
(3) ₹ 10,200 (4) ₹ 10,400
(SSC CPO S.I. Exam. 06.09.2009)

34. By selling a bicycle for ₹ 2,850, a shopkeeper gains 14%. If the profit is reduced to 8%, then the selling price will be
(1) ₹ 2,600 (2) ₹ 2,700
(3) ₹ 2,800 (4) ₹ 3,000
(SSC CGL Tier-I Exam. 16.05.2010 (First Sitting)

35. If the percentage of profit calculated on selling price of an article is 20%, percentage of profit calculated on cost price will be
(1) 16% (2) 24%
(3) 25% (4) 28%
(SSC (South Zone) Investigator Exam 12.09.2010)

36. If selling price of an article is reduced by 60%, then there is a loss of 10% on cost price. The initial profit percent was
(1) 70% (2) 80%
(3) 100% (4) 125%
(SSC CPO S.I. Exam 12.12.2010 (Paper-I)

37. X sells two articles for ₹ 4,000 each with no loss and no gain in the transaction. If one was sold at a gain of 25% the other is sold at a loss of
(1) 25% (2) $18\frac{2}{9}\%$
(3) 20% (4) $16\frac{2}{3}\%$
(SSC CGL Tier-1 Exam 19.06.2011 (Second Sitting)

38. A dishonest shopkeeper, using a faulty balance makes a profit of 5% while buying as well as while selling his goods. His actual gain percent in the whole process amounts to
(1) 11% (2) 10%
(3) 10.25% (4) 10.5%
(SSC Delhi Police S.I. (SI) Exam. 19.08.2012)

39. A man sells two articles for ₹ 5000 each neither losing nor gaining in the deal. If he sold one of them at a gain of 25%, the other article is sold at a loss of
(1) $I5\frac{2}{3}\%$ (2) $16\frac{2}{3}\%$
(3) $17\frac{1}{3}\%$ (4) $18\frac{1}{3}\%$
(SSC CGL Tier-1 Exam 26.06.2011 (Second Sitting)

40. By selling 60 articles a vendor gains the selling price of 15 articles. Find his gain percentage.
(1) 25 % (2) $33\frac{1}{3}\%$
(3) 20% (4) $28\frac{4}{7}\%$
(SSC CPO (SI, ASI & Intelligence Officer) Exam 28.08.2011 (Paper-I)

41. If the total cost of 73 articles having equal cost is ₹ 5,110 and the total selling price of 89 such articles is ₹ 5,607, then in the transaction, there will be
(1) a loss of 15%
(2) a gain of 10%
(3) a loss of 10%
(4) a gain of 15%
(SSC Data Entry Operator Exam. 31.08.2008)

42. The percentage of profit, when an article is sold for ₹ 78, is twice than when it is sold for ₹ 69. The cost price of the article is :
(1) ₹ 49 (2) ₹ 51
(3) ₹ 57 (4) ₹ 60
(SSC CHSL DEO & LDC Exam. 28.11.2010 (Ist Sitting)

43. A cloth merchant sold half of his cloth at 40% profit, half of remaining at 40% loss and the rest was sold at the cost price. In the total transaction his gain or loss will be
(1) 20% gain (2) 25% loss
(3) 10% gain (4) 15% loss
(SSC Multi-Tasking (Non-Technical) Staff Exam. 20.02.2011)

44. A person sold an article at 20% profit on the selling price. Afterwards, when the cost price reduced by 10%, then he also reduced the selling price by 10%. His percentage of profit on cost price will be
(1) 30% (2) 25%
(3) 22.5% (4) 12.5%
(SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (Delhi Zone)

45. A fruit seller makes a profit of 20% by selling mangoes at a certain price. If he charges ₹ 1 more for each mango, he can make a profit of 40%. Find the selling price of a mango in the first case.
(1) ₹ 6 (2) ₹ 5
(3) ₹ 5.50 (4) ₹ 7
(SSC CHSL DEO & LDC Exam. 11.12.2011 (IInd Sitting (East Zone)

46. Dinesh bought two radios for ₹ 1,920. He sold one at a profit of 20% and the other at a loss of $6\frac{2}{3}\%$. If the selling price of both radios are same, the cost prices of the two radios are
(1) ₹ 800 and ₹1,120
(2) ₹ 840 and ₹1,080
(3) ₹ 860 and ₹1,060
(4) ₹ 900 and ₹1,020
(SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (IInd Sitting)

47. Peter buys a table for ₹450 and spends ₹30 on its transportation. If he sells the table for ₹600 his gain percent will be
(1) 30% (2) 25%
(3) 28% (4) 24%
(SSC Constable (GD) & Rifleman (GD) Exam. 22.04.2012 (IInd Sitting)

48. A loss of 19% gets converted into a profit of 17% when the selling price is increased by ₹ 162. The cost price of the article is
(1) ₹ 450 (2) ₹ 600
(3)₹ 360 (4) ₹ 540
(SSC Graduate Level Tier-II Exam. 16.09.2012) & (SSC MTS Exam. 17.03.2013 (Kolkata

49. A trader purchases a watch and a wall clock for ₹ 390. He sells them making a profit of 10% on the watch and 15% on the wall clock. He earns a profit of ₹ 51.50. The difference between the original prices of the wall clock and the watch is equal to

(1) ₹ 80 (2) ₹ 120

(3) ₹ 110 (4) ₹100

(SSC CHSL DEO & LDC Exam. 21.10.2012 (Ist Sitting)

50. A merchant fixed the selling price of his articles at ₹700 after adding 40% profit to the cost price. As the sale was very low at this price level, he decided to fix the selling price at 10% profit. Find the new selling price.

(1) ₹ 500 (2) ₹ 550

(3) ₹ 450 (4) ₹ 490

(SSC CHSL DEO & LDC Exam. 21.10.2012 (Ist Sitting)

51. From 2008 to 2009, the sales of a book decreased by 80%. If the sales in 2010 were the same as in 2008, by what percent did it increase from 2009 to 2010 ?

(1) 120% (2) 400%

(3) 80% (4) 100%

(SSC CHSL DEO & LDC Exam. 21.10.2012 (Ist Sitting)

52. A dishonest fruit vendor sells his goods at cost price but he uses a weight of 900 gm for a kg. weight. His gain per cent is:

(1) 12% (2) $11\frac{1}{9}$ %

(3) $10\frac{1}{9}$% (4) 10%

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting)

53. A shopkeeper bought 200 articles, each costing the same. He sold 30% of the articles at 20% profit and remaining at 10% profit. If the total profit made by him is ₹ 2600, find the cost price of one article.

(1) ₹ 200 (2) ₹ 1300

(3) ₹ 2600 (4) ₹ 100

(SSC CHSL DEO & LDC Exam. 21.10.2012 (IInd Sitting)

54. A bought an article, paying 5% less than the original price. A sold it with 20% profit on the price he had paid. What percent of profit did A earn on the original price?

(1) 10% (2) 13%

(3) 14% (4) $\frac{17}{2}$ %

(SSC CHSL DEO & LDC Exam. 04.11.2012, Ist Sitting)

55. A dishonest grocer sells rice at a profit of 10% and also uses weights which are 20% less than the marked weight. The total gain earned by him will be

(1) 37.5% (2) 40%

(3) 30.5% (4) 35%

(SSC Multi-Tasking Staff Exam. 17.03.2013, IInd Sitting)

56. A trader sells two bullocks for ₹ 8,400 each, neither losing nor gaining in total. If he sold one of the bullocks at a gain of 20%, the other is sold at a loss of

(1) 20% (2) $18\frac{2}{9}$%

(3) $14\frac{2}{7}$% (4) 21%

(SSC Multi-Tasking Staff Exam. 24.03.2013, Ist Sitting)

57. Arun marks up the computer he is selling by 20% profit and sells them at a discount of 15%. Arun's net gain percent is

(1) 4% (2) 2%

(3) 3.5% (4) 2.5%

(SSC FCI Assistant Grade-III Main Exam. 07.04.2013)

58. A man buys 3 cows and 8 goats in ₹ 47,200. Instead if he would have bought 8 cows and 3 goats, he had to pay ₹ 53,000 more. Cost of one cow is:

(1) ₹ 11,000 (2) ₹ 12,000

(3) ₹ 13,000 (4) ₹ 10,000

(SSC Graduate Level Tier-I Exam. 21.04.2013, Ist Sitting)

59. A retailer purchased radiosets at the rate of ₹ 400 each from a wholesaler. He raised the price by 30% and then allowed a discount of 8% on each set. His profit will be

(1) 19% (2) 78.4%

(3) 22% (4) 19.6%

(SSC Graduate Level Tier-I Exam. 21.04.2013)

60. A dishonest dealer professes to sell his goods at the cost price but uses a false weight of 850 g instead of 1 kg. His gain percent is

(1) $17\frac{12}{17}$% (2) $17\frac{11}{17}$%

(3) $71\frac{11}{17}$% (4) $11\frac{11}{17}$ %

(SSC Graduate Level Tier-I Exam. 19.05.2013 Ist Sitting)

61. A tradesman sold an article at a loss of 20%. If the selling price had been increased by ₹ 100, there would have been a gain of 5%. The cost price of the article (in ₹) was

(1) 100 (2) 200

(3) 400 (4) 500

(SSC Graduate Level Tier-I Exam. 19.05.2013)

62. By selling 25 metres of cloth a trader gains the selling price of 5 metres of cloth. The gain percent of the trader in % is

(1) 25% (2) 20%

(3) 28% (4) 29%

(SSC Graduate Level Tier-II Exam. 29.09.2013)

63. Gita buys a plot of land for ₹ 96,000. She sells $\frac{2}{5}$ of it at a loss of 6%. She wants to make a profit of 10% on the whole transaction by selling the remaining land. The gain % on the remaining land is

(1) 20% (2) $20\frac{2}{3}$%

(3) 14% (4) 7%

(SSC Graduate Level Tier-II Exam. 29.09.2013)

64. The cost of a house was ₹ X lakhs in 2005. After 3 years, the owner of the house sold it for 25% more than she paid it. But she has to pay a tax of 50% of the gain. The tax amount she has to pay is.

(1) $\frac{X}{2}$ (2) $\frac{X}{8}$

(3) $\frac{X}{4}$ (4) $\frac{X}{24}$

(SSC CGL Tier-I Re-Exam. (2013) 27.04.2014)

65. A milkman mixes water with milk and sells the mixture at the cost price of pure milk. The volume of water in litres to be mixed with each litre of milk to get a 25% profit is

(1) $\frac{1}{4}$ (2) $\frac{1}{5}$

(3) $1\frac{1}{4}$

(4) cannot be calculated without knowing the cost price of milk

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam. 22.06.2014)

66. A merchant bought 200 eggs, out of which 38 eggs were broken. He sold the remaining eggs at the rate of Rs. 4.80 per dozen and thus gained 8%. His total investment is

(1) Rs. 80 (2) Rs. 60

(3) Rs. 45 (4) Rs. 120

(SSC CGL Tier-II Exam, 2014 12.04.2015 (Kolkata Region) TF No. 789 TH 7)

67. A trader marks his goods 20% above cost price but allows his customers a discount of 10%, the cost price of a blackboard, which is sold for Rs. 216, is

(1) Rs. 196 (2) Rs. 180

(3) Rs. 200 (4) Rs. 108

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015 (Ist Sitting) TF No. 8037731)

68. A fruit seller buys 240 apples for Rs. 600. Some of these apples are bad and are thrown away. He sells the remaining apples at Rs. 3.50 each and makes a profit of Rs.198. The per cent of apples thrown away are

(1) 6% (2) 8%

(3) 5% (4) 7%

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015 (Ist Sitting) TF No. 8037731)

69. Rohit sold his car at 10% below the cost price to Amit. Amit got the car repaired and spent Rs. 5,000. He then sold the car to Rajesh at 20% above the total cost, which is equal to Rs. 1,00,000. Find the original price of the car (nearest to hundred).

(1) Rs. 93,000 (2) Rs. 83,000

(3) Rs. 87,000 (4) Rs. 97,000

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015 IInd Sitting)

70. If the cost price of an item is $\frac{5}{9}$ of its marked price and the profit is 20%, then the percentage of discount is

(1) $70\frac{1}{3}\%$ (2) $63\frac{1}{3}\%$

(3) $33\frac{1}{3}\%$ (4) $66\frac{1}{3}\%$

(SSC CAPFs SI, CISF ASI & Delhi Police SI Exam, 21.06.2015 IInd Sitting)

71. A shopkeeper bought 30 kg of rice at the rate of Rs. 70 per kg and 20 kg of rice at the rate of Rs. 70.75 per kg. If he mixed the two brands of rice and sold the mixture at Rs. 80.50 per kg, his gain is

(1) Rs. 450 (2) Rs. 510

(3) Rs. 525 (4) Rs. 485

(SSC CGL Tier-I Exam, 09.08.2015 (Ist Sitting) TF No. 1443088)

72. The printed price of an article is 40% higher than its cost price. Then the rate of discount such that he gains 12% profit is

(1) 21% (2) 15%

(3) 20% (4) 18%

(SSC CGL Tier-I Exam, 09.08.2015 (IInd Sitting) TF No. 4239378)

73. An article which is marked at Rs. 975 is sold for Rs. 897. The discount per cent is

(1) 10% (2) 12%

(3) 6% (4) 8%

(SSC CGL Tier-I Exam, 16.08.2015 (Ist Sitting) TF No. 3196279)

74. A dealer marks his goods 20% above cost price and allows a discount of 10% to his customers. His gain percentage is

(1) 6% (2) 9%

(3) 7% (4) 8%

(SSC Constable (GD) Exam, 04.10.2015, Ist Sitting)

75. A house worth Rs. 1,50,000 is sold by X to Y at 5% profit. Y sells the house back to X at 2% loss. Then in the entire transaction :

(1) X gains Rs. 3150

(2) X loses Rs. 4350

(3) X loses Rs. 1350

(4) X gains Rs. 4350

(SSC Constable (GD) Exam, 04.10.2015, IInd Sitting)

76. A man sells an article at 5% above its cost price. If he had bought it at 5% less than what he had paid for it and sold it at Rs. 2 less, he would have gained 10%. The cost price of the article is

(1) Rs. 200 (2) Rs. 400

(3) Rs. 300 (4) Rs. 100

(SSC CGL Tier-II Exam, 25.10.2015, TF No. 1099685)

77. Simon purchased a bicycle for Rs. 6810. He had paid a VAT of 13.5%. The list price of the bicycle was

(1) Rs. 6000 (2) Rs. 6140

(3) Rs. 6696.50 (4) Rs. 5970.50

(SSC CHSL (10+2) LDC, DEO & PA/SA Exam, 01.11.2015, IInd Sitting)

78. A shopkeeper has 11 books of same cost price. He sells the first book at a certain price, then he sells second book at a price which is Rs. 1 less than the selling price of first book and then he sells third book at a price which is Rs. 1 less than the selling price of second book. Following this pattern, he sold all 11 books. If he sells sixth book at its cost price. Find the overall percent profit or loss on selling all 11 books.

(1) 20% (2) 10%

(3) $9\frac{1}{11}$

(4) No profit No loss

(SSC CPO SI, ASI Online Exam.05.06.2016) (IInd Sitting)

79. If a commission at the rate of 10% is given to a bookseller on the marked price of a book by the publisher, the publisher gains 20%. If the commission is increased to 15%, then the gain percent would be:

(1) $16\frac{2}{3}\%$ (2) $13\frac{1}{3}\%$

(3) $15\frac{5}{6}\%$ (4) $12\frac{1}{2}\%$

(SSC CPO SI, ASI Online Exam.05.06.2016) (IInd Sitting)

80. By selling an umbrella for Rs. 30, a shop-keeper gains 20%. During a clearance sale, the shop-keeper allows a discount of 10%. Find his gain percent during the sale season.

(1) 8 (2) 7

(3) 9 (4) $7\frac{1}{2}$

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 20.03.2016) (IInd Sitting)

81. A vegetable seller sells his vegetables at 20% profit. At the same time he uses false weights, which is 10% less than the actual weight. What will be his total gain percentage?

(1) 25% (2) 30%

(3) 33.33% (4) $18\frac{7}{9}\%$

(SSC CAPFs (CPO) SI & ASI, Delhi Police Exam. 05.06.2016) (Ist Sitting)

82. Rama mixes 20% of kerosene to his petrol and then he sells the whole mixture at the price of petrol. If the cost price of the kerosense is 40% of the CP of petrol. What is the net profit% ?

(1) 11.11% (2) 11.5%

(3) 12.5% (4) 9.5%

(SSC CPO SI & ASI, Online Exam. 06.06.2016) (IInd Sitting)

83. Gopi goes from place A to B to buy an article costing 15% less at B, although he spends Rs. 150 on travelling, still he gains Rs. 150 compared to buying it at A. His profit percent is :

(1) 4.5 (2) 6

(3) 7.5 (4) 8

(SSC CGL Tier-I (CBE) Exam. 30.08.2016) (Ist Sitting)

84. A dishonest dealer professes to sell his goods at cost price but uses a weight of 875 gms for the kilogram weight. His gain in percentage is a

(1) 17% (2) $14\frac{5}{7}\%$

(3) $14\frac{2}{7}\%$ (4) 14%

(SSC CGL Tier-I (CBE) Exam. 07.09.2016) (Ist Sitting)

85. A shopkeeper purchased 510 eggs at the rate of Rs. 20 per dozen. 30 eggs were broken on the way. In order to make a gain of 20%, he must sell the remaining eggs at the rate of

(1) Rs. 22.50 per dozen

(2) Rs. 25.50 per dozen

(3) Rs. 26 per dozen

(4) Rs. 26.50 per dozen

(SSC CGL Tier-II (CBE) Exam. 30.11.2016)

86. A sells a watch to B and makes a loss of 12%. B makes a profit of $12\frac{1}{2}\%$ by selling the watch to C. If A sells the watch to B at the cost of which C purchased it, then the percentage of loss or profit of A will be

(1) 1% loss (2) 1% profit

(3) 2% loss (4) 2% profit

(SSC CGL Tier-II (CBE) Exam. 30.11.2016)

87. A man buys 3 type-I cakes and 6 type-II cakes for Rs. 900. He sells type-I cakes at a profit of 15% and type-II cakes at a loss of 10%. If his overall profit is Rs.30, the cost price (in Rs.) of a type-I and of a type-II cakes is

(1) 100, 100 (2) 160, 70

(3) 180, 60 (4) 120, 90

(SSC CGL Tier-II (CBE) Exam. 30.11.2016)

88. A merchant buys 25 litres of milk daily at the rate of Rs. 12 per litre. He mixes 5 litres of water in it and sells at the rate Rs. 10.40 per litre. His gain is :

(1) 8% profit (2) 2% profit

(3) 4% profit (4) 6% profit

(SSC CGL Tier-I (CBE) Exam. 09.09.2016 (IIIrd Sitting)

89. A trader had 22 quintals of wheat. He sold a part of it at 23% profit and the rest at 33% profit, so that he made a total profit of 27%. How much wheat did he sell at 33% profit?

(1) 1320 kg. (2) 440 kg.

(3) 880 kg. (4) 1760 kg.

(SSC CHSL (10+2) Tier-I (CBE) Exam. 15.01.2017) (IInd Sitting)

35. A shopkeeper buys a product of Rs. 150 per kg. 15% of product was damaged. At what price (per kg.) should he sell the remaining so as to earn a profit of 20%?

(1) Rs. $208\frac{15}{17}$ (2) Rs. $207\frac{13}{17}$

(3) Rs. $205\frac{5}{17}$ (4) Rs. $211\frac{13}{17}$

(SSC CGL Tier-II (CBE) Exam. 12.01.2017)

SHORT ANSWERS

TYPE-I

1. (2)	**2.** (4)	**3.** (4)	**4.** (4)
5. (1)	**6.** (4)	**7.** (2)	**8.** (4)
9. (3)	**10.** (3)	**11.** (4)	**12.** (2)
13. (4)	**14.** (1)	**15.** (3)	**16.** (3)
17. (1)	**18.** (3)	**19.** (3)	**20.** (1)
21. (4)	**22.** (4)	**23.** (2)	**24.** (2)
25. (1)	**26.** (4)	**27.** (1)	**28.** (1)
29. (1)	**30.** (2)	**31.** (4)	**32.** (3)
33. (1)	**34.** (1)	**35.** (3)	**36.** (2)
37. (4)	**38.** (4)	**39.** (2)	**40.** (3)
41. (4)	**42.** (3)	**43.** (4)	**44.** (1)
45. (1)	**46.** (1)	**47.** (3)	**48.** (2)
49. (1)	**50.** (1)	**51.** (3)	

TYPE-II

1. (1)	**2.** (3)	**3.** (4)	**4.** (3)
5. (2)	**6.** (3)	**7.** (4)	**8.** (2)
9. (1)	**10.** (3)	**11.** (4)	**12.** (3)
13. (2)	**14.** (2)	**15.** (1)	**16.** (4)
17. (2)	**18.** (3)	**19.** (1)	**20.** (1)
21. (4)	**22.** (2)	**23.** (4)	**24.** (3)
25. (3)	**26.** (3)	**27.** (4)	**28.** (2)
29. (2)	**30.** (3)	**31.** (3)	**32.** (2)
33. (2)	**34.** (1)	**35.** (1)	**36.** (3)
37. (1)	**38.** (1)	**39.** (3)	**40.** (4)
41. (4)	**42.** (4)	**43.** (1)	**44.** (3)
45. (1)	**46.** (4)	**47.** (1)	**48.** (1)
49. (4)	**50.** (1)	**51.** (2)	**52.** (2)
53. (3)	**54.** (2)	**55.** (1)	**56.** (2)
57. (3)			

TYPE-III

1. (4)	**2.** (2)	**3.** (1)	**4.** (3)
5. (1)	**6.** (4)	**7.** (3)	**8.** (4)
9. (4)	**10.** (4)	**11.** (3)	**12.** (2)
13. (2)	**14.** (3)	**15.** (4)	**16.** (3)
17. (2)	**18.** (2)	**19.** (1)	**20.** (3)
21. (3)	**22.** (2)	**23.** (3)	**24.** (3)

25. (3)	**26.** (1)	**27.** (4)	**28.** (1)
29. (1)	**30.** (3)	**31.** (3)	**32.** (4)
33. (4)	**34.** (2)	**35.** (2)	**36.** (1)
37. (1)	**38.** (4)	**39.** (4)	**40.** (2)
41. (3)	**42.** (2)	**43.** (4)	**44.** (2)
45. (4)	**46.** (2)	**47.** (1)	**48.** (3)
49. (1)	**50.** (2)	**51.** (1)	**52.** (4)
53. (2)	**54.** (2)	**55.** (4)	**56.** (3)
57. (3)	**58.** (2)	**59.** (3)	

TYPE-IV

1. (1)	**2.** (1)	**3.** (2)	**4.** (1)
5. (3)	**6.** (3)	**7.** (4)	**8.** (3)
9. (4)	**10.** (3)	**11.** (3)	**12.** (1)
13. (1)	**14.** (3)	**15.** (2)	**16.** (1)
17. (4)	**18.** (4)	**19.** (4)	**20.** (1)
21. (2)	**22.** (4)	**23.** (2)	**24.** (1)
25. (3)	**26.** (2)	**27.** (4)	**28.** (1)
29. (1)	**30.** (2)	**31.** (4)	**32.** (3)
33. (3)	**34.** (4)	**35.** (1)	**36.** (2)
37. (1)	**38.** (4)	**39.** (3)	**40.** (3)
41. (2)	**42.** (2)	**43.** (1)	**44.** (1)
45. (4)	**46.** (2)	**47.** (2)	**48.** (3)
49. (1)	**50.** (3)	**51.** (3)	**52.** (2)
53. (2)	**54.** (2)	**55.** (2)	**56.** (2)
57. (4)			

TYPE-V

1. (4)	**2.** (1)	**3.** (3)	**4.** (1)
5. (2)	**6.** (2)		

TYPE-VI

1. (4)	**2.** (3)	**3.** (4)	**4.** (4)
5. (3)	**6.** (1)	**7.** (2)	**8.** (2)
9. (4)	**10.** (3)	**11.** (1)	**12.** (1)
13. (2)	**14.** (4)	**15.** (4)	**16.** (3)
17. (1)	**18.** (1)	**19.** (4)	**20.** (4)
21. (4)	**22.** (4)	**23.** (3)	**24.** (1)
25. (1)	**26.** (3)	**27.** (4)	**28.** (3)
29. (1)	**30.** (2)		

TYPE-VII

1. (3)	**2.** (3)	**3.** (2)	**4.** (2)
5. (1)	**6.** (4)	**7.** (3)	**8.** (4)
9. (2)	**10.** (4)	**11.** (1)	**12.** (1)
13. (1)	**14.** (1)	**15.** (4)	**16.** (4)
17. (1)	**18.** (4)	**19.** (3)	**20.** (3)
21. (3)	**22.** (3)	**23.** (4)	**24.** (2)
25. (*)	**26.** (2)	**27.** (1)	

TYPE-VIII

1. (3)	**2.** (2)	**3.** (1)	**4.** (4)
5. (1)	**6.** (2)	**7.** (3)	**8.** (3)
9. (2)	**10.** (4)	**11.** (3)	**12.** (1)
13. (2)	**14.** (2)	**15.** (3)	**16.** (2)

TYPE-IX

1. (1)	**2.** (2)	**3.** (3)	**4.** (1)
5. (3)	**6.** (4)	**7.** (3)	**8.** (3)
9. (3)	**10.** (4)	**11.** (2)	**12.** (2)
13. (1)	**14.** (3)	**15.** (3)	**16.** (3)
17. (1)	**18.** (2)	**19.** (3)	**20.** (1)
21. (4)	**22.** (2)	**23.** (1)	**24.** (4)
25. (2)	**26.** (4)	**27.** (3)	**28.** (4)
29. (4)	**30.** (1)	**31.** (1)	**32.** (1)
33. (3)	**34.** (1)	**35.** (3)	**36.** (3)

TYPE-X

1. (4)	**2.** (1)	**3.** (3)	**4.** (3)
5. (2)	**6.** (1)	**7.** (1)	**8.** (3)
9. (3)	**10.** (4)	**11.** (4)	**12.** (4)
13. (3)	**14.** (3)		

TYPE-XI

1. (3)	**2.** (4)	**3.** (1)	**4.** (3)
5. (2)	**6.** (2)	**7.** (4)	**8.** (2)
9. (4)	**10.** (1)	**11.** (4)	**12.** (4)
13. (4)	**14.** (1)	**15.** (1)	**16**. (3)
17. (1)	**18.** (3)	**19.** (2)	**20.** (3)
21. (4)	**22.** (2)	**23.** (1)	**24.** (3)
25. (3)	**26.** (3)	**27.** (2)	**28.** (3)
29. (2)	**30.** (1)	**31**. (1)	**32.** (1)
33. (1)	**34.** (4)	**35.** (4)	**36.** (2)
37. (1)	**38.** (3)	**39.** (2)	**40.** (3)
41. (1)			

TYPE-XII

1. (4)	**2.** (2)	**3.** (2)	**4.** (3)
5. (2)			

TYPE-XIII

1. (2)	**2.** (2)	**3.** (2)	**4.** (3)
5. (1)	**6.** (2)	**7.** (4)	**8.** (2)
9. (1)	**10.** (3)	**11.** (2)	**12.** (3)

TYPE-XIV

1. (1)	**2.** (4)	**3.** (2)	**4.** (3)
5. (1)	**6.** (4)	**7.** (4)	**8.** (3)
9. (2)	**10.** (3)	**11.** (2)	**12.** (4)
13. (3)	**14.** (2)	**15.** (2)	**16.** (3)
17. (3)	**18.** (4)	**19.** (2)	**20.** (3)
21. (4)	**22.** (1)	**23.** (3)	**24.** (3)
25. (1)	**26.** (3)	**27.** (2)	**28.** (3)
29. (2)	**30.** (3)	**31**. (1)	**32.** (3)
33. (1)	**34.** (2)	**35.** (3)	**36.** (4)
37. (4)	**38.** (3)	**39.** (2)	**40.** (2)
41. (3)	**42.** (4)	**43.** (3)	**44.** (2)
45. (1)	**46.** (2)	**47.** (2)	**48.** (1)
49. (3)	**50.** (2)	**51.** (2)	**52.** (2)
53. (4)	**54.** (3)	**55.** (1)	**56.** (3)
57. (2)	**58.** (2)	**59.** (4)	**60.** (2)
61. (3)	**62.** (1)	**63.** (2)	**64.** (2)
65. (2)	**66.** (2)	**67.** (3)	**68.** (3)
69. (3)	**70.** (3)	**71.** (2)	**72.** (3)
73. (4)	**74.** (4)	**75.** (1)	**76.** (2)
77. (1)	**78.** (4)	**79.** (2)	**80.** (1)
81. (3)	**82.** (1)	**83.** (3)	**84.** (3)
85. (2)	**86.** (1)	**87.** (2)	**88.** (3)
89. (3)	**90.** (4)		

EXPLANATIONS

TYPE-I

1. (2) Using Rule 3,
Selling price

$$= 1400 \times \frac{100-15}{100}$$

$$= 1400 \times \frac{85}{100} = ₹\ 1190$$

2. (4) Let the C.P. of article be 'x'
$\because$ (100 – 7)% x = 651

$$\because x = \frac{651}{93} \times 100 = ₹\ 700$$

Aliter : Using Rule 3,

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

$$= 651\left(\frac{100}{100-7}\right)$$

$$= \frac{651 \times 100}{93}$$

C.P. = Rs. 700

3. (4) CP of 75 litres of mixture of milk and water = ₹ 630
SP of 75 litres of mixture of milk and water = 9 × 75 = ₹ 675
Gain = 675 – 630 = ₹ 45

$$\text{Gain per cent} = \frac{45}{630} \times 100$$

$$= \frac{50}{7} = 7\frac{1}{7}\%$$

4. (4) Using Rule 1,
Case I : Percentage Profit

$$= \frac{17 \times 100}{36} \approx 47\%$$

Case II : Percentage Profit

$$= \frac{24 \times 100}{50} = 48\%$$

Case III : Percentage Profit

$$= \frac{19 \times 100}{40} = 47.5\%$$

Case IV : Percentage Profit

$$= \frac{29 \times 100}{60} = 48.3\%$$

Obviously, (4) is the best transaction.

5. (1) Using Rule 1,
Total cost of typewriter
= ₹ (1200 + 200) = ₹ 1400
S.P. = ₹ 1680
Profit = ₹ (1680 – 1400)
= ₹ 280

$$\therefore \text{Profit}\% = \frac{280}{1400} \times 100 = 20\%$$

6. (4) If the cost price be ₹ x, then

$$\text{S.P.} = \frac{100}{95}x = ₹\ \frac{20}{19}x$$

$$\therefore \text{Gain} = \frac{20x}{19} - x = ₹\ \frac{x}{19}$$

$$\therefore \text{Gain percent} = \frac{\frac{x}{19}}{x} \times 100$$

= 5.26%

Aliter : Using Rule 3,

$$\text{Here C.P.} = \frac{95}{100}\ \text{S.P.}$$

$$\text{C.P.} = \text{S.P.}\left(\frac{100}{100+\text{Profit}\%}\right)$$

$$\frac{95}{100}\ \text{S.P.}$$

$$= \text{S.P.}\left(\frac{100}{100+\text{Profit}\%}\right)$$

9500 + 95 profit% = 10000

$$\text{Profit}\% = \frac{500}{95}$$

Profit % = 5.26%

7. (2) $\text{S.P.} - \text{C.P.} = \frac{10\,\text{S.P.}}{100} = \frac{\text{S.P.}}{10}$

$$\Rightarrow \text{S.P.} - \frac{\text{S.P.}}{100} = \text{C.P.} = 27$$

$$\Rightarrow \text{S.P.} = \frac{27 \times 10}{9} = ₹\ 30$$

Aliter : Using Rule 1,

$$\text{C.P.} = 27,\ \text{Profit} = \frac{10}{100}$$

$$\text{S.P.} = \frac{\text{S.P.}}{10}$$

Profit = S.P. – C.P.

$$\frac{\text{S.P.}}{10} = \text{S.P.} - 27$$

$$27 = \text{S.P.} - \frac{\text{S.P.}}{10}$$

$$\text{S.P.} = \frac{27 \times 10}{9}$$

S.P. = ₹ 30

8. (4) Using Rule 1,
S.P. = ₹ 100
C.P. = ₹ 80
$\therefore$ Gain = ₹ 20
$\therefore$ Gain per cent

$$= \frac{20}{80} \times 100 = 25\%$$

9. (3) Let the original price be ₹ x.

$$= \frac{80}{100} \times x = ₹\ \frac{4x}{5}$$

$$\text{SP} = \frac{4x}{5} \times \frac{140}{100} = ₹\ \frac{28x}{25}$$

Gain on original price

$$= \frac{28x}{25} - x = \frac{3x}{25}$$

$$\therefore \text{Gain}\% = \frac{3x}{25x} \times 100$$

$$= 12\%$$

10. (3) Let the CP = ₹ 100
Then, SP = ₹ 120
Let the marked price = ₹ x.
Then, 90% of x = ₹ 120
$\Rightarrow x$

$$= \frac{120 \times 100}{90} = \frac{400}{3} = 133\frac{1}{3}\%$$

Hence, the marked price is $33\frac{1}{3}\%$ above the cost price.

11. (4) Using Rule 1,
If the S.P. of article be x, then its

$$\text{CP} = x - \frac{x}{4} = ₹\ \frac{3x}{4}$$

$$\therefore \text{Gain}\% = \frac{\frac{x}{4}}{\frac{3x}{4}} \times 100$$

$$= \frac{100}{3} = 33\frac{1}{3}\%$$

12. (2) Using Rule 1,

Tricky Approach

If the cost price is ₹ 100, then selling price = ₹120 and gain = ₹ 20

$$\text{Required gain}\% = \frac{20}{120} \times 100$$

$$= \frac{50}{3} = 16\frac{2}{3}\%$$

13. (4) Let the S.P. of the bedsheet be Rs. x.

$\therefore\ 450 + \frac{10 \times x}{100} = x$

$\Rightarrow\ x - \frac{x}{10} = 450$

$\Rightarrow \frac{9x}{10} = 450$

$\Rightarrow\ x = \frac{450 \times 10}{9} = ₹\ 500$

Aliter : Using Rule 1,
C.P. = Rs. 450,

Profit = $\frac{10\text{S.P.}}{100} = \frac{\text{S.P.}}{10}$

Profit = S.P. – C.P.

$\frac{\text{SP}}{10}$ = S.P. – 450

$450 = \text{S.P.} - \frac{\text{S.P.}}{10}$

$\text{S.P.} = \frac{450 \times 10}{9}$

S.P. = ₹ 500

14. (1) Using Rule 3,
C.P. of article

$= \frac{100}{100 - \text{loss per cent}} \times \text{S.P.}$

$= \frac{100}{96} \times 960 = ₹\ 1000$

15. (3) Using Rule 1,
Cost price

$= \frac{791000 \times 100}{113} = ₹\ 700000$

$\therefore$ Gain = 791000 – 700000
= ₹ 91000

16. (3) Using Rule 3,

Cost price = $\frac{64000 \times 100}{80}$

= ₹ 80000

17. (1) Using Rule 1,
Actual C.P. = 225 + 15 = ₹ 240
Gain = 300 – 240 = ₹ 60
$\therefore$ Gain per cent

$= \frac{60}{240} \times 100 = 25\%$

18. (3) Using Rule 3,
If the C.P. be x, then

$\frac{x \times 130}{100} = 1690$

$\Rightarrow x = \frac{1690 \times 100}{130} = ₹\ 1300$

19. (3) S.P. of the fan $= \frac{150 \times 80}{100}$

= ₹ 120

20. (1) Gain per cent

$= \frac{11}{33} \times 100 = \frac{100}{3} = 33\frac{1}{3}\%$

21. (4) If the marked price of the product be ₹ 100, then
C.P. = ₹ 70
S.P. retailer = ₹ 100
$\therefore$ Gain per cent

$= \frac{30}{70} \times 100 = \frac{300}{7}$

$= 42\frac{6}{7}\%$

22. (4) If the marked price of watch be x, then

$x \times \frac{90}{100} = \frac{450 \times 120}{100}$

$\Rightarrow x = \frac{450 \times 120}{90} = ₹\ 600$

23. (2) Actual C.P. of radio

$= 600 + \frac{600 \times 5}{100} = ₹\ 630$

$\therefore$ Required S.P.

$= \frac{630 \times 115}{100} = ₹\ 724.50$

24. (2) If the original cost of shirt be x, then

$x \times \frac{80}{100} = 64$

$\Rightarrow x = \frac{64 \times 100}{80} = ₹\ 80$

25. (1) C.P. of 1 bucket = x
C.P. of 1 mug = y
$\therefore\ 8x + 5y = 92$ .....(i)
$5x + 8y = 77$ .....(ii)
By using equation (i) × 5 – equation (ii) × 8,
$40x + 25y - 40x - 64y$
$= 460 - 616$
$\Rightarrow -39y = -156$
$\Rightarrow y = 4$
From equation (i),
$8x + 20 = 92$
$\Rightarrow\ 8x = 92 - 20 = 72$
$\Rightarrow\ x = 9$
$\therefore$ C.P. of 2 mugs and 3 buckets
$= 2 \times 4 + 3 \times 9$
$= 8 + 27 = ₹\ 35$

26. (4) Minimum cost price
= 150 × 15 = ₹ 2250
Maximum selling price
= 350 × 15 = ₹ 5250
Gain = 5250 – 2250 = ₹ 3000
[150 being the lowest & 350 being the highest price]

27. (1) Cost price = ₹ x

S.P. = $\frac{120x}{100} = ₹\ \frac{6x}{5}$

Gain = ₹ $\frac{x}{5}$

$\therefore$ Required gain per cent

$= \frac{\frac{x}{5}}{\frac{6x}{5}} \times 100$

$= \frac{100}{6} = \frac{50}{3}$

$= 16\frac{2}{3}\%$

28. (1) Total oranges bought = 12 (let)
$\therefore$ Their cost price = 3 + 2
= ₹ 5
For profit of 20%,

S. P. = $\frac{5 \times 120}{100} = ₹\ 6$

29. (1) C.P. of article = ₹ x

S.P. = $\frac{120x}{100} = ₹\ \frac{6x}{5}$

Gain = $\frac{6x}{5} - x = \frac{6x - 5x}{5}$

= ₹ $\frac{x}{5}$

$\therefore$ Gain per cent

$= \frac{\text{Gain}}{\text{S.P.}} \times 100$

$= \frac{\frac{x}{5}}{\frac{6x}{5}} \times 100 = \frac{50}{3} = 16\frac{2}{3}\%$

30. (2) C.P. of article = ₹ x (let)

S.P. of article = ₹ $\frac{4x}{3}$

Gain = $\frac{4x}{3} - x = \frac{4x - 3x}{3}$

= ₹ $\frac{x}{3}$

$\therefore$ Gain per cent = $\frac{\frac{x}{3}}{x} \times 100$

$= \frac{100}{3} = 33\frac{1}{3}\%$

31. (4) S.P. of article

$= \frac{(100 - \text{loss}\%)}{100} \times \text{C.P.}$

$= \frac{100-10}{100} \times 15 = \frac{90 \times 15}{100}$

= ₹ 13.50

32. (3) C.P. of watch = Rs. x (let)

$\therefore$ S.P. = $\frac{120x}{100}$ = Rs. $\frac{6x}{5}$

Case II,

C.P. = Rs. $\frac{9x}{10}$

S.P. = Rs. $\left(\frac{6x}{5} - 30\right)$

According to the question,

$\frac{6x}{5} - 30 = \frac{9x}{10} \times \frac{120}{100} = \frac{27x}{25}$

$\Rightarrow \frac{6x}{5} - \frac{27x}{25} = 30$

$\Rightarrow \frac{30x - 27x}{25} = 30$

$\Rightarrow 3x = 30 \times 25$

$\Rightarrow x = \frac{30 \times 25}{3}$ = Rs. 250

33. (1) Original price of 1 mango = Rs. x (let).

$\therefore$ C.P. of 1 mango = $\frac{100x}{125}$

= Rs. $\frac{4x}{5}$

Case II,

According to the question,

$x + 1 = \frac{4x}{5} \times \frac{150}{100}$

$\Rightarrow x + 1 = \frac{6x}{5} \Rightarrow \frac{6x}{5} - x = 1$

$\Rightarrow \frac{x}{5} = 1 \Rightarrow x$ = Rs. 5

34. (1) C.P. of article = Rs. x (let).

According to the question.

$\frac{x \times 90}{100} = 270$

$\Rightarrow x = \frac{270 \times 100}{90}$ = Rs. 300

35. (3) S.P. of 4 bananas

$= \left(100 + \frac{100}{3}\right)\%$ of Re. 1

= Rs. $\frac{400}{300}$ = Rs. $\frac{4}{3}$

$\because$ Number of bananas sold for Rs. $\frac{4}{3} = 4$

$\therefore$ Number of bananas sold for Re. 1

$= \frac{4}{4} \times 3 = 3$

36. (2) C.P of article

$= \frac{100}{100 - 20} \times 450$

$= \frac{100 \times 450}{80}$ = Rs. 562.5

$\therefore$ To gain 20%

S.P. = $\frac{562.5 \times 120}{100}$ = Rs. 675

37. (4) Let the C.P. of article be Rs. x.

According to the question,

$425 - x = x - 355$

$\Rightarrow 2x = 425 + 355 = 780$

$\Rightarrow x = \frac{780}{2}$ = Rs. 390

38. (4) Let C.P. of each article be Re. 1.

C.P. of 15 articles = Rs. 15

Their S.P. = Rs. 10

$\therefore$ Loss percent

$= \frac{15-10}{15} \times 100$

$= \frac{100}{3} = 33.3\%$

39. (2) Let the C.P. of each banana be Re. 1.

$\therefore$ C.P. of 6 bananas = Rs. 6

Their S.P = Rs. 8

$\therefore$ Profit per cent

$= \frac{8-6}{6} \times 100$

$= \frac{200}{6} = \frac{100}{3} = 33\frac{1}{3}\%$

40. (3) Let the C.P. of bag be Rs. x. According to the question,

$x \times \frac{115}{100} = 230$

$\Rightarrow x = \frac{230 \times 100}{115}$ = Rs. 200

For profit of 20%,

S.P. of bag = Rs. $\left(\frac{200 \times 120}{100}\right)$

= Rs. 240

41. (4) Let the cost price of article be Rs. 100.

$\therefore$ First S.P. = Rs. 120

When the selling price be Rs. 240,

Profit = Rs. (240 – 100)

= Rs. 140

$\therefore$ Profit percent

$= \frac{140}{100} \times 100 = 140\%$

42. (3) Let the C.P. of cycle be Rs. x.

Case I,

S.P. of cycle = Rs. $\left(\frac{90x}{100}\right)$

= Rs. $\frac{9x}{10}$

Case II,

106% of $x = \frac{9x}{10} + 200$

$\Rightarrow \frac{106x}{100} - \frac{9x}{10} = 200$

$\Rightarrow \frac{106x - 90x}{100} = 200$

$\Rightarrow \frac{16x}{100} = 200$

$\Rightarrow x = \frac{200 \times 100}{16}$

= Rs. 1250

43. (4) Let the cost price of each book be Re. 1.

$\therefore$ C.P. of 20 books = Rs. 20

S.P. of 20 books = Rs. 25

$\therefore$ Profit per cent

$= \left(\frac{25-20}{20}\right) \times 100$

$= \frac{5 \times 100}{20} = 25\%$

44. (1) Let C.P. of each article be Re. 1.
∴ C.P. of 40 articles = Rs. 40
S.P. of 40 articles = Rs. 50
∴ Profit per cent

$$= \left(\frac{50-40}{40}\times 100\right)\% = 25\%$$

45. (1) C.P. of taperecorder

$$= \text{Rs. } \left(\frac{100}{104}\times 1040\right)$$

= Rs. 1000
On selling for Rs. 950,
Loss = Rs. (1000 – 950)
= Rs. 50

$$\therefore \text{ Loss per cent } = \frac{50\times 100}{1000}$$

= 5%

46. (1) Let the C.P. of each book be Re. 1.
∴ Total C.P. of 25 books
= Rs. 25
Their S.P. = Rs. 20
∴ Loss per cent

$$= \left(\frac{25-20}{25}\right)\times 100$$

$$= \frac{5}{25}\times 100 = 20\%$$

47. (3) According to the question,

$$\frac{80}{100} \text{ of C.P. = S.P.}$$

$$\Rightarrow \frac{4}{5} \text{ of C.P. = S.P.}$$

$$\Rightarrow \text{C.P. = S.P.} \times \frac{5}{4}$$

48. (2) Let the C.P. of the watch be Rs. 100.
∴ Its S.P. = Rs. 125
∴ Profit per cent on its S.P.

$$= \frac{\text{Profit}}{\text{S.P}}\times 100$$

$$= \frac{25}{125}\times 100 = 20\%$$

49. (1) C.P. of article

$$= \left(\frac{100}{100+\text{profit}\%}\right)\times \text{S.P.}$$

$$= \text{Rs. } \left(\frac{100}{120}\times 240\right)$$

= Rs. 200

50. (1) Let the C.P. of article be Rs. x.
According to the question,
$78 - x = 2\,(69 - x)$
$\Rightarrow 78 - x = 138 - 2x$
$\Rightarrow 2x - x = 138 - 78$
$\Rightarrow x$ = Rs. 60

51. (3) Let the C.P. of article be Rs. x.
According to the question,
$524 - x = x - 452$
$\Rightarrow 2x = 524 + 452 = 976$

$$\Rightarrow x = \frac{976}{2} = \text{Rs. } 488$$

TYPE-II

1. (1) Using Rule 8,
Required profit

$$= \frac{36-30}{30}\times 100 = 20\%$$

2. (3) Suppose the C.P. of each article is ₹ 1
Then C.P. of 10 articles = ₹ 10
S.P. of 10 articles = ₹ 15
∴ Profit = ₹ 5

$$\%\text{ profit } = \frac{5\times 100}{10} = 50\%$$

Aliter : Using Rule 8,
Here, x = 15, y = 10

$$\text{Profit\% } = \frac{x-y}{y}\times 100$$

$$= \left(\frac{15-10}{10}\right)\times 100$$

= 50%

3. (4) Let C.P. be ₹ 1
C.P. of 3 articles = ₹ 3
= S.P. of P. of 5 articles.

$$\text{Loss\% } = \frac{(5-3)}{5}\times 100$$

= 2 × 20 = 40%
Aliter : Using Rule 8,
Here, x = 3, y = 5

$$\text{Loss \% } = \left(\frac{x-y}{y}\right)\times 100$$

$$= \left(\frac{3-5}{5}\right)\times 100 = -40\%$$

(–ve sign shows loss)
= 40 %

4. (3) Let the cost price of one table = x
∴ Cost price of 15 tables
= 15x
and cost price of 20 tables
= 20x
According to the question
Selling price of 20 tables
= cost price of 15 tables = 15x
∴ Loss = 20x – 15x = 5x

$$\therefore \text{ Loss\% } = \frac{5x\times 100}{20x} = 25\%$$

Aliter : Using Rule 8,
Here, x = 15, y = 20

$$\text{Loss \% } = \frac{x-y}{y}\times 100$$

$$= \left(\frac{15-20}{20}\right)\times 100$$

$$= \frac{-5}{20}\times 100$$

= –25%
(–ve sign shows loss)
= 25%

5. (2) Gain % $= \frac{18-15}{15}\times 100$

$$= \frac{3}{15}\times 100 = 20\%$$

Aliter : Using Rule 8,
Here, x = 18, y = 15

$$\text{Gain\% } = \left(\frac{x-y}{y}\right)\times 100$$

$$= \left(\frac{18-15}{15}\right)\times 100$$

$$= \frac{3}{15}\times 100$$

= 20%

6. (3) Using Rule 8,
Loss per cent

$$= \frac{400-320}{400}\times 100$$

$$= \frac{80}{400}\times 100 = 20\%$$

7. (4) Let the C.P. of one orange = 1
∴ C.P. of 40 oranges = ₹ 40
and S.P. of 40 oranges = ₹ 50
∴ Profit = (50 – 40) = ₹ 10

$$\therefore \text{ Profit \% } = \frac{10}{40}\times 100 = 25\%$$

Aliter : Using Rule 8,
Here, x = 50, y = 40

$$\text{Profit \% } = \left(\frac{x-y}{y}\right)\times 100$$

$$= \left(\frac{50-40}{40}\right)\times 100$$

= 25%

8. (2) Let C.P. of each orange be ₹ 1
Then, C.P. of 10 oranges = ₹ 10
S.P. of 10 oranges = ₹ 12

$$\text{Gain \%} = \left(\frac{2}{10}\times 100\right)\% = 20\%$$

Aliter : Using Rule 8,
Here, x = 12, y = 10

$$\text{Profit \%} = \left(\frac{x-y}{y}\right)\times 100$$

$$= \left(\frac{12-10}{10}\right)\times 100$$

$$= 20\%$$

9. (1) Required profit per cent

$$= \frac{10-9}{9}\times 100$$

$$= \frac{1}{9}\times 100 = 11\frac{1}{9}\%$$

Aliter : Using Rule 8,
Here, x = 10, y = 9

$$\text{Profit \%} = \left(\frac{x-y}{y}\right)\times 100$$

$$= \left(\frac{10-9}{9}\right)\times 100$$

$$= \frac{1}{9}\times 100$$

$$= 11\frac{1}{9}\%$$

10. (3) Gain per cent

$$= \frac{400-320}{320}\times 100$$

$$= \frac{80}{320}\times 100 = 25\%$$

Aliter : Using Rule 8,
Here, x = 400, y = 320

$$\text{Profit \%} = \left(\frac{x-y}{y}\right)\times 100$$

$$= \left(\frac{400-320}{320}\right)\times 100$$

$$= \frac{80}{320}\times 100 = 25\%$$

11. (4) Let the CP of each pen be ₹ 1.
∴ CP of 8 pens = ₹ 8
SP of 8 pens = ₹ 12

$$\therefore \text{Gain \%} = \frac{4}{8}\times 100 = 50\%$$

Aliter : Using Rule 8,
Here, x = 12, y = 8

$$\text{Profit \%} = \left(\frac{x-y}{y}\right)\times 100$$

$$= \left(\frac{12-8}{8}\right)\times 100$$

$$= \frac{4}{8}\times 100 = 50\%$$

12. (3) Let the CP of each article be ₹ 1
∴ CP of 9 articles = ₹ 9
∴ SP of 9 articles = ₹ 8
∴ Loss = ₹ 1

$$\therefore \text{Loss \%} = \frac{1}{9}\times 100$$

$$= \frac{100}{9} = 11\frac{1}{9}\%$$

Aliter : Using Rule 8,
Here, x = 8, y = 9

$$\text{Loss \%} = \left(\frac{y-x}{y}\right)\times 100$$

$$= \left(\frac{9-8}{9}\right)\times 100$$

$$= \frac{100}{9} = 11\frac{1}{9}\%$$

13. (2) C.P. of article for A = Rs. 100

$$\text{A's S.P.} = \frac{100\times 120}{100}$$

= Rs. 120

$$\text{B's S.P.} = \frac{120\times 85}{100}$$

= Rs. 102
= C.P. for C
∴ Required profit percent = 2%

14. (2) Let C.P. of each article be ₹ 1
Then, C.P. of 7 articles = ₹ 7
S.P. of 7 articles = ₹ 10

$$\therefore \text{Gain \%} = \frac{10-7}{7}\times 100 = \frac{300}{7}$$

$$= 42\frac{6}{7}\%$$

Aliter : Using Rule 8,
Here, x = 10, y = 7

$$\text{Profit \%} = \left(\frac{x-y}{y}\right)\times 100$$

$$= \left(\frac{10-7}{7}\right)\times 100$$

$$= \frac{300}{7} = 42\frac{6}{7}\%$$

15. (1) Using Rule 1,
Let the original selling price of radio = ₹ 100
∴ C.P. of radio = ₹ 90
∴ New selling price = ₹ 108

$$\therefore \text{Gain per cent} = \frac{18}{90}\times 100$$

= 20%

16. (4) Let CP of each coconut be ₹ 1.
∴ CP of 2500 coconuts = ₹. 2500
SP of 2500 coconuts = ₹ 2750

$$\therefore \text{Gain \%} = \frac{2750-2500}{2500}\times 100$$

= 10%

Aliter : Using Rule 8,
Here, x = 2750, y = 2500

$$\text{Gain \%} = \left(\frac{x-y}{y}\right)\times 100$$

$$= \left(\frac{2750-2500}{2500}\right)\times 100$$

$$= \frac{250}{2500}\times 100 = 10\%$$

17. (2) If the CP of A articles be equal to SP of B articles, then

$$\text{Loss percent} = \frac{B-A}{B}\times 100$$

$$= \frac{16-10}{16}\times 100 = \frac{6}{16}\times 100$$

= 37.5%

Aliter : Using Rule 8,
Here, x = 10, y = 16

$$\text{Loss \%} = \left(\frac{y-x}{y}\right)\times 100$$

$$= \left(\frac{16-10}{16}\right)\times 100$$

$$= \frac{600}{16} = 37.5\%$$

18. (3) If the CP of each article be ₹ 1 then
CP of 4 articles = ₹ 4
SP of 4 articles = ₹ 5
∴ Profit percent

$$= \frac{5-4}{4}\times 100 = 25\%$$

Aliter : Using Rule 8,
Here, x = 5, y = 4

$$\text{Profit \%} = \left(\frac{x-y}{y}\right)\times 100$$

$$= \left(\frac{5-4}{4}\right)\times 100$$

$$= \frac{100}{4} = 25\%$$

19. (1) Let the CP of 1 orange = ₹ 1
∴ SP of 10 oranges = ₹ 13

∴ Gain percent = $\frac{13-10}{10}\times 100$

= 30%

Aliter : Using Rule 8,
Here, x = 13, y = 10

Profit % = $\left(\frac{x-y}{y}\right)\times 100$

= $\left(\frac{13-10}{10}\right)\times 100$

= $\frac{300}{10}$ = 30%

20. (1) Let the C.P. of each article be ₹ 1.
∴ C.P. of 10 articles = ₹ 10
and S.P. of 10 articles = ₹ 11
∴ Profit percent

= $\frac{11-10}{10}\times 100 = 10\%$

Aliter : Using Rule 8,
Here, x = 11, y = 10

Profit % = $\left(\frac{x-y}{y}\right)\times 100$

= $\left(\frac{11-10}{10}\right)\times 100$

= $\frac{100}{10}$ = 10%

21. (4) Profit percent

$= \frac{10-8}{8}\times 100 = 25\%$

Aliter : Using Rule 8,
Here, x = 10, y = 8

Gain % = $\left(\frac{x-y}{y}\right)\times 100$

= $\left(\frac{10-8}{8}\right)\times 100$

= $\frac{200}{8}$ = 25%

22. (2) Percentage profit

$= \frac{25-20}{20}\times 100 = 25\%$

Aliter : Using Rule 8,
Here, x = 25, y = 20

Gain % = $\left(\frac{x-y}{y}\right)\times 100$

= $\left(\frac{25-20}{20}\right)\times 100$

= $\frac{500}{20}$ = 25%

23. (4) Let the CP of 1 apple = ₹.1
∴ CP of 18 apples = ₹ 18
SP of 18 apples = ₹ 24

∴ Gain percent = $\frac{6}{18}\times 100$

= $\frac{100}{3} = 33\frac{1}{3}\%$

Aliter : Using Rule 8,
Here, x = 24, y = 18

Gain % = $\left(\frac{x-y}{y}\right)\times 100$

= $\left(\frac{24-18}{18}\right)\times 100$

= $\frac{6}{18}\times 100 = 33\frac{1}{3}\%$

24. (3) Profit percent

$= \frac{400-320}{320}\times 100$

$= \frac{80}{320}\times 100 = 25\%$

Aliter : Using Rule 8
Here, x = 400, y = 320

Gain % = $\left(\frac{x-y}{y}\right)\times 100$

= $\left(\frac{400-320}{320}\right)\times 100$

= $\frac{80}{320}\times 100$ = 25%

25. (3) Gain per cent

= $\frac{20-16}{16}\times 100$ = 25%

Aliter : Using Rule 8,
Here, x = 20, y = 16

Gain % = $\left(\frac{x-y}{y}\right)\times 100$

= $\left(\frac{20-16}{16}\right)\times 100$

= $\frac{4}{16}\times 100 = 25\%$

26. (3) Gain per cent

= $\frac{15-12}{12}\times 100$ = 25%

Aliter : Using Rule 8,
Here, x = 15, y = 12

Gain % = $\left(\frac{x-y}{y}\right)\times 100$

= $\left(\frac{15-12}{12}\right)\times 100$

= $\frac{3}{12}\times 100$ = 25%

27. (4) Percentage profit

= $\frac{18-16}{16}\times 100$

= $\frac{25}{2} = 12\frac{1}{2}\%$

Aliter : Using Rule 8,
Here, x = 18, y = 16

Gain % = $\left(\frac{x-y}{y}\right)\times 100$

= $\left(\frac{18-16}{16}\right)\times 100$

= $\frac{2}{16}\times 100$

= $\frac{25}{2}$ = $12\frac{1}{2}\%$

28. (2) Gain per cent

= $\frac{40-25}{25}\times 100$

= $\frac{15}{25}\times 100 = 60\%$

Aliter : Using Rule 8,
Here, x = 40, y = 25

Gain % = $\left(\frac{x-y}{y}\right)\times 100$

= $\left(\frac{40-25}{25}\right)\times 100$

= $\frac{15}{25}\times 100$ = 60%

29. (2) S.P. of book

= $\frac{150\times 120}{100}$ = ₹ 180

Aliter : Using Rule 3,

$$\text{S.P.} = \text{C.P.}\left(\frac{100+\text{Profit\%}}{100}\right)$$

$$= \frac{150\times(100+20)}{100}$$

$$= \frac{150\times120}{100} = ₹180$$

30. (3) S.P. of 33 metres of cloth = C.P. of 33 metres of cloth + S.P. of 11 metres of cloth

$\therefore$ S.P. of 22 metres of cloth = C.P. of 33 metres of cloth

$\therefore$ Gain per cent $= \frac{33-22}{22}\times100$

$= 50\%$

Aliter : Using Rule 9,
Here, x = 33, y = 11

$$\text{Profit \%} = \frac{y\times100}{x-y}$$

$$= \frac{11\times100}{33-11}$$

$$= \frac{11\times100}{22} = 50\%$$

31. (3) Using Rule 1,
20 items are broken out of 144 items.

$\therefore$ C.P. of 124 items

$$= ₹\left(\frac{144\times90}{100}\right) = ₹\ 129.60$$

Total S.P. = ₹ (1.20 × 124)
= ₹ 148.8
$\therefore$ Gain = ₹ (148.80 – 129.60)
= ₹ 19.20
$\therefore$ Gain per cent

$$= \frac{19.20}{129.60}\times100 = 14.8\%$$

32. (2) Let the required gain % = x.

$$\therefore\ 150\times\frac{90}{100}+300\times\frac{(100+x)}{100}$$

$$= \frac{450\times120}{100}$$

$\Rightarrow 135 + 3\,(100 + x) = 540$
$\Rightarrow 3\,(100 + x) = 540 - 135 = 405$

$$\therefore\ 100 + x = \frac{405}{3} = 135$$

$\Rightarrow x = 135 - 100 = 35\%$

33. (2) Using Rule 1,
C.P. of 50 pairs of shoes
= ₹ (50 × 189.50)
= ₹ 9475
Their S.P. = ₹ 10000
Gain = ₹ (10000 – 9475) = ₹ 525

34. (1) Using Rule 2,
Loss per cent

$$= \frac{\text{Loss}}{\text{C.P.}}\times100$$

$$= \frac{5750-4500}{5750}\times100$$

$$= \frac{125000}{5750} = 21.74\%$$

35. (1) Using Rule 1,
Actual C.P. of article
= Rs. (3550 + 50)
= Rs. 3600
Gain = 3816 – 3600 = Rs. 216
$\therefore$ Gain percent

$$= \frac{216}{3600}\times100 = 6\%$$

36. (3) C.P. of each camera
= Rs. x (let)
S.P. of first camera

$$= \text{Rs. } \frac{118x}{100}$$

S.P. of second camera

$$= \frac{118x}{100}\times\frac{90}{100}$$

$$= \text{Rs. } \frac{1062x}{1000}$$

$$\text{Profit} = \frac{118x}{100}+\frac{1062x}{1000}-2x$$

$$= \frac{1180x+1062x-2000x}{1000}$$

$$= \text{Rs. } \frac{242x}{1000}$$

$\therefore$ Gain per cent

$$= \frac{242x}{1000\times2x}\times100 = 12.2\%$$

37. (1) Marked price of article = Rs. x and C.P. = Rs. 100 (let)

$$\therefore\ \frac{x}{2} = 80 \Rightarrow x = \text{Rs. } 160$$

Gain on selling at the marked price = 60%

38. (1) S.P. of 20 metre of cloth
= C.P of 20 metre of cloth + S.P of 4 metre of cloth
$\Rightarrow$ S.P of (20 – 4 = 16) metre of cloth
= C.P of 20 metre of cloth

$$\therefore\ \text{Gain\%} = \frac{20-16}{16}\times100$$

$$= \frac{100}{4} = 25\%$$

Aliter : Using Rule 9,
Here, x = 20, y = 4,

$$\text{Gain \%} = \frac{y\times100}{x-y}$$

$$= \frac{4\times100}{20-4}$$

$$= \frac{4}{16}\times100 = 25\%$$

39. (3) Let 40 articles (LCM of 8 and 10) be bought.

$\therefore$ C.P of 40 articles

$$= \frac{8\times40}{10} = \text{Rs. } 32$$

$$\text{Their S.P.} = \frac{10\times40}{8} = \text{Rs. } 50$$

$$\therefore\ \text{Profit percet} = \frac{50-32}{32}\times100$$

$$= \frac{1800}{32} = 56.25\%$$

Aliter : Using Rule 13,
Here, a = 10, x = 8
b = 8, y = 10

$$\text{Gain\%} = \left(\frac{ay-bx}{bx}\right)\times100\%$$

$$= \left(\frac{10\times10-8\times8}{8\times8}\right)\times100\%$$

$$= \frac{36}{64}\times100$$

$$= \frac{1800}{32} = 56.25\%$$

40. (4)Using Rule 2,
$\because$ C.P. of 1000 gm of cashew nut
= Rs. 250
$\therefore$ C.P. of 50 gm of cashew nut

$$= \frac{250}{1000}\times50 = \text{Rs. } 12.5$$

S.P. of 50 gm of cashew nut
= Rs. 10
$\therefore$ Loss per cent

$$= \frac{12.5-10}{12.5}\times100 = 20\%$$

41. (4) C.P. of each book = Re. 1
∴ C.P. of 60 books = Rs. 60
Their S.P. = Rs. 100
∴ Gain per cent

$$= \frac{100-60}{60} \times 100$$

$$= \frac{200}{3} = 66\frac{2}{3}\%$$

Aliter : Using Rule 8,
Here, x = 100, y = 60

$$\text{Gain \%} = \left(\frac{x-y}{y}\right) \times 100$$

$$= \left(\frac{100-60}{60}\right) \times 100$$

$$= \frac{200}{3} = 66\frac{2}{3}\%$$

42. (4) Let C.P. of each article be Re. 1.
∴ C.P. of 9 articles = Rs. 9
∴ S.P. of 9 articles = Rs. 10
∴ Profit percent

$$= \frac{10-9}{9} \times 100 = \frac{100}{9} = 11\frac{1}{9}\%$$

Aliter : Using Rule 8
Here, x = 10, y = 9

$$\text{Gain \%} = \left(\frac{x-y}{y}\right) \times 100$$

$$= \left(\frac{10-9}{9}\right) \times 100$$

$$= \frac{1}{9} \times 100 = 11\frac{1}{9}\%$$

43. (1) Using Rule 2,

C.P. of $2\frac{1}{2}$ dozen or 30 eggs =

$$\frac{20}{12} \times 30 = \text{Rs. } 50$$

Their S.P i.e. S.P. of 24 eggs
= 22 × 2 = Rs. 44
∴ Loss = Rs. (50 – 44) = Rs. 6

$$\therefore \text{ Loss \%} = \frac{6}{50} \times 100 = 12\%$$

44. (3) Using Rule 10,
Here, selling prices are same, Profit-loss percent are same.
In such transactions, there is always loss.

$$\text{Loss percent} = \frac{10 \times 10}{100} = 1\%$$

45. (1) Let the man buy in all 30 oranges.
∴ C.P. of 15 oranges at 3 for Rs.

$$40 = \frac{40}{3} \times 15 = \text{Rs. } 200$$

Again, C.P. of 15 oranges at 5 for

$$\text{Rs. } 60 = \frac{60}{5} \times 15 = \text{Rs. } 180$$

∴ Total C.P. = Rs. (200 + 180)
= Rs. 380
S.P. of 30 oranges

$$= \frac{50}{3} \times 30 = \text{Rs. } 500$$

∴ Profit = Rs. (500 – 380)
= Rs. 120

$$\therefore \text{ Profit \%} = \frac{120}{380} \times 100$$

= 31.58% ≈ 32%

46. (4) Using Rule 1,
C.P. of article = Rs. 100 (let).
∴ S.P. = Rs. 125
New S.P. = Rs. 250
∴ Profit percent

$$= \frac{250-100}{100} \times 100 = 150\%$$

47. (1) Using Rule 1,
S.P. of article

$$= \frac{1500 \times 125}{100} = \text{Rs. } 1875$$

Net S.P. after paying tax
= Rs. (1875 – 75) = Rs. 1800
∴ Profit = 1800 – 1500
= Rs. 300

$$\therefore \text{ Profit percent} = \frac{300}{1500} \times 100$$

= 20%

48. (1) Using Rule 3,
C.P. of hand-cart

$$= \frac{100}{75} \times 720 = \text{Rs. } 960$$

For 25% profit

$$\text{S.P.} = \frac{125}{100} \times 960$$

= Rs. 1200

49. (4) Using Rule 8,
Let the cost of each chair be Re. 1.
∴ C.P. of 30 chairs = Rs. 30.
Their S.P. = Rs. 25
∴ Loss per cent

$$= \frac{30-25}{30} \times 100$$

$$= \frac{50}{3} = 16\frac{2}{3}\%$$

50. (1) Using Rule 8,
Profit percent

$$= \frac{12-10}{10} \times 100$$

$$= \frac{2 \times 100}{10} = 20\%$$

51. (2) Let the C.P. of each pen be Re. 1.
∴ C.P. of 20 pens = Rs. 20
∴ S.P. of 20 pens = Rs. 25
∴ Profit per cent

$$= \frac{(25-20)}{20} \times 100$$

$$= \frac{500}{20} = 25\%$$

52. (2) Let C.P. of 1 kg. of rice be Rs. 100.
According to the question,
∵ S.P. of 700 gm. of rice
= Rs. 110
∴ S.P. of 1000 gm. of rice

$$= \frac{110}{700} \times 1000$$

$$= \frac{1100}{7} = \text{Rs. } 157\frac{1}{7}$$

$$\therefore \text{ Profit per cent} = 57\frac{1}{7}\%$$

53. (3) C.P. of 4 dozens of eggs at the rate of Rs. 24 per dozen
= Rs. (24 × 4) = Rs. 96
C.P. of 2 dozens of eggs at Rs. 32 per dozen
= Rs. (32 × 2) = Rs. 64
Total C.P. of 6 dozens of eggs
= Rs. (96 + 64)
= Rs. 160
S.P. for 20% profit

$$= \left(\frac{160 \times 120}{100}\right)$$

= Rs. 192

$$\therefore \text{ S.P. per dozen} = \frac{192}{6}$$

= Rs. 32

54. (2) According to the question,

$$\text{Loss\%} = \frac{\text{C.P.} - \text{S.P.}}{\text{S.P.}}$$

Where C.P. = Rs. x
S.P. = Rs. y

$$\Rightarrow \frac{10}{100} = \frac{x-y}{y} = \frac{1}{10}$$

$$\Rightarrow 10x - 10y = y$$

$$\Rightarrow 10x = 11y$$

At C.P.,

Loss% = $\frac{x-y}{x} \times 100$

$= \frac{x-\frac{10}{11}x}{x} \times 100$

$= \frac{11x-10x}{11x} \times 100 = \frac{100}{11}$

$= 9\frac{1}{11}\%$

55. (1) C.P. of cycle = Rs. 1000
Its S.P. = Rs. 1200
Profit = Rs. (1200 – 1000)
= Rs. 200
∴ Profit per cent

$= \frac{200}{1000} \times 100 = 20\%$

56. (2) Profit per cent

$= \frac{\text{Error}}{\text{True weight} - \text{error}} \times 100$

$= \left(\frac{50}{1000-50}\right) \times 100$

$= \frac{50 \times 100}{950} = \frac{100}{19} = 5\frac{5}{19}\%$

57. (3) Let the C.P. of each article be Re.1.
Percentage of dishonesty = 10%
(Here x% = 10%)

∴ Actual C.P. = $\frac{100}{110}$ = Rs. $\frac{10}{11}$

∵ He buys 110 articles in Rs. 100.
∵ He sells 90 articles at the C.P. of 100 articles.

∴ Actual S.P. = $\frac{100}{90}$ = Rs. $\frac{10}{9}$

∴ Profit per cent

$= \frac{\frac{10}{9}-\frac{10}{11}}{\frac{10}{11}} \times 100$

$= \frac{20}{99} \times \frac{11}{10} \times 100 = \frac{200}{9}$

$= 22\frac{2}{9}\%$

TYPE-III

1. (4) Cost price of 1 orange = ₹ $\frac{3}{7}$

∴ Cost price of 100 oranges

$= \frac{3}{7} \times 100 = \frac{300}{7}$

$\because 100\% = \frac{300}{7}$

$\therefore 133\% = \frac{300}{7} \times \frac{133}{100}$ = ₹ 57

2. (2) Using Rule 1,
C.P. = 12
S.P. = 12 × 1.25 = 15
Total Profit = 15 – 12 = 3

% gain = $\frac{3}{12} \times 100$ = 25%

3. (1) Let the cost price of 1 book be x
∴ Cost price of 3 books = 3x
and, cost price of 12 books
= 12x
Selling price of 12 books
= 1800
= 12x + 3x = 15x
⇒ 15x = 1800

$\therefore x = \frac{1800}{15} = 120$

The cost price of each book
= ₹ 120

4. (3) C.P. of an article = ₹ $\frac{10}{11}$

S.P. of an article = ₹ $\frac{11}{10}$

∴ Profit = $\frac{11}{10} - \frac{10}{11}$

$= \frac{121-100}{110}$ = ₹ $\frac{21}{110}$

∴ Profit % = $\frac{\frac{21}{110} \times 100}{\frac{10}{11}}$

$= \frac{2100}{110} \times \frac{11}{10} = 21\%$

Aliter : Using Rule 13,
Here, a = 11, x = 10
b = 10, y = 11

Gain% = $\left(\frac{ay-bx}{bx}\right) \times 100\%$

$= \left(\frac{11 \times 11 - 10 \times 10}{10 \times 10}\right) \times 100\%$

$= \left(\frac{121-100}{100}\right) \times 100\%$

= 21%

5. (1) C.P. of 5 pencils = ₹ 1.

S.P. of 5 pencils = ₹ $\frac{5}{3}$

Gain = $\frac{5}{3} - 1 = \frac{2}{3}$

∴ Gain % = $\frac{\frac{2}{3}}{1} \times 100 = 66\frac{2}{3}\%$

Aliter : Using Rule 13,
Here, a = 5, x = 1
b = 3, y = 1

Gain% = $\left(\frac{ay-bx}{bx} \times 100\%\right)$

$= \frac{5-3}{3} \times 100\%$

$= \frac{200}{3} = 66\frac{2}{3}\%$

6. (4) C.P. of 100 oranges = ₹ 350
S.P. of 12 oranges = ₹ 48
∴ S.P. of 100 oranges

$= \frac{48}{12} \times 100$ = ₹ 400

Profit = ₹ (400 – 350) = ₹ 50

∴ Profit % = $\frac{50}{350} \times 100 = \frac{100}{7}$

$= 14\frac{2}{7}\%$

Aliter : Using Rule 13,
Here, a = 100, x = 350
b = 100, y = $\frac{48}{12} \times 100$ = 400

Gain% = $\left(\frac{ay-bx}{bx}\right) \times 100\%$

$= \frac{100 \times 400 - 100 \times 350}{100 \times 350} \times 100\%$

$= \frac{40-35}{35} \times 100\%$

$= \frac{100}{7}\% = 14\frac{2}{7}\%$

7. (3) Suppose the number of oranges bought
= LCM of 10 and 9 = 90

C.P. of 90 oranges = $\frac{25}{10} \times 90$

= ₹ 225

S.P. of 90 oranges = $\frac{25}{9} \times 90$

= ₹ 250

Profit % = $\frac{25}{225} \times 100$

$= \frac{100}{9} = 11\frac{1}{9}\%$

Aliter : Using Rule 13,
Here, a = 10, x = 25
b = 9, y = 25

Gain% = $\left(\frac{ay-bx}{bx}\right) \times 100\%$

$= \left(\frac{10 \times 25 - 9 \times 25}{9 \times 25}\right) \times 100\%$

$= \left(\frac{250-225}{9 \times 25}\right) \times 100\%$

$= \frac{100}{9} = 11\frac{1}{9}\%$

8. (4) Using Rule 2,
Total C.P. = ₹ 32
Total S.P. = ₹ (18+2) = ₹ 20
Loss = ₹ (32-20) = ₹ 12
∴ Loss per cent

$= \frac{12}{32} \times 100 = 37.5\%$

9. (4) Let number of articles bought = 6 × 5 = 30
C.P. of 30 articles

$= ₹ \left(\frac{5}{6} \times 30\right) = ₹ 25$

S.P. of 30 articles

$= ₹ \left(\frac{6}{5} \times 30\right) = ₹ 36$

∴ Gain %

$= \frac{36-25}{25} \times 100 = 44\%$

Aliter : Using Rule 13,
Here, a = 6, x = 5
b = 5, y = 6

$\text{Gain\%} = \left(\frac{ay-bx}{bx}\right) \times 100\%$

$= \left(\frac{6\times6-5\times5}{5\times5}\right) \times 100\%$

$= \left(\frac{36-25}{25}\right) \times 100\%$

$= \frac{11}{25} \times 100\% = 44\%$

10. (4) Using Rule 2,
Total actual C.P.
= ₹ (500 × 10 + 2000) = ₹ 7000
And total S.P.
= ₹ (5 × 750 + 5× 550)
= ₹ (3750 + 2750) = ₹ 6500
Loss = 7000–6500 = ₹ 500

$\text{Loss percent} = \frac{500}{7000} \times 100$

$= \frac{50}{7} = 7\frac{1}{7}\%$

11. (3) Let the CP of each ball = x.
Then, clearly the cost price of (17 – 5) balls = ₹ 720
i.e., $12x = 720 \Rightarrow x = 60$ i.e. ₹ 60

12. (2) Using Rule 1,
CP of 120 excercise books
= ₹ (120 × 3) = ₹ 360
SP of 40 at ₹ 4 each
= ₹ (40 × 4) = ₹ 160
SP of 60 at ₹ 5 each
= ₹ (60 × 5) = ₹ 300
SP of remaining 20 books
= ₹ (20 × 3) = ₹ 60
Total SP = ₹ (160 + 300 + 60)
= ₹ 520
Profit % = ₹ (520 – 360)
= ₹ 160

∴ Profit% $= \frac{160}{360} \times 100$

$= \frac{400}{9} = 44\frac{4}{9}\%$

13. (2) Let the person buy 10 articles.

Total CP = $₹ \left(1+\frac{5}{4}\right) = ₹ \frac{9}{4}$

SP of 10 articles

$= ₹ \frac{2}{9} \times 10 = ₹ \frac{20}{9}$

∴ Loss = $₹ \left(\frac{9}{4} - \frac{20}{9}\right)$

$= ₹ \left(\frac{81-80}{36}\right) = ₹ \frac{1}{36}$

Now, if loss is ₹ $\frac{1}{36}$, number of articles = 10
∴ If loss is ₹ 3, number of articles = 36 × 10 × 3 = 1080

14. (3) Let the number of pencils bought = LCM of 4, 6 = 12
CP of 6 pencils = ₹ 4
∴ CP of 12 pencils = ₹ 8
S.P. of 4 pencils = ₹ 6
∴ S.P. of 12 pencils = ₹ 18
Profit = Rs. (18 – 8) = ₹ 10

∴ Profit % $= \frac{10}{8} \times 100 = 125\%$

Aliter :
Here, a = 6, x = 4
b = 4, y = 6

$\text{Gain\%} = \left(\frac{ay-bx}{bx}\right) \times 100\%$

$= \left(\frac{6\times6-4\times4}{4\times4}\right) \times 100\%$

$= \left(\frac{36-16}{16}\right) \times 100\%$

$= \frac{20}{16} \times 100\% = 125\%$

15. (4) Let Ravi buy 10 toffees.
∴ C.P. = ₹ 5
S.P. = ₹ 2

∴ Loss % $= \frac{5-2}{5} \times 100 = 60\%$

Aliter :
Here, a = 2, x = 1
b = 5, y = 1

$\text{Loss \%} = \left(\frac{ay-bx}{bx}\right) \times 100\%$

$= \left(\frac{2\times1-5\times1}{5\times1}\right) \times 100\%$

$= \frac{-3}{5} \times 100\%$

= 60% (-ve sign shows loss)

16. (3) Suppose, number of lemons bought
= LCM of 2, 5, 3 = 30

∴ CP = $₹ \left(\frac{1}{2} \times 30\right) = ₹ 15$

SP = $₹ \left(\frac{3}{5} \times 30\right) = ₹ 18$

∴ Gain = ₹ 3
∴ Gain per cent

$= \frac{3}{15} \times 100 = 20\%$

Aliter :
Using Rule 13,
Here, a = 2, x = 1
b = 5, y = 3

$\text{Gain\%} = \left(\frac{ay-bx}{bx}\right) \times 100\%$

$= \left(\frac{2\times3-5\times1}{5\times1}\right) \times 100\%$

$= \frac{1}{5} \times 100\%$

= 20%

17. (2) Using Rule 1,
C.P. of the tape recorder

$= \frac{100}{95} \times 950 = ₹ 1000$

Gain = 1040 – 1000 = ₹ 40

$\%\ \text{Gain} = \frac{40}{1000} \times 100 = 4\%$

18. (2) Using Rule 2,
CP of 100 cups
= ₹ 100 × 10 = ₹ 1000
10 cups are broken.
∴ SP of 90 cups = ₹ (90 ×11)
= ₹ 990
Loss = ₹ (1000 – 990)
= ₹ 10
∴ Loss per cent

$= \frac{10}{1000} \times 100 = 1\%$

19. (1) Using Rule 1,
Let the SP of 1 book = x
$\therefore$ SP of 25 books = $25x$
According to the question,
$25x - 2000 = 5x$
$\Rightarrow 20x = 2000$
$\Rightarrow x = \frac{2000}{20} = 100$
$\therefore$ SP of 1 book = ₹ 100

20. (3) S.P. of 7 pens = $\frac{10 \times 140}{100}$
= ₹ 14
$\therefore$ S.P. of 1 pen = $\frac{14}{7}$ = ₹ 2
Clearly, 5 pens were sold for ₹ 10

Aliter : Using Rule 13,
Here, a = 7, x = 10
b = ?, y = 10, Gain% = 40%

$\text{Gain\%} = \left(\frac{ay - bx}{bx}\right) \times 100\%$

$40 = \left(\frac{7 \times 10 - b \times 10}{b \times 10}\right) \times 100\%$

$4b = 70 - 10b$
$14b = 70$
$b = \frac{70}{14}$ $\boxed{b = 5}$

21. (3) C.P. of 12 oranges
$= 60 \times \frac{100}{75} = ₹ 80$
For a gain of 25%,
S.P. of 12 oranges
$= \frac{80 \times 125}{100} = ₹ 100$
Hence, 12 Orange has to sell,
[You can also check through options]

22. (2) Let the man buy 60 oranges (LCM of 20 and 30) of each kind.
CP of the 60 oranges of the first
kind = $\frac{60}{20} \times 60 = ₹180$
CP of 60 oranges of second kind
$\frac{60}{30} \times 60 = ₹120$
Total CP of 120 oranges
= (180 + 120) = ₹ 300
Their SP = $\frac{60}{25} \times 120 = ₹ 288$
Loss = ₹ (300 – 288) = ₹ 12
$\therefore$ Loss Per cent
$= \frac{12}{300} \times 100 = 4\%$

23. (3) Let the vendor buy 20 (LCM of 5 and 4) bananas.
$\therefore$ CP of 20 bananas = ₹ 4
SP of 20 bananas = ₹ 5
$\therefore \text{Gain\%} = \frac{5-4}{4} \times 100 = 25\%$

Aliter :
Using Rule 13,
Here, a = 5, x = 1
b = 4, y = 1

$\text{His gain\%} = \left(\frac{ay - bx}{bx}\right) \times 100\%$

$= \left(\frac{5 \times 1 - 4 \times 1}{4 \times 1}\right) \times 100\%$

$= \frac{1}{4} \times 100\% = 25\%$

24. (3) If the CP of 20 apples be ₹ x, then

$\frac{x \times 120}{100} = 100$

$\Rightarrow x = \frac{100 \times 100}{120} = ₹ \frac{250}{3}$

$\because$ ₹ $\frac{250}{3}$ = 20 apples

$\therefore$ ₹ 100 $= \frac{20 \times 3 \times 100}{250}$
= 24 apples

Aliter : Using Rule 13,
Here, a = ?, x = 100
b = 20, y = 100
Gain% = 20%

$\text{Gain\%} = \left(\frac{ay - bx}{bx}\right) \times 100\%$

$20\% = \left(\frac{a \times 100 - 20 \times 100}{20 \times 100}\right) \times 100\%$

$400 = 100a - 2000$
$2400 = 100a$
$a = 24$

25. (3) Let he buy 15 eggs.
[LCM of 5 & 3]
$\therefore$ CP of 15 eggs = ₹ 25
$\therefore$ SP of 15 eggs =₹ 36
$\therefore$ Gain = 36 – 25 = ₹ 11
$\because$ ₹ 11 ≡ 15 eggs

$\therefore$ ₹ 143 ≡ $\frac{15}{11} \times 143$
= 195 eggs

26. (1) Let the man buys 24 (LCM of 8 and 12) oranges.
$\therefore$ C.P. of 24 oranges
$= \frac{34}{8} \times 24 = ₹ 102$
S.P. of 24 oranges
$= \frac{57}{12} \times 24 = ₹ 114$
Gain = 114 – 102 = ₹ 12
$\because$ ₹ 12 ≡ 24 oranges
$\therefore$ ₹ 45 ≡ $\frac{24}{12} \times 45 = 90$ oranges

27. (4) C.P. of 50 pens = 50 × 50
= ₹ 2500
For profit of 10%,
S.P. = $\frac{2500 \times 110}{100}$ = ₹ 2750
S.P. of 40 pens at a loss of 5%
$= \frac{40 \times 50 \times 95}{100}$ = ₹ 1900
$\therefore$ S.P. of remaining 10 pens
= 2750 – 1900 = ₹ 850
$\therefore$ Gain %
$= \frac{850 - 500}{500} \times 100 = 70\%$

28. (1) Loss = 5 – 4.50 = 0.50
$\therefore$ Loss percent = $\frac{0.50}{5} \times 100$
= 10%
Aliter : Using Rule 13,
Here, a = b, x = 5a
y = 4.50a

$\text{Loss \%} = \left(\frac{ay - bx}{bx}\right) \times 100\%$

$= \left(\frac{4.50a^2 - 5a^2}{5a^2}\right) \times 100\%$

$= \left(\frac{-0.5a^2}{5a^2}\right) \times 100\%$

= 10% (–ve sign shows loss)

29. (1) Using Rule 1,
Let the CP of each watch be x.
$\therefore$ CP of 14 watches = $14x$
and SP of 14 watches = ₹ 6300
According to the question,
$6300 - 14x = 4x$
$\Rightarrow 18x = 6300$
$\Rightarrow x = \frac{6300}{18}$ = ₹ 350

30. (3) Using Rule 1,
CP of each article
= ₹ $\frac{P}{12}$ and SP = ₹ $\frac{P}{8}$

Gain = $\frac{P}{8} - \frac{P}{12} = \frac{3P - 2P}{24} = \frac{P}{24}$

$\therefore$ Gain per cent =

$$\frac{\frac{P}{24}}{\frac{P}{12}} \times 100 = 50\%$$

31. (3) C.P. of 5 lemons

$= \frac{100}{140} \times 14 =$ ₹ 10

$\therefore$ C.P. of 12 lemons

$= \frac{10}{5} \times 21$ = ₹ 24

Aliter : Using Rule 13,
Here, a = 12, x = ?
b = 5, y = 14, Gain% = 40%

$$\text{Gain\%} = \left(\frac{ay - bx}{bx}\right) \times 100\%$$

$$40\% = \left(\frac{12 \times 14 - 5 \times x}{5x}\right) \times 100\%$$

$2x = 168 - 5x$
$7x = 168$
$x = 24$

32. (4) If a articles are bought for ₹ x and b articles are sold for ₹ y, then

$$\text{Gain per cent} = \left(\frac{ya - xb}{xb}\right) \times 100$$

$$= \frac{(11 \times 110 - 10 \times 100)}{10 \times 100} \times 100$$

$$= \frac{1210 - 1000}{1000} \times 100 = 21\%$$

Aliter : Using Rule 13,
Here, a = 11, x = 100
b = 10, y = 110

$$\text{Gain\%} = \left(\frac{ay - bx}{bx}\right) \times 100\%$$

$$= \left(\frac{11 \times 110 - 10 \times 100}{10 \times 100}\right) \times 100\%$$

$$= \left(\frac{1210 - 1000}{1000}\right) \times 100\%$$

$= 21\%$

33. (4) Cost price of sewing machine

$= 1080 \times \frac{100}{90}$

= ₹ 1200

$\therefore$ S.P. for a profit of 10%

$= \frac{1200 \times 110}{100}$ = ₹ 1320

34. (2) Number of oranges bought = 100 (let)
C.P. = ₹100 (let)
S.P of 40 oranges = ₹ 100

$\therefore$ Gain percent = $\frac{100 - 40}{40} \times 100$

= 150 %
Remaining oranges = 60

Their 80 % = $\frac{60 \times 80}{100}$ = 48

These are sold at a profit of 75 %

$\therefore$ Their S.P. = $\frac{48 \times 175}{100}$ = ₹ 84

$\therefore$ Gain per cent = 84%

35. (2) First S.P. of article

$= \frac{200 \times 90}{100}$ = ₹ 180

After decrease of 5%,

S.P. = $\frac{180 \times 95}{100}$ = ₹ 171

36. (1) Using Rule 3,
C.P. of article

$= \frac{100}{100 - \text{loss per cent}} \times$ S.P.

$= \frac{100}{100 - 15} \times 102$ = ₹ 120

On selling at Rs. 134.40,
Gain = ₹ (134.4 – 120)
= ₹ 14.4
$\therefore$ Gain per cent

$= \frac{14.4}{120} \times 100 = 12\%$

37. (1) C.P. of first toy = ₹ x
C.P. of second toy = ₹ y

$\therefore \frac{x \times 112}{100} = 504$

$\Rightarrow x = \frac{504 \times 100}{112}$ = ₹ 450

Again, $y \times \frac{96}{100} = 504$

$\Rightarrow y = \frac{504 \times 100}{96}$ = ₹ 525

Total C.P. = ₹ (450 + 525)
= ₹ 975
Total S.P. = 2 × 504
= ₹ 1008
Gain = 1008 – 975 = ₹ 33

$\therefore$ Profit per cent = $\frac{33 \times 100}{975}$

$= \frac{44}{13} = 3\frac{5}{13}\%$

38. (4) For A,

C.P. of horse = $4800 \times \frac{100}{80}$

= ₹ 6000
For B,

S.P. = $\frac{6000 \times 115}{100}$ = ₹ 6900

B's profit = Rs. (6900 – 4800)
= ₹ 2100

39. (4) C.P. of each apple = $\frac{100}{10}$

= ₹ 10
S.P. of each apple

= ₹ $\left(10 \times \frac{125}{100}\right)$ = ₹ 12.50

$\therefore$ Number of apples sold for Rs.

$100 = \frac{100}{12.5} = 8$

40. (2) Cost price of table = ₹ x (let)
According to question,

$\frac{113x}{100} + 25 = \frac{118x}{100}$

[S. P. at R% profit

$= \frac{(100 + R)}{100} \times$ C.P.]

$\Rightarrow \frac{118x}{100} - \frac{113x}{100} = 25$

$\Rightarrow \frac{5x}{100} = 25 \Rightarrow \frac{x}{20} = 25$

$\Rightarrow x = 25 \times 20 =$ ₹ 500

Aliter : Using Rule 11,
Here, x = 13%,
R= 25, y = 18%

$$\text{C.P. of table} = \left(\frac{R}{y - x}\right) \times 100$$

$$= \left(\frac{25}{18 - 13}\right) \times 100$$

$$= \frac{25}{5} \times 100$$

= ₹ 500

41. (3) C.P. of watch = ₹ x (let)

$\therefore$ S.P. of watch = $\frac{x \times 95}{100}$

= ₹ $\frac{19x}{20}$

Case II,

S.P. = ₹ $\left(\frac{19x}{20} + 56.25\right)$

Profit percent = 10 %

$\therefore \frac{x \times 110}{100} = \frac{19x}{20} + 56.25$

$\Rightarrow \frac{11x}{10} - \frac{19x}{20} = 56.25$

$\Rightarrow \frac{22x - 19x}{20} = 56.25$

$\Rightarrow \frac{3x}{20} = 56.25$

$\Rightarrow 3x = 56.25 \times 20$

$\Rightarrow x = \frac{56.25 \times 20}{3}$ = ₹ 375

Aliter : Using Rule 11,
Here, x = 5%, R = 56.25,
y = 10%

C.P. = $\left(\frac{R}{y + x}\right) \times 100$

= $\frac{56.25}{10 + 5} \times 100$

= $\frac{56.25}{15} \times 100$

= $\frac{5625}{15}$ = ₹ 375

42. (2) Using Rule 3,
C.P. of cycle = ₹ 1650
Loss = 8%
$\therefore$ S.P. of cycle

= $\left(\frac{100 - \text{loss}\%}{100}\right) \times$ C.P.

= $\frac{100 - 8}{100} \times 1650$

= $\frac{92 \times 1650}{100}$ = ₹ 1518

43. (4) C.P. of table = Rs. x (let)
According to question,

$\frac{x \times 90}{100}$ = 1800

$\Rightarrow x = \frac{1800 \times 100}{90}$ = Rs. 2000

For a profit of 15%,

S.P. = $\frac{2000 \times 115}{100}$ = Rs. 2300

Aliter : Using Rule 3,
S.P. = ₹ 1800, Loss%= 10%

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

= $1800\left(\frac{100}{100 - 10}\right)$

= $\frac{180000}{90}$ = Rs. 2000

Now New S.P.

= C.P. $\left(\frac{100 + \text{Profit}\%}{100}\right)$

= $2000\left(\frac{100 + 15}{100}\right)$

= $2000 \times \frac{115}{100}$

= Rs. 2300

44. (2) Cost price for the manufacturer = Rs. x (let)

$\therefore x \times \frac{118}{100} \times \frac{120}{100} \times \frac{125}{100}$

= 15045

$\Rightarrow x = \frac{15045 \times 1000000}{118 \times 120 \times 125}$

= Rs. 8500

45. (4) Let C.P. of article be Rs. x.
According to the question,
108% of x – 105% of x = 240

$\Rightarrow \frac{108x}{100} - \frac{105x}{100} = 240$

$\Rightarrow \frac{3x}{100} = 240$

$\Rightarrow x = \frac{24000}{3}$ = Rs. 8000

Note : In the original question it is Rs. 40, not Rs. 240.
Aliter : Using Rule 11,
Here, x = 5%, R = 240, y = 8%

C.P. = $\frac{R}{y - x} \times 100$

= $\frac{240}{8 - 5} \times 100$

= Rs 8000

46. (2) C.P. of radio = Rs. x (let)
According to the question,

$\frac{130x}{100} - \frac{120x}{100} = 60$

$\Rightarrow \frac{10x}{100} = 60$

$\Rightarrow x = 60 \times 10$ = Rs. 600

Aliter : Using Rule 11,
Here, x = 20%,
R = Rs 60, y = 30%

C.P. = $\frac{R}{(y - x)} \times 100$

= $\frac{60}{(30 - 20)} \times 100$

= Rs. 600

47. (1) C.P. of cycle = Rs. x (let)

$\therefore$ S.P. = $\frac{110x}{100}$ = Rs. $\frac{11x}{10}$

Case II,

New C.P. = Rs. $\frac{9x}{10}$

$\therefore \frac{11x}{10} + 60 = \frac{9x}{10} \times \frac{125}{100}$

= Rs. $\frac{9x}{8}$

$\Rightarrow \frac{9x}{8} - \frac{11x}{10} = 60$

$\Rightarrow \frac{90x - 88x}{80} = 60$

$\Rightarrow \frac{2x}{80} = 60$

$\Rightarrow \frac{x}{40} = 60$

$\Rightarrow x = 60 \times 40$

= Rs. 2400

48. (3) Profit percent

= $\frac{5 - 3}{3} \times 100$

= $\frac{200}{3} = 66\frac{2}{3}\%$

49. (1) C.P. of watch for A = Rs. x (let).
According to the question,

$x \times \frac{105}{100} \times \frac{104}{100} = 91$

$\Rightarrow x = \frac{91 \times 100 \times 100}{105 \times 104}$

= $\frac{250}{3}$ = Rs. 83.33

50. (2) C.P. for Swati

$= \text{Rs.}\left(\frac{120\times125}{100}\right) = \text{Rs. } 150$

C.P. for Divya

$= \text{Rs. } \left(\frac{100}{110}\times198\right)$

$= \text{Rs. } 180$

$\therefore$ S.P. for Swati = Rs. 180

$\therefore$ Profit percent

$= \frac{180-150}{150} \times 100 = \frac{30\times2}{3}$

$= 20\%$

51. (1) C.P. of article = Rs. x (let).

According to the question,

$$\frac{94x}{100} + 64 = \frac{x\times110}{100}$$

$$\Rightarrow \frac{110x}{100} - \frac{94x}{100} = 64$$

$$\Rightarrow \frac{16x}{100} = 64 \Rightarrow x = \frac{64\times100}{16}$$

$= \text{Rs. } 400$

52. (4) Initial profit on article

= Rs. (78 – 69) = Rs. 9

$\therefore$ C.P. of article

= Rs. (69 – 9) = Rs. 60

53. (2) C.P. of each article

$= \frac{2400}{80} = \text{Rs. } 30$

Profit = 16%

$\therefore$ S.P. of each article

$= \text{Rs. } \left(\frac{30\times116}{100}\right) = \text{Rs. } 34.80$

54. (2) Let the C.P. of the book be Rs. x.

$\therefore$ S.P. of the book = Rs. $\frac{70x}{100}$

$= \text{Rs. } \frac{7x}{10}$

Case II,

$$\frac{140x}{100} = \frac{7x}{10} + 140$$

$$\Rightarrow \frac{14x}{10} - \frac{7x}{10} = 140$$

$$\Rightarrow \frac{7x}{10} = 140 \Rightarrow 7x = 1400$$

$$\Rightarrow x = \frac{1400}{7} = \text{Rs. } 200$$

55. (4) Let the C.P. of cloth be Rs. x per metre.

According to the question,

$$x \times \frac{90}{100} = 9$$

$$\Rightarrow x = \frac{900}{90} = 10$$

To gain 15%,

S.P. = Rs. $\left(\frac{10\times115}{100}\right)$ per metre

= Rs. 11.50 per metre

56. (3) Let total expenditure on repairing be Rs. x.

$\therefore$ Actual C.P. = Rs. (1000 + x)

$\therefore$ Total S.P. = Rs. (300 × 30)

= Rs. 9000

Total profit = Rs. (150 × 30)

= Rs. 4500

$\therefore$ 9000 – (1000 + x) = 4500

$\Rightarrow$ 1000 + x = 9000 – 4500 = 4500

$\Rightarrow x$ = 4500 – 1000 = Rs. 3500

57. (3) Let Kamal eat x apples.

According to the question,

$$x \times \frac{140}{100} = 70 \Rightarrow \frac{14x}{10} = 70$$

$$\Rightarrow x = \frac{70\times10}{14} = 50$$

58. (2) Five crates out of 25 crates of oranges were lost.

$\therefore$ C.P. of 20 crates of oranges

= Rs. 10000

S.P. of 20 crates of oranges

$= \text{Rs. } \left(\frac{10000\times125}{100}\right)$

= Rs. 12500

$\therefore$ S.P. per crate = $\frac{12500}{20}$

= Rs. 625

59. (3) Let the C.P. of article be Rs. x.

According to the question,

(118 – 115)% of x = 6

$$\Rightarrow \frac{x\times3}{100} = 6$$

$$\Rightarrow x = \frac{600}{3} = \text{Rs. } 200$$

TYPE-IV

1. (1) According to the question

$$\frac{\text{Cost price}}{\text{Selling price}} = \frac{5}{4}$$

$$\therefore \text{Selling price} = \frac{4}{5}\times\text{Cost price}$$

Loss = Cost price – Selling price

$$= \text{Cost price} - \frac{4}{5}\text{ Cost price}$$

$$= \frac{1}{5}\text{ Cost price}$$

$$\therefore \text{Loss \%} = \frac{\frac{1}{5}\text{Cost price}\times100}{\text{Cost price}}$$

$$= \frac{100}{5} = 20\%$$

Method 2 : Tricky Approach

₹ 1 is loss on ₹ 5.

$$\therefore \text{loss \%} = \frac{1}{5}\times100 = 20\%$$

Aliter : Using Rule 2,

Here, C.P. = 5x, S.P. = 4x

$$\text{Loss\%} = \frac{\text{Loss}}{\text{C.P.}}\times100$$

$$= \frac{5x-4x}{5x}\times100$$

$$= 20\%$$

2. (1) Using Rule 1,

Tricky Approach

$$\text{Gain\%} = \frac{(21-20)}{20}\times100$$

$$= \frac{1}{20}\times100 = 5\%$$

3. (2) Let the C.P. be x

$\therefore$ (6 – 4)% of x = 3

$\Rightarrow$ 2% of x = 3

$$\Rightarrow x = \frac{300}{2} = 150$$

$\therefore$ S.P. at 4% gain

$$= \frac{150\times104}{100} = ₹\ 156$$

and S.P. at 6% gain

$$= \frac{150\times106}{100} = ₹\ 159$$

$\therefore$ The required ratio

= 156 : 159 = 52 : 53

4. (1) Let Milk : Water = K : 1
∴ S.P. = (K + 1) × 9
C.P. = 10K
Gain = 9 – K

$$\text{Gain \%} = \frac{9-K}{10K}\times 100$$

$$\Rightarrow \frac{9-K}{10K}\times 100 = 20$$

$\Rightarrow$ 90 – 10K = 20K
$\Rightarrow$ 30K = 90
$\Rightarrow$ K = 3
∴ Ratio = 3 : 1

5. (3) CP of refrigerator = ₹ $5x$
CP of television = ₹ $3x$
∴ $2x = 5500$

$$\Rightarrow x = \frac{5500}{2} = 2750$$

∴ CP of refrigerator = 5 × 2750
= ₹ 13750

6. (3) Gain per cent

$$\frac{210\times(5+3)-[180\times 5+200\times 3]}{180\times 5+200\times 3}\times 100$$

$$= \frac{1680-1500}{1500}\times 100$$

$$= \frac{180}{1500}\times 100 = 12\%$$

7. (4) Let the first investment be $3x$
Then second investment be $5x$
Combined loss %

$$= \frac{3x\times\frac{15}{100}-5x\times\frac{10}{100}}{3x+5x}\times 100$$

$$= \frac{\frac{45x}{100}-\frac{50x}{100}}{8x}\times 100$$

$$= \frac{-5x}{8x\times 100}\times 100$$

$$= \frac{-5}{8} \text{ per cent or } \frac{5}{8}\%\text{loss}$$

[–ve sign shows loss].

8. (3) Using Rule 1,
Let the CP = $8x$ and SP = $9x$
∴ Profit = $(9x – 8x) = x$
∴ Profit %

$$= \frac{x}{8x}\times 100 = \frac{25}{2} = 12.5\%$$

9. (4) Let the printed price of the book be x.
∴ Selling price = 90% of x

$$= x\times\frac{90}{100} = \frac{9x}{10}$$

If the CP of the book be y, then

$$y\times\frac{112}{100} = \frac{9x}{10}$$

$$\frac{y}{x} = \frac{9}{10}\times\frac{100}{112} = \frac{45}{56} \text{ or } 45:56$$

10. (3) If C.P. = ₹ 100
S.P. = ₹ 300 [gain being 200%]
∴ Required ratio = 1 : 3
Aliter : Using Rule 3,

$$\frac{\text{C.P.}}{\text{S.P.}} = \frac{100}{100+\text{Profit\%}}$$

$$= \frac{100}{100+200}$$

$$= \frac{100}{300} = 1:3$$

11. (3) Let C.P. be 100 then,
S.P. = 105 [gain being 5%]
Required ratio
= 105 : 100 = 21 : 20
Aliter : Using Rule 3,

$$\frac{\text{C.P.}}{\text{S.P.}} = \frac{100}{100+\text{Profit\%}}$$

$$= \frac{100}{100+5}$$

$$= \frac{100}{105} = \frac{20}{21} = 20:21$$

12. (1) Using Rule 1,
Let the cost price = $5x$ and the selling price = $6x$.

$$\text{Gain \%} = \frac{6x-5x}{5x}\times 100 = 20\%$$

13. (1) Using Rule 1,
Let Cost price = $10x$
Selling price = $11x$
∴ Gain per cent

$$= \frac{11x-10x}{10x}\times 100$$

$$= \frac{x}{10x}\times 100 = 10\%$$

14. (3) $b = a\times\frac{200}{100} = 2a$

$$\frac{b}{a} = 2 \Rightarrow \frac{b}{a}-1 = 2-1$$

$$\Rightarrow \frac{b-a}{a} = 1 \Rightarrow \frac{b-a}{a}\times 100 = 100$$

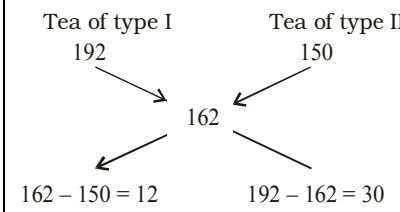
∴ Gain per cent = 100%

15. (2) B entered after x months.
Ratio of equivalent capitals for 1 month
= 64000 × 12 : 48000 (12 – x)
= 16 : (12 – x)

$$\therefore \frac{16}{12-x} = \frac{2}{1} \Rightarrow 24-2x = 16$$

$\Rightarrow 2x = 8 \Rightarrow x = 4$ months

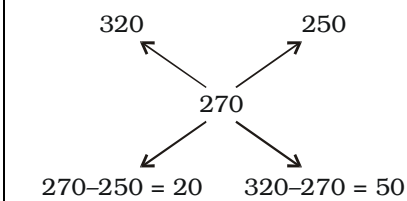
16. (1) By the rule of alligation, CP of mixed tea $= \frac{100}{120}\times 194.40$
= ₹ 162 /kg



∴ Required ratio $= \frac{12}{30} = \frac{2}{5}$ or 2 : 5

17. (4) CP of the mixture

$$= \frac{324\times 100}{120} = ₹\ 270$$

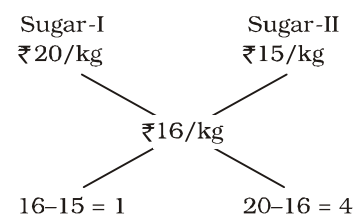


∴ Required ratio = 2 : 5

18. (4) Let x kg of sugar costing ₹ 20/kg and y kg of sugar costing ₹ 15/kg are mixed.
According to the question,
$20x + 15y = 16(x + y)$
$\Rightarrow 20x + 15y = 16x + 16y$
$\Rightarrow 20x – 16x = 16y – 15y$
$\Rightarrow 4x = y$

$$\therefore \frac{x}{y} = \frac{1}{4} \text{ or } 1:4$$

Method 2 :
By the rule of alligation,

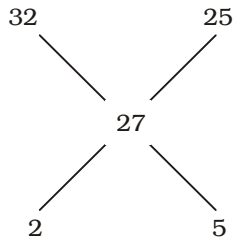


∴ Required ratio = 1 : 4

19. (4) If the C.P. of the mixture be ₹ x per kg, then

$$x \times \frac{120}{100} = 32.40$$

$$\Rightarrow x = \frac{32.40 \times 100}{120} = 27$$

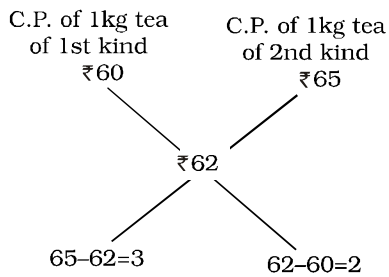


∴ Required ratio = 2 : 5

20. (1) S.P. of 1 kg mixture = ₹ 68.20, Gain = 10%
∴ C.P. of 1 kg mixture

$$= ₹ \left(68.20 \times \frac{100}{110}\right) = ₹ 62$$

By the rule of alligation,



∴ Required ratio = 3 : 2

21. (2) Average price of blended tea

$$= \frac{280 \times 7 + 240 \times 9}{16}$$

$$= \frac{1960 + 2160}{16}$$

$$= \frac{4120}{16} = ₹ 257.50 \text{ kg}$$

22. (4) C.P. of 40kg of mixture
= ₹ (15 × 29 + 25 × 20)
= ₹ (435 + 500) = ₹ 935
S.P. of 40kg of mixture
= 27 × 40 = ₹ 1080
∴ Gain = 1080 – 935 = ₹ 145

23. (2) Let the profit be x
According to question,

$$\left(1 - \frac{1}{3} - \frac{1}{4}\right) x = ₹ 5000$$

$$\text{or } \left(\frac{12 - 4 - 3}{12}\right) x = ₹ 5000$$

$$\frac{5}{12} x = ₹ 5000$$

$$\therefore x = \frac{5000 \times 12}{5}$$

$$\therefore \frac{1}{3} = \frac{5000 \times 12}{5 \times 3} = ₹ 4000$$

24. (1) Ratio of investment of A : B
= 2560 : 2000 = 32 : 25
Now, A gained = ₹ 320
B gained = ₹ 250
Total Profit = ₹ 110
∴ C gained = ₹ 535
According to question,

$$\frac{250}{535} = \frac{2000}{\text{C's Capital}}$$

Hence, C's capital

$$= \frac{2000 \times 535}{250} = ₹4280$$

25. (3) Let the total profit be ₹ x.

∴ A 's share in profit = ₹ $\frac{3x}{5}$

B 's share in profit = ₹ $\frac{x}{5}$

and C 's share in profit = ₹ $\frac{x}{5}$

According to the question,

$$\left(\frac{3x}{5} - \frac{x}{5}\right) = 400$$

$$\Rightarrow \frac{2x}{5} = 400$$

$$\Rightarrow x = \frac{400 \times 5}{2} = ₹ 1000$$

26. (2) 8A = B × 12 = 6C

$$\Rightarrow \frac{8A}{24} = \frac{12B}{24} = \frac{6C}{24}$$

$$\Rightarrow \frac{A}{3} = \frac{B}{2} = \frac{C}{4}$$

∴ A : B : C = 3 : 2 : 4
∴ B's share

$$= \frac{2}{3 + 2 + 4} \times 864$$

$$= \frac{2}{9} \times 864 = ₹ 192$$

27. (4) Initially, A's capital = ₹ x

B's capital = ₹ $\frac{3x}{2}$

Ratio of the equivalent capitals of A and B for 1 month

$$= \left(x \times 10 + \frac{3x}{4} \times 2\right) : \left(\frac{3x}{2} \times 8 + \frac{3x}{4} \times 4\right)$$

$$= \left(10x + \frac{3x}{2}\right) : (12x + 3x)$$

= 23 : 30

A' share = $\frac{23}{53} \times 53000$

= ₹ 23000

28. (1) Share of rent = (number of oxen × time)
A : B : C
= (10 × 7) : (12 × 5) : (15 × 30)
A : B : C = 70 : 60 : 45
A : B : C = 14 : 12 : 9
C's share of rent

$$= \frac{9}{14 + 12 + 9} \times 175$$

$$= \frac{9}{35} \times 175 = 45$$

∴ C's share of rent is ₹ 45

29. (1) Ratio of profit sharing among A, B and C
= Ratio of equivalent capitals of A, B and C for 1 month
= 320000 × 4 : 510000 × 3 : 270000 × 5
= 32 × 4 : 51 × 3 : 27 × 5
= 128 : 153 : 135
Sum of ratios
= 128 + 153 + 135 = 416
Total profit = ₹ 124800

∴ A's share = $\frac{128}{416} \times 124800$

= ₹ 38400

30. (2) Ratio of equivalent capitals of A and B for 1 month
= 100000 × 36 : 200000 × 24
= 36 : 48 = 3 : 4

Part of profit gained by A = $\frac{3}{7}$

Part of profit gained by B = $\frac{4}{7}$

∴ Required difference

$$\left(\frac{4}{7} - \frac{3}{7}\right) \times 84000 = ₹ 12000$$

31. (4) Ratio of equivalent capitals of A, B and C for 1 month
= (40500 × 6 + 45000 × 6) : (45000 × 12) : (60000 × 6 + 45000 × 6)
= (405 + 450) : (450 × 2) : (600 + 450) = 855 : 900 : 1050
= 171 : 180 : 210

= 57 : 60 : 70
Sum of the ratios = 57 + 60 + 70
= 187
Required difference

$= \frac{70-57}{187} \times 56100$

$= \frac{13}{187} \times 56100 = ₹\ 3900$

32. (3) A : B = 1 : 3
B : C = 1 : 3 = 3 : 9
C : D = 1 : 3 = 9 : 27
∴ A : B : C : D = 1 : 3 : 9 : 27
Sum of ratios = 1 + 3 + 9 + 27
= 40
∴ C's share in profit

$= \frac{9}{40} \times 400000 = ₹\ 90{,}000$

33. (3) A's investment of ₹ 3500 is for 12 months
B's investment (let it be ₹ x) is for 7 months only.
At the end of the year the profit is divided in the ratio 2 : 3 and it must be equal to the ratio of the product, (Amount × time)

$\frac{12 \times 3500}{7x} = \frac{2}{3}$

or $x = \frac{12 \times 3500}{7} \times \frac{3}{2}$

or x = 9000
∴ B's investment is ₹ 9000.

34. (4) Let B remained in business for x months.
Ratio of equivalent capitals
= 45000 × 12 : 54000 × x
= 10 : x

$\therefore \frac{10}{x} = \frac{2}{1}$

$\Rightarrow 2x = 10 \Rightarrow x = 5$
Clearly, B joined after (12 – 5) = 7 months.

35. (1) Initial investment :
A = ₹ 5x
B = ₹ 4x
C = ₹ 3x
∴ Ratio of their equivalent capitals for 1 month
= 5x × 12 : (4x × 4 + (4x + 1000) × 8) : (3x × 8 + (3x + 2000) × 4)
= 15x : (12x + 2000) : (9x + 2000)

$\therefore \frac{15x}{12x+2000} = \frac{15}{14}$

$\Rightarrow 14x = 12x + 2000$
$\Rightarrow 2x = 2000$
$\Rightarrow x =$ ₹ 1000
∴ C's investment = ₹ 3000

36. (2) Ratio of equivalent capitals of A, B and C for 1 month

$= \left(x \times 6 + \frac{3x}{2} \times 6\right) : (2x \times 6 + 4x \times 6) : (4x \times 6 + 3x \times 6)$

$= 15x : 36x : 42x$
$= 5 : 12 : 14$

37. (1) A : B = 5 : 4 = 10 : 8
B : C = 8 : 9
∴ A : B : C = 10 : 8 : 9
Sum of ratios = 10 + 8 + 9 = 27

$\therefore$ C's share $= \frac{9}{27} \times 3600$

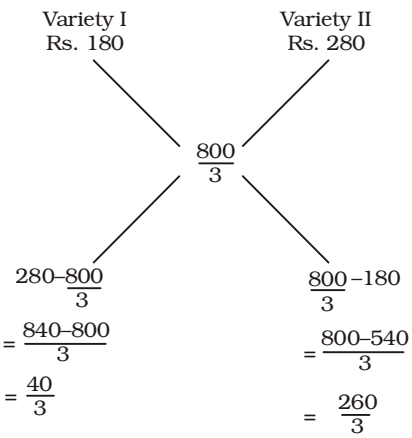
= ₹ 1200

38. (4) C.P. of mixture

$= \frac{320 \times 100}{120}$

$=$ Rs. $\frac{800}{3}$ per kg.

By rule of alligation,



∴ Required ratio = $\frac{40}{3} : \frac{260}{3}$

= 2 : 13

39. (3) C.P. of mobile = Rs. x (let)

$\therefore \frac{x \times 112}{100} = P$

and, $\frac{96x}{100} = Q$

$\therefore Q : P = \frac{96x}{100} : \frac{112x}{100}$

= 96 : 112 = 6 : 7

40. (3) Using Rule 1,
Cost price = Rs. 10x
S.P. = Rs. 11x
∴ Gain per cent

$= \frac{(11x - 10x)}{10x} \times 100$

$= \frac{100}{10} = 10\%$

41. (2) Distribution among A, B and C :
Actual ratio = $\frac{1}{2} : \frac{1}{3} : \frac{1}{4}$

$= \left(\frac{1}{2} \times 12\right) : \left(\frac{1}{3} \times 12\right) : \left(\frac{1}{4} \times 12\right)$

= 6 : 4 : 3
Wrong ratio = 2 : 3 : 4
Clearly, C gained.
Gain

$=$ Rs. $\left(\frac{4}{9} \times 1170 - \frac{3}{13} \times 1170\right)$

= Rs. (520 – 270) = Rs. 250

42. (2) C.P. of first watch = Rs.16x
C.P. of second watch = Rs. 23x
According to the question,
Ratio after corresponding increases,

$= \frac{11}{20}$

$\Rightarrow \frac{\frac{16x \times 110}{100}}{23x + 477} = \frac{11}{20}$

$\Rightarrow \frac{1760x}{100(23x + 477)} = \frac{11}{20}$

$\Rightarrow \frac{160x}{5(23x + 477)} = 1$

$\Rightarrow 160x = 115x + 2385$
$\Rightarrow 160x - 115x = 2385$
$\Rightarrow 45x = 2385$

$\Rightarrow x = \frac{2385}{45} = 53$

∴ Original C.P of second watch
= Rs. 23x
= Rs. (23 × 53)
= Rs.1219

43. (1) Let 3 litres of liquid X and 2 litres of liquid Y be mixed together.
Cost of liquid Y = Rs. x /litre
Cost of liquid Y = Rs. (x + 2)/litre
According to the question,
Cost of the mixture
= Rs. (3x + 6 + 2x) = Rs. (5x + 6)

$\therefore (5x + 6) \times \frac{110}{100} = 11 \times 5$

$\Rightarrow 5x + 6 = \frac{11 \times 5 \times 10}{11} = 50$

$\Rightarrow 5x = 50 - 6 = 44$

$\Rightarrow x = \frac{44}{5}$ = Rs. 8.8

$\therefore$ Cost of liquid X = 8.8 + 2
= Rs. 10.8/litre

44. (1) If the cost of milk be Rs. 100, then S.P. = Rs. 120
$\therefore$ Required ratio = 20 :100=1 : 5

45. (4) Let total profit be Rs. x.
Remaining profit after donations to charity

= Rs. $\frac{95x}{100}$

= Rs. $\frac{19x}{20}$

A : B = 3 : 2
Sum of the terms of the ratio
= 3 + 2 = 5

$\therefore$ A's share = $\frac{19x}{20} \times \frac{3}{5}$

$\therefore \frac{19 \times 3x}{100} = 8550$

$\Rightarrow x = \frac{8550 \times 100}{19 \times 3}$ = Rs. 15000

46. (2) C.P. of article = Rs. $10x$
Its S.P. = Rs. $11x$
Profit = Rs. $(11x - 10x)$ = Rs. x
$\therefore$ Profit per cent

= $\frac{x}{10x} \times 100$ = 10%

47. (2) Let B's profit be Rs. x.
$\therefore$ A's profit = Rs. $(1650 - x)$
According to the question,

$\frac{1650 - x}{3} = \frac{2x}{5}$

$\Rightarrow 6x = 1650 \times 5 - 5x$
$\Rightarrow 6x + 5x = 8250$
$\Rightarrow 11x = 8250$

$\Rightarrow x = \frac{8250}{11}$ = Rs. 750

48. (3) C.P. of article = Rs. x (let)
Its S.P. = Rs. y

$\therefore x \times \frac{5}{100} = \frac{y \times 4}{100}$

$\Rightarrow \frac{x}{y} = \frac{4}{5}$ = 4 : 5

49. (1) Ratio of the equivalent capitals of Anil and Vishal for 1 month
= 25000 × 12 : 30000 × 9
= 25 × 12 : 30 × 9
= 10 : 9
Sum of the terms of ratio
= 10 + 9 = 19

Anil's share = $\frac{10}{19} \times 19000$

= Rs. 10000

50. (3) Case I,

A : B : C = $\frac{1}{5} : \frac{1}{4} : \frac{1}{8}$

= $\left(\frac{1}{5} \times 40\right) : \left(\frac{1}{4} \times 40\right) : \left(\frac{1}{8} \times 40\right)$

[LCM of 5, 4 and 8 = 40]

= 8 : 10 : 5

Sum of the terms of ratio

= 8 + 10 + 5 = 23

Case II

A : B : C = 5 : 4 : 8

Sum of the terms of ratio

= 5 + 4 + 8 = 17

Clearly C gains

C's profit

= $\left(\frac{8}{17} - \frac{5}{23}\right) \times 391$

= $\frac{8}{17} \times 391 - \frac{5}{23} \times 391$

= 184 – 85 = 99 cookies

51. (3) Let the profit be Rs. = x.
S.P. = Rs. $5x$
$\therefore$ C.P. of article = Rs. $(5x - x)$
= Rs. $4x$
$\therefore$ Required ratio = $5x : 4x$
= 5 : 4

52. (2) C.P. of article = Rs. 100 (let)
On 15% loss,
S.P. of article = Rs. 85
$\therefore$ Required ratio
= 100 : 85 = 20 : 17

53. (2) Total investment by B and C = Rs. 5000
B : C = 2 : 3
$\therefore$ B's investment

= Rs. $\left(\frac{2}{5} \times 5000\right)$

= Rs. 2000
C's investment

= Rs. $\left(\frac{3}{5} \times 5000\right)$

= Rs. 3000
Ratio of the equivalent capitals of A, B and C for 1 month
= 1000 : 2000 : 3000
= 1 : 2 : 3
Sum of the terms of ratio
= 1 + 2 + 3 = 6

$\therefore$ C's share = Rs. $\left(\frac{3}{6} \times 2400\right)$

= Rs. 1200

54. (2) Let the C.P. of article be Rs. $4x$.
Its S.P. = Rs. $5x$
Profit = Rs. $(5x - 4x)$ = Rs. x

$\therefore$ Profit per cent = $\frac{x}{4x} \times 100$

= 25%

55. (2) Ratio of sharing of loss = Ratio of investments
= 3000 : 2400
= 5 : 4
Sum of the terms of ratio
= 5 + 4 = 9
Total loss = Rs. 720
$\therefore$ Loss shared by B

= Rs. $\left(\frac{4}{9} \times 720\right)$ = Rs. 320

57. (2) C.P. of article = Rs. $20x$
S.P. = Rs. $21x$.
$\therefore$ Profit per cent

= $\frac{(21x - 20x)}{20x} \times 100$

= $\frac{100}{20}$ = 5%

58. (4) Profit per cent

= $\frac{26 - 25}{25} \times 100 = \frac{100}{25}$ = 4%

TYPE-V

1. (4) Using Rule 1,
The S.P. after the first discount of 5% on ₹ 80 = ₹$\left(80 - \frac{5 \times 80}{100}\right)$

= ₹ (80 – 4) = ₹ 76
Again, after 5% discount on ₹ 76,

S.P. = ₹$\left(76 - \frac{5 \times 76}{100}\right)$

= ₹ (76 – 3.80) = ₹ 72.20

2. (1) Using Rule 3,
C.P. of first buyer
= ₹ (840 + 10% of 840)
= ₹ (840 + 84) = ₹ 924
Now, this item is sold to the second buyer at 5% loss.
$\therefore$ Final selling price

= ₹ $\left(\frac{95}{100} \times 924\right)$ = ₹ 877.80

3. (3) Using Rule 3,
For two consecutive gains of x% and y %,

Effective gain = $\left(x+y+\frac{xy}{100}\right)\%$

His total gain per cent

$=\left(20+30+\frac{20\times30}{100}\right)=56\%$

4. (1) If the value of a number is first increased by x % and later decreased by x%, the net change is always a decrease which is equal to $\frac{x^2}{100}\%$.

$\therefore$ Required decrease

$=\frac{20\times20}{100}=4\%$

5. (2) Gain per cent

$=\left(10+10+\frac{10\times10}{100}\right)\%=21\ \%$

6. (2) Required percent

$=\left(35-20-\frac{35\times20}{100}\right)\%$

$= 8\%$

TYPE-VI

1. (4) 90% of C.P. = ₹ 240

$\therefore$ C.P = ₹ $\frac{240\times100}{90}$

New S.P. = 120% of C.P.

$=$ ₹ $240\times\frac{100}{90}\times\frac{120}{100}=$ ₹ 320

2. (3) According to question,
S.P. = ₹ 480
Loss% = 20%

$\therefore$ Cost price $=\frac{100}{80}\times480$

= ₹ 200

$\therefore$ Required price

$=\frac{120}{100}\times600=$ ₹ 720

3. (4) C.P. of that article

$=72\times\frac{100}{100-10}$

$=\frac{72\times100}{90}=$ ₹ 80

$\therefore$ S.P. of that article on 5% gain

$=80\times\frac{105}{100}=$ ₹ 84

4. (4) 89% of the cost price
= ₹ 178
$\therefore$ 111% of the cost price

= ₹ $\frac{178}{89}\times111=$ ₹ 222

Aliter : Using Rule 3,

C.P. $=178\times\frac{100}{100-11}$

$=\frac{17800}{89}$

C.P. = 200

S.P. $=200\times\left(\frac{100+11}{100}\right)$

= R. 222

5. (3) **Tricky Approach**
Let C.P. = 100x
(100 – 9)x = 105

(100 + 30)% $x=\frac{105}{91}\times130$

= ₹ 150

Aliter : Using Rule 3,

C.P. $=105\times\left(\frac{100}{100-9}\right)$

$=\frac{105\times100}{91}$

C.P. $=\frac{1500}{13}$

New S.P.= $\frac{1500}{13}\times\left(\frac{100+30}{100}\right)$

= 15 × 10 = Rs150

6. (1) CP of 200kg of sugar
= ₹ (80 × 13.50 + 120 × 16)
= ₹ (1080 + 1920) = ₹ 3000
$\therefore$ CP of 1 Kg of sugar

$=\frac{3000}{200}=$ ₹ 15

$\therefore$ To gain 20% SP = $15\times\frac{120}{100}$

= ₹ 18 /kg.

7. (2) Let the quantity of water mixed be x kg.
Let the CP of 1 kg of pure milk
= ₹ 1

$\therefore$ Gain percent= $\frac{x}{50}\times100$

$\Rightarrow 2x=10\Rightarrow x=5$ kg.

8. (2) SP of article = ₹ 69
Loss % = 8%

$\therefore$ CP = ₹ $\frac{100\times69}{92}$

= ₹ 75
New SP = ₹ 78
$\therefore$ Gain %

$=\frac{78-75}{75}\times100=4\%$

Aliter : Using Rule 3,

C.P. = S.P. × $\frac{100}{100-\text{Loss}\%}$

$=\frac{69\times100}{100-8}$

$=\frac{6900}{92}=$ Rs. 75

New S.P.= C.P. $\left(\frac{100+\text{Profit}\%}{100}\right)$

78 = $75\times\left(\frac{100+\text{Profit}\%}{100}\right)$

7800 = 7500 + 75 Profit%

$\frac{7800-7500}{75}$ = Profit %

$\frac{300}{75}$ = Profit%

Profit% = 4%

9. (4) 100% = 6

C.P. = 80% = $\frac{6}{100}\times80=\frac{24}{5}$

Now, 120% = $\frac{24}{5}$

$100\%=\frac{24\times100}{5\times120}=4$

10. (3) Using Rule 3,

C.P. = $\frac{100}{100-\text{Loss}\%}\times$ S.P.

$=\frac{100}{90}\times45000=$ ₹ 50000

$\therefore$ S.P. = 115% of ₹ 50000

= ₹ $\frac{50000\times115}{100}=$ ₹ 57,500

11. (1) C.P. of radio = $\frac{100}{110}\times990$

= ₹ 900
$\therefore$ Loss = 900 – 890 = ₹ 10
Aliter : Using Rule 3,

C.P. = S.P. $\left(\frac{100}{100+\text{Profit}\%}\right)$

$= 990\left(\frac{100}{100+10}\right)$

$= \frac{99000}{110}$

C.P. = 900

Loss = C.P. – S.P.

= 900 – 890

= ₹ 10

12. (1) C.P. of table

$= 1140 \times \frac{100}{95} =$ ₹ 1200

S.P. at 5% gain

$= \frac{1200 \times 105}{100} =$ ₹ 1260

Aliter : Using Rule 3,

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

$= 1140\left(\frac{100}{100-5}\right)$

$= \frac{114000}{95} =$ Rs 1200

$\text{S.P.} = \text{C.P.} \times \left(\frac{100+\text{Profit}\%}{100}\right)$

$= 1200\left(\frac{100+5}{100}\right)$

$= 1200 \times \frac{105}{100}$

= ₹ 1260

13. (2) If C.P. of radio be ₹ x, then 10% of x = 100

$\Rightarrow x = 1000$

For a gain of $12\frac{1}{2}\%$

$\text{S.P.} = 1000 \times \frac{\left(100+\frac{25}{2}\right)}{100}$

$= \frac{1000 \times 225}{200} =$ ₹ 1125

Aliter : Using Rule 11,

Here, x = 2.5%,

R = 100, y = $7\frac{1}{2}\%$

$\text{C.P.} = \frac{R}{y+x} \times 100$

$= \frac{100 \times 100}{2.5+7.5}$

= Rs 1000

Now New S.P.

$= \text{C.P.} \times \left(\frac{100+\text{Profit}\%}{100}\right)$

$= 1000\left(\frac{100+12.5}{100}\right)$

= 10 × 112.5

= ₹ 1125

14. (4) C.P. of fan

$= ₹ \left(\frac{600 \times 100}{90}\right)$

∴ Required S.P.

$= \frac{600 \times 100}{90} \times \frac{120}{100} =$ ₹ 800

Aliter : Using Rule 3,

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

$= \frac{600 \times 100}{100-10}$

$\text{C.P.} = \frac{60000}{90}$

$\text{C.P.} = \frac{6000}{9}$

New S.P.

$= \text{C.P.} \times \left(\frac{100+\text{Pr ofit}\%}{100}\right)$

$= \frac{6000}{9}\left(\frac{100+20}{100}\right)$

$= \frac{60 \times 120}{9} =$ ₹ 800

15. (4) If the initial C.P. of car be Rs. x, then

∴ First S.P. = $\frac{9x}{10}$

∴ $\frac{9x}{10} \times \frac{120}{100} = 54000$

$\Rightarrow x = \frac{54000 \times 1000}{9 \times 120}$

= ₹ 50000

16. (3) C.P. of article = $\frac{170 \times 100}{85}$

= ₹ 200

∴ Required S.P. = $\frac{200 \times 120}{100}$

= ₹ 240

Aliter : Using Rule 3,

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

$\text{C.P.} = \frac{170 \times 100}{100-15}$

$= \frac{17000}{85}$

C.P. = Rs. 200

New S.P.= $\text{C.P.}\left(\frac{100+\text{Profit}\%}{100}\right)$

$= 200\left(\frac{100+20}{100}\right)$

$= \frac{200 \times 120}{100} =$ ₹ 240

17. (1) CP of chair

$= \frac{100}{75} \times 720 =$ ₹ 960

To gain 25%, SP

$= \frac{125}{100} \times 960 =$ ₹ 1200

Aliter : Using Rule 3,

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

$= \frac{720 \times 100}{100-25}$

$= \frac{72000}{75} =$ Rs. 960

New S.P.= $\text{C.P.}\left(\frac{100+\text{Profit}\%}{100}\right)$

$= \frac{960 \times 125}{100}$

= ₹ 1200

18. (1) Let CP of basket be ₹ x.

∴ 130% of x = 19.50

$\Rightarrow \frac{130 \times x}{100} = 19.50$

$\Rightarrow x = \frac{19.50 \times 100}{130} =$ ₹ 15

For 40% gain,

SP = $\frac{140 \times 15}{100} =$ ₹ 21

Aliter : Using Rule 3

$\text{C.P.} = \text{C.P.}\left(\frac{100+\text{Profit}\%}{100}\right)$

$$= \frac{19.50 \times 100}{100+30}$$

$$= \frac{1950}{130} = \text{Rs. } 15$$

New S.P.

$$= \text{C.P.} \times \left(\frac{100+\text{Profit}\%}{100}\right)$$

$$= 15\left(\frac{100+40}{100}\right)$$

$$= \frac{15 \times 140}{100}$$

$$= \frac{210}{10} = ₹\ 21$$

19. (4) Using Rule 1,

CP of 1 egg = $\frac{720}{20 \times 12} = ₹\ 3$

$\therefore$ Required SP of 1 egg

$= 3 \times \frac{120}{100} = ₹\ 3.60$

20. (4) Using Rule 3,
CP of the article

$$\frac{100}{100 - \text{loss}\%} \times \text{S.P.}$$

$$= ₹\left(\frac{100}{95} \times 665\right) = ₹\ 700$$

For the gain of 12%
SP of the article = 112% of 700

$$= \frac{700 \times 112}{100} = ₹\ 784$$

21. (4) Using Rule 3,
C.P. of article

$$= \frac{100}{100 - \text{Loss}\%} \times \text{S.P.}$$

$$= \frac{100}{100-30} \times 700 = ₹\ 1000$$

S.P. for a profit of 30%

$= 1000 \times \frac{130}{100} = ₹\ 1300$

22. (4) C.P. of wrist watch

$$= \frac{720 \times 100}{75} = ₹\ 960$$

$\therefore$ Required S.P.

$$= \frac{960 \times 125}{100} = ₹\ 1200$$

23. (3) C.P. of article = ₹ x

$\therefore$ S.P. = $\frac{112x}{100}$

New C.P. = $\frac{9x}{10}$

S.P. = $\frac{9x}{10} \times \frac{130}{100} = \frac{117x}{100}$

$\therefore \frac{117x}{100} - \frac{112x}{100} = 5.75$

$\Rightarrow \frac{5x}{100} = 5.75$

$\Rightarrow x = \frac{5.75 \times 100}{5} = ₹\ 115$

$\therefore$ Required S.P. = $\frac{115 \times 120}{100}$

$= ₹\ 138$

24. (1) Using Rule 3,
C.P. of 80 ball pens

$= 140 \times \frac{100}{70} = ₹\ 200$

For a gain of 30%

S.P. = $\frac{200 \times 130}{100} = ₹\ 260$

$\because ₹\ 260 = 80$ ball pens

$\therefore ₹\ 104 = \frac{80}{260} \times 104 = 32$

25. (1) Using Rule 3,
C.P. of 90 ball pens

$= \frac{100}{80} \times 160 = ₹\ 200$

S.P. for a gain of 20%

$= \frac{200 \times 120}{100} = ₹\ 240$

$\because ₹\ 240 = 90$ ball pens

$\therefore ₹\ 96 = \frac{90}{240} \times 96 = 36$

26. (3) Total cost of rice
$= ₹\ (3 \times 10 + 35 \times 11)$
$= ₹\ (300 + 385) = ₹\ 685$
Required S.P. = Rs.

$$\left(\frac{685 \times 130}{100}\right)$$

Rate per kg = $\frac{685 \times 130}{65 \times 100}$

$= ₹\ 13.7$

27. (4) Actual cost price of flat
$= ₹\ (925000 + 35000)$
$= ₹\ 960000$
S.P. = ₹ 1080000
Profit
$= ₹\ (1080000 - 960000)$
$= ₹\ 120000$
Profit percent

$= \frac{120000}{960000} \times 100 = 12.5\%$

28. (3) C.P. of article = Rs. x

$\therefore$ Its S.P. = Rs. $\frac{8x}{5}$

Profit = $\frac{8x}{5} - x = \frac{8x - 5x}{5}$

$= \text{Rs. } \frac{3x}{5}$

$\therefore$ Profit per cent = $\frac{\frac{3x}{5}}{x} \times 100$

$= \frac{3}{5} \times 100 = 60\%$

29. (1) Let the C.P. of each book be Rs. x.
According to the question,
S.P. of 12 copies = Rs. $(12x + 3x)$
= Rs. $15x$
$\therefore 15x = 1800$

$\Rightarrow x = \frac{1800}{15} = \text{Rs. } 120$

30. (2) Let the total quantity of sugar be x kg.
According to the question,
$(100 - 5)\%$ of $x = 5$

$\Rightarrow x \times \frac{95}{100} = 5$

$\Rightarrow x = \frac{500}{95} = \frac{100}{19} = 5\frac{5}{19}$ kg.

TYPE-VII

1. (3) Difference in percentage of sales tax

$= \frac{7}{2} - \frac{10}{3} = \frac{21-20}{6} = \frac{1}{6}\%$

$\therefore$ Required difference

$= \frac{1}{6}\%$ of 8400

$= \frac{1}{6} \times \frac{1}{100} \times 8400 = ₹\ 14$

2. (3) Using Rule 3,
Suppose marked price = ₹ x

$\therefore$ S.P.= ₹ $\frac{2x}{3}$

CP = $\frac{2x}{3 \times 90} \times 100 = \frac{20x}{27}$

Profit at marked price

$= x - \frac{20x}{27} = \frac{7x}{27}$

$\therefore$ Per cent profit $= \dfrac{\frac{7x}{27}}{\frac{20x}{27}} \times 100$

$= \dfrac{7x}{27} \times \dfrac{27}{20x} \times 100 = 35\%$

3. (2) Let the CP of the article be ₹ 100.

$\therefore$ SP = Rs. 119

If the marked price be ₹ x, then,

$\dfrac{85}{100}$ of $x = 119$

$\Rightarrow \dfrac{85}{100} \times x = 119$

$\Rightarrow x = \dfrac{119 \times 100}{85} = 140$

Clearly, the marked price is 40% above the cost price.

4. (2) Let the marked price of the television be ₹ x.

CP for Rita = ₹ (16800 – 800)
= ₹ 16000

$\therefore$ 80% of x = 16000

$\Rightarrow x = \dfrac{16000 \times 100}{80}$

= ₹ 20000

5. (1) Let the marked price of the article be ₹ x.

$\therefore \quad \dfrac{90x}{100} = \dfrac{800 \times 112.5}{100}$

$\Rightarrow \quad \dfrac{9x}{10} = 900$

$\Rightarrow x = \dfrac{900 \times 10}{9}$ = ₹ 1000

6. (4) Let the advertised price be x.

$\Rightarrow$ S.P. $= \dfrac{77x}{100}$

$\Rightarrow$ C.P. $= \left(\dfrac{77x}{100} - 56\right)$

$\therefore \quad \dfrac{77x - 5600}{100} \times \dfrac{110}{100} = \dfrac{77x}{100}$

$\Rightarrow$

$\dfrac{77x - 5600}{100} = \dfrac{77x}{110} = \dfrac{7x}{10}$

$\Rightarrow 77x - 5600 = 70x$

$\Rightarrow 7x = 5600$

$\Rightarrow x$ = ₹ 800

7. (3) Let the CP be ₹ 100. Then, SP = ₹ 120.

Let the marked price be x.

Then, 90% of x = 120

$\Rightarrow x = \dfrac{120 \times 100}{90} = \dfrac{400}{3}$

$= 133\dfrac{1}{3}\%$

It means he should mark $33\dfrac{1}{3}\%$ higher than CP.

8. (4) Let the CP of article be 100.

$\therefore$ Marked price = ₹ 110

After 10% discount,

SP = 90% of ₹ 110 = ₹ 99

$\therefore$ Loss = ₹ 1 i.e. 1% of loss

9. (2) Let the original S.P. be x.

C.P. of the article

$= \dfrac{300 \times 100}{150}$ = ₹ 200

After corresponding increases

$\dfrac{x \times 120}{100} - 200 = 2(x - 200)$

$\Rightarrow \dfrac{6x}{5} - 200 = 2x - 400$

$\Rightarrow 6x - 1000 = 10x - 2000$

$\Rightarrow 4x = 1000 \Rightarrow x$ = ₹ 250

10. (4) Marked price of tape recorder

$= \dfrac{1500 \times 120}{100}$ = ₹ 1800

Gain $= \dfrac{1500 \times 8}{100}$ = ₹ 120

Discount = 1800 – (1500 + 120)
= ₹ 180

Let Discount per cent = x%, then

$\dfrac{1800 \times x}{100} = 180$

$\Rightarrow x = 10\%$

Method 2 :

If the discount be x%, then

$20 - x - \dfrac{20x}{100} = 8$

$\Rightarrow 20 - \dfrac{6x}{5} = 8$

$\Rightarrow \dfrac{6x}{5} = 20 - 8 = 12$

$\Rightarrow x = \dfrac{12 \times 5}{6} = 10\%$

11. (1) Let the C.P. be ₹ 100 and the marked price be ₹ x.

$\therefore \quad x \times \dfrac{88}{100} = 132$

$\Rightarrow x = \dfrac{132 \times 100}{88}$

= 150 i.e., more by 50%

12. (1) If the marked price of the washing machine be ₹ x, then

$\dfrac{x \times 88}{100} = \dfrac{7660 \times 110}{100}$

$\Rightarrow x = \dfrac{7660 \times 110}{88}$ = ₹ 9575

13. (1) S.P. of each book = $\dfrac{75 \times 70}{100}$

= ₹ 52.50

Total S.P. = 1600 × 52.50
= ₹ 84000

Gain = 84000 – 70000 = ₹ 14000

$\therefore$ Gain% $= \dfrac{14000}{70000} \times 100 = 20\%$

14. (1) Let list price of article
= ₹ 100

$\therefore$ CP for Richa

$= 100 \times \dfrac{4}{5}$ = ₹ 80

$\therefore$ S.P. for Richa = ₹ 120

$\therefore$ Gain = 120 – 80 = ₹ 40

$\therefore$ Gain per cent $= \dfrac{40}{80} \times 100$

= 50%

15. (4) Let the cost price be 100 and marked price be ₹ x.

Then, $\dfrac{x \times 90}{100} = 108$

$\Rightarrow \dfrac{9x}{10} = 108$

$\Rightarrow x = \dfrac{108 \times 10}{9} = 120$

$\therefore$ Required percentage = 20%

16. (4) Let C.P. of each sari = ₹ x

Marked price $= \left(\dfrac{112x}{100}\right)$

$\therefore \quad \dfrac{95}{100} \times \dfrac{112x}{100} = 266$

$\Rightarrow x = \dfrac{266 \times 100 \times 100}{95 \times 112}$ = ₹ 250

17. (1) Let Marked price = ₹ x

$\therefore$ C.P. $= \dfrac{7x}{10}$

S.P. $= \dfrac{7x}{10} \times \dfrac{140}{100} = \dfrac{98x}{100}$

$\therefore$ Loss $= x - \frac{98x}{100} = \frac{2x}{100}$

$\therefore$ Loss per cent

$= \frac{2x}{100 \times x} \times 100 = 2\%$

18. (4) If the marked price be Rs. 100, then

C.P. = ₹ 75

S.P. = ₹ 100

$\therefore$ Gain per cent $= \frac{25}{75} \times 100$

$= \frac{100}{3} = 33\frac{1}{3}\%$

19. (3) S.P. of article $= \frac{450 \times 90}{100}$

= ₹ 405

20. (3) C.P. of the article = ₹ 100 and marked price = x

$\therefore x \times \frac{90}{100} = 117$

$\Rightarrow x = \frac{117 \times 100}{90}$

= 130 i.e. 30% above C.P.

21. (3) C.P. of article = ₹ 100

$\therefore$ Marked price = ₹ 130

Selling price

$= \frac{130 \times \left(100 - \frac{25}{4}\right)}{100}$

$= \frac{130 \times 375}{400} = ₹\frac{975}{8}$

$= ₹\left(121\frac{7}{8}\right)$

$\therefore$ Gain $= 21\frac{7}{8}\%$

22. (3) C.P. of article = ₹100

Marked price = ₹ 125

S.P. $= \frac{125 \times 84}{100}$ = ₹ 105

Gain per cent = 5%

Method 2 :

Gain per cent

$= \left(25 - 16 - \frac{25 \times 16}{100}\right)\% = 5\%$

Gain % $= \frac{x - y - xy}{100}$

23. (4) Marked price = ₹ x

$\therefore$ C.P. $= \frac{70x}{100} = ₹\ \frac{7x}{10}$

$\therefore \frac{7x}{10} \times \frac{125}{100} = 8750$

$\Rightarrow x = \frac{8750 \times 1000}{7 \times 125}$ = ₹ 10000

24. (2) Marked price of article = ₹ x

$\therefore x \times (100 - 12)\% = 440$

$\Rightarrow x \times \frac{88}{100} = 440$

$\Rightarrow x = \frac{440 \times 100}{88}$ = ₹ 500

25. (*)Let the marked price of watch be Rs. x

$\therefore$ S.P = Rs. $\frac{4x}{5}$ = C.P. of Pratap

S.P. for Pratap

= Rs. $\frac{117 \times x}{100}$ = Rs. $\frac{117x}{100}$

$\therefore$ Gain $= \frac{117x}{100} - \frac{4x}{5}$

$= \frac{117x - 80x}{100}$

= Rs. $\frac{37x}{100}$

$\therefore$ Gain percent $= \frac{\frac{37x}{100}}{\frac{4x}{5}} \times 100$

$= \frac{37 \times 5}{4} = 46.25\%$

26. (2) Let the marked price be Rs. 100.

Mohan's C.P. = Rs. 80

Mohan's S.P. $= \frac{80 \times 140}{100}$

= Rs. 112

$\therefore$ Required profit percent = 12%

27. (1) Let the C.P. for Mr. X = Rs.x

According to the question,

$\left(100 + \frac{100}{9}\right)\%$ of $x = 5000$

$\Rightarrow x \times \frac{1000}{900} = 5000$

$\Rightarrow x = \frac{5000 \times 9}{10}$ = Rs. 4500

$\therefore$ Discount

= Rs. (5000 – 4500) = Rs. 500

$\therefore$ Discount per cent

$= \frac{500}{5000} \times 100 = 10\%$

TYPE-VIII

1. (3) Let the cost price of the commodity = ₹ x

According to the question,

$524 - x = x - 452$

or $2x = 524 + 452$

or $2x = 976$

or $x = \frac{976}{2} = 488$

The required price = ₹ 488

2. (2) Let the cost price be x.

$\therefore (100 + x)\%$ of $x = 144$

$\Rightarrow (100 + x)x = 14400$

$\Rightarrow x^2 + 100x - 14400 = 0$

$\Rightarrow x^2 + 180x - 80x - 14400 = 0$

$\Rightarrow x(x + 180) - 80(x + 180) = 0$

$\Rightarrow (x + 180)(x - 80) = 0$

$\Rightarrow x$ = ₹ 80 $[x \neq -180]$

3. (1) CP of 144 hens – SP of 144 hens = Loss = SP of 6 hens

$\therefore$ SP of 150 hens

= CP of 144 hens

Let CP of each hen = ₹ 1

CP of 150 hens = ₹ 150

SP of 150 hens = ₹ 144

$\therefore$ Loss% $= \frac{6}{150} \times 100 = 4\%$

Aliter : Using Rule 9,

Here, x = 144, y = 6

Loss% $= \frac{y \times 100}{x + y}$

$= \frac{600}{144 + 6}$

$= \frac{600}{150} = 4\%$

4. (4) Using Rule 3,

Let the CP of the article be x

Gain % = x%

$\therefore \frac{39 - x}{x} \times 100 = x$

$\Rightarrow 3900 - 100x = x^2$

$\Rightarrow x^2 + 100x - 3900 = 0$

$\Rightarrow x^2 + 130x - 30x - 3900 = 0$

$\Rightarrow x(x + 130) - 30(x + 130) = 0$

$\Rightarrow (x - 30)(x + 130) = 0$

$\Rightarrow x = 30$ as x cannot be negative

5. (1) SP of 12 ball pens = CP of 12 ball pens + SP of 4 ball pens.
$\Rightarrow$ SP of 8 ball pens = CP of 12 ball pens
$\therefore$ Gain per cent

$= \frac{4}{8} \times 100 = 50\%$

Aliter : Using Rule 9,
Here, x = 12, y = 4

$\text{Profit\%} = \frac{y \times 100}{x - y}$

$= \frac{4 \times 100}{12 - 4} = 50\%$

6. (2) Using Rule 3,
Let the cost price of article be ₹ x.

$\therefore \left(\frac{100 + x}{100}\right)$ of $x = 75$

$\Rightarrow x^2 + 100x - 7500 = 0$
$\Rightarrow x^2 + 150x - 50x - 7500 = 0$
$\Rightarrow x(x + 150) - 50(x + 150) = 0$
$\Rightarrow (x - 50)(x + 150) = 0$
$\Rightarrow x = 50$ as x can't be negative

7. (3) Let the C.P. of article be x, then, $425 - x = x - 355$
$\Rightarrow 2x = 425 + 355 = 780$

$\Rightarrow x = \frac{780}{2} =$ ₹ 390

8. (3) S.P. of 3 articles
= C.P. of 21 articles – S.P. of 21 articles
$\Rightarrow$ S.P. of 24 articles
= C.P. of 21 articles

$\therefore$ Loss percent $= \frac{24 - 21}{24} \times 100$

$= 12\frac{1}{2}\%$

Aliter : Using Rule 9,
Here, x = 21, y = 3

$\text{Loss\%} = \frac{y \times 100}{x + y}$

$= \frac{3 \times 100}{21 + 3}$

$= \frac{100}{8} = \frac{25}{2} = 12\frac{1}{2}\%$

9. (2) S.P. of 250 chairs – C.P. of 250 chairs
= S.P. of 50 chairs
$\Rightarrow$ S.P. of 200 chairs
= C.P. of 250 chairs
$\therefore$ profit%

$= \frac{250 - 200}{200} \times 100 = 25\%$

Aliter : Using Rule 9,
Here, x = 250, y = 50

$\text{Profit\%} = \frac{y \times 100}{x - y}$

$= \frac{50 \times 100}{250 - 50}$

$= \frac{50}{2} = 25\%$

10. (4) Let C.P. of a ball = x
S.P. of 17 balls = ₹ 720
$\therefore 17x - 720 = 5x$
$\Rightarrow 12x = 720$
$\Rightarrow x =$ ₹ 60

11. (3) S.P. of 36 oranges = C.P. of 36 oranges – S.P. of 4 oranges
$\Rightarrow$ S.P. of 40 oranges
= C.P. of 36 oranges
$\therefore$ Loss per cent

$= \frac{4}{40} \times 100 = 10\%$

Aliter : Using Rule 9,
Here, x = 36, y = 4

Here, loss % $= \frac{y \times 100}{x + y}$

$= \frac{4 \times 100}{36 + 4} = 10\%$

12. (1) C.P. of first painting

$= \frac{20000 \times 100}{125}$

= Rs. 16000
C.P. of second painting

$= \frac{20000 \times 100}{75} =$ Rs. 26666.7

Loss = Rs. (16000 + 26666.7 – 40000)
= Rs. 2666.7

13. (2) Let the C.P. of each article be Re. 1.
$\therefore$ C.P. of 21 articles = Rs. 21
S.P. of 21 articles = Rs. 28
$\therefore$ Profit per cent

$= \frac{28 - 21}{21} \times 100$

$= \frac{100}{3} = 33\frac{1}{3}\%$

14. (2) Let the C.P. of article be Rs. x.
According to the question,

$x \times \frac{120}{100} = 390$

$\Rightarrow x = \frac{390 \times 100}{120} =$ Rs. 325

15. (3) $\frac{20}{100} = \frac{1}{5} = \frac{\text{C.P.} - \text{S.P.}}{\text{S.P.}}$

$\Rightarrow 5x_1 - 5y = y$
Where C.P. = Rs. x_1,
S.P. = Rs. y
$\Rightarrow 5x_1 = 6y$

$\Rightarrow y =$ Rs. $\frac{5}{6}x_1$

$\therefore x = \frac{x_1 - \frac{5}{6}x_1}{x_1} \times 100$

$= \frac{x_1}{6x_1} \times 100 = \frac{50}{3} = 16\frac{2}{3}\%$

16. (2) Let the C.P. of article be Rs. 100 and its S.P. be Rs. x.
According to the question.

When S.P. = Rs. $\frac{x}{2}$

Loss per cent $= \frac{100 - \frac{x}{2}}{100} \times 100$

$\Rightarrow 100 - \frac{x}{2} = \frac{51}{2}$

$\Rightarrow \frac{x}{2} = 100 - \frac{51}{2} = \frac{200 - 51}{2}$

$\Rightarrow x =$ Rs. 149
$\therefore$ Required profit percent = 49%

TYPE-IX

1. (1) Let the cost price of the article = ₹ x
S.P. at 10% loss

$= x \times \frac{90}{100} = \frac{9x}{10}$

S.P. at $12\frac{1}{2}\%$ gain

$= x \times \frac{100 + 12\frac{1}{2}}{100} = \frac{225x}{200}$

According to the question

$\frac{9x}{10} + 9 = \frac{225x}{200}$

$\Rightarrow 180x + 1800 = 225x$

$\Rightarrow 225x - 180x = 1800$
$\Rightarrow 45x = 1800$
$\therefore x = ₹ 40$

Aliter : Using Rule 11,
Here, x = 10%, R= 9, y = 12.5%

$$\text{C.P.} = \frac{R \times 100}{y + x}$$

$$= \frac{9 \times 100}{12.5 + 10}$$

$$= \frac{900}{22.5} = ₹ 40$$

2. (2) **Tricky Approach**
80% x + 12 = 110%
Let x be the cost price
$\Rightarrow$ 30% x = 12

$$= \frac{12}{30} \times 100 = ₹ 40$$

Aliter : Using Rule 11,
Here, x = 20%, R= 12, y = 10%

$$\text{C.P.} = \frac{R \times 100}{y + x}$$

$$= \frac{12 \times 100}{20 + 10} = ₹ 40$$

3. (3) The article is sold at 11% loss.
$\therefore$ 89% of CP = ₹ 178

$$\Rightarrow \text{CP} = ₹ \frac{178 \times 100}{89} = ₹ 200$$

To gain 11%,
S.P. = 111% of ₹ 200

$$= ₹ \frac{111}{100} \times 200 = ₹ 222$$

4. (1) Let the C.P be ₹ x.
First selling price

$$= 90\% \text{ of } x = ₹ \frac{9x}{10}$$

Second selling price

$$= \left(\frac{9x}{10} + 10\right)$$

$$\therefore 110\% \text{ of } x = \left(\frac{9x}{10} + 10\right)$$

$$\Rightarrow \frac{11x}{10} = \frac{9x}{10} + 10 \Rightarrow \frac{2x}{10} = 10$$

$$\Rightarrow x = \frac{10 \times 10}{2} = 50 = ₹ 50$$

Aliter : Using Rule 11,
Here, x = 10%, R= 10, y = 10%

$$\text{C.P.} = \frac{R \times 100}{y + x}$$

$$= \frac{10 \times 100}{10 + 10} = ₹ 50$$

5. (3) Let the CP of the book be ₹ x.

$$\text{Initial SP} = \frac{110}{100} \times x = 1.1\ x$$

New CP = 0.96 x
New SP

$$= \left(100 + \frac{75}{4}\right)\% \text{ of } 0.96x$$

$$= \frac{475}{400} \times 0.96x$$

$= 1.14\ x$
Therefore,
$1.14\ x - 1.1x = 6$
$\Rightarrow 0.04\ x = 6$

$$\Rightarrow x = \frac{6}{0.04} = \frac{600}{4} = 150$$

$\therefore$ CP = ₹ 150

6. (4) Let the CP of the typewriter be ₹ x.

$$\text{At 5\% loss, SP} = \frac{95x}{100}$$

$$\text{Now, } \frac{95x}{100} + 80 = \frac{105x}{100}$$

$$\Rightarrow \frac{105x}{100} - \frac{95x}{100} = 80$$

$$\Rightarrow \frac{105x - 95x}{100} = 80$$

$$\Rightarrow x = \frac{8000}{10} = ₹ 800$$

Aliter : Using Rule 11,
Here, x = 5%, R = 80, y = 5%

$$\text{C.P.} = \frac{R \times 100}{y + x}$$

$$= \frac{80 \times 100}{5 + 5} = ₹ 800$$

7. (3) Let the first CP of the commodity be ₹ 100.
$\therefore$ First SP = ₹ 110
Second CP = ₹ 90

$$\text{Gain\%} = \frac{50}{3}\%$$

$\therefore$ Second SP

$$= \left(100 + \frac{50}{3}\right)\% \text{ of } 90$$

$$= ₹ \left(90 \times \frac{350}{300}\right) = ₹ 105$$

Difference of first and second S.P.
= ₹ (110–105) = ₹ 5
$\because$ If the difference is ₹ 5, the CP = ₹ 100.
$\because$ If the difference be ₹ 2, the

$$\text{CP} = \frac{100}{5} \times 2 = ₹ 40$$

8. (3) Let the CP of the cooker be ₹ x.

$$\therefore \text{ Initial SP} = \frac{116x}{100}$$

$$\text{Again, SP} = \left(\frac{116x}{100} + 20\right)$$

$$\therefore \frac{116x}{100} + 20 = \frac{120x}{100}$$

$\Rightarrow 116x + 2000 = 120x$
$\Rightarrow 4x = 2000$

$$\Rightarrow x = \frac{2000}{4} = ₹ 500$$

Aliter : Using Rule 11,
Here, x = 16%, R = 20, Y = 20%

$$\text{C.P.} = \frac{R \times 100}{y - x}$$

$$= \frac{20 \times 100}{20 - 16}$$

$= ₹ 500$

9. (3) CP of the article

$$= \left(\frac{100}{112} \times 2576\right) = ₹ 2300$$

New CP = ₹ 2200
$\therefore$ Gain per cent

$$= \frac{2576 - 2200}{2200} \times 100 = 17\frac{1}{11}$$

10. (4) Let the CP of the article be ₹x
SP of the article at 20% loss

$$= x \times \frac{80}{100} = \frac{4x}{5}$$

In second case,

$$\frac{4x}{5} + 50 = \frac{105x}{100}$$

$$\Rightarrow \frac{4x}{5} + 50 = \frac{21x}{20}$$

$$\Rightarrow \frac{21x}{20} - \frac{4x}{5} = 50$$

$$\Rightarrow \frac{21x - 16x}{20} = 50$$

$$\Rightarrow \frac{5x}{20} = 50$$

$\Rightarrow x = ₹ 200$

Aliter : Using Rule 11,
Here, x = 20%, R= ₹ 50, y = 5%

$$\text{C.P.} = \frac{R \times 100}{y + x}$$

$$= \frac{50 \times 100}{20 + 5}$$

$$= \frac{50 \times 100}{25} = ₹\ 200$$

11. (2) Let the CP of the article be ₹x.

$$\therefore \frac{120x}{100} - \frac{80x}{100} = 60$$

$$\Rightarrow 40x = 60 \times 100$$

$$\Rightarrow x = \frac{60 \times 100}{40} = ₹\ 150$$

Aliter : Using Rule 11,
Here, x = 20%, R= ₹ 60, y= 20%

$$\text{C.P.} = \frac{R \times 100}{y + x}$$

$$= \frac{60 \times 100}{20 + 20}$$

$$= \frac{6000}{40} = ₹\ 150$$

12. (2) Let the CP of cycle be ₹x.

$$\text{S.P.} = \frac{108x}{100}$$

$$\frac{108x}{100} + 75 = \frac{114x}{100}$$

$$\Rightarrow 108x + 7500 = 114x$$

$$\Rightarrow 114x - 108x = 7500$$

$$\Rightarrow 6x = 7500$$

$$\Rightarrow x = \frac{7500}{6} = ₹\ 1250$$

Aliter : Using Rule 11,
Here, x = 8%, R= ₹ 75, y = 14%

$$\text{C.P.} = \frac{R \times 100}{y - x}$$

$$= \frac{75 \times 100}{14 - 8}$$

$$= \frac{7500}{6} = ₹\ 1250$$

13. (1) If the cost price of the book be ₹ x, then

$$\therefore \frac{x \times 80}{100} + 108 = \frac{x \times 130}{100}$$

$$\Rightarrow \frac{5x}{10} = 108 \Rightarrow x = ₹\ 216$$

Aliter : Using Rule 11,
Here, x = 20%, R= ₹108, y=30%

$$\text{C.P.} = \frac{R \times 100}{y + x}$$

$$= \frac{108 \times 100}{30 + 20}$$

$$= \frac{10800}{50} = ₹\ 216$$

14. (3) Let the C.P. be ₹ x
x (5% + 5%) = 5 [Being 5% gain]

$$100\% = \frac{5}{10} \times 100 = ₹\ 50$$

Aliter : Using Rule 11,
Here, x = 5%, R= ₹ 5, y = 5%

$$\text{C.P.} = \frac{R \times 100}{y + x}$$

$$= \frac{5 \times 100}{5 + 5} = ₹\ 50$$

15. (3) Let the C.P. of article be ₹x, then

$$\frac{120x}{100} - \frac{115x}{100} = 27$$

$$\Rightarrow \frac{5x}{100} = 27$$

$$\Rightarrow x = \frac{27 \times 100}{5} = ₹\ 540$$

Aliter : Using Rule 11,
Here, x = 15%, R= ₹ 27, y = 20%

$$\text{C.P.} = \frac{R \times 100}{y - x}$$

$$= \frac{27 \times 100}{20 - 15}$$

$$= \frac{27 \times 100}{5} = ₹\ 540$$

16. (3) C.P. of article be ₹x
S.P. at 15% gain

$$= \frac{115x}{100} = \frac{23x}{20}$$

$$\text{New C.P.} = ₹\ \frac{90x}{100}$$

New S.P.

$$= ₹\ \frac{90x}{100} \times \frac{125}{100} = ₹\ \frac{9x}{8}$$

$$\therefore \frac{23x}{20} - \frac{9x}{8} = 4$$

$$\Rightarrow \frac{46x - 45x}{40} = 4$$

$$\Rightarrow x = 40 \times 4 = ₹\ 160$$

17. (1) If the C.P. of article be ₹ x, then

$$\frac{105x}{100} - \frac{90x}{100} = 90$$

$$\Rightarrow \frac{15x}{100} = 90 \Rightarrow x = \frac{90 \times 100}{15}$$

$$x = ₹\ 600$$

$$\therefore \text{Original S.P.} = \frac{600 \times 90}{100}$$

$$= ₹\ 540$$

18. (2) C.P. of article = ₹ x

$$\therefore \text{First S.P.} = \frac{80x}{100} = ₹\ \frac{4x}{5}$$

According to question,

$$\frac{4x}{5} + 200 = \frac{105x}{100} = \frac{21x}{20}$$

$$\Rightarrow \frac{21x}{20} - \frac{4x}{5} = 200$$

$$\Rightarrow \frac{21x - 16x}{20} = 200$$

$$\Rightarrow \frac{5x}{20} = 200 \Rightarrow x = 4 \times 200$$

$$= ₹\ 800$$

Aliter : Using Rule 11,
Here, x = 20%, R = ₹ 200, y=5%

$$\text{C.P.} = \frac{R \times 100}{y + x}$$

$$= \frac{200 \times 100}{5 + 20}$$

$$= \frac{20000}{25} = ₹\ 800$$

19. (3) C.P. of the article be ₹ x

$$\therefore \text{First S.P.} = \frac{19x}{20}$$

$$\text{C.P.} = \frac{9x}{10}$$

$$\therefore \frac{19x}{20} + 33$$

$$\Rightarrow \frac{9x \times 130}{1000} = \frac{117}{100}x$$

$$\Rightarrow \frac{117x}{100} - \frac{19x}{20} = 33$$

$$\Rightarrow \frac{117x - 95x}{100} = 33$$

$$\Rightarrow 22x = 33 \times 100$$

$$\Rightarrow x = \frac{33 \times 100}{22} = ₹\ 150$$

20. (1) If the C.P. of article be ₹ x, then

$$x \times \frac{116}{100} + 200 = \frac{x \times 120}{100}$$

$$\Rightarrow x \times \frac{4}{100} = 200$$

$$\Rightarrow x = \frac{200 \times 100}{4} = ₹\,5000$$

Aliter : Using Rule 11,
Here, x = 16%, R= 200, y = 20%

$$\text{C.P.} = \frac{R \times 100}{y - x}$$

$$= \frac{200 \times 100}{20 - 16} = ₹\,5000$$

21. (4) Required S.P. of 150 pens.

$$= 150 \times 12 \times \frac{115}{100} = ₹\,2070$$

S.P. of first 50 pens

$$= \frac{50 \times 12 \times 110}{100} = ₹\,660$$

$\therefore$ Required S.P. of 100 pens
= 2070 – 660 = ₹ 1410
C.P. of 100 pens = ₹ 1200

$$\therefore \text{Gain per cent} = \frac{210}{1200} \times 100$$

$$= \frac{35}{2} = 17\frac{1}{2}\%$$

22. (2) C.P. of 1 article = $\frac{1}{4} \times \frac{100}{96}$

$$= ₹\,\frac{25}{96}$$

$$\therefore \text{C.P. of 3 articles} = ₹\,\frac{75}{96}$$

$$\therefore \text{Gain} = 1 - \frac{75}{96} = \frac{96 - 75}{96}$$

$$= \frac{21}{96} = \frac{7}{32}$$

$$\therefore \text{Gain per cent} = \frac{\frac{7}{32}}{\frac{75}{96}} \times 100$$

$$= \frac{7}{32} \times \frac{96}{75} \times 100 = 28\%$$

23. (1) Let the C.P. of article be ₹ x.

$$\therefore \text{S.P.} = \frac{175x}{200}$$

New S.P.

$$= ₹\left(\frac{7x}{8} + 51.80\right)$$

$$\therefore \frac{175x}{200} + 51.8 = \frac{106}{100} \times x$$

$$\Rightarrow \frac{106x}{100} - \frac{175x}{200} = 51.8$$

$$\Rightarrow \frac{212x - 175x}{200} = 51.8$$

$$\Rightarrow 37x = 51.8 \times 200$$

$$\Rightarrow x = \frac{51.8 \times 200}{37} = ₹\,280$$

Aliter : Using Rule 11,
Here, x = 12.5%,
R = ₹ 51.80, y = 6%

$$\text{C.P.} = \frac{R \times 100}{y + x}$$

$$= \frac{51.80 \times 100}{12.5 + 6}$$

$$= \frac{5180}{18.5} = ₹\,280$$

24. (4) If the C.P. of watch be ₹ x, then

$$\text{First S.P.} = \frac{9x}{10}$$

$$\therefore \frac{105x}{100} - \frac{9x}{10} = 45$$

$$\Rightarrow \frac{105x - 90x}{100} = 45$$

$$\Rightarrow \frac{15x}{100} = 45$$

$$\Rightarrow x = \frac{45 \times 100}{15} = ₹\,300$$

$$\therefore \text{S. P.} = \frac{300 \times 9}{10} = ₹\,270$$

Aliter : Using Rule 11,
Here, x = 10%, R = ₹45, y = 5%

$$\text{C.P.} = \frac{R \times 100}{y + x}$$

$$= \frac{4500}{10 + 5}$$

$$= \frac{4500}{15} = 300$$

$$\Rightarrow \text{S.P.} = 300 - 300 \times \frac{10}{100}$$

S.P. = ₹ 270

25. (2) C.P. of T.V. for Yogita
= ₹ x (let)
According to question,

$$x \times \frac{120}{100} \times \frac{110}{100} = 33000$$

$$\Rightarrow x = \frac{33000 \times 100 \times 100}{120 \times 110}$$

= ₹ 25000

Aliter : Using Rule 15,
Here, r_1 = 20%, r_2 = 10%
C.P. for Deepa = C.P. for yogita

$$\left(1 + \frac{r_1}{100}\right)\left(1 + \frac{r_2}{100}\right)$$

33000 = C.P. for Yogita

$$\left(1 + \frac{20}{100}\right)\left(1 + \frac{10}{100}\right)$$

C.P. for Yogita =

$$\frac{33000 \times 100 \times 100}{120 \times 110}$$

= ₹ 25,000

26. (4) C.P. for A = Rs. x (let)
According to the question,

$$\frac{x \times 120}{100} \times \frac{75}{100} = P$$

$$\Rightarrow x = \frac{P \times 100 \times 100}{120 \times 75}$$

$$= \text{Rs. } \frac{10}{9}$$

Aliter : Using Rule 15,
Here, r_1 = 20%, r_2 = 25% (Loss)
C.P. for C = C.P. for A

$$\left(1 + \frac{r_1}{100}\right)\left(1 - \frac{r_2}{100}\right)$$

P = C.P. for A

$$\left(1 + \frac{20}{100}\right)\left(1 - \frac{25}{100}\right)$$

$$\text{C.P. for A} = \frac{P \times 100 \times 100}{120 \times 75}$$

$$= \frac{10P}{9}$$

27. (3) Let C.P. of article be Rs. x.
According of the question,
$625 - x = x - 545$
$\Rightarrow 2x = 625 + 545 = 1170$
$\Rightarrow x = \frac{1170}{2}$ = Rs. 585
$\therefore$ Required S.P.
= Rs. (585 + 65)
= Rs. 650

28. (4) C.P. of rice per kg
$= \frac{54 \times 100}{90}$ = Rs. 60
For 20% profit,
S.P. per kg.
$= \frac{60 \times 120}{100}$ = Rs. 72
Aliter : Using Rule 3,
$\text{C.P.} = \text{S.P}\left(\frac{100}{100 - \text{Loss}\%}\right)$
$= 54\left(\frac{100}{100-10}\right)$
C.P. = Rs. 60
New S.P.
$= \text{C.P.}\left(\frac{100 + \text{Profit}\%}{100}\right)$
$= 60 \times \left(\frac{100+20}{100}\right) = ₹\ 72$

29. (4) Let the quantity of sugar at 8% profit be x kg.
$\therefore$ Quantity of sugar sold at 18% = $(100 - x)$ kg
According to the question,
$x \times \frac{108}{100} + (1000 - x) \times \frac{118}{100}$
$= \frac{1000 \times 114}{100}$
$\Rightarrow 108x + 118000 - 118x = 114000$
$\Rightarrow 10x = 118000 - 114000$
$\Rightarrow 10x = 4000 \Rightarrow x = 400$ kg

30. (1) C.P. of 12 kg of potatoes
$= \text{Rs.}\left(\frac{63 \times 100}{105}\right)$
= Rs. 60
$\therefore$ C.P. of 50 kg of potatoes
$= \frac{60}{12} \times 50$ = Rs. 250
Loss = Rs. (250 – 247.50)
= Rs. 2.5
$\therefore$ Loss percent $= \frac{2.5}{250} \times 100$
= 1%

31. (1) Let the C.P. of article be Rs. x.
According to the question,
$\frac{x \times 105}{100} - \frac{x \times 80}{100} = 200$
$\Rightarrow 105x - 80x = 20000$
$\Rightarrow 25x = 20000$
$\Rightarrow x = \frac{20000}{25}$ = Rs. 800
Aliter : Using Rule 11,
Here, x = 20%, R= 200, y = 5%
$\text{C.P.} = \frac{100 \times \text{R}}{\text{y} + \text{x}}$
$= \frac{100 \times 200}{20+5}$
$= \frac{100 \times 200}{25}$ = Rs. 800

32. (1) C.P. of article sold at loss = Rs. x.
$\therefore$ C.P. of article sold at profit = Rs. $(520 - x)$
According to the question,
$x \times \frac{10}{100} = (520 - x) \times \frac{16}{100}$
$\Rightarrow 5x = 520 \times 8 - 8x$
$\Rightarrow 13x = 520 \times 8$
$\Rightarrow x = \frac{520 \times 8}{13}$ = Rs. 320
$\therefore$ Its S.P. $= \frac{320 \times 90}{100}$
= Rs. 288

33. (3) C.P. of article = Rs. x
First S.P. = Rs. $\frac{9x}{10}$
Case II,
$\text{C.P.} = \frac{80x}{100}$ = Rs. $\frac{4x}{5}$
According to the question,
$\frac{4x}{5} \times \frac{140}{100} - \frac{9x}{10} = 55$
$\Rightarrow \frac{56x}{50} - \frac{9x}{10} = 55$
$\Rightarrow \frac{56x - 45x}{50} = 55$
$\Rightarrow 11x = 50 \times 55$
$\Rightarrow x = \frac{50 \times 55}{11}$ = Rs. 250

34. (1) Let the C.P. of television be Rs. x.
According to the question,
(10 – 5)% of x = 1000
$\Rightarrow x \times \frac{5}{100} = 1000$
$\Rightarrow x = \frac{1000 \times 100}{5}$ = Rs. 20000

35. (3) C.P. of watch = Rs. x (let)
Difference between selling prices = Rs. (350 – 340)
= Rs. 10
According to the question,
5% of x = 10
$\Rightarrow \frac{5x}{100} = 10$
$\Rightarrow 5x = 1000$
$\Rightarrow x = \frac{1000}{5}$ = Rs. 200

36. (3) Let the C.P. of bucket be Rs. x.
According to the question,
$\frac{108x}{100} - \frac{92x}{100} = 28$
$\Rightarrow \frac{16x}{100} = 28$
$\Rightarrow x = \frac{28 \times 100}{16}$ = Rs. 175

TYPE-X

1. (4) Let the cost price of the bicycle for A be ₹ x
Cost price for B = selling price for A = 1.20x
Cost price for C = selling price for B = (1.25) (1.20x) = 1.5x
But 1.5x = 225
$\therefore x = \frac{225}{1.5} = ₹\ 150$
$\therefore$ The cost price of the bicycle for A = ₹ 150
Aliter : Using Rule 15,
Here, r_1 = 20%, r_2 = 25%
C.P. for C = C.P. for A
$\left(1 + \frac{r_1}{100}\right)\left(1 + \frac{r_2}{100}\right)$
225 = C.P. for A
$\left(1 + \frac{20}{100}\right)\left(1 + \frac{25}{100}\right)$
C.P. for A $= \frac{225 \times 100 \times 100}{120 \times 125}$
$= ₹\ 150$

2. (1) Let the actual C.P. be ₹ x

$$x \times \frac{125}{100} \times \frac{125}{100} \times \frac{125}{100} = 250$$

$\Rightarrow x =$ ₹ 128

3. (3) SP for Mr. X

$$= 150000 \times \frac{105}{100} = ₹\ 157500$$

CP for Mr. Y = ₹ 157500

Y sells the article to X at a loss of 2%.

$\therefore$ SP for Mr. Y

$$= 157500 \times \frac{98}{100} = ₹\ 154350$$

$\therefore$ CP for Mr. X = ₹ 154350

$\therefore$ Gain of Mr. X

= ₹ (157500 – 154350)

= ₹ 3150

4. (3) Let the required cost price be ₹ x, then

$$x \times \frac{110}{100} \times \frac{120}{100} \times \frac{85}{100} = 56100$$

$$\Rightarrow x \times \frac{11}{10} \times \frac{6}{5} \times \frac{17}{20} = 56100$$

$$\Rightarrow x = \frac{56100 \times 10 \times 5 \times 20}{11 \times 6 \times 17}$$

= ₹ 50000

5. (2) If the C.P. for A be ₹ x, then

$$x \times \left(1 + \frac{1}{5}\right) \times \frac{120}{100} \times \left(1 - \frac{1}{6}\right)$$

= 600

$$\Rightarrow x \times \frac{6}{5} \times \frac{6}{5} \times \frac{5}{6} = 600$$

$$\Rightarrow x = \frac{600 \times 5}{6} = ₹\ 500$$

6. (1) Let the C.P. for A be ₹ x, then

$$x \times \frac{105}{100} \times \frac{110}{100} = 2310$$

$$\Rightarrow x = \frac{2310 \times 100 \times 100}{105 \times 110}$$

= ₹ 2000

Aliter : Using Rule 15,

Here, r_1 = 5%, r_2 = 10%

C.P. for C = C.P. for A

$$\left(1 + \frac{r_1}{100}\right)\left(1 + \frac{r_2}{100}\right)$$

2310 = C.P. for A

$$\left(1 + \frac{5}{100}\right)\left(1 + \frac{10}{100}\right)$$

C.P. for A = $\frac{2310 \times 100 \times 100}{105 \times 110}$

= 2000

7. (1) Let the C.P. of A be ₹ x, then

$$x \times \frac{110}{100} \times \frac{120}{100} = 264$$

$$\Rightarrow x = \frac{264 \times 100 \times 100}{110 \times 120}$$

= ₹ 200

Aliter : Using Rule 15,

Here, r_1 = 10%, r_2 = 20%

C.P. for C = C.P. for A

$$\left(1 + \frac{r_1}{100}\right)\left(1 + \frac{r_2}{100}\right)$$

264 = C.P. for A

$$\left(1 + \frac{10}{100}\right)\left(1 + \frac{20}{100}\right)$$

C.P. for A = $\frac{264 \times 100 \times 100}{110 \times 120}$

= ₹ 200

8. (3) Let the C.P. of A be ₹ x, then

$$\frac{x \times 125}{100} \times \frac{90}{100} = 675$$

$$\Rightarrow x = \frac{675 \times 100 \times 100}{125 \times 90} = ₹\ 600$$

Aliter : Using Rule 15,

Here, r_1 = 25%, r_2= 10%, (Loss)

C.P. for C = C.P. for A

$$\left(1 + \frac{r_1}{100}\right)\left(1 - \frac{r_2}{100}\right)$$

675 = C.P. for A

$$\left(1 + \frac{25}{100}\right)\left(1 - \frac{10}{100}\right)$$

C.P. for A = $\frac{675 \times 100 \times 100}{125 \times 90}$

= ₹ 600

9. (3) C.P. of tape recorder for A

$$= \frac{4860 \times 100}{(100 - 19)} = \frac{4860 \times 100}{81}$$

= ₹ 6000

$$\therefore \text{ S.P. for B} = \frac{6000 \times 117}{100}$$

= ₹ 7020

$\therefore$ B's gain = 7020 – 4860

= ₹ 2160

$\therefore$ Required profit percent

$$= \frac{2160}{4860} \times 100 = 44\frac{4}{9}\%$$

10. (4) Let the original cost of the land be ₹ x

According to the question,

$$345600 = P\left(1 + \frac{20}{100}\right)^3$$

$$\Rightarrow 345600 = P\left(\frac{6}{5}\right)^3 = \frac{216P}{125}$$

$$\Rightarrow P = \frac{345600 \times 125}{216} = ₹\ 200000$$

11. (4) Let the C.P. for A be ₹ x, then

$$x \times \frac{110}{100} \times \frac{105}{100} = 462$$

$$\Rightarrow x = \frac{462 \times 100 \times 100}{110 \times 105} = ₹\ 400$$

Aliter : Using Rule 15,

Here, r_1 = 10%, r_2 = 5%

C.P. for C = C.P. for A

$$\left(1 + \frac{r_1}{100}\right)\left(1 + \frac{r_2}{100}\right)$$

462 = C.P. for A

$$\left(1 + \frac{10}{100}\right)\left(1 + \frac{5}{100}\right)$$

C.P. for A = $\frac{462 \times 100 \times 100}{110 \times 105}$

= ₹ 400

12. (4) Using Rule 15,

Price obtained by C

$$= 3200 \times \frac{110}{100} \times \frac{215}{200} \times \frac{75}{100}$$

= ₹ 2838

13. (3) Using Rule 15,

Let C.P. for A be ₹ x

$$\therefore x \times \frac{120}{100} \times \frac{110}{100} \times \frac{225}{200} = 29.70$$

$$\Rightarrow x = \frac{29.70 \times 100 \times 100 \times 200}{120 \times 110 \times 225}$$

= ₹ 20

14. (3) Using Rule 15,

Let the C.P. of the suitcase for A be ₹ x, then

$$x \times \frac{110}{100} \times \frac{130}{100} = 2860$$

$$\Rightarrow x = \frac{2860 \times 100 \times 100}{110 \times 130}$$

= ₹ 2000

TYPE-XI

1. (3) Total S.P. = ₹ 2 lakhs
C.P of house

$= ₹ \left(\frac{100}{80} \times 1\right)$ lakh

$= ₹ \frac{5}{4}$ lakhs

C.P. of shop

$= ₹ \left(\frac{100}{120} \times 1\right)$ lakh

$= ₹ \frac{5}{6}$ lakh

Total C.P.

$= ₹ \left(\frac{5}{4} + \frac{5}{6}\right)$ lakhs

$= ₹ \frac{25}{12}$ lakhs

$\therefore$ Loss $= ₹ \left(\frac{25}{12} - 2\right)$ lakh

$= ₹ \frac{1}{12}$ lakh

2. (4) Using Rule 10,
If a man sells two articles at same price and makes a profit of x% on first and x% loss on second, there is always a loss of $\frac{x^2}{100}\%$

$\therefore$ Loss% $= \frac{(20)^2}{100} = \frac{400}{100} = 4\%$

3. (1) Using Rule 10,

Loss % = x% of x or $\frac{x^2}{100}$

Here, x = 10

$\therefore$ Loss% $= \frac{10 \times 10}{100} = 1\%$

4. (3) Using Rule 10,
Required loss%

$= \frac{(20)^2}{100} = \frac{400}{100} = 4\%$

$\because$ (100 – 4)% $\equiv$ 24

$\therefore$ 4% $\equiv \frac{24}{96} \times 4$ = Loss of ₹1

5. (2) Using Rule 10,
Note : When S.P. of each of two items is same, on one of them there is x% loss and on the other there is x% gain, then there is always a loss given by (x% of x)%

$= \frac{x^2}{100}\%$

$\therefore$ The required loss %

$= \frac{10 \times 10}{100} = 1\%$

6. (2) Using Rule 10,
Here, the S.P. is same for both the machines. Hence, there will be always a loss in this situation.
Required loss %

$= \frac{10 \times 10}{100} = 1\%$

7. (4) Using Rule 10,
Here, S.P. is same. Hence there is always a loss.

Loss per cent $= \frac{20 \times 20}{100} = 4\%$

8. (2) CP of Television

$= \frac{12,000}{80} \times 100 = ₹ 15000$

CP of refrigerator

$= \frac{12,000}{120} \times 100 = ₹ 10,000$

Total C.P.
= 15000 + 10,000 = ₹ 25000
SP of both = ₹ 24,000
$\therefore$ Loss = 25,000 – 24,000
= ₹ 1000

9. (4) Let the amount of sugar sold at 7% profit be *x* kg. and let C.P. per kg be ₹1.
Total C.P. = ₹ 100
Total S.P. = 107% of *x* + 117% of (100 – *x*)
= 1.07*x* + 1.17 (100 – *x*)
= 1.07x + 117 – 1.17x
= 117 – 0.1*x*
$\therefore$ 117 – 0.1*x*
= 110% of 100
$\Rightarrow$ 0.1*x* = 117 – 110 = 7

$\Rightarrow$ x $= \frac{7}{0.1}$ = 7 × 10
= 70 kg.

10. (1) If *x* and *y* be the cost price of two goats, then,
80% of *x* = 144% of *y*

$\Rightarrow \frac{x}{y} = \frac{144}{80} = \frac{9}{5}$

i.e., *x* : *y* = 9 : 5
Sum of the ratios = 9 + 5 = 14
$\therefore$ Cost of first goat

$= ₹ \left(\frac{9}{14} \times 1008\right) = ₹ 648$

11. (4) Using Rule 10,
In such a situation, there is always a loss.
The selling price is immaterial.
Loss %

$= \left(\frac{\text{Common loss or gain\%}}{10}\right)^2$

$= \left(\frac{5}{10}\right)^2\% = 0.25\%$

12. (4) Using Rule 10,
Required loss %

$= \frac{(20)^2}{100} = \frac{400}{100} = 4\%$

13. (4) Using Rule 7,
Required per cent effect

$= \left(20 - 25 - \frac{20 \times 25}{100}\right)\%$

=(–5 – 5)% = – 10% (10% decrease)
Negative sign shows decrease

14. (1) Total CP = ₹ 100
Total SP

$= ₹ \left(\frac{50 \times 120}{100} + \frac{25 \times 80}{100} + 25\right)$

= ₹ (60 + 20 + 25) = ₹105
$\therefore$ Gain% = 5%

$\left[\frac{105 - 100}{100} \times 100\right]$

15. (1) Let the cost price of first watch which sold on 16 per cent be *x*.
Then cost price of second watch = (840 – *x*)
According to the question,

$x \times \frac{116}{100} + (800 - x) \times \frac{88}{100} = 840$

$\Rightarrow \frac{116}{100} + \frac{73920 - 88x}{100} = 840$

$\Rightarrow 116x - 88x$
= 84000 – 73920
$\Rightarrow 28x = 10080$

$\therefore x = \frac{10080}{28} = ₹ 360$

16. (3) Total SP = ₹ 240000
CP of car

$= ₹ \left(\frac{100}{80} \times 120000\right) = ₹ 150000$

CP of jeep $= ₹ \left(\frac{100}{120} \times 120000\right)$

= ₹ 100000
Total CP = ₹ 250000
$\therefore$ Loss = ₹ (250000 – 240000)
= ₹ 10000

17. (1) Let the price of the sent items be x.
According to the question,

$$\frac{2x}{3}\times\frac{5}{100}-\frac{x}{3}\times\frac{2}{100} = 400$$

$$\Rightarrow \frac{10x}{3}-\frac{2x}{3} = 400\times 100$$

$$\Rightarrow \frac{8x}{3} = 40000$$

$$\Rightarrow x = \frac{40000\times 3}{8} = ₹\ 15000$$

18. (3) SP of total agricultural field

$$= ₹\left(360000\times\frac{110}{100}\right) = ₹\ 396000$$

SP of one–third of the field

$$= \frac{1}{3}\times 360000\times\frac{80}{100}$$

$= ₹\ 96000$

SP of $\frac{2}{5}$ th of the field

$$= \frac{2}{5}\times 360000\times\frac{125}{100}$$

$= ₹\ 180000$

$\therefore$ SP of the remaining field
$= ₹\ (396000 - 96000 - 180000)$
$= ₹\ 120000$

19. (2) The sum of cost prices of two articles is x. One of them is sold at a loss of a% and other is sold at a gain of b% and their S.P. is same.
$\therefore$ C.P. of article sold at a loss of a%

$$= \frac{100+b}{200-a+b}\times x$$

$$= \frac{100+15}{200-20+15}\times 19500$$

$$= \frac{115}{195}\times 19500 = ₹\ 11500$$

$\Rightarrow$ C.P. of second article
$= ₹\ 8000$

20. (3) Let the CP of article A be ₹ x
$\therefore$ CP of article B = ₹ $(5000 - x)$
According to the question,
120% of x + 90% of $(5000 - x)$
= 102% of 5000
$\Rightarrow 120x + 450000 - 90x$
$= 510000$
$\Rightarrow 30x = 510000 - 450000$
$= 60000$

$$\Rightarrow x = \frac{60000}{30} = ₹\ 2000$$

21. (4) Using Rule 10,
Here, both the articles are sold at the same price.
Hence, there is always loss.
$\therefore$ Loss per cent

$$= \frac{25\times 25}{100} = \frac{25}{4} = 6\frac{1}{4}\%$$

22. (2) If the C.P. of horse be ₹ x, then C.P. of carriage = ₹ $(40000 - x)$
Then,

$$\frac{110\times x}{100}+\frac{(40000-x)\times 95}{100}$$

$$= \frac{40000\times 101}{100}$$

$\Rightarrow 110x + 3800000 - 95x$
$= 4040000$
$\Rightarrow 15x = 4040000 - 3800000$
$\Rightarrow 15x = 240000$

$$\Rightarrow x = \frac{240000}{15} = ₹\ 16000$$

23. (1) If the C.P. of first cycle be ₹ x, then C.P. of second cycle = ₹ $(1600 - x)$. Then,

$$\frac{x\times 120}{100}+\frac{(1600-x)\times 110}{100}$$

$$-\frac{x\times 110}{100}-\frac{(1600-x)\times 120}{100} = 5$$

$\Rightarrow 12x + 17600 - 11x - 11x -$
$19200 + 12x = 50$
$\Rightarrow 2x = 50 + 19200 - 17600$
$\Rightarrow 2x = 1650 \Rightarrow x = 825$
C.P. of second cycle
$= 1600 - 825 = ₹\ 775$
Difference $= 825 - 775 = ₹\ 50$

24. (3) C.P. of article be ₹ x
$\therefore$ $(118 - 115)$% of $x = 18$

$$\Rightarrow \frac{x\times 3}{100} = 18$$

$$\Rightarrow x = \frac{18\times 100}{3} = ₹\ 600$$

Aliter : Using Rule 11,
Here, x = 15%, R= 18, y = 18%

$$\text{C.P.} = \frac{R\times 100}{y-x}$$

$$= \frac{18\times 100}{18-15} = ₹\ 600$$

25. (3) Check through option
10% of 3000

$$= \frac{3000\times 10}{100} = ₹\ 300$$

15% of 2000

$$= \frac{2000\times 15}{100} = ₹\ 300$$

26. (3) Let the merchant bought 100 metres of cloth for ₹ 100.
$\therefore$ Total S.P.

$$= ₹\left(\frac{50\times 140}{100}+\frac{25\times 60}{100}+25\right)$$

$= ₹\ (70 + 15 + 25) = ₹\ 110$
$\therefore$ Gain per cent = 10%

27. (2) C.P. of first chair

$$= \frac{100}{125}\times 120 = ₹\ 96$$

C.P. of second chair

$$= \frac{100}{75}\times 120 = ₹\ 160$$

$\therefore$ Loss = 160 + 96 – 240
$= ₹\ 16$

28. (3) Let the C.P. of fans be ₹ x and ₹ y respectively.

$$\frac{x\times 15}{100} = \frac{y\times 9}{100}$$

$$\Rightarrow \frac{x}{y} = \frac{9}{15} = \frac{3}{5}$$

C.P. of first fan $= \frac{3}{8}\times 2160$
$= ₹\ 810$

& C.P. of second fan $= \frac{5}{8}\times 2160$
$= ₹\ 1350$

29. (2) S.P. of TV $= 2000\times\frac{120}{100}$
$= ₹\ 2400$

S.P. of radio $= \frac{750\times 95}{100}$
$= ₹\ 712.5$
Total S.P. = 2400 + 712.5
$= ₹\ 3112.50$
$\therefore$ Gain = 3112.5 – 2000 – 750
$= ₹\ 362.50$

30. (1) For the sake of convenience, Let the number of toffees of each type bought be 99 (LCM 11 and 9).
CP of first kind of 99 toffees
$= ₹\ 90$
CP of second kind of 99 toffees
$= ₹\ 110$
$\therefore$ CP of 198 toffees = ₹ 200
$\therefore$ SP of 198 toffees = ₹ 198
Loss = ₹. 2

$$\text{Loss \%} = \frac{2}{200}\times 100 = 1\%$$

31. (1) Let 20 apples of each type be bought.
C.P. of an apple of first type

$$= ₹\ \frac{10}{4}$$

C.P. of an apple of second type

$$= ₹\ \frac{10}{5}$$

C.P. of 40 apples

$$= ₹\left(20\times\frac{10}{4}+20\times\frac{10}{5}\right) = ₹\ 90$$

$$\text{Total S.P.} = \frac{40\times 20}{9} = ₹\ \frac{800}{9}$$

Loss = $90 - \frac{800}{9} = \frac{10}{9}$

$\therefore$ Loss per cent = $\frac{\frac{10}{9}}{90} \times 100$

$= \frac{100}{81} = 1\frac{19}{81}\%$

32. (1) C.P. of 700 gm of tea at ₹18 per 100 gm
= 7 × 18 = ₹ 126
C.P. of 300 gm of tea at ₹ 13 per 100 gm
= 3 × 13 = ₹ 39
Total cost of 1000 gm
= 126 + 39 = ₹ 165
Total S.P. of 1000 gm
= 18.15 × 10= ₹ 181.5
Gain = 181.5 – 165 = ₹ 16.5
Gain percent

$= \frac{16.5}{165} \times 100 = 10\%$

33. (1) Total CP of 70 kg of wheat
= ₹ (30 × 9.5 + 40 × 8.5)
= ₹ (285 + 340) = ₹ 625
Total S.P. of 70kg of wheat
= ₹ (8.90 × 70) = ₹ 623
$\therefore$ Loss = ₹ (625 – 623) = ₹ 2

34. (4) Let 10 articles of each kind be bought.
$\therefore$ Total cost
= ₹ (10 × 10 + 14 × 10) = ₹ 240
Total selling price
= 13 × 20 = ₹ 260
$\therefore$ Gain percent

$= \frac{260 - 240}{240} \times 100$

$= \frac{20 \times 100}{240} = 8\frac{1}{3}\%$

35. (4) C.P. of 40kg of mixture
= ₹ (15 × 29 + 25 × 20)
= ₹ (435 + 500) = ₹ 935
S.P. of 40kg of mixture
= 27 × 40 = ₹ 1080
$\therefore$ Gain = 1080 – 935 = ₹ 145

36. (2) Let total C.P. = ₹ 100 and number of articles = 100.
$\therefore$ Total S.P.

$= ₹ \left(\frac{75 \times 124}{100} + 25\right)$

= ₹ (93 + 25) = ₹ 118
$\therefore$ Gain per cent = 18%

37. (1) Using Rule 1,
Profit per cent

$= \frac{30 - 25}{25} \times 100$

$= \frac{500}{25} = 20\%$

38. (3) Let the C.P. of chair be Rs. x.
$\therefore$ C.P. of table = Rs. $(500 - x)$
According to the question,

$\frac{110x}{100} + (500 - x) \times \frac{90}{100} = 510$

$\Rightarrow \frac{11x}{10} + 500 \times \frac{9}{10} - \frac{9x}{10}$
$= 510$

$\Rightarrow \frac{2x}{10} + 450 = 510$

$\Rightarrow \frac{2x}{10} = 510 - 450 = 60$

$\Rightarrow x = \frac{60 \times 10}{2} =$ Rs. 300

OR

10% of $x - (500 - x) \times \frac{10}{100}$
$= 10$

$\Rightarrow \frac{x}{10} - 50 + \frac{x}{10} = 10$

$\Rightarrow \frac{2x}{10} = 50 + 10 = 60$

$\Rightarrow 2x = 60 \times 10$

$\Rightarrow x = \frac{60 \times 10}{2} =$ Rs. 300

39. (2) Total profit in sales

$= \text{Rs.} \left(\frac{750 \times 6}{100} - \frac{750 \times 4}{100}\right)$

= Rs. (45 – 30) = Rs. 15

$\left[\text{or, Profit} = (6 - 4)\% \text{ of } 750 = \frac{750 \times 2}{100} = \text{Rs. } 15\right]$

$\therefore$ Profit per cent = $\frac{15}{1500} \times 100$
= 1%

40. (3) At the rate of 50 paise per metre,
C.P. of 250 metre of wire

$= \text{Rs.} \left(\frac{250 \times 50}{100}\right)$

= Rs. 125
C.P. of 500 metre of wire
= Rs. 250
$\therefore$ For 10% overall profit,

Total S.P. = Rs. $\left(\frac{250 \times 110}{100}\right)$

= Rs. 275
S.P. of 250 metre of wire

$= \text{Rs.} \left(\frac{125 \times 105}{100}\right)$

= Rs. 131.25
$\therefore$ S.P. of remaining 250 metre wire
= Rs. (275 – 131.25)
= Rs. 143.75
$\therefore$ Required profit per cent

$= \left(\frac{143.75 - 125}{125}\right) \times 100$

$= \frac{18.75 \times 100}{125} = 15\%$

41. (1) Let C.P. of all goods be Rs. 300.
$\therefore$ S.P. of one third goods = Rs. 85
Required S.P. of all the goods

$= \frac{300 \times 110}{100} =$ Rs. 330

$\therefore$ S.P. of goods of worth Rs. 200
= Rs. (330 – 85) = Rs. 245
$\therefore$ Required profit per cent

$= \frac{45}{200} \times 100$

$= \frac{45}{2} = 22\frac{1}{2}\%$

TYPE-XII

1. (4) Let the CP of the article be x.

$\therefore \frac{115x}{100} - \frac{110x}{100} = 10$

$\Rightarrow \frac{5x}{100} = 10$

$\Rightarrow x = \frac{10 \times 100}{5} =$ ₹ 200

2. (2) Using Rule 3,

$\frac{\text{S.P.} - \text{C.P.}}{\text{C.P.}} \times 100 = 25$ [given]

$\Rightarrow \frac{210}{\text{C.P.}} \times 100 = 25$

$\Rightarrow \text{CP} = \frac{100 \times 210}{25} = 840$

$\therefore$ S.P. = $\frac{125}{100}$ of 840

$= \frac{840 \times 125}{100} =$ ₹ 1050

3. (2) If the cost price of article be x, then
2% of x = 3

$\Rightarrow x = \frac{3 \times 100}{2} =$ ₹ 150

4. (3) Let the C.P. of article be Rs. x.
According to the question,
(104 – 103)% of x = 3

$\Rightarrow \frac{x}{100} = 3 \Rightarrow x =$ Rs. 300

5. (2) Profit per cent at C.P.

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

$= \frac{100}{400} \times 100 = 25\%$

Profit per cent at S.P.

$= \frac{\text{Profit}}{\text{S.P.}} \times 100$

$= \frac{100}{500} \times 100 = 20\%$

$\therefore$ Required difference

$= 25 - 20 = 5\%$

TYPE-XIII

1. (2) Selling price = 405 × 110%

= ₹ 445.50

Remaining apples = 10 – 1= 9 kg

Therefore, the remaining apples (per kg) cost

$= \frac{445.50}{9} =$ ₹ 49.50

2. (2) Due to fall in price, there is a saving of 20% of ₹ 100 i.e., ₹ 20. With this amount the purchaser purchases 4 kg. of salt.

$\therefore$ Reduced price of salt per kg

$= \frac{20}{4} =$ ₹ 5

3. (2) Let the original price = x per dozen

New price = $(x - 4)$ per dozen

Original number of pins

$= \frac{48}{x}$ dozens

New number of pins

$= \frac{48}{x-4}$ dozens

According to the question,

$\frac{48}{x-4} - \frac{48}{x} = 1$

$\Rightarrow 48\left(\frac{x - x + 4}{x(x-4)}\right) = 1$

$\Rightarrow x(x - 4) = 48 \times 4$

$\Rightarrow x^2 - 4x - 192 = 0$

$\Rightarrow x^2 - 16x + 12x - 192 = 0$

$\Rightarrow x(x - 16) + 12(x - 16) = 0$

$\Rightarrow (x - 16)(x + 12) = 0$

$\Rightarrow x = 16$, because the price of pins can not be negative.

$\therefore x \neq -12$

$\therefore$ New price = 16 – 4

= ₹ 12 per dozen

4. (3) Let the C.P. of article be x.

$\therefore$ 105% of x – 80% of x = 100

$\Rightarrow$ 25% of x = 100

$\Rightarrow x = \frac{100 \times 100}{25} =$ ₹ 400

5. (1) Cost of 2 erasers = 25% of 1

$= \frac{25}{100} \times 1 =$ ₹ $\frac{1}{4}$

$\Rightarrow$ Cost of one eraser = ₹ $\frac{1}{8}$

$\therefore$ 8 erasers will be available for ₹ 1

6. (2) Let the original rate = x per kg.

New rate = 85% of x

$= \frac{85x}{100} = \frac{17x}{20}$

Original quantity for ₹ 240

$= \frac{240}{x}$

New quantity $= 240 \times \frac{20}{17x} = \frac{4800}{17x}$

$\therefore \frac{4800}{17x} - \frac{240}{x} = 2$

$\Rightarrow \frac{4800 - 4080}{17x} = 2$

$\Rightarrow \frac{720}{17x} = 2 \Rightarrow x = \frac{720}{2 \times 17}$

$\therefore$ Original rate per kg = ₹ $\frac{720}{34}$

$\therefore$ Reduced rate = ₹ $\frac{17x}{20}$

$= ₹\left(\frac{17}{20} \times \frac{720}{34}\right) =$ ₹ 18

7. (4) Let the original price of 1 mango be x.

New rate = 120% of x

$= \frac{6x}{5}$

Number of mangoes bought in ₹ 40 $= \frac{40}{x}$

New quantity $= \frac{40 \times 5}{6x} = \frac{100}{3x}$

$\therefore \frac{40}{x} - \frac{100}{3x} = 4$

$\Rightarrow \frac{120 - 100}{3x} = 4 \Rightarrow \frac{20}{3x} = 4$

$\Rightarrow 3x = 5 \Rightarrow x = ₹\frac{5}{3}$

$\therefore$ Price of 15 mangoes before increase $= \frac{5}{3} \times 15 =$ ₹ 25

8. (2) If the C.P. of article be ₹ x, then

$x \times \left(105 - \frac{195}{2}\right)\% = 12$

$\Rightarrow x \times \frac{15}{200} = 12 \Rightarrow x = \frac{12 \times 200}{15}$

= ₹ 160

9. (1) Required profit percent

$= \left(x + y + \frac{xy}{100}\right)\%$

by Here, $x = 25\%$

$y = -\frac{25}{2}\%$

$= \left(25 - \frac{25}{2} - \frac{25 \times 25}{200}\right)\%$

$= \left(\frac{25}{2} - \frac{25}{8}\right)\%$

$= \left(\frac{100 - 25}{8}\right)\%$

$= \frac{75}{8}\% = 9\frac{3}{8}\%$

10. (3) Let the cost price of fan be Rs. x,

According to the question,

10% of x = 1250 – 1000

$\Rightarrow \frac{x \times 10}{100} = 250$

$\Rightarrow x = \frac{250 \times 100}{10} =$ Rs. 2500

Note : Here, increase in loss should be 10%.

11. (2) Cost of production of article = Rs. 100 (let)

$\therefore$ S.P. = Rs. 133

New cost of production = Rs. 112

$\therefore$ S.P. $= \frac{133 \times 110}{100}$

= Rs. 146.30

$\therefore$ Profit per cent

$= \left(\frac{146.3 - 112}{112}\right) \times 100$

$= \frac{34.3 \times 100}{112} = \frac{3430}{112}$

$= \frac{245}{8} = 30\frac{5}{8}\%$

12. (3) Original price of rice = Rs. x per kg.

New price

$= \frac{80x}{100} =$ Rs. $\frac{4x}{5}$ per kg

According to the question,

$\frac{1200}{\frac{4x}{5}} - \frac{1200}{x} = 5$

$\Rightarrow \frac{1200 \times 5}{4x} - \frac{1200}{x} = 5$

$\Rightarrow \frac{1500}{x} - \frac{1200}{x} = 5$

$\Rightarrow \frac{300}{x} = 5 \Rightarrow 5x = 300$

$\Rightarrow x = \frac{300}{5}$ = Rs. 60 per kg

$\therefore$ New price of rice

= Rs. $\left(\frac{4 \times 60}{5}\right)$ per kg

= Rs. 48 per kg

TYPE-XIV

1. (1) Let the cost price of article be x.

$\therefore$ 80% of x = 480

$\therefore$ x = $\left(\frac{480 \times 100}{80}\right)$ = ₹ 600

$\therefore$ S.P. for 20% profit

= ₹ $\left(\frac{600 \times 120}{100}\right)$ = ₹ 720

2. (4) Let the C.P. be ₹ 100

$\therefore$ C.P. – S.P. = $\frac{1}{5}$ S.P.

$\Rightarrow 100 = \left(1 + \frac{1}{5}\right)$ S.P.

$\Rightarrow 100 = \frac{6}{5} \times$ S.P.

$\Rightarrow$ S.P. = $\frac{100 \times 5}{6} = \frac{250}{3}$

$\therefore$ Loss % = $\frac{100 - \frac{250}{3}}{100} \times 100$

$= \frac{50}{3}\%$

3. (2) Let the cost price of each toy be x

$\therefore$ Cost price of 4 toys

= Selling price of 3 toys = 4x

$\therefore$ Selling price of 4 toys

$= \frac{4}{3} \times 4x = \frac{16}{3}x$

% profit = $\frac{\frac{16}{3}x - 4x}{4x} \times 100$

$= \left(\frac{16}{3} - 4\right) \times 25\%$

$= \frac{4}{3} \times 25\% = \frac{100}{3}\% = 33\frac{1}{3}\%$

4. (3) Cost price of house for Y

$= \frac{105}{100} \times 150000 =$ ₹157500

S.P. of house for Y

$= \frac{98}{100} \times$ Rs. 157500 = ₹ 154350

$\therefore$ Gain for X

= ₹ (157500 – 154350)

= ₹ 3150

5. (1) Cost price of a book

$= \frac{12000}{200} =$ ₹ 60

$\therefore$ Total profit = ₹ 60 × 20

= ₹ 1200

$\therefore$ Profit per cent

$= \frac{1200}{12000} \times 100 = 10\%$

6. (4) Let the C.P. of table be x

$\therefore$ According to the question

$\left(\frac{x - 350}{x} - \frac{x - 400}{x}\right) \times 100 = 5$

$\Rightarrow \frac{x - 350 - x + 400}{x} \times 100 = 5$

$\therefore x = \frac{50 \times 100}{5} =$ ₹ 1000

$\because$ 5% of C.P. = ₹ 50

$\therefore$ C.P. = $\frac{50 \times 100}{50} =$ ₹ 1000

7. (4) Let the C.P. be x

$\therefore$ S.P. = $\frac{8}{5}x$

$\therefore$ Gain = $\frac{8x - 5x}{5} = \frac{3x}{5}$

Now, Gain % = $\frac{\frac{3x}{5}}{x} \times 100$

$= \frac{3}{5} \times 100 = 60\%$

8. (3) Let the C.P. of the jewel be ₹ 100

S.P. for the first person = ₹ 120

S.P. for the second person

= ₹120 × $\frac{125}{100}$ = ₹ 150

Now, let the profit earned by the third person be x%

$\therefore 150 \times \frac{100 + x}{100} = 165$

$\Rightarrow 100 + x = \frac{165 \times 10}{15} = 110$

$\Rightarrow$ x = 110 – 100 = 10%

9. (2) Let the cost price be ₹ 100.

$\therefore$ Marked price = ₹ (100 + 15% of 100) = ₹ 115

The goods are sold at the discount of 12%.

$\therefore$ S.P. = (115 – 12% of 115)

= ₹ (115 – 13.80) = ₹ 101.20

Profit = ₹ (101.20 –100)

= ₹ 1.20

$\therefore$ Profit % = $\frac{1.20}{100} \times 100 = 1.2\%$

$= 1\frac{2}{10} = 1\frac{1}{5}\%$

10. (3) Suppose CP of table be x

SP = $\frac{x \times 110}{100} = \frac{11x}{10}$

CP at 5% less

$= \frac{x \times 95}{100} = \frac{19x}{20}$

According to question

$\frac{19x}{20} \times \frac{120}{100} = \frac{11x}{10} + 80$

$\Rightarrow \frac{57x}{50} - \frac{11x}{10} = 80$

$\Rightarrow \frac{2x}{50} = 80$

$\Rightarrow x = \frac{80 \times 50}{2} =$ ₹ 2000

11. (2) Required per cent increase

$= \frac{10}{90} \times 100 = 11\frac{1}{9}\%$

12. (4) Let 10 quintals of rice be bought.

$\therefore$ Actual C.P. of 8kg of rice

= 650 × 10 = ₹ 6500

$\therefore$ Required S.P.

$= \frac{6500 \times 120}{100} =$ ₹ 7800

$\therefore$ Rate of selling = $\frac{7800}{8} =$ ₹ 975

13. (3) Let the cost price be x

$\therefore$ Gain % = x%

$\therefore$ S.P. = C.P. + x% of C.P.

$$\Rightarrow 75 = x + \frac{x^2}{100}$$

$\Rightarrow x^2 + 100x - 7500 = 0$

$\Rightarrow x^2 + 150x - 50x - 7500 = 0$

$\Rightarrow x(x + 150) - 50(x + 150) = 0$

$\Rightarrow (x + 150)(x - 50) = 0$

$\Rightarrow x =$ ₹ 50

[as x cannot be negative]

14. (2) Let the cost price be x.

$\therefore$ 125% of x – 120% of x = 35

$\Rightarrow$ 5% of x = 35

$$\therefore x = ₹\ \frac{35 \times 100}{5} = ₹\ 700$$

15. (2) Let the CP be ₹ 100.

$\therefore$ SP = ₹ 120

New SP = ₹ 240

Profit = ₹ (240 –100) = ₹ 140

$$\therefore \text{Profit \%} = \frac{140}{100} \times 100 = 140\%$$

16. (3) Let the advertised price be ₹ 100.

$\therefore$ S.P. = ₹ 90, Profit = 20%

$$\therefore \text{C.P.} = ₹\left(90 \times \frac{100}{120}\right) = ₹\ 75$$

Profit = ₹ (90–75) = ₹ 15

Since for a profit of ₹ 15, the advertised price = ₹ 100

$\therefore$ For a profit of ₹ 7500, the advertised price

$$= ₹\ \frac{100 \times 7500}{15} = ₹\ 50000$$

17. (3) Let the C.P. of article be x.

According to the question,

$$\left(100 + \frac{25}{2}\right)\% \text{ of } x - \left(100 - \frac{25}{2}\right)\% \text{ of } x = 13$$

$$\Rightarrow \frac{x}{100}\left(100 + \frac{25}{2} - 100 + \frac{25}{2}\right) = 13$$

$$\Rightarrow \frac{x}{100} \times 25 = 13$$

$\Rightarrow x = 13 \times 4 =$ ₹ 52

18. (4) Difference of SP

= ₹ (400 – 350) = ₹ 50

Now, 50 = 5% of CP

$$\Rightarrow \text{CP} = \frac{50 \times 100}{5} = ₹\ 1000$$

19. (2) Let the C.P. be x

According to the question,

$$\frac{x - 50}{x} \times 100 = \frac{70 - x}{x} \times 100$$

$\Rightarrow x - 50 = 70 - x$

$$\Rightarrow 2x = 120 \Rightarrow x = \frac{120}{2} = 60$$

$$\therefore \text{Loss \%} = \frac{60 - 50}{60} \times 100$$

$$= \frac{50}{3} = 16\frac{2}{3}\%$$

20. (3) Let the C.P. of article = x

According to the question,

$$\frac{105x}{100} - \frac{95x}{100} = 5$$

$\Rightarrow 105x - 95x = 500$

$\Rightarrow 10x = 500$

$$\Rightarrow x = \frac{500}{10} = ₹\ 50$$

21. (4) Let marked price be x

$$\therefore \text{C.P.} = \frac{13}{15}x$$

$$\text{S.P.} = \frac{112x}{100}$$

$$\therefore \text{Profit} = \left(\frac{112x}{100} - \frac{13x}{15}\right)$$

$$= \left(\frac{336x - 260x}{300}\right) = \frac{76x}{300}$$

$\therefore$ Profit %

$$= \frac{76x}{300} \times \frac{15}{13x} \times 100$$

$$= \frac{380}{13} = 29\frac{3}{13}\%$$

22. (1) Let the profit per cent made by the second person be x.

$$\therefore 38 = \left(x + 20 + \frac{20x}{100}\right)\%$$

$$\Rightarrow 38 = x + 20 + \frac{x}{5}$$

$$\Rightarrow \frac{6x}{5} = 38 - 20$$

$$\Rightarrow x = \frac{18 \times 5}{6} = 15\%$$

23. (3) Production cost

$$= 1265 \times \frac{100}{125} \times \frac{100}{115} \times \frac{100}{110}$$

= ₹ 800

24. (3) Gain percent

$$= \left(\frac{110}{100} \times 110 - 100\right)\%$$

= (121 – 100)% = 21 per cent

25. (1) By selling 100 pencils, shopkeeper gains the SP of 20 pencils.

Clearly, CP of 100 pencils = SP of 80 pencils

Let CP of each pencil = ₹ 1.

CP of 80 pencils = ₹ 80

SP of 80 pencils = ₹ 100

$\therefore$ Gain per cent

$$= \frac{20}{80} \times 100 = 25\%$$

Aliter : Using Rule 9,

Here, x = 100, y = 20

$$\text{Profit \%} = \frac{y \times 100}{x - y}$$

$$= \frac{20 \times 100}{100 - 20}$$

$$= \frac{20 \times 100}{80} = 25\%$$

26. (3) Let 100 articles be sold and the CP of each article be ₹ 1.

$\therefore$ SP. of 75 articles

$$= ₹\left(\frac{120}{100} \times 75\right) = ₹\ 90$$

Profit = ₹ (90 – 75) = ₹ 15

$$\therefore \text{Profit per cent} = \frac{15}{100} \times 100$$

= 15%

27. (2) 15% of CP of article = ₹ 3

$\therefore$ CP of the article

$$= \frac{3 \times 100}{15} = ₹\ 20$$

28. (3) For the first trader,

Let the CP of the article be 100

$\therefore$ SP = ₹ 120

For the second trader,

SP of the article = ₹ 120

Gain = 20%

Let the CP be x .

$$\therefore \frac{120 - x}{120} \times 100 = 20$$

$$\Rightarrow 120 - x = 20 \times \frac{6}{5} = 24$$

$\Rightarrow x = 120 - 24 =$ ₹ 96

$\therefore$ Gain = ₹ 24

Difference of Gain = 24 – 20

= ₹ 4

$\because$ If the difference of gains be ₹ 4, then SP = ₹. 120
$\therefore$ When the difference be ₹ 85,

SP = $\frac{120}{4} \times 85$ = ₹ 2550

29. (2) Let the CP of the article for A be ₹ 100
$\therefore$ CP for B = ₹ 110
Again CP for A

$= 110 \times \frac{90}{100}$ = ₹ 99

Gain of A = 110 – 99 = ₹ 11
or 11%

30. (3) Let the CP of the article be Rs. 100 and its SP be x

$\frac{100 - x}{100} \times 100$

$= \frac{2x - 100}{100} \times 100$

$\Rightarrow 100 - x = 2x - 100$

$\Rightarrow 3x = 200 \Rightarrow x = \frac{200}{3}$

$\therefore$ Loss% = $100 - \frac{200}{3}$

$= \frac{100}{3} = 33\frac{1}{3}\%$

[because CP of the article = ₹ 100]

31. (1) Loss% = $\frac{10 \times 10}{100} = 1\%$

32. (3) Let the CP of the article be x and SP be y.
According to the question,

$y - x = \frac{20y}{100}$

$\Rightarrow y - \frac{y}{5} = x$

$\Rightarrow 4y = 5x$ ... (i)

Actual profit % = $\frac{y - x}{x} \times 100$

$= \frac{4y - 4x}{4x} \times 100 = \frac{5x - 4x}{4x} \times 100$

= 25%

33. (1) Let CP of each TV be x.
According to the question,
$2(x - 9400) = 10600 - x$
$\Rightarrow 2x - 18800 = 10600 - x$
$\Rightarrow 3x = 10600 + 18800$
= 29400

$\Rightarrow x = \frac{29400}{3}$ = ₹ 9800

34. (2) Tricky approach

C.P. of bicycle

$= \frac{100}{114} \times 2850$ = ₹ 2500

S.P. for a profit of 8%

$= \frac{108}{100} \times 2500$ = ₹ 2700

35. (3) $\frac{\text{S.P.} - \text{C.P.}}{\text{S.P.}} \times 100 = 20$

$\Rightarrow$ 5. S.P. – 5. C.P. = S.P.
$\Rightarrow$ 4. S.P. = 5. C.P.
$\therefore$ Required percentage

$= \frac{5 - 4}{4} \times 100$ = 25%

36. (4) If cost price be x and selling price be y, then

Profit % = $\left(\frac{y - x}{x}\right) \times 100$

$= \left(\frac{y}{x} - 1\right) \times 100$

Selling price = $\frac{2y}{5}$

Loss = $\left(x - \frac{2y}{5}\right)$

$\therefore \frac{x - \frac{2y}{5}}{x} \times 100 = 10$

$\Rightarrow 10x - 4y = x$
$\Rightarrow 9x = 4y$

$\Rightarrow \frac{y}{x} = \frac{9}{4}$

$\therefore$ Initial profit percent

$= \left(\frac{9}{4} - 1\right) \times 100 = 125\%$

Method 2 :
Shorter way is to go through options
From the given alternatives (4),
Gain = 125%
If C.P. = ₹100 then
original S.P. = ₹ 225
New S.P. = ₹ 90
Loss% = 10

37. (4) S.P. of first article = ₹ 4,000
gain % of first article = 25%
$\therefore$ C.P. of first article

$= 4{,}000 \times \frac{100}{125}$ = ₹ 3200

$\therefore$ Loss on second article
= 4000 – 3200 = ₹ 800
Now C.P. of second article
= 4000 + 800 = ₹ 4800
& S.P. of second article = ₹ 4000
$\therefore$ Loss of second article
= 4800 – 400 = ₹ 800

$\therefore$ Loss % = $\frac{800 \times 100}{4800} = \frac{50}{3}$

$= 16\frac{2}{3}\%$

38. (3) Actual gain percent

$= \left(5 + 5 + \frac{5 \times 5}{100}\right)\% = 10.25\%$

39. (2) CP of first article

$= 5000 \times \frac{100}{125}$ = ₹ 4000

$\therefore$ Loss on second article = ₹ 1000
$\therefore$ CP of second article = ₹ 6000
$\therefore$ If the loss percent be x%, then

$\frac{6000 \times x}{100} = 1000$

$\Rightarrow x = \frac{50}{3} = 16\frac{2}{3}\%$

40. (2) Let the S.P. of 60 articles be x.

$\therefore$ S.P. of 15 articles = $\frac{x}{4}$

$\therefore$ C.P. of 60 articles

$= x - \frac{x}{4} = \frac{3x}{4}$

$\therefore$ Gain % = $\frac{x}{4} \times \frac{4}{3x} \times 100$

$= \frac{100}{3} = 33\frac{1}{3}\%$

Aliter : Using Rule 9,
Here, x = 60, y = 15

Gain% = $\frac{y \times 100}{x - y}$

$= \frac{15 \times 100}{60 - 15}$

$= \frac{15 \times 100}{45}$

$= \frac{100}{3} = 33\frac{1}{3}\%$

41. (3) CP of 73 articles = ₹ 5110
∴ CP of 89 articles

$= \frac{5110}{73} \times 89 =$ ₹ 6230

Total SP of 89 articles
= ₹ 5607
Loss = ₹ (6230 – 5607) = ₹ 623
∴ Loss percent

$= \frac{623}{6230} \times 100 = 10\%$

42. (4) Let the C.P. of article be x.

Then, $\left(\frac{78-x}{x}\right) \times 100$

$= 2 \times \left(\frac{69-x}{x}\right) \times 100$

$\Rightarrow 78 - x = 2 \times 69 - 2x$
$\Rightarrow 2x - x = 138 - 78$
$\Rightarrow x =$ ₹ 60

43. (3) Let the merchant bought 100 metres of cloth for ₹ 100.
∴ Total S.P.

$= ₹ \left(\frac{50 \times 140}{100} + \frac{25 \times 60}{100} + 25\right)$

= ₹ (70 + 15 + 25) = ₹ 110
∴ Gain per cent = 10%

44. (2) Gain per cent $= \frac{\text{Gain}}{\text{S.P.}} \times 100$

$\Rightarrow 20 = \frac{\text{S.P.} - \text{C.P.}}{\text{S.P.}} \times 100$

$\Rightarrow$ S.P. = 5 (S.P. – C.P.)
$\Rightarrow$ 5 C.P. = 5 S.P. – S.P. = 4 S.P.

$\Rightarrow$ S.P. $= \frac{5}{4}$ C.P. $= \left(1 + \frac{1}{4}\right)$ C.P.

∴ Required gain per cent = 25%

45. (1) ∵ (40 – 20)% ≡ ₹ 1

$\therefore 120\% \equiv \frac{1}{20} \times 120 =$ ₹ 6

46. (2) Let C.P. of radio sold on gain = x
C.P. of radio sold on loss
= ₹ (1920 – x)

$\therefore x \times \frac{120}{100}$

$= (1920 - x) \times \frac{\left(100 - \frac{20}{3}\right)}{100}$

$\Rightarrow x \times 120 = (1920 - x) \times \frac{280}{3}$

$\Rightarrow 3x = (1920 - x) \times \frac{7}{3}$

$\Rightarrow 9x + 7x = 1920 \times 7$
$\Rightarrow 16x = 1920 \times 7$
$\Rightarrow x =$ ₹ 840
∴ C.P. of second radio
= ₹ 1080

47. (2) Actual cost price
= 450 + 30 = ₹ 480
∴ Gain percent

$= \frac{600 - 480}{480} \times 100 = 25\%$

48. (1) If the C.P. of article be x, then

$\frac{117x}{100} - \frac{81x}{100} = 162$

$\Rightarrow \frac{36x}{100} = 162$

$\Rightarrow x = \frac{162 \times 100}{36} =$ ₹ 450

49. (3) If the C.P. of wrist watch be x, then
C.P. of wall clock = ₹ (390 – x)

$\therefore \frac{x \times 10}{100} + \frac{(390 - x) \times 15}{100}$

= 51.50
$\Rightarrow 10x + 5850 - 15x = 5150$
$\Rightarrow 5x = 5850 - 5150 = 700$

$\Rightarrow x = \frac{700}{5} =$ ₹ 140

∴ C.P. of wall clock
= 390 – 140 = ₹ 250
∴ Required difference
= 250 – 140 = ₹ 110

50. (2) C.P. of the article

$= \frac{700 \times 100}{140} =$ ₹ 500

∴ New selling price

$= \frac{500 \times 110}{100} =$ ₹ 550

51. (2) Let number of books sold in 2008 = 100
Number of books sold in 2009 = 20
Number of books sold in 2010
= 100
∴ Required percentage increase

$= \frac{100 - 20}{20} \times 100 = 400\%$

52. (2) Gain percent $= \frac{100}{900} \times 100$

$= \frac{100}{9} = 11\frac{1}{9}\%$

Aliter : Using Rule 14,

Gain% $= \frac{1000 - 900}{900} \times 100$

$= \frac{100}{900} \times 100\%$

$= \frac{100}{9}\% = 11\frac{1}{9}\%$

53. (4) C.P. of each article = ₹ 1
∴ Total C.P. = ₹ 200
Total S.P.

$= \frac{60 \times 120}{100} + \frac{140 \times 110}{100}$

= 72 + 154 = ₹ 226
Gain = 226 – 200 = ₹ 26
When gain = ₹ 26, C.P. = ₹ 1
When gain = ₹ 2600,
C.P. = ₹ 100

54. (3) Profit per cent

$= \left(20 - 5 - \frac{20 \times 5}{100}\right)\% = 14\%$

Second Method

Let original price of article
= ₹ 100
C.P. = ₹ 95

S.P. $= \frac{95 \times 120}{100} =$ ₹ 114

∴ Required gain per cent = 14%

55. (1) Gain by false weight

$= \frac{200}{800} \times 100 = 25\%$

∴ Required gain

$= \left(25 + 10 + \frac{25 \times 10}{100}\right)\%$

= 37.5%

56. (3) C.P. of first bullock

$= \frac{100 \times 8400}{120} =$ ₹ 7000

∴ Gain = ₹ 1400
∴ Loss = ₹ 1400
∴ C.P. of second bullock
= 8400 + 1400 = ₹ 9800
If loss be x %, then

$\therefore 9800 \times \frac{x}{100} = 1400$

$\Rightarrow x = \frac{100}{7} = 14\frac{2}{7}\%$

57. (2) Net gain per cent

$$= \left(20 - 15 - \frac{20 \times 15}{100}\right)\%$$

$= (20 - 18)\% = 2\%$

58. (2) The C.P. of a cow = be x and that of a goat y.

$3x + 8y = 47200$ ....(i)

$8x + 3y = 100200$ ....(ii)

By equation (i) × 3 – (ii) × 8,

$9x + 24y - 64x - 24y$

$= 141600 - 801600$

$\Rightarrow 55x = 660000$

$$\Rightarrow x = \frac{660000}{55} = ₹\ 12000$$

59. (4) Marked price of a radio set

$$= \frac{400 \times 130}{100} = ₹\ 520$$

$$\text{S.P.} = \frac{520 \times 92}{100} = ₹\ 478.4$$

$$\therefore \text{Gain per cent} = \frac{78.4}{400} \times 100$$

$= 19.6\%$

60. (2) Profit percent

$$= \frac{150}{1000 - 150} \times 100$$

$$\frac{150 \times 100}{850} = \frac{300}{17} = 17\frac{11}{17}\%$$

Aliter : Using Rule 14,

Gain%=

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

$$= \frac{1000 - 850}{850} \times 100\%$$

$$= \frac{150}{850} \times 100\%$$

$$= \frac{300}{17} = 17\frac{11}{17}\%$$

61. (3) C.P. of article be x

$$\therefore \text{First S.P.} = \frac{80x}{100} = ₹\ \frac{4x}{5}$$

$$\frac{4x}{5} + 100 = \frac{x \times 105}{100} = \frac{21x}{20}$$

$$\Rightarrow \frac{21x}{20} - \frac{4x}{5} = 100$$

$$\Rightarrow \frac{21x - 16x}{20} = 100$$

$\Rightarrow 5x = 2000$

$$\Rightarrow x = \frac{2000}{5} = ₹\ 400$$

62. (1) S.P. of 25m of cloth – C.P. of 25m of cloth

= S.P. of 5m of cloth

$\therefore$ C.P. of 25m of cloth = S.P. of 20m of lcoth

$\therefore$ C.P.= ₹ 20, S.P. = ₹ 25 (let)

$\therefore$ Gain per cent

$$= \frac{5}{20} \times 100 = 25\%$$

Aliter : Using Rule 9,

Here, x = 25, y = 5

$$\text{Gain\%} = \frac{y \times 100}{x - y}\%$$

$$= \frac{5 \times 100}{25 - 5}\%$$

$$= \frac{5 \times 100}{20}\%$$

$$= \frac{100}{20} \times 5\%$$

$= 25\%$

63. (2) Total expected S.P.

$$= \frac{96000 \times 110}{100} = ₹\ 105600$$

S.P. of first part

$$= \frac{2}{5} \times 96000 \times \frac{94}{100} = ₹\ 36096$$

S.P. of remaining part

$= 105600 - 36096 = ₹\ 69504$

C.P. of remaining part

$$= \frac{3}{5} \times 96000 = ₹\ 57600$$

Gain = 69504 – 57600

= ₹ 11904

If the gain per cent be x, then

$$\frac{57600 \times x}{100} = 11904$$

$$\Rightarrow x = \frac{11904 \times 100}{57600} = 20\frac{2}{3}\%$$

64. (2) Gain $= X \times \frac{25}{100} = ₹\ \frac{X}{4}$

$$\text{Taxes} = \frac{X}{4} \times \frac{1}{2} = ₹\ \frac{X}{8}$$

65. (2) C.P. of 1 litre of milk = ₹ 1

S.P. of 1 litre of mixture = ₹ 1

$\therefore$ C.P. of 1 litre of mixture

$$= \frac{100}{125} \times 1 = ₹\ \frac{4}{5}$$

C.P. of 1 litre of milk Re. 1

C.P. of 1 litre of mixture Re. 0

Mean value Re. $\frac{4}{5}$

$\frac{4}{5}$

$1 - \frac{4}{5} = \frac{1}{5}$

$$\text{Milk : Water} = \frac{4}{5} : \frac{1}{5} = 4 : 1$$

$$\text{Volume of water mixed} = \frac{1}{5}$$

66. (2) Let. C.P. of 200 eggs be Rs. x, 38 eggs are broken.

$\therefore$ S.P. of remaining 200 – 38

= 162 eggs

$$= \text{Rs. } \frac{1}{12}(162 \times 4.80)$$

$$= \text{Rs. } \left(\frac{777.6}{12}\right) = \text{Rs. } 64.8$$

$\therefore$ 108% of x = 64.8

$$\Rightarrow \frac{x \times 108}{100} = 64.8$$

$$\Rightarrow x = \frac{64.8 \times 100}{108} = \text{Rs. } 60$$

67. (3) C.P. of article = Rs. 100 (let)

$\therefore$ Marked price = Rs. 120

$$\therefore \text{S.P.} = \frac{120 \times 90}{100} = \text{Rs. } 108$$

$\because$ If S.P. = Rs. 108,

C.P. = Rs. 100

$\therefore$ If S.P. = Rs. 216,

$$\text{CP} = \frac{100}{108} \times 216 = \text{Rs. } 200$$

68. (3) C.P. of an apple

$$= \frac{600}{240} = \text{Rs. } 2.5$$

S.P. of an apple = Rs. 3.5

Total profit = Rs. 198

Total S.P. = Rs. (600 + 198)

= Rs. 798

$\therefore$ Number of apples sold

$$= \frac{798}{3.5} = 228$$

$\therefore$ Bad apples = 240 – 228 = 12

$\therefore$ Required per cent

$= \frac{12}{240} \times 100 = 5\%$

69. (3) Original price of car = Rs. x (let)

C.P. of car for Amit

$= \frac{90 \times x}{100} = \text{Rs. } \frac{9x}{10}$

Actual C.P.

$= \text{Rs. } \left(\frac{9x}{10} + 5000\right)$

According to the question,

$\left(\frac{9x}{10} + 5000\right) \times \frac{120}{100} = 100000$

$\Rightarrow \frac{9x}{10} + 5000$

$= \frac{100000 \times 100}{120} \approx 83300$

$\Rightarrow \frac{9x}{10} \approx 83300 - 5000 \approx 78300$

$\Rightarrow x \approx \frac{78300 \times 10}{9}$

$\approx$ Rs. 87000

70. (3) Marked price of article = Rs. x (let)

$\therefore$ C.P. of article = Rs. $\frac{5x}{9}$

If the rate of discount be y%, then

$\therefore x \times (100 - y)\% = 120\ \%$ of $\frac{5x}{9}$

$\Rightarrow 100 - y = \frac{5}{9} \times 120$

$\Rightarrow 300 - 3y = 200$

$\Rightarrow 3y = 300 - 200 = 100$

$\Rightarrow y = \frac{100}{3} = 33\frac{1}{3}\%$

71. (2) C.P. of 50 kg of rice

= Rs. (30 × 70 + 20 × 70.75)

= Rs. (2100 + 1415)

= Rs. 3515

S.P. of 50 kg. of rice

= Rs. (50 × 80.50) = Rs. 4025

Profit = Rs. (4025 – 3515)

= Rs. 510

72. (3) C.P of article = Rs. 100 (let)

$\therefore$ Marked price = Rs. 140

At 12% gain, S.P. = Rs. 112

$\therefore$ Discount = 140 – 112

= Rs. 28

If the rate of discount be x%, then

$140 \times x\% = 28$

$\Rightarrow \frac{140 \times x}{100} = 28$

$\Rightarrow x = \frac{28 \times 100}{140} = 20\%$

73. (4) Discount percent = x% (let).

According to the question

$\frac{975 \times x}{100} = 975 - 897$

$\Rightarrow \frac{975x}{100} = 78$

$\Rightarrow x = \frac{78 \times 100}{975} = 8\%$

74. (4) Let the C.P. of article be Rs. 100.

$\therefore$ Marked price = Rs. 120

According to the question,

After a discount of 10%,

S.P. = $\frac{120 \times 90}{100}$ = Rs. 108

$\therefore$ Profit = 108 – 100 = Rs. 8

$\therefore$ Profit per cent = 8

75. (1) C.P. for Y

$= \frac{150000 \times 105}{100}$ = Rs. 157500

S.P. for Y

$= \frac{157500 \times 98}{100}$ = Rs. 154350

$\therefore$ X's gain

= Rs. (157500 – 154350)

= Rs. 3150

76. (2) C.P. of article = Rs. x (let)

S.P. at 5% profit

$= \text{Rs. } \left(\frac{105x}{100}\right) = \text{Rs. } \frac{21x}{20}$

New C.P. of article = $\frac{95x}{100}$

$= \text{Rs. } \frac{19x}{20}$

S.P. = Rs. $\left(\frac{19x}{20} \times \frac{110}{100}\right)$

$= \text{Rs. } \left(\frac{209x}{200}\right)$

According to the question,

$\frac{21x}{20} - \frac{209x}{200} = 2$

$\Rightarrow \frac{210x - 209x}{200} = 2$

$\Rightarrow \frac{x}{200} = 2$

$\Rightarrow x$ = Rs. 400

77. (1) Marked price of bicycle = Rs. x (let).

According to the question,

$x \times 113.5\% = 6810$

$\Rightarrow \frac{x \times 113.5}{100} = 6810$

$\Rightarrow x = \frac{6810 \times 100}{113.5}$ = Rs. 6000

78. (4) S.P. of first book = Rs.= 6

According to the question,

Gain on first 5 books

= 5 + 4 + 3 + 2 + 1 = 15

Loss on last 5 books

= 15

Hence, No loss or gain.

79. (2) Marked price of book = Rs. x

Its C.P. = Rs. 100

According to the question,

$\frac{x \times 90}{100} = 120$

$\Rightarrow x = \frac{120 \times 100}{90} = \text{Rs. } \frac{400}{3}$

If commission be 15%, then

S. P. = $\frac{400}{3} \times \frac{85}{100} = \frac{340}{3}$

= Rs. 113.33

$\therefore$ Gain % = $13\frac{1}{3}\%$

80. (1) C.P. of umbrella

$= \frac{100}{120} \times 30$ = Rs. 25

S.P. of umbrella after 10% discount

= Rs. $\left(\frac{30 \times 90}{100}\right)$ = Rs. 27

∴ Required gain per cent

$= \left(\frac{27-25}{25}\right) \times 100\ \%$

$= \frac{200}{25}$ = 8%

81. (3) C.P. of vegetables = Rs. 100 per kg.

∵ S.P. of 900 gm. of vegetables = Rs. 120

∴ S.P. of 1000 gm. of vegetables = $\frac{120}{900} \times 1000$

= Rs. 133.33

∴ Gain% = 33.33%

82. (1) C.P. of petrol = Rs. 100 litre

∴ C.P. of kerosene = Rs. 40 litre

Price of 1 litre petrol and 200 ml kerosene

= Rs. 100 + 8 = 108

Gain = Rs. (120 – 108) = Rs.12

∴ Gain percent = $\frac{12}{108} \times 100$

= 11.11%

83. (3) Cost price of article at place A = Rs. x (let).

∴ Price at place B

= Rs. $\frac{85x}{100}$ = Rs. $\frac{17x}{20}$

According to the question,

$x - \left(\frac{17x}{20} + 150\right) = 150$

$\Rightarrow x - \frac{17x}{20} = 300$

$\Rightarrow \frac{20x - 17x}{20} = 300$

$\Rightarrow \frac{3x}{20} = 300$

$\Rightarrow x = \frac{300 \times 20}{3}$ = Rs. 2000

∴ Price at place B

= $\frac{17}{20} \times 2000$ = Rs. 1700

Actual price

= Rs. (1700 + 150) = Rs. 1850

Profit = Rs. (2000 – 1850)

= Rs. 150

∴ Profit percent

= Rs. $\left(\frac{150}{2000} \times 100\right)$

= 7.5%

84. (3) Profit per cent

$= \frac{\text{Error}}{(1000 - \text{Error})} \times 100$

$= \frac{125}{875} \times 100$

$= \frac{100}{7} = 14\frac{2}{7}\%$

85. (2) 30 eggs out of 510 eggs were broken.

∴ C.P. of 480 eggs i.e. 40 dozen of eggs = $\frac{510}{12} \times 20$

= Rs. 850

∴ C.P. of 1 dozen eggs = $\frac{850}{40}$ = Rs. 21.25

∴ For a profit of 20%,

Required S.P. per dozen

= Rs. $\left(\frac{21.25 \times 120}{100}\right)$

= Rs. 25.50

86. (1) C.P. for A = Rs. 100

C.P. for B = Rs. 88

C.P. for C = 88 × $\frac{225}{200}$ = Rs. 99

∴ Required loss per cent

= $\frac{100 - 99}{100}$ × 100 = 1%

87. (2) Let the C.P. of each cake of type–I be Rs. x and that of type–II be Rs. y.

∴ $3x + 6y = 900$

$\Rightarrow x + 2y = 300$ ..... (i)

Again, $3 \times \frac{115x}{100} + \frac{6 \times y \times 90}{100}$ = 930

$\Rightarrow 115x + 180y = 31000$

By equation (i) × 2 – (ii),

$115x + 230y = 34500$

$115x + 180y = 31000$

$50y = 3500$

$\Rightarrow y = \frac{3500}{50}$ = Rs. 70

From equation (i),

$x + 2 \times 70 = 300$

$\Rightarrow x$ = Rs. (300 – 140) = Rs. 160

88. (3) C.P. of 30 litre mixture of milk and water = Rs. (25 × 12) = Rs. 300

S.P. of 30 litre mixture

= Rs. (30 × 10.40)

= Rs. 312

Profit = Rs. (312 – 300)

= Rs. 12

∴ Profit per cent = $\frac{12}{300} \times 100$

= 4%

89. (3) Let the C.P. of 1 quintal of wheat be Re.1.

Let the quantity of wheat sold at 33% profit be x quintals.

∴ Quantity of wheat sold at 23% profit = (22 – x) quintals

According to the question,

$x \times \frac{33}{100} + (22 - x) \times \frac{23}{100}$

$= 22 \times \frac{27}{100}$

$\Rightarrow 33x + 22 \times 23 - 23x$

$= 22 \times 27$

$\Rightarrow 10x + 506 = 594$

$\Rightarrow 10x = 594 - 506 = 88$

$\Rightarrow x = \frac{88}{10}$ = 8.8 quintals

= (8.8 × 100) kg. = 880 kg.

90. (4) Let the shopkeeper buy 100 kg. of product.

∴ C.P. of 100 kg. of product

= Rs. (150 × 100)

= Rs. 15000

15% of products is damaged.

∴ S.P. of 85 kg. of product

= $\left(\frac{15000 \times 120}{100}\right)$

= Rs. 18000

∴ S.P. of 1 kg. of product

= Rs. $\left(\frac{18000}{85}\right)$

= $\frac{3600}{17}$ = Rs. $211\frac{13}{17}$

❑❑❑

TEST YOURSELF

1. A salesman mixes two varieties of tea, whose costs are Rs. 60 and Rs. 45 per kg respectively. In what proportion the two varieties are to be mixed so as to make a profit of 25% if the sale price be Rs. 62.50 per kg ?

(1) 2 : 3 (2) 1 : 2

(3) 1 : 3 (4) 2 : 5

2. A publisher printed 3000 copies of a book for sale, the cost of each book being Rs. 7.00. He distributed 500 copies to different institutions free of cost. He allowed a book free of cost for each 24 books purchased. If the price of each book is fixed at Rs. 14.50. determine the rate of profit or loss of the publisher.

(1) 66% loss (2) 66% profit

(3) 60% profit (4) 60% loss

3. Bimalbabu sells two cars each of Rs. 99,000. He makes a profit of 10% on the first car, but incurs a loss of 10% on the second. What will be his percentage of profit or loss on the whole transaction ?

(1) 1% profit (2) 1% loss

(3) 4% profit (4) 4% loss

4. A man purchased some eggs at the rate of Rs. 10 per dozen and again purchased $\frac{3}{4}$ of them at the rate of Rs. 12 per dozen. Then he sold all eggs at the rate of Rs. 13 per dozen and made a profit of Rs. 30. Find the total number of eggs he purchased altogether.

(1) 8 dozens (2) 9 dozens

(3) 10 dozens (4) None of these

5. A soap manufacturer supplies soap to wholesaler at 15% profit, wholesaler supplies these to retailer at 20% profit and retailer sells it to the consumer at 25% profit. If for the consumer the price of soap be Rs. 17.25, what is the manufacturing cost of the soap ?

(1) Rs. 10 (2) Rs. 9

(3) Rs. 12 (4) Rs. 8

6. A man sold an article at a loss of 12%. If he had sold for Rs. 56 more he would have gained 4%. What was the cost price of the article?

(1) Rs. 320 (2) Rs. 330

(3) Rs. 340 (4) Rs. 350

7. A dishonest tradesman marks his goods at an advance of 5 per cent on the cost price, and uses a fraudulent balance whose beam is horizontal when the weight in one scale is one-fifth more than the weight in the other. What is his actual gain per cent ?

(1) 30.25 % (2) 32.25 %

(3) 33.25 % (4) 31.25%

8. A man sells a television set at a profit of 10%. If he had bought it for 10% less and sold it for Rs. 360 less, he would have gained 20%. Find the cost price of the television set.

(1) Rs. 18000 (2) Rs. 18500

(3) Rs. 17000 (4) Rs. 19000

9. The C.P. of two shirts taken together is ₹ 840. If by selling one at a profit of 16% and the other at a loss of 12%, there is no loss or gain in the whole transaction, then the C.P. of the two shirts are respectively :

(1) ₹360, ₹480 (2) ₹480, ₹360

(3) ₹380, ₹460 (4) None of these

10. If sweets are bought at 15 for a rupee, how many must be sold for a rupee to gain 25%?

(1) 10 (2) 11

(3) 12 (4) 8

11. A compact disc player when sold for ₹13,600 incurred a loss of 15 per cent. At what price should it have been sold to make a profit of 35 per cent on the cost?

(1) ₹ 21,600 (2) ₹ 20,400

(3) ₹ 19,600 (4) None of these

12. If the selling price of 20 articles is the same as the cost price of 23 articles, find the profit per cent.

(1) 15% (2) 16%

(3) 8% (4) 12%

13. Ramesh bought two boxes for ₹ 1300. He sold one box at a profit of 20% and the other box at a loss of 12%. If the selling price of both boxes is the same, find the cost price of each box.

(1) ₹ 650, ₹ 650 (2) ₹ 550, ₹ 750

(3) ₹ 450, ₹ 850 (4) None of these

14. A trader sells an article at a profit of 15%. If he had bought it for 15% less and had sold it for ₹ 7.80 less, he would have gained 20%. Find the cost price of the article.

(1) ₹ 65 (2) ₹ 80

(3) ₹ 60 (4) ₹ 70

15. Ram Kumar sold his motor cycle to Mohan at a loss of 28%. Mohan spent ₹ 1680 on its repairs and sold the motor cycle to Sohan for ₹. 35910, thereby, making a profit of 12.5%. Find the cost of the motor cycle for Ram Kumar.

(1) ₹ 38000 (2) ₹ 35000

(3) ₹ 40000 (4) ₹ 42000

16. A shopkeeper reduces the price of his goods by 50% at the time of sale. Initially the price was fixed to get a profit of 25% on selling price after allowing 10% cash discount. Find out his approximate percentage of profit or loss.

(1) 26% loss (2) 28% profit

(3) 30% loss (4) 26% profit

17. A wholesaler sells 20 pens at the marked price (printed on the article) of 16 pens to a retailer. The retailer in turn sells them at the marked price . Determine the gain or loss per cent to the retailer.

(1) 25% loss (2) 25% profit

(3) 20% loss (4) 20% profit

18. A defective briefcase costing ₹ 800 is being sold at a loss of 8%. If the price is further reduced by 5%, find its approximate selling price.

(1) ₹ 600 (2) ₹ 650

(3) ₹ 700 (4) ₹ 725

19. A shopkeeper buys 40 bicycles and marks them at 25% above the cost price. He allows a discount of 10% on the marked price for cash sales, and 5% for credit sales. If three-fourth of the stock is sold for cash and the rest for credit, and if the total profit be ₹ 20250, what is the cost price of a bicycle ?

(1) ₹ 4000 (2) ₹ 3500

(3) ₹ 3200 (4) ₹ 3600

20. A dealer sold two coolers at ₹ 2,970 each. On selling one cooler, he gained 10%, on selling the other he lost 10%. Find the dealer's gain or loss per cent.

(1) 1% loss (2) 1% gain

(3) 2% loss (4) 2% gain

21. A man buys some quantity of wheat for ₹ 2400. He sells one-third of it at a profit of 5%. At what per cent gain should he sell the remaining two-third so as to make an overall profit of 10% on the whole transaction?
(1) 11.5% (2) 12.5%
(3) 13% (4) 13.5%

22. A man purchases some mangoes at the rate of 3 for ₹ 4 and the same quantity at 5 for ₹ 6. If he sells all the mangoes at the rate of 3 for ₹ 5, find his approximate gain or loss per cent.
(1) 35% loss (2) 32% loss
(3) 32% profit (4) 35% gain

23. What per cent above cost price should goods be marked for sale so that after allowing $12\frac{1}{2}\%$ trade discount and 5% cash discount, a net gain of 33% may be earned ?
(1) 45% (2) 40%
(3) 50% (4) 60%

24. *A*, *B* and *C* invest ₹ 15000, ₹ 20000 and ₹ 25000 respectively in a business. The profit earned is ₹ 1200. Find the share of A in the profit.
(1) ₹ 300 (2) ₹ 400
(3) ₹ 500 (4) ₹ 600

25. ₹ 52000 is to be divided among the partners *A*, *B* and *C*. The ratio of their investments is $\frac{1}{12}:\frac{1}{18}:\frac{1}{24}$. Find the share of A.
(1) ₹ 16000 (2) ₹ 24000
(3) ₹ 12000 (4) ₹ 18000

26. *A*, *B* and *C* invest ₹ 1000, ₹ 4000 and ₹ 5000 respectively in a business. At the end of the year the balance sheet shows a loss of 20% of the total initial investment. Find the share of loss of B.
(1) ₹ 1000 (2) ₹ 200
(3) ₹ 800 (4) ₹ 1200

27. *A*, *B* and *C* enter into a partnership. *A* invests ₹ 2400 for 4 years, *B* ₹ 2800 for 8 years and *C* ₹ 2000 for 10 years. They earn ₹ 1170. Find the share of each.
(1) ₹ 420 (2) ₹ 540
(3) ₹ 108 (4) ₹ 216

28. *A* and *B* are partners in a firm. *A* invests ₹ 15000 and *B* ₹ 25000. *A* is the working partner and gets 20% of the profit for his contribution in the management of the firm. *B* is the sleeping partner. If the profit is ₹ 475, find the share of B.
(1) ₹ 237.5 (2) ₹ 257.5
(3) ₹ 247.5 (4) ₹ 238.5

29. *A* starts an industry with ₹ 20 lakhs. After 4 months he enters into a partnership with *B* who contributes ₹ 40 lakhs. *C* joins them after another 3 months with a capital of ₹ 60 lakhs. At the year end, the balance sheet shows a profit of ₹ 74000. Find the share of A in the profit.
(1) ₹ 32000 (2) ₹ 24000
(3) ₹ 18000 (4) ₹ 16000

30. Ravi and Shyam enter into a partnership and together start a business with contributions of Rs. 15000 and ₹ 20000. After 4 months Mohan also joins them with contribution of ₹ 22500. After 9 months Shyam withdraws his contribution. At the end of the year there is a profit of ₹ 9000. Find the share of each in the profit.
(1) ₹ 4000 (2) ₹ 3000
(3) ₹ 3500 (4) ₹ 3600

31. *A*, *B* and *C* invest their capital into a partnership business in the following manner; A invests one-half of the capital for three- fourth of the time, *B* invests one-third of the capital for one-half of the time and *C* invests the remaining capital for the whole time. If the profit earned is ₹ 510, how should A get ?
(1) ₹ 260 (2) ₹ 250
(3) ₹ 270 (4) ₹ 280

32. Ravi starts a business with ₹ 45000. After a certain period of time he is joined by Mohan who invests ₹ 30000. At the end of the year they divide the profit in the ratio 9 : 4. When did Mohan join Ravi?
(1) After 3 months
(2) After 5 months
(3) After 6 months
(4) After 4 months

33. *A*, *B* and *C* enter into partnership with capital contribution of ₹ 25,000, ₹ 30,000 and ₹ 15,000 respectively. *A* is the working partner and he gets 30% of the profit for managing the business. The balance profit is distributed in proportion to the capital investment. At the year-end, *A* gets Rs. 200 more than *B* and *C* together. Find the total profit.
(1) ₹ 2500 (2) ₹ 2000
(3) ₹ 2200 (4) ₹ 2400

34. *A* and *B* enter into partnership with capital contribution of ₹ 5000 and ₹ 4000 respectively. After $\frac{1}{6}$th of the time *A* contributes additional ₹ 2000. Four months after the start *B* withdraws $\frac{1}{4}$th his capital, then *C* joins the business with a capital investment of ₹ 5000. At the end of the year the company's balance-sheet shows a profit of ₹ 2804. Find the share of *A* in the profit.
(1) ₹ 1402 (2) ₹ 701
(3) ₹ 1420 (4) ₹ 820

35. *A* and *B* enter into partnership and invest in stock market trading. Their investments initially were ₹ 50000 and ₹ 45000. After 4 months *A* withdraws half his capital. At the end of 8 months *B* withdraws half his capital and *C* joins them with a capital of ₹ 70000. What should be the ratio in which the profit will be divided at the year-end?
(1) 40 : 35 : 21 (2) 40 : 45 : 28
(3) 40 : 28 : 21 (4) None of these

36. *A*, *B* and *C* together hold a pasture for which they pay a rent at the rate of ₹ 160 per month. They put on it 70, 50 and 40 cows respectively. *A* sells $\frac{2}{7}$th of his stock to *B* after 4 months and further 3 months later *C* sells $\frac{2}{5}$th of his stock to *A*. How much of the rent should A pay in one year?
(1) ₹ 500 (2) ₹ 400
(3) ₹ 760 (4) ₹ 560

37. Ram and Shyam enter into a partnership by contributing capitals in the ratio 16 : 7. After 5 months Ram withdraws. If finally they share profit in the ratio of 5 : 7, find how long Shyam's capital was used ?
(1) 15 months (2) 14 months
(3) 12 months (4) 16 months

38. *A*, *B* and *C* enter into a partnership and invest their capital in the ratio 4 : 8 : 9. Their period of investment are in the ratio 6 : 3 : 5. In what ratio would they distribute their profits?

(1) 4 : 4 : 15 (2) 8 : 8 : 15
(3) 3 : 3 : 10 (4) 3 : 10 : 15

39. *A*, *B* and *C* enter into a partnership. Their capital contribution is in the ratio 21 : 18 : 14. At the end of the business term they share profits in the ratio 15 : 8 : 9. Find the ratio of time for which they invest their capitals.
(1) 37 : 38 : 72 (2) 39 : 38 : 72
(3) 90 : 56 : 81 (4) None of these

40. *A*, *B* and *C* enter into a partnership. Their contributions are Rs. 30 lakhs, Rs. 20 lakhs, and Rs. 10 lakhs respectively. *A* and *B* are working partners while *C* is a sleeping partner. *A* and *B* get 10% and 15% of gross profit respecitvely as salary for managing the business. If at the year end *C* receives ₹ 3.75 lakhs, as profit, find the share of *A*.
(1) ₹ 16 Lakhs (2) ₹ 12 Lakhs
(3) ₹ 18 Lakhs (4) ₹14.25 Lakhs

SHORT ANSWERS

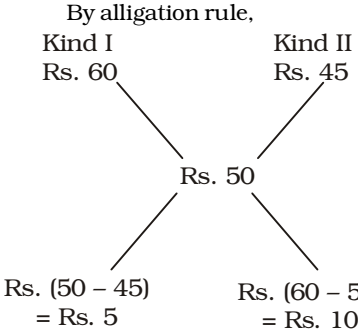
1. (2)	**2.** (2)	**3.** (2)	**4.** (1)
5. (1)	**6.** (4)	**7.** (4)	**8.** (1)
9. (1)	**10.** (3)	**11.** (1)	**12.** (1)
13. (2)	**14.** (3)	**15.** (4)	**16.** (1)
17. (2)	**18.** (3)	**19.** (4)	**20.** (1)
21. (2)	**22.** (3)	**23.** (4)	**24.** (1)
25. (2)	**26.** (3)	**27.** (4)	**28.** (1)
29. (2)	**30.** (2)	**31.** (3)	**32.** (4)
33. (2)	**34.** (1)	**35.** (2)	**36.** (3)
37. (4)	**38.** (2)	**39.** (3)	**40.** (4)

EXPLANATIONS

1. (2) C.P. of 1 kg of mixture

$= \frac{100}{100+25} \times 62.50 = \text{Rs. } 50$

By alligation rule,



Required ratio = 5 : 10 = 1 : 2

2. (2) Total cost of the books
= Rs. (3000 × 7) = Rs. 21000
500 books are given free of cost.
Selling price for 25 books
= 24 × 14.50 = Rs. 348
∴ Total selling price = Rs. 34800
∴ Gain = Rs. (34800 – 21000)
= Rs. 13800
∴ Gain%

$= \frac{13800}{21000} \times 100 \approx 66\%$

3. (2) C.P. of car sold at 10% profit

$= \frac{100}{100+\text{gain}\%} \times \text{S.P.}$

$= \frac{100}{110} \times 99000 = \text{Rs. } 90000$

C.P. of car sold at 10% loss

$= \frac{100}{90} \times 99000 = \text{Rs. } 110000$

Total C.P.
= Rs. (90000 + 110000)
= Rs. 200000
Total S.P. = Rs. 2 × 99000
= Rs. 198000
∴ Loss = Rs. 2000

$\therefore \text{Loss}\% = \frac{2000}{200000} \times 100 = 1\%$

Short - cut Method

If two things are sold at the same price and loss and gain per cent be same i.e. *x*% then there is always loss.

and loss % $= \frac{x^2}{100}\%$

$= \frac{10 \times 10}{100} = 1\%$

4. (1) Let the total number of eggs be *x* dozens.
∴ Total C.P.

$= \text{Rs. } \left(10x + \frac{3}{4}x \times 12\right)$

$= \text{Rs. } \left(\frac{40x+36x}{4}\right)$

$= \text{Rs. } \frac{76x}{4} = \text{Rs. } 19x$

Total S.P. $= \left(x + \frac{3}{4}x\right) \times 13$

$= \frac{7 \times 13x}{4} = \text{Rs. } \frac{91x}{4}$

$\therefore \frac{91x}{4} - 19x = 30$

$\Rightarrow 91x - 76x = 30 \times 4$

$\Rightarrow 15x = 30 \times 4$

$\Rightarrow x = \frac{30 \times 4}{15} = 8$ dozens.

5. (1) Manufacturing cost

$= \frac{100}{115} \times \frac{100}{120} \times \frac{100}{125} \times 17.25$

= Rs. 10

6. (4) Let the C.P. be Rs. *x*.

S.P. $= \frac{88x}{100} = \text{Rs. } \frac{22x}{25}$

New S.P.= Rs. $\left(\frac{22x}{25} + 56\right)$

$\therefore \frac{22x}{25} + 56 = \frac{104x}{100} = \frac{26x}{25}$

$\Rightarrow \frac{4x}{25} = 56 \Rightarrow x = \frac{56 \times 25}{4}$

= Rs. 350

7. (4) A packet of goods marked 1 kg
Actual weight = 800 gm.
C.P. at Re. 1/gm = Rs. 800
S.P. of this packet

$= \frac{105}{100} \times 1000 = \text{Rs. } 1050$

Gain % $= \frac{250}{800} \times 100$

= 31.25

8. (1) Let the C.P. of television set be Rs. *x*.

First S.P. = Rs. $\frac{110}{100}x$

$= \text{Rs. } \frac{11}{10}x$

New C.P. = Rs. $\frac{9x}{10}$

New S.P. = Rs. $\frac{9x}{10} \times \frac{120}{100}$

$= \text{Rs. } \frac{27x}{25}$

$\therefore \frac{11x}{10} - \frac{27x}{25} = 360$

$\Rightarrow \frac{55x - 54x}{50} = 360$

$\Rightarrow x = 360 \times 50 = \text{Rs. } 18000$

9. (1) Let the CP of shirt sold at 16% gain be Rs. x.

$\therefore\ x \times \frac{116}{100} + (840 - x) \times \frac{88}{100}$

$= 840$

$\Rightarrow 116x + 88 \times 840 - 88x$

$= 84000$

$\Rightarrow 28x = 84000 - 88 \times 840$

$= 840 \times 12$

$\Rightarrow x = \frac{840 \times 12}{28}$ = Rs. 360

CP of second shirt = 840 – 360

= Rs. 480

Alternate Method

Let the CP of shirt sold at gain be Rs. x and that of shirt sold at loss be Rs. y.

$\therefore\ x \times \frac{16}{100} = y \times \frac{12}{100}$

$\Rightarrow \frac{x}{y} = \frac{3}{4}$

$\Rightarrow x = \frac{3}{7} \times 840$ = Rs. 360

$y = \frac{4}{7} \times 840$ = Rs. 480

10. (3) Required answer

$= \frac{15 \times 100}{125} = 12$

11. (1) CP of a compact disc player

$= 13600 \times \frac{100}{85}$ = Rs. 16000

SP for a gain of 35%

$= \frac{16000 \times 135}{100}$

= Rs. 21600

12. (1) Let the, SP of 20 articles be x.

then, SP of 1 articles = $\frac{x}{20}$

Also the cost price of 23 articles = x

Then, CP of 1 article = $\frac{x}{23}$

Profit = SP – CP

$= \frac{x}{20} - \frac{x}{23} = \frac{23x - 20x}{460} = \frac{3x}{460}$

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

$= \frac{\frac{3x}{460}}{\frac{x}{23}} \times 100$

$= \frac{3x}{460} \times \frac{23}{x} \times 100 = 15\%$

13. (2) Total price of two boxes = ₹ 1300

Let CP of one box = x

Then CP of other box = (1300 – x)

Profit on 1st box = 20%

$\therefore$ SP of 1st box

$= x + \frac{20}{100}x$

$= \frac{100x + 20x}{100} = \text{Rs.}\frac{120x}{100}$

Loss on 2nd box = 12%

$\therefore$ SP of 2nd box = CP – Loss

$= (1300 - x) - \frac{12}{100}(1300 - x)$

$= (1300 - x)\left(1 - \frac{12}{100}\right)$

$= (1300 - x) \times \frac{88}{100}$

$= 1144 - \frac{88x}{100}$

But SP of both boxes is same

$\Rightarrow \frac{120x}{100} = 1144 - \frac{88x}{100}$

$\Rightarrow \frac{120x}{100} + \frac{88x}{100} = 1144$

$\Rightarrow \frac{208x}{100} = 1144$

$\Rightarrow x = \frac{1144 \times 100}{208} = 550$

$\therefore$ Cost price of 1st box = ₹ 550

and cost price of another box = ₹1300 – ₹ 550 = ₹ 750

14. (3) Let C.P. of the article = ₹ 100

$\therefore$ The first selling price = ₹ 100 + ₹ 15 = ₹ 115

Now, C.P. = 100 – 15 = ₹ 85

S.P. = ₹ $\left(\frac{85 \times 120}{100}\right)$ = ₹ 102

Difference in S.P.

= ₹ 115 – ₹ 102 = ₹ 13

$\because$ If difference is ₹ 13, then C.P. = ₹ 100

$\therefore$ If difference is ₹ $\frac{78}{10}$, the

C.P. = $\frac{100}{13} \times \frac{78}{10}$ = ₹ 60

15. (4) Let CP of motor cycle for Ram Kumar be x

SP for Ram Kumar

$= x - \frac{28}{100}x = \frac{72}{100}x$

$\therefore$ Cost for Mohan = $\frac{72}{100}x$

Cost of repairing = ₹ 1680

$\therefore$ Total CP for Mohan

= ₹$\frac{72}{100}x + 1680$

Profit earned by Mohan = 12.5%

SP for Mohan = CP + Profit

$= \frac{72}{100}x + 1680$

$+\frac{12.5}{100}\left(\frac{72}{100}x + 1680\right)$

SP = $\left(\frac{72x}{100} + 1680\right)\left(\frac{112.5}{100}\right)$

But, SP for Mohan is given

= Rs. 35910

$\therefore \left(\frac{72x}{100} + 1680\right)\left(\frac{112.5}{100}\right)$

= ₹ 35910

$\Rightarrow \left(\frac{72x}{100} + 1680\right) = \frac{35910 \times 100}{112.5}$

$\Rightarrow \frac{72x}{100} + 1680 = 31920$

$\Rightarrow x = \frac{30240 \times 100}{72}$

= ₹ 42000

So, the cost price of the motor cycle for Ram Kumar = ₹ 42,000

16. (1) Let initial S.P. = ₹ 100

profit = 25% of 100 = 25

$\therefore$ C.P. = 100 – 25 = ₹ 75

Now, when

Marked Price	Discount	S.P.
100	10	90
x	—	100

$\therefore x = \frac{100 \times 100}{90} = ₹\frac{1000}{9}$

$\therefore$ New S.P. = 50% of

₹ $\frac{1000}{9}$, i.e., $\frac{1000}{9} \times \frac{50}{100}$

= ₹ $\frac{500}{9}$ = ₹ $55\frac{5}{9}$

∴ Loss = ₹ 75 (Old Price) – ₹ $55\frac{5}{9}$ (New S.P.) = ₹ $19\frac{4}{9}$

∴ When

S.P. Loss per cent

75 ↑ $19\frac{4}{9}$ ↓

100 y

where y = loss per cent

∴ $y = \frac{100}{75} \times \frac{175}{9}$

Loss per cent = $\frac{700}{27} = 25\frac{25}{27}\%$

= 26% (approx)

17. (2) Let the marked price of 1 pen = ₹ 100

∴ MP of 20 pens

= 20 × 100 = ₹ 2000

MP of 16 pens

= 16 × 100 = ₹ 1600

CP of 20 pens for retailer

= ₹ 1600

SP of 20 pens for retailer

= ₹ 2000

∴ Profit = ₹ 400

Profit% = $\frac{400}{1600} \times 100 = 25\%$

18. (3) C.P. = ₹ 800

Loss = 8%

$\Rightarrow$ SP = ₹ 800 – $\frac{8}{100} \times 800$

= ₹ 800 – 64 = ₹ 736

Reduction 5% = $\frac{5}{100} \times 736$

∴ Reduced SP

= ₹ 736 – 736 × $\frac{5}{100}$

= ₹ 736 – 36.80 = ₹ 699.20

∴ Selling price = ₹ 699.20 ≈ ₹ 700

19. (4) Number of bicycles = 40

Let C.P. of one bicycle be x

∴ Marked price of each bicycle

= $\frac{125}{100} x = 1.25\ x$

Discount for cash sale = 10%

Discount for credit sale = 5%

∴ S.P. for cash sale

= $1.25\ x \times \frac{90}{100}$

= $(1.25\ x \times 0.9) = 1.125\ x$

S.P. for credit sale

= $1.25\ x \times \frac{95}{100}$

= $(1.25\ x \times 0.95) = 1.1875\ x$

Number of bicycles sold for cash = 30

Number of bicycles sold on credit = 10

∴ Total S.P. = $[1.125\ x \times 30 + 1.1875x \times 10]$

= $45.625\ x$

∴ Profit = $(45.625 - 40)\ x$

= $5.625\ x$

But actual profit = ₹ 20250

∴ $5.625\ x = 20250$

$\Rightarrow x = \frac{20250}{5.625}$ = ₹ 3600

Hence, C.P. of a bicycle

= ₹ 3600

20. (1) S P of one cooler = ₹ 2,970

Profit % = 10 %

Let C P of the cooler be x

Then, SP = CP + Profit

$\Rightarrow 2970 = x + \frac{10}{100} x$

$\Rightarrow 2970 = \frac{110}{100} x$

$\Rightarrow \frac{2970}{110} \times 100 = x$

$\Rightarrow x$ = ₹ 2700

For 2nd cooler,

S P = ₹ 2970

Loss = 10 %

Let CP = y, then

SP = CP – Loss = 2970

= $y - \frac{10}{100} y$

$\Rightarrow \frac{90y}{100} = 2970 \Rightarrow y$ = ₹ 3300

∴ Total cost price for coolers

= ₹ 2700 + 3300 = ₹ 6000

Total selling price for two coolers

= ₹ 2970 + 2970 = ₹ 5940

Hence, Loss

= ₹ 6000 – 5940 = ₹ 60

& Loss % = $\frac{60}{6000} \times 100 = 1\%$.

21. (2) C.P. of $\frac{1}{3}$rd of wheat

= ₹ $\frac{2400}{3}$ = ₹ 800

S.P. of $\frac{1}{3}$rd of wheat

= $\frac{105}{100} \times 800$ = ₹ 840

C.P. of total wheat = ₹ 2400

Required S.P. of total wheat

= ₹ $\left(\frac{110}{100} \times 2400\right)$ = ₹ 2640

C.P. of remaining $\frac{2}{3}$rd of wheat

= $\frac{2}{3} \times 2400$ = ₹ 1600

Required S.P. of remaining $\frac{2}{3}$rd wheat

= ₹ 2640 – 840 = ₹ 1800

Profit % = $\frac{\text{S.P.} - \text{C.P.}}{\text{C.P.}} \times 100$

Therefore, required profit %

= $\frac{1800 - 1600}{1600} \times 100$

= $\frac{25}{2}\% = 12\frac{1}{2}\%$ = 12.5%

22. (3) Suppose the man purchases 1 mango in each case.

∵ C.P. of 3 mangoes = ₹ 4

∴ C.P. of 1 mango = ₹ $\frac{4}{3}$

Again,

∵ C.P. of 5 mangoes = ₹ 6

∴ C.P. of 1 mango = ₹ $\frac{6}{5}$

∴ C.P. of 2 (mixed) mangoes

= $\frac{4}{3} + \frac{6}{5} = \frac{20 + 18}{15}$ = ₹ $\frac{38}{15}$

∴ C.P. of 1 mango

= $\frac{1}{2} \times \frac{38}{15}$ = ₹ $\frac{19}{15}$

Now, ∵ S.P. of 3 mangoes = ₹ 5

∴ S.P. of 1 mango = ₹ $\frac{5}{3}$

∴ Profit = $\frac{5}{3} - \frac{19}{15}$ = ₹ $\frac{6}{15}$ = ₹ $\frac{2}{5}$

$\because$ Profit on ₹ $\frac{19}{15}$ = ₹ $\frac{2}{5}$

$\therefore$ Profit on ₹ 1 = $\frac{2}{5} \times \frac{15}{19}$

$\therefore$ Profit on ₹ 100

= $\frac{2}{5} \times \frac{15}{19} \times 100$ = ₹ $31\frac{11}{19}$

Hence, profit = $31\frac{11}{19}\%$ or $\approx 32\%$

23. (4) If the C.P. is ₹ 100, the cash selling price = ₹ 133.
Now, let invoice price (after allowing T.D.) be 100, cash discount = 5 %
$\therefore$ When,

Cash S.P.	Invoice price
100–5=95 ↑	100 ↓
133 ↑	y ↓

$\therefore y = \frac{133 \times 100}{95} = ₹ 140$

Now, Trade discount = $12\frac{1}{2}\%$

$\therefore$ Marked price 100 – $12\frac{1}{2}$ T.D.

= $87\frac{1}{2}$ (Invoice price)

When,

Invoice price	Marked price
$87\frac{1}{2}$ ↑	100 ↓
140 ↑	x ↓

$\therefore x = \frac{140 \times 100 \times 2}{175}$ = Rs. 160

Thus, marked price should be 60% = (160–100) above cost.

24. (1) This is a case of simple partnership
Ratio of investments,
A : B : C
= 15000 : 20000 : 25000
= 3 : 4 : 5
Sum of the ratios = 3 + 4 + 5 = 12
Share in the profit :

For A = $\frac{3}{12} \times 1200$ = ₹ 300

25. (2) This is a case of simple partnership

$\frac{1}{12} : \frac{1}{18} : \frac{1}{24} = \frac{6}{72} : \frac{4}{72} : \frac{3}{72}$

(Here 72 is the LCM of 12, 18 and 24)
= 6 : 4 : 3
Sum of the ratios= 6+ 4 + 3 = 13

and, $\frac{52000}{13}$ = 4000

A's share = 6 × 4000 = Rs. 24000

26. (3) Total initial investment
= Rs.1000 + Rs. 4000 + Rs. 5000 = Rs. 10,000
Total loss = 20% of total initial investment

= $\frac{20}{100} \times 10{,}000$ = Rs. 2000

(This is an example of simple partnership.)
$\therefore$ ₹ 2000 has to be divided among the partners in proportion to their investments. Ratio of investments are
A : B : C = ₹ 1000 : ₹ 4000 : ₹ 5000 = 1 : 4 : 5
Sum of the ratios = 1+ 4 + 5 = 10

$1 \Rightarrow \frac{\text{Rs. } 2000}{10}$ = ₹ 200

Share of loss for B
= 4 × ₹ 200 = ₹ 800

27. (4) This is a case of compound partnership.
₹ 2400 investment for 4 years earns as much as ₹ 2400 × 4 = ₹ 9600 in 1 year
Similarly, ₹ 2800 for 8 years is equivalent to ₹ 2800 × 8 = ₹ 22400 in 1 year
₹ 2000 for 10 years is equivalent to ₹ 2000 × 10
= ₹ 20,000 in 1 year
The profit is, therefore, divided in the ratio
₹ 9600 : ₹ 22400 : ₹ 20000
or, 12 : 28 : 25
Sum of the ratios =12 + 28 + 25 = 65

₹ $\frac{1170}{65}$ = Rs. 18

So, A's share =12 × ₹ 18 = ₹ 216

28. (1) First we have to deduct the payment to be made to A from the total profit for his contribution in the management of the firm.
20% of Rs. 475 = ₹ 95
Balance profit = ₹ (475 – 95)
= ₹ 380.
This has to be divided between A and B in the ratio of their investments i.e.,
₹ 15000: ₹ 25000 = 3 : 5
B's share

= ₹ $380 \times \frac{5}{8}$ = ₹ 273.5

29. (2) A's investment is ₹ 20 lakhs for the whole year i.e., 12 months which is equivalent to 20 × 12
= ₹ 240 lakhs for 1 month
B's investment is ₹ 40 lakhs for (12 – 4) = 8 months is equivalent to 40 × 8 = ₹ 320 lakhs for 1 month.
C's investment is ₹ 60 lakhs for 3 months is equivalent to 60 × 3
= ₹ 180 lakhs for 1 month
The share in the profit should be in the following ratio,
A : B : C = 240 : 320 : 180
= 12 : 16 : 9

$\frac{74000}{12+16+9}$ = ₹ 2000

= profit for 1 month
A's share = ₹ (12 × 2000)
= ₹ 24000

30. (2) Ravi : Shyam : Mohan
= (15000 × 12) : (20000 × 9) : (22500 × 8)
= 180000 : 180000 : 180000
= 1 : 1 : 1
Therefore, the share of each in the profit is

$\frac{9000}{3}$ = ₹ 3000

31. (3) **C**'s share of the capital

$= 1 - \left(\frac{1}{2} + \frac{1}{3}\right) = \frac{1}{6}$

A : B : C = $\left(\frac{1}{2} \times \frac{3}{4}\right)$:

$\left(\frac{1}{3} \times \frac{1}{2}\right) : \left(\frac{1}{6} \times 1\right)$

= $\frac{3}{8} : \frac{1}{6} : \frac{1}{6}$

= $\frac{9}{24} : \frac{4}{24} : \frac{4}{24}$

= 9 : 4 : 4

$\frac{510}{9+4+4}$ = ₹ 30

Profit share of A = ₹ 30 × 9
= ₹ 270

32. (4) Suppose Mohan joins Ravi after x months.
Then, during the year Mohan's investment was for $(12 - x)$ months.

$$\therefore \frac{45000 \times 12}{30000 \times (12-x)} = \frac{9}{4}$$

$$\Rightarrow \frac{12-x}{12} = \frac{45000}{30000} \times \frac{4}{9}$$

$$\Rightarrow \frac{12-x}{12} = \frac{2}{3} \Rightarrow 36 - 3x = 24$$

$\therefore x = 4$ months

33. (2) Let the total profit be ₹ 100
A's share for managing the business which is 30% of profit=₹ 30
Balance profit = ₹ (100–30)=₹ 70
Ratio of capital investment;
$A : B : C$ = ₹ 25000 : Rs. 30000 : ₹ 15000
= 5 : 6 : 3

Now, $\frac{70}{5+6+3}$ = ₹ 5

Share of profit A's = ₹ 5×5 = ₹ 25
B's = ₹ 5 × 6 = ₹ 30
C's = ₹ 5 × 3 = Rs. 15
A's total share of profit
= ₹ 30 + ₹ 25 = ₹ 55
Profit share of B and C put together
= ₹ 30 + ₹ 15 = ₹ 45
A's – (B's + C's) share
= ₹ 55 – ₹ 45 = ₹ 10
When the difference is ₹ 10, the total profit is ₹ 100
When the difference is ₹ 200 (i.e., 10 × 20) total profit is ₹ 100 × 20 = ₹ 2000

34. (1) Computing in terms of 1 month
A's investment = (5000 × 12) + (2000 × 10) = ₹ 80000
B's investment = (4000 × 4) + (3000 × 8) = ₹ 40000
C's investment = 5000 × 8
= ₹ 40000
$A : B : C$ = 80000 : 40000 : 40000
$A : B : C$ = 2 : 1 : 1

Now, $\frac{2804}{2+1+1}$ = 701

A's share = 701 × 2 = ₹ 1402

35. (2) Investment ratio in terms of 1 month or of their equivalent capitals,
$A : B : C$

$$= \left\{(50000 \times 4) + \left(\frac{50000}{2} \times 8\right)\right\} :$$

$$\left\{(45000 \times 8) + \left(\frac{45000}{2} \times 4\right)\right\} :$$

(70000×4)
= 400,000 : 450,000 : 280,000
= 40 : 45 : 28
The profits will be distributed in the above ratio i.e., 40 : 45 : 28.

36. (3) Total rent to be paid for one year = 160 × 12 = ₹ 1920.
This is a case of compound partnership. So, the rent will be shared in proportion to the product of number of cows and time for each partner.
Computing in terms of 1 month,
For A :

$$(70 \times 4) + \left(70 - \frac{2}{7} \times 70\right)$$

$$\times 3 + \left(70 - \frac{2}{7} \times 70 + \frac{2}{5} \times 40\right) \times 5$$

= (70 × 4) + (50 × 3) + (66 × 5)
= 280 + 150 + 330
For A = 760
For B :

$$\{50 \times 4\} + \left\{50 + \frac{2}{7} \times 70\right\} \times 8$$

= 200 + 560
For B = 760
For C

$$\{40 \times 7\} + \left\{40 - \frac{2}{5} \times 40\right\} \times 5$$

= 280 + 120
For C = 400
So, $A : B : C$ = 760 : 760 : 400
= 19 : 19 : 10

$$\frac{1920}{19+19+10} = \frac{1920}{48} = 40$$

Rent to be paid,
by A = 19 × 40 = ₹ 760

37. (4) Let us assume that Shyam's capital was used for x months.
Then we can write the ratio of their equivalent capital investment as

$$\text{Ram : Shyam} = \frac{16 \times 5}{7 \times x} = \frac{5}{7}$$

or, x = 16
So, Shyam's capital was used for 16 months.

38. (2) Ratio of profit = Ratio of product of investment and time period.
Ratio of share of profits
$A : B : C$ = (4 × 6):(8 × 3):(9 × 5)
= 24 : 24 : 45
or $A : B : C$ = 8 : 8 : 15

39. (3) Ratio of profits = (Ratio of capital by time).
$\therefore$ Ratio of time = Ratio of profit divided by respective capitals.

$$= \frac{15}{21} : \frac{8}{18} : \frac{9}{14}$$

$$= \frac{5}{7} : \frac{4}{9} : \frac{9}{14}$$

$$= \frac{90}{126} : \frac{56}{126} : \frac{81}{126}$$

[126 is LCM of 7, 9 and 14]
$A : B : C$ = 90 : 56 : 81.

40. (4) Let the gross profit be x

A's salary $= \frac{10}{100}x = 0.10x$

B's salary = $0.15x$
Net profit = $x - (0.10x + 0.15x)$
= $0.75x$
The net profit will be shared among three partners in proportion to their capital contributions.
$\therefore$ Ratio of capital contributions,
$A : B : C$ = 30 : 20 : 10
$A : B : C$ = 3 : 2 : 1
Sum of the ratios = 3 + 2 + 1 = 6
C's share in the net profit

$$= \frac{1}{6} \times 0.75x$$

But, $\frac{0.75}{6}x = 3.75$

$$\text{or } x = 6 \times \frac{3.75}{0.75}$$

or x = 30
So, Gross profit = x = ₹ 30 lakhs
Total share for A or B will be sum of their salary and share in the net profit.

$$A\text{'s share} = 0.10x + \frac{3}{6} \times 0.75x$$

= $0.10x + 0.375\ x = 0.475\ x$
[$\because$ Gross profit, x = 30 lakhs]
= 0.475 × 30 = 14.25 lakhs
& B's share

$$= 0.15\ x + \frac{2}{6} \times 0.75x$$

= $0.15x + 0.25\ x$
= 0.40 × 30 = 12 lakhs

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