1. (c) MP = Rs.3800
SP = Rs.3496
D = 3800 – 3496 = 304

D% (y%) = $\dfrac{304}{3800} \times 100 = 8\%$

2. (d) Let, CP = 100
MP = 170
Then,
ATQ,

$170 \times \dfrac{95}{100} \times \dfrac{80}{100} \times \dfrac{80}{100} = SP$

$\Rightarrow 170 \times \dfrac{19}{20} \times \dfrac{4}{5} \times \dfrac{4}{5} = SP$

$\Rightarrow \dfrac{34 \times 19 \times 4}{25} = SP$

$\Rightarrow 103.36 = SP$

P = 103.36 – 100 = 3.36

$\therefore$ P% = $\dfrac{3.36}{100} \times 100 = 3.36\%$

3. (d)
$$\overset{+75\%}{\underset{}{\quad}} \quad \overset{+5\%}{\underset{}{\quad}}$$
MP   CP   SP

175   100   105

– 40%

$\therefore$ P% = 5%

4. (a) Let the MP = 100 unit
D = 15%
SP = 85 unit
100 unit = Rs. 1940

85 unit = $\dfrac{1940}{100} \times 85$ = Rs. 1649

5. (a) We know,

$\dfrac{MP}{CP} = \dfrac{100 + P}{100 - D}$

$\Rightarrow \dfrac{1250}{CP} = \dfrac{114}{86}$

$\Rightarrow CP = \dfrac{1250 \times 86}{114}$

= 942.9 ≈ Rs. 943

6. (d) We know,
$\dfrac{MP}{CP} = \dfrac{100 + P}{100 - D}$

$\dfrac{MP}{CP} = \dfrac{120}{85}$

$\Rightarrow CP = \dfrac{7200 \times 85}{120} = 5100$

$\therefore$ SP = $5100 \times \dfrac{120}{100}$ = Rs.6120

7. (a) Eff. discount = $20 + 10 - \dfrac{20 \times 10}{100}$

= 28%

Total CP = $\dfrac{72}{100} \times 850 + 55$

= 612 + 55 = 667
SP = 980
P = 980 – 667 = 313

P% = $\dfrac{313}{667} \times 100 = 46.93\%$

8. (a) M.P = $\dfrac{9080}{80} \times 100$ = Rs.11350

9. (b)

	Bskt	W	Belt
MP	80	150	350
D	5%	8%	10%
SP	76	138	315

Total SP = 76 + 138 + 315
= 529

10. (c) We know,

$\dfrac{MP}{CP} = \dfrac{100 + P}{100 - D}$

MP = $\dfrac{130}{90} \times 450$

= 650

11. (a) Difference =

$35 - \left(18 + 12 - \dfrac{18 \times 12}{100}\right)$

= 35 – 27.84 = 7.16%

Difference = $\dfrac{7.16}{100} \times 700$

= Rs. 50.12

12. (a) SP after I discount

$\Rightarrow \dfrac{82}{100} \times 26000 = 21,320$

$\therefore$ Seasonal discount

$\Rightarrow \dfrac{21320 - 16000}{21320} \times 100$

= $\dfrac{532000}{21320} = \dfrac{13300}{533} = 24.95\%$

13. (d) Let MP = 100 unit
Effective discount = $25 + 15 -$

$\dfrac{25 \times 15}{100} = 40 - 3.75 = 36.25\%$

D = $100 \times \dfrac{36.25}{100} \Rightarrow 36.25$ unit

SP = 100 – 36.25 = 63.25 unit
63.75 unit → 12750

100 unit → $\dfrac{12750}{63.75} \times 100$

= 20,000

14. (c) Z = $\dfrac{6622}{88} \times 100$

= 301 × 25
= Rs.7525

15. (b)
$$\overset{+50\%}{\underset{}{\quad}}$$
CP   MP   SP

100   150   90

– 40%

loss = 100 – 90 $\Rightarrow$ 10

Loss% = $\dfrac{10}{100} \times 100 = 10\%$

16. (a) Difference =

$-30\% + \left(15 + 25 - \dfrac{15 \times 25}{100}\right)$

= – 30% + (40 – 3.75%)

$\Rightarrow$ 6.25%

Difference = $\dfrac{6.25}{100} \times 5000$

= Rs.312.50

17. (a) Effective discount = $30 + 20 -$

$\dfrac{30 \times 20}{100} = 50 - 6 = 44\%$

18. (b) Let MP = 100
SP = 100 – 46 = 54
Effective discount = $25 + 28 -$

$\left(\dfrac{25 \times 28}{100}\right) = 53 - 7 = 46\%$

$\therefore$ MP $= \dfrac{10,800}{54} \times 100 = 20,000$

19. (d) ATQ,

S.P $= 15000 \times \dfrac{95}{100} \times \dfrac{90}{100} \times \dfrac{80}{100}$

$= 95 \times 9 \times 12 \Rightarrow 95 \times 108$

$= $ Rs.10,260

20. (a)

CP	MP	SP
100	126	88% of 126 = 110.88

Profit $=$ SP $-$ CP

$= 110.88 - 100 = 10.88$

Profit% $= \dfrac{\text{Profit}}{\text{CP}} \times 100\%$

$= \dfrac{10.88}{100} \times 100\% = 10.88\%$

> 💡 **SMART APPROACH:-**
> Apply Successive % change formula for 2 variable
> $P\% = +26 - 12 - \dfrac{26 \times 12}{100} = 10.88\%$

21. (c) MP of the Mixer $= ₹ 2300$

SP of Mixer $= ₹ 2024$

Discount $=$ MP $-$ SP

$= 2300 - 2024 = 276$

$D\% = \dfrac{D}{MP} \times 100\%$

$= \dfrac{276}{2300} \times 100\% = 12\%$

22. (c) Effective Discount

$= \left(15 + 10 - \dfrac{15 \times 10}{100}\right)\% = 23.5\%$

Customer has to pay

$= \dfrac{3600 \times 76.5}{100} = $ Rs.2754

23. (a) Effective Discount

$= \left(-15 - 10 + \dfrac{15 \times 10}{100}\right)\% = -23.5\%$

Effective Discount (in ₹)

$= 23.5\%$ of $100 = ₹ 23.50$

24. (c) Discount $=$ MP $-$ SP

$= 18000 - 15840 = 2160$

Discount% $= \dfrac{\text{Discount}}{\text{MP}} \times 100\%$

$= \dfrac{2160}{18000} \times 100 = 12\%$

25. (c) Total Cost Price of 12 Article

$= 12 \times ₹ 750 = ₹ 9000$

First discount $= 8\%$ of $₹ 9000$

$= ₹ 720$

Payable Amount after discount

$= ₹ 9000 - ₹ 720 = 8280$

Since the payable amount is greater than $₹ 5000$, other discounts are also applicable.

Other discount $= 20\%$ of $₹ 8280$

$= ₹ 1656$

Final payable amount

$= ₹ 8280 - ₹ 1656 = 6624$

26. (a) When customer get lowest percent scratch card, selling price will be maximum

Maximum Selling Price

$= 65000 - (2000 + 10\%$ of $63000)$

$= 65000 - (2000 + 6300)$

$= 65000 - 8300 = 56700$

When customer get highest percent scratch card, selling price will be minimum

Least Selling Price

$= 65000 - (2000 + 15\%$ of $63000)$

$= 65000 - (2000 + 9450)$

$= 65000 - 11450 = 53550$

Difference $= 56700 - 53550$

$= 3150$

> 💡 **SMART APPROACH:-**
> Difference
> $= (15 - 10)\%$ of $(65000 - 2000)$
> $= 5\%$ of 63000
> $= 3150$

27. (b) Effective Discounts

$= \dfrac{3}{5+3} \times 100\%$

$= \dfrac{3}{8} \times 100\% = 37.5\%$

28. (b)

Net Price $= 700 \times \dfrac{9}{10} \times \dfrac{4}{5} = $ Rs.504

29. (b)

MP of item $= \dfrac{2700}{90} \times 100 = $ Rs.3000

30. (a)
Method-1

Commission(20%)	5	4
Markup	X	Y
Overall profit 5%	20	21

$X : Y = \dfrac{20}{5} : \dfrac{21}{4} = 16 : 21$

Commission(10%)	10	9
Markup	16	21
Overall	160	189

Profit% $= \dfrac{29}{160} \times 100\%$

$= 18.125\% = 18\%$

Method-2

$\dfrac{MP}{CP} = \dfrac{100 + P\%}{100 - D\%} = \dfrac{105}{80} = \dfrac{21}{16}$

Now, commission is 10% reduced

i.e, $\dfrac{MP}{CP} = \dfrac{18.9}{16}$

$P\% = \dfrac{2.9}{16} \times 100 = \sim 18\%$

31. (b) CP of 5 article $= 5 \times 1200 = 6000$

SP of 4 article $= 4 \times 1800 = 7200$

Profit $= 7200 - 6000 = 1200$

Profit% $= \dfrac{1200}{6000} \times 100\% = 20\%$

32. (a) Let the marked price of watch be

Difference in Discount $= ₹ 45$

$3\% = 45$

$1\% = 15$

$100\% = 1500$

33. (c) **Case-I**
Effective Discount

$= \left(-25 - 15 + \dfrac{25 \times 15}{100}\right)\%$

$= (40 - 3.75)\% = 36.25\%$

Case-II
Effective Discount

$= \left(-35 - 5 + \dfrac{35 \times 5}{100}\right)\%$

$= (-40 + 1.75)\% = -38.35\%$

Case-III
Single Discount$= -38\%$

Hence, Best offer is only-II

Note: Since the sum of discount in I & II are same. therefore discount in greater difference will give bigger discount to the custmer. Hence, In case II: 35 $-$ 5 = 30 gives bigger discount to the custmer now, compare II & III and get the desired answer

34. (b) Net Discount %

$= \left(-20 - 10 + \dfrac{20 \times 10}{100}\right)\% = -28\%$

SP $= (100 - 28)\%$ of $500 = ₹360$

35. (a) **Case-I**
Effective Discount

$= \left(-15 - 15 + \dfrac{15 \times 15}{100}\right)\%$

$= (-30 + 2.25)\% = -27.75\%$

Case-II

Effective Discount

$$= \left(-20 - 10 + \frac{20 \times 10}{100}\right)\%$$

$$= (-30 + 2)\% = -28\%$$

Case-III

Discount = -30%

Lower the discount%, Higher will be the selling price.

> **SMART APPROACH:-**
> In case I & II we have the sum of both the given discounts same. Therefore, In case II difference = 20 − 10 = 10 will give greater discount as compare to case I.

36. (b) Let the marked price of Study Table be $100x$.

Difference in discount

$= (25x - 20x) = 5x$

$\therefore 5x = 1000$

$\Rightarrow x = 200$

Thus, The MP of the table

$= 100 \times 200 = 20000$

> **SMART APPROACH:-**
> $\Rightarrow$ Difference in discounts = 1000
> $\Rightarrow 5\% = 1000$
> $\Rightarrow 100\% = 20000$

37. (a) Net Discount

$$= \left(10 + 5 - \frac{10 \times 5}{100}\right)\% = 14.5\%$$

Original Price of the article

$$= \frac{SP}{100 - D} \times 100\%$$

$$= \frac{342}{(100 - 14.5)} \times 100\%$$

$$= \frac{342}{85.5} \times 100 = Rs\ 400$$

38. (c) Let the total goods be 10 units.

Number of units sold at a discount of 10%

$$= 10 \times \frac{1}{5} = 2 \text{units}$$

Number of units sold at MRP

$$= 10 \times \frac{1}{2} = 5 \text{ units}$$

Number of units sold at 20% discount $= 10 - 7 = 3$ units

ATQ, Merchant marks up the price of goods by 40%

Profit earned when Merchant gives 10% discount

$$Profit = \left(40 - 10 - \frac{40 \times 10}{100}\right)\% = 26\%$$

Profit earned when Merchant gives No discount

Profit = 40%

Profit earned when Merchant gives 20% discount

$$Profit = \left(40 - 20 - \frac{40 \times 20}{100}\right)\% = 12\%$$

Overall profit

$$= \left(\frac{2 \times 26 + 5 \times 40 + 3 \times 12}{10}\right)\%$$

$$= \left(\frac{52 + 200 + 36}{10}\right)\% = \frac{288}{10}\% = 28.8\%$$

39. (c) Single discount for 17% & 11%

$$= -17 - 11 + \frac{17 \times 11}{100}$$

$$= -28 + 1.87$$

$$= 26.13 \cong 26\%$$

Again, single discount for 26% & 22 %

$$= -26\% - 22\% + \frac{22 \times 26}{100}$$

$$= -48 + 5.72$$

$$= -42.28\%$$

Thus, single discount for 22%, 17%, 11% = 42.28%.

40. (a) By option (A)
Single Discount

$$= -20 - 20 + \frac{20 \times 20}{100} = 36\%$$

Price = $920 \times \dfrac{36}{100}$

= 331.2 (satisfied the question)

41. (b) Single discount for 8%, 15%

$$= 8 - 15 + \frac{120}{100}$$

$$= -23 + 1.2 = -21.8\%$$

Again, single discount for 21.8% & 12 %

$$= -21.8 - 12 + \frac{21.8 \times 12}{100}$$

$$= -33.8 + 2.616 = -31.184\%$$

Thus, single discount for 8%, 15% and 12% = 31.184%

42. (c)
Single discount for 6%, 15%

$$= -6 - 15 + \frac{90}{100}$$

$$= -21 + 0.9 = -20.1\%$$

Again, single discount for 20.1% & 14 %

$$= -20.1\% - 14\% + \frac{20.1 \times 14}{100}$$

$$= -34.1 + 2.814$$

$$= -31.286\%$$

Thus, single discount for 6%, 15% and 14% = 31.286%

43. (b) SP = MP × (−5%) × (−15%) × (− 20%)

$$= 1250 \times \frac{19}{20} \times \frac{17}{20} \times \frac{4}{5} = Rs.807.5$$

Note: Complete calculation is not required, just check which option is divisible by either 17 or 19.

44. (c) Single discount for 20% and 15%

$$= -20 - 15 + \frac{300}{100} = 32\%$$

MP = x

ATQ, $x \times 65\% + x \times 68\% = 1995$

$\Rightarrow 133\% \ x = 1995$

$$\Rightarrow x = \frac{1995}{133} \times 100 = Rs.1500$$

45. (a) Single Discount for 12% & 13%

$$= -12 - 13 + \frac{156}{100}$$

$$= -23.44\%$$

Again, single discount for 23.44% & 11%

$$= -23.44 - 11 + \frac{23.44 \times 11}{100}$$

$$= -34.44 + 2.57 = 31.87\%$$

Thus, single discount for 12%, 13%, 11% = 31.87%

46. (c) Single Discount of two successive discount of 20%

$$= -20 - 20 + \frac{400}{100} = -36\%$$

$$MP \times \frac{36}{100} = 331.20$$

$$MP = \frac{331.2}{36} \times 100 = Rs.920$$

47. (d) Single Discount for 5% & 15%

$$= -5 - 15 + \frac{75}{100} = -19.25\%$$

Again, single discount for 19.25% & 20%

$$= -19.25 - 20\% + \frac{19.25 \times 20}{100}$$

$$= -39.25\% + 3.85 = 35.4\%$$

Thus, single discount for 5% , 15% & 20% = 35.4%

$$Net\ Discount = 1250 \times \frac{35.4}{100}$$

$$= Rs.\ 442.50$$

48. (b) Single discount for 20% and 15%

$$= -20 - 15 + \frac{300}{100} = -32\%$$

MP × 68% − MP × 65% = 504

MP × 3% = 504

MP = 16800

49. (d) $\dfrac{MP}{CP} = \dfrac{(100+P)\%}{(100-D)\%}$

$= \dfrac{MP}{CP} = \dfrac{105}{90}$

$MP = \dfrac{105 \times 300}{90} = Rs\ 350$

MP	SP
10	9
20	19

50. (a)

MP	SP
25	24
5000	4104

SP = Rs.98496

$MP = \dfrac{98496}{4104} \times 5000 = Rs.\ 1,20,000$

51. (b) $\dfrac{MP}{CP} = \dfrac{100+P\%}{100-D\%} \Rightarrow \dfrac{MP}{CP} = \dfrac{116}{90}$

$MP = \dfrac{648 \times 116}{90} = Rs.\ 835.20$

52. (d) ATQ,

$530 \times \dfrac{17}{20} \times \dfrac{(100-x)}{100} = 396.44$

$\Rightarrow 53 \times 17 \times (100-x) = 79288$

$\Rightarrow (100-x) = \dfrac{79288}{53 \times 17}$

$\Rightarrow (100-x) = 88$

$\Rightarrow x = 12\%$

53. (a)

MP	SP
1000	680

Discount% = 32

ATQ, $20 + x - \dfrac{20 \times x}{100} = 32$

$\Rightarrow 100 + 5x - x = 160$

$\Rightarrow 4x = 60$

$\Rightarrow x = 15\%$

54. (c) ATQ,

$\Rightarrow 800 \times \dfrac{3}{4} \times \dfrac{(100-x)}{100} = 540$

$\Rightarrow 600 - 6x = 540$

$\Rightarrow 6x = 60 \Rightarrow x = 10\%$

Thus, second discount = 10%

55. (b) Given,

MP of the 8 shirts = 9600

MP of the 1 shirt = Rs. 1200

Discount = 15%

SP of 1 shirt = $12000 \times \dfrac{85}{100}$

= Rs. 1020

Shirts can be bought with Rs 5100

$= \dfrac{5100}{1020} = 5$

56. (b) Rebate on each T.V set

= 40% of 6000 = Rs. 2400

To get the rebate of total Rs. 26,400 he has bought the number

of T.V set = $\dfrac{26,400}{2400} = 11$

57. (d)

MP	SP
10	9
25	21
4	3
1000	567

Required discount %

$= \dfrac{(1000-567)}{1000} \times 100\% = 43.3\%$

58. (a) CP = $\dfrac{427.70}{130\%} \times 100\% = 329$

$MP = \dfrac{329}{70\%} \times 100\% = 470$

MP of the article = Rs. 470

59. (b) ATQ,

$\Rightarrow 7200 \times \dfrac{100-x}{100} \times \dfrac{100-x}{100} = 5512.5$

$\Rightarrow \left(\dfrac{100-x}{100}\right)^2 = \dfrac{5512.5}{7200}$

$\Rightarrow \dfrac{100-x}{100} = \sqrt{\dfrac{55125}{72000}}$

$\Rightarrow \dfrac{100-x}{100} = \dfrac{7}{8}$

$\Rightarrow x = \dfrac{100}{8} = 12.5\%$

60. (d) ATQ,

$\Rightarrow 20 + x - \dfrac{20 \times x}{100} = 25.76$

$\Rightarrow 20 + x - \dfrac{x}{5} = 25.76$

$\Rightarrow \dfrac{4x}{5} = 5.76$

$\Rightarrow 4x = 28.80$

$\Rightarrow x = 7.2\%$

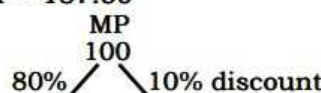**61.** (d) MP = $\dfrac{180}{80\%} \times 100\% = 225$

$\dfrac{MP}{CP} = \dfrac{100+P\%}{(100-l)\%}$

$\Rightarrow \dfrac{225}{CP} = \dfrac{(100+20)\%}{100\%}$

$\Rightarrow \dfrac{225}{CP} = \dfrac{120}{100}$

$\Rightarrow CP = 187.50$

62. (c)

MP
100

80% ← → 10% discount

CP = 80   SP = 90

$P\% = \dfrac{(90-80)}{80} \times 100$

$= \dfrac{10}{80} \times 100\% = 12\dfrac{1}{2}\%$

63. (d) Effective discount

$= 5 + 20 - \dfrac{5 \times 20}{100} = 24\%$

MP = 100%

$P\% = M - D - \dfrac{M \times D}{100}$

$= 100 - 24 - \dfrac{100 \times 24}{100}$

$= (76 - 24) = 52\%$

64. (c) MP = 100

$SP = 100 \times \dfrac{90}{100} = 90$

$CP = \dfrac{90}{125\%} \times 100\% = 72$

New SP = $100 \times \dfrac{(100-25)\%}{100} = 75$

Profit% = $\dfrac{(75-72)}{72} \times 100\%$

$= \dfrac{3}{72} \times 100\% = 4\dfrac{1}{6}\%$

Note: Here applying $\dfrac{100+P\%}{100-D\%}$ formula can be tricky becuase this approach invalues lengthy calculation you can solve it taking ratios as well.

Ratio Method

MP	SP	CP
10	9	
	5	4
50	45	36

affter giving 25% discount on MP

SP = 50 - 12.5 = 37.5

New P% = $\dfrac{1.5}{360} \times 100\% = 4\dfrac{1}{6}\%$

65. (b) Gain = 20% = $\dfrac{20}{100} \to$ Profit
$\to$ CP

SP = 120
CP = 100

Discount, 25% = $\dfrac{25}{100} \to$ Discount
$\to$ MP

SP = (100 - 25) = 75

$\dfrac{120}{75} \times 100 = 160$ (MP)

CP = 100   ↑20%

New CP = 120

Profit = 20%

SP = 144

Discount% = $\dfrac{(160-144)}{160} \times 100\%$

$= \dfrac{16}{160} \times 100\% = 10\%$