Profit and Loss

Q.No	Answer
	Type I - Basic Questions
1	**Answer: Option 'B'** **SP = 115% of CP = Rs.9039/-** **:. CP = 9039 x 100/115 = Rs.7860/-**
2	**Answer: Option 'C'** **Cost of 8 kg grapes = 70 × 8 = 560.** **Cost of 9 kg of mangoes = 55 × 9 = 490.** **Total cost he has to pay = 560 + 490 = 1055.**
3	**Answer:** D) 1800 **Explanation:** least cost price = 200*8 = 1600 greatest sold price = 425 * 8 = 3400 profit required = 3400- 1600 = 1800
	Type II - P% / L%
1	**Answer:** Option **B** **Explanation:** Cost Price (C.P.) = Rs. (4700 + 800) = Rs. 5500. Selling Price (S.P.) = Rs. 5800. Gain = (S.P.) - (C.P.) = Rs.(5800 - 5500) = Rs. 300. Gain % = $\left(\frac{300}{5500} \times 100\right)\%$ = $5\frac{5}{11}\%$
2	**Answer:** A) 90 **Explanation:** Total investment = Rs. (120 * 80 + 280 + (40/100) * 120 + 72). = Rs. (9600 + 280+48 + 72) = Rs, 10000. Sell price of 120 reams = 108% of Rs. 10000 = Rs. 10800. Sell Price per ream = Rs. [10800/120] = Rs. 90.
3	**Answer:** C) 300% **Explanation:** Let the S.P = 100 then C.P. = 25 Profit = 75 Profit% = (75/25) * 100 = 300%
4	**Answer: Option 'B'** **SP = x** **CP = 2x/3** **Profit = x-2x/3 = x/3** **Profit percent = x/3 / 2x X 100/3 = x/3 X 3/2x X 100** **=100/2 = 50%.**
5	**Answer: Option 'D'** **Here, the Selling price only 60% of the Cost price;** **So, Cost Price = 5700 × 100/60 = 9500.**
6	**Answer: Option 'C'** **Here, The SP is 142% of the CP;** **:. CP = 12496 × 100/142 = 8800.** **:. The net profit of the person = 12496 – 8800 = 3696.**
7	**Answer:** C) Rs.1260 **Explanation:** Let the new S.P be x, then (100 - loss%) : (1st S.P.) = (100 + gain%) : (2nd S.P.) ⇒(95/1140=105/x) => x = 1260

8	**Answer: Option 'D'** **Here, the SP is 75% of CP.** **CP = 1950 x 100/75 = Rs.2600.** **To get a profit of 30% the SP should be = 2600 + 30% of 2600= Rs.3380**
9	**Answer:** D) 20 % **Explanation:** SP2 = 2/3 SP1 CP = 100 SP2 = 80 2/3 SP1 = 80 SP1 = 120 100 --- 20 => 20%
10	**Answer:** A) 100% **Explanation:** Let the C.P be Rs.100 and S.P be Rs.x, Then The profit is (x-100) Now the S.P is doubled, then the new S.P is 2x New profit is (2x-100) Now as per the given condition; => 3(x-100) = 2x-100 By solving, we get x = 200 Then the Profit percent = (200-100)/100 = 100 Hence the profit percentage is 100%
11	**Answer:** A) Rs. 2000 **Explanation:** Let C.P. be Rs. x. Then, $=> \frac{1920-x}{x} * 100 = \frac{x-1280}{x} * 100$ => 1920 - x = x - 1280 => 2x = 3200 => x = 1600 Required S.P. = 125% of Rs. 1600 =Rs(125/100*1600) = Rs2000
12	**Answer: Option 'B'** **Let 'x' be the CP of the article;** **Then 900 – x = 2(x – 450); :. x= 600.** **25% of 600 = 150** **:. New SP = 600 + 150 = 750**
13	**Answer:** C) 20% **Explanation:** 103.33 CP- 0.95 CP = 65 CP = Rs. 780 profit (%) = (936 - 780)/780 x 100 = 20%
14	**Answer:** C) Rs. 500 **Explanation:** 110% of S.P. = Rs. 616 S.P. = (616 x 100)/110 = Rs. 560 C.P = (110 x 560)/112 = Rs. 500
15	**Answer:** C) Rs 200 **Explanation:**

	Let original Cost price is x Its Selling price = (105/100) * x = 21x/20 New Cost price = (95/100) * x = 19x/20 New Selling price = (110/100)* (19x/20)= 209x/200 [(21x/20) - (209x/200)] = 1 => x = 200
16	**Option C** **Solution:** Use shortcut for these type of questions: CP of article = 75 × 100/ [5 – (-10)] (+5 for 5% profit, -10 for 10% loss) So SP at 15% profit = 115/100 * CP = (115/100) * [75 × 100/15] = Rs 575
17	**Answer:** Option **B** **Explanation:** Let C.P.= Rs. 100. Then, Profit = Rs. 320, S.P. = Rs. 420. New C.P. = 125% of Rs. 100 = Rs. 125 New S.P. = Rs. 420. Profit = Rs. (420 - 125) = Rs. 295. $\therefore$ Required percentage = $\left(\frac{295}{420} \times 100\right)\%$ = $\frac{1475}{21}\%$ = 70% (approximately).
Type III – Equation Based / Rate given	
1	**Answer: Option 'D'** **There is a loss. Percentage of loss = 5 – 3/5 × 100 = 40%.**
2	**Answer: Option 'D'** **Because the cost price of 50 oranges = Selling price of 40 oranges** **The profit is 10 oranges out of 40 oranges;** **therefore, the profit percent = 10 × 100/40 = 25%.**
3	**Answer:** Option **B** **Explanation:** Let C.P. of each article be Re. 1 C.P. of x articles = Rs. x. S.P. of x articles = Rs. 20. Profit = Rs. (20 - x). $\therefore \left(\frac{20 - x}{x} \times 100 = 25\right)$ $\Rightarrow$ 2000 - 100x = 25x 125x = 2000 $\Rightarrow$ x = 16
4	**Option B** **Solution:** Profit = SP – CP CP of 5 articles = SP of 20 article – CP of 20 articles So CP of 25 articles = SP of 20 articles Profit% = 5/20 * 100 = 25%
5	Correct Option: A According to the question, SP of 25 m of cloth – CP of 25 m of cloth = SP of 5 m of cloth $\therefore$ CP of 25 m of coth = SP of 20 m of cloth To solve this question, we can apply a short trick approach **If the cost price of x articles is equal to the selling price of y articles, then the profit percentage =** $\frac{x - y}{y} \times 100\%$. x is the number of articles the cost price of which is given = 25 y is the number of articles the selling price of which is given = 20 By the short-trick approach, we get

	Profit percent = $\frac{25 - 20}{20} \times 100 = \frac{5}{20} \times 100 = 25\%$ Hence, option A is correct.
6	**Answer:** B) Rs. 60 **Explanation:** Let the cost price of a ball is Rs.x Given, on selling 17 balls at Rs. 720, there is a loss equal to the cost price of 5 balls The equation is : 17x - 720 = 5x Solving the equation we get x = 60 Therefore, cost price of a ball is Rs. 60.
7	**Answer: Option 'A'** **The cost of two tables + three chairs = 5600.** **Multiply each term by 3, we get,** **Cost of 6 table + 9 chairs = 16800.**
8	**Answer: Option 'A'** **Cost of 36 microwaves + 12 cookers = Rs.84126.** **Dividing each term by 6, we get** **6 microwaves + 2 colours = Rs.14021.**
Type IV – 2 varieties mixed / Different rate purchase and sell	
1	**Answer: Option 'B'** **4 bananas -----> 5/-** **5 bananas ----> 4/-** **Note: In every time same in the cost price articles and selling price articles.** **5(4 5) ==> 20 25 = Cost price** **4(5 4) ==> 20 16 = Selling price** **Then, 9/25 × 100 = 36 % Loss**
2	**Answer: Option 'B'** **9 balls -----> Rs.10/-** **10 balls ----> Rs.9/-** **Note: In every time same in the cost price articles and selling price articles.** **10(9 10) ==> 90 100 = Cost price** **9(10 9) ==> 90 81 = Selling price** **Then, 19/100 × 100 = 19 % Loss**
3	**Option D** **Solution:** Let he buys 6 toffees Case 1: 3 toffees per Re so 6 toffees for Rs 2 Case 2: 2 toffees per Re so 6 toffees for Rs 3 Total CP of 12 toffees = 2+3 = 5 Now he sold at 3 for Rs 2. So 12 toffees for Rs 8 Now CP = Rs 5, SP = Rs 8, so profit% = 3/5 * 100 = 60% profit
4	**Option D** **Solution**: . Quantity Rupee CP 3 1 CP 3 2 SP= 1 1 (*3 to make quantity equal) hence Sp 3 3 Total Cp of 6 toffee= 3 Sp og 6 toffee=6 hence %p=100%

5	**Ans - C** Let C be the man's cost in rupees per orange. His cost for 12 oranges is then 12C. If he makes a 20% selling them, then the selling price is: (100 - 20)% of 12C = 80% of 12C = 0.8 × 12C = 9.6C We're given that this "20% loss" selling price is 1, so 9.6C = 1 => C = 1 / 9.6 To make a profit of 20%, his selling price must be (100 + 20)% of C = 120% of C = 1.2 × C = 1.2 / 9.6 = 0.125. But we don't want selling price as "rupees per orange". We're asked for "oranges per rupee"! So we need to invert the "rupees per orange" figure to get: 1 / 0.125 = 8 oranges per rupee.
6	**Answer - A** He buys x oranges at 20 for Rs.60/- Each orange will cost 60/20 or Rs.3/- So cost price of this variety of orange =3x Similarly he buys x (same quantity) at 30 for Rs.60/-. So cost per orange 60/30 or Rs.2/- So CP of the 2nd variety = 2x Total quantity of both varieties :3x+2x = 5x Total cost of both varieties = Rs.120/- 5x = Rs.120, x = 24 So his average CP is he buys 24 oranges for Rs.60/- or CP per orange =60/24 or 5/2 He sells at 25 oranges for Rs 60 or SP per orange = 60/25 or 12/5 Loss = CP-SP = 5/2-12/5=1/10 loss Percent = loss/CP x 100 1/10 ÷5/2 x 100 = 1/10×2/5×100 = 4% loss.
Type V – Chain Rule	
1	**Answer: Option 'C'** **Let Rs.100 be the CP** **A's SP = Rs.140** **B's SP = Rs.210** **Resultant profit = 210 – 100 =110** **Resultant profit percent = 110 x 100/100 = 110%**
2	**Answer:** C) Rs.200 **Explanation:** Let the article costs 'X' to A Cost price of B = 1.2X Cost price of C = 0.75(1.2X) = 0.9X Cost price of D = 1.4(0.9X) = 1.26X = 252 Amount paid by A for the article = Rs. 200.
3	**Option E** **Solution:** A to B to C A to B 10% loss, 10% = 1/0. So SP for A = 10-1 = 9 B to C 11.11% loss, 11.11% = 1/9, so SP for B = 9-1 = 8 C to A 12.5% profit, 12.5% = 1/8, so SP for C or CP for A = 1+8 = 9 A first sold to B at 9, and after he got from C at 9, so no profit no loss
4	Correct Option: (c) Profit earned by manufacturer = 20 % Profit earned by wholesaler = 25 % Profit earned by retailer = 30% S.P. of shoes = Rs. 50 Therefore, **130 % of 125 % of 120 % of x = 50.50** $= \frac{120}{100} \times \frac{125}{100} \times \frac{130}{100} \times x = \frac{5050}{100}$ $\frac{195}{100} x = \frac{5050}{100}$

	$x = \frac{5050 \times 100}{195 \times 100}$ x = 25.89 Cost price of shoes = Rs. 25.89
	Type VI- Partial Selling
1	**Answer:** A) 35% **Explanation:** Given the cost price of the articles = Rs. 450 To get overall 20% gain, Total Selling Price = (20/100) x 450 = 540 One third of the CP = 1/3 x 450 = Rs. 150 But given 1/3 of articles are sold at 10% loss S.P of 1/3 of articles = 90% of 150 = 90 x 150/100 = 135 Then, S.P on remaining 2/3 goods must be = 450 - 135 = 405 .....(1) CP on remaining goods = 2/3 x 450 = 300 .....(2) Profit = SP - CP = 405 - 300 = 105 Profit % = (105/300) x 100 = 35%
2	**Answer:** A) Rs.37,500 **Explanation:** Assume A be the cost price. Therefore, $\left(\frac{3}{5} \times \mathbf{A} \times \frac{10}{100}\right) - \left(\frac{2}{5} \times \mathbf{A} \times \frac{5}{100}\right) = \mathbf{1500}$ => A = Rs 37,500.
3	C) No profit No Loss
4	**Answer:** A) Rs. 620 **Explanation:** Let the C.P of one item is Rs. P and that of other is Rs. (7500 - P) According to the data given C.P = S.P => Px(116/100) + (7500-P)x(86/100) = 7500 => 30P = 105000 => P = 3500 Required difference between selling prices = Rs. [(3500/100) x 116] - [(4000/100) x 86] = 4060-3440 = Rs. 620
5	Correct Option: (a) Now, in this numerical, there is no common loss and gain %. Hence, solve it making equations. Let cost price of camel be x. As cost of camel and carriage = Rs 5000 Cost of carriage = Rs. (5000 – x) After selling camel he gains 20% and on carriage a loss of 10%. But on the whole he gains 3%. Therefore, 20% of x – 10 % of (5000 – x) = 3 % of 5000

	$\frac{20}{100} \times x - \frac{10}{100} \times (5000 - x) = \frac{3}{100} \times 5000$ $\frac{x}{5} - \frac{(5000 - x)}{10} = 150$ $\frac{10x}{5} - \frac{(5000 - x) \times 10}{10} = 150 \times 10$ 2x-5000+x=1500 3x=1500+5000 x=2166.67 The cost of camel = Rs. 2166.67 Option (a) is the correct answer
6	Correct Option: (c) Generally in such cases, there is always loss. **So always remember, when two materials are sold and if one material gets profit and the other gets a loss, then use the trick shown below to calculate the loss.** Loss% = $\left[\frac{\text{Common loss and gain\%}}{10} \right]^2 = \left[\frac{x}{10} \right]^2$ Therefore, here common loss and gain % = 15% Hence, Loss% = $\left[\frac{15}{10} \right]^2 = 2.25\%$
7	**Answer:** D) None of the above **Explanation:** The CP of profitable cow = 9900/1.1 = 9000 and profit = Rs. 900 The CP of loss yielding cow = 9900/0.8 = 12375 and loss = Rs. 2475 so, the net loss = 2475 - 900 = 1575
8	**Option D** **Solution:** profit 25% = 125, loss 10% = 90. Let SP of each mobile = LCM of (125 and 90) = 2250 So CP1 = 100/125 * 2250 = Rs 1800, and CP2 = 100/90 * 2250 = Rs 2500 So total SP = 2250+2250 = Rs 4500 Total CP = 1800+2500 = Rs 4300 So gain% = (4500-4300)/4300 * 100 = 200/43% OR use formula: gain/loss% = [100(25 – 10) – 2 (25)(10)] / [(100+25) + (100-90)] = (1500-500)/215 = + 200/43%
9	Correct Option: (b) Here, we just know the selling price and the gain and loss incurred, on two cameras. Therefore, first calculate the cost price of both the cameras, because gain or loss is calculated on the cost price of the material. **Hint:** When shopkeeper earns profit, Cost Price = $\frac{100}{(100 + \text{Gain\%})} \times \text{S.P.}$ When shopkeeper incurs loss, Cost Price = $\frac{100}{(100 - \text{Loss\%})} \times \text{S.P.}$ C.P. of camera A = $\frac{100}{(100 + 20)} \times 7500 = \frac{100}{120} \times 7500 = \text{Rs. } 6250$ C.P. of camera B = $\frac{100}{\quad} \times 8550 = \frac{100}{\quad} \times 8550 = \text{Rs. } 9000$

	(100 – 5) 95 **Total C.P. = Cost of camera A + Cost of camera B** Total C.P. = 6250 + 9000 = Rs. 15250 Total S.P. = 7500 + 8550 = Rs. 16050 Selling Price > Cost Price, hence man gains during this transaction. **Gain = S.P. – C.P. = 16050 – 15250 = Rs. 800** $\text{Gain\%} = \frac{\text{Gain}}{\text{C.P.}} \times 100$ $\text{Gain\%} = \frac{800}{15250} \times 100 = 5.24\%$
10	**Answer:** B) 3.125 % **Explanation:** Taking the 2 investments to be 3x and 5x respectively Total income of Raghu = (3x) x 1.25 + (5x) x 0.9 = 8.25 Therefore, Gain% = 0.25/8 x 100 = 3.125 %.
	Type VII – Dishonest Seller
1	**Answer: Option 'C'** **Let the cost price of 1kg good = 100** **He sells for 100, what he got for 90, then his gain =100 – 90 = 10** **:. His gain per cent = 10/90×100 = 100/9 = 11 1/9%.**
2	Correct Option: (d) $\text{Gain\%} = \left[\frac{\text{Error}}{(\text{True weight} - \text{Error})} \times 100 \right] \%$ Error = True weight – False weight Error = 1000 – 970 = 30 $\text{Gain\%} = \left[\frac{30}{(1000 - 30)} \times 100 \right] \%$ Gain %= 3.09%
3	Correct Option: (b) Let weight of grocery bag be 1000 gm. Now, the shopkeeper sells his grocery using weights 10 % less than true weights. Hence, actual weight of bag = 90 % of 1000 gm = 900 gm **If each gram = Re.1, C.P. of each bag containing 900 gm = Rs. 900** The shopkeeper sells with a gain of 30 % on true C.P. **Calculate the S.P.** $\text{Selling Price} = \frac{(100 + \text{Gain\%})}{100} \times \text{C.P.}$ Therefore, $\text{Selling Price} = \frac{130}{100} \times \text{Rs. } 1000 = \text{Rs. } 13000$ Gain = S.P. – C.P. = 1300 – 900 = Rs. 400 $\text{Gain\%} = \frac{400}{900} \times 100 = 44.44\%$
4	Correct Option: (c)

	$\text{Gain\%} = \left[\frac{\text{Error}}{(\text{True weight} - \text{Error})} \times 100 \right] \%$ We are given that, dealer gains $4\frac{8}{23}\%$ after selling the goods at cost price. **Let error be x.** $4\frac{8}{23}\% = \left[\frac{x}{(1000 - x)} \times 100 \right] \%$ $\frac{100}{23} = \left[\frac{100x}{(1000 - x)} \right] \%$ (1000 – x) = 23 x 1000 = 24 x x = 41.66 **False weight = True weight – Error** False weight = 1000 – 41.66 = 958.34 gms **The false weight used by the dealer is 958.34 grams.**
5	**Answer:** A) 50% **Explanation:** CP of 1000gm = Rs. 10 SP of 800gm = Rs. 12 SP of 1000gm =12x1000/800 = Rs. 15 Now take 1000gm as reference to calculate profit. Profit=SP-CP=15-10=Rs. 5 Profit % = 5x100/10 = 50%
6	**Option C** **Solution:** Profit is 20%. So 1000 gm + 20% of 1000 gm = 1200 gm so CP of 1200 gm = SP of 800 gm Sp profit% = (1200-800)/800 * 100 = 50%
7	**B) 21%** **Explanation:** $\text{Gain \%} = \left(\frac{(100 + \text{common gain \%})^2}{100} - 100 \right) \%$ $= \left(\frac{(100+10)^2}{100} - 100 \right)$ $= 21\%$
	Type VIII - Discount
1	Correct Option: (d) Let cost price goods be Rs. 100 Marked price (Selling Price) marked by the shopkeeper on goods = Rs. 130 He sells the goods at a discount of 15 % Therefore, Selling price = 85 % of Rs. 130 = Rs. 110.50 Gain = S.P. – C.P. = 110.5 – 100 = 10.50 % **Alternate solution:** He sells the goods at a discount of 15 %

	15% discount on Rs. 130 = Rs. 19.50 **Selling Price =** Marked Price – Discount = 130 – 19.50 = Rs. 110.50
2	Correct Option: A Let the original price be x, then 30% of x = 82.50 $x = \frac{82.50}{30} \times 100 = \text{Rs. } 275$ Deepa bought calculator in 275 – 82.50 = Rs. 192.50 Hence, option A is correct.
3	Correct Option: D **Method I:** Let C.P. = Rs. 100. Then, marked price = Rs. 120. ∴ S.P. = 90% of Rs. 120 = Rs. 108 ∴ Gain % = 8% _____ **Method II:** To solve this question, we can apply the net% effect formula $x + y + \frac{xy}{100}$ Let's take x = 20% and y = – 10% By the net% effect formula, we get $= 20 - 10 - \frac{20 \times 10}{100} = 20 - 10 - 2 = 8\%$ Hence, option D is correct.
4	Correct Option: A For this question we can apply a short trick approach $(\frac{x + y}{100 - y}) \times 100\%$ where x = gain% after allowing the discount = 17%, And y = discount offered on marked price = 10% Now, on putting values of x and y in the short trick approach, we get $= \frac{17 + 10}{100 - 10} \times 100 = \frac{27}{90} \times 100 = 30\%.$ Hence, option A is correct.
5	Correct Option: C By hypothesis let the labelled price of the vegetables be Rs. 100 after 15% discount the shopkeeper buy them for rupees 85. New price after 20% profit $= \frac{120}{100} \times 85 = 102$ This is the price after 10% discount on marked price i.e. MP is Rs. $\frac{102 \times 100}{90} = 113.33$

	So, the marked price is 13.33% more then labelled price. Hence, option C is correct.
6	C) **14.50%** Single equivalent discount = $= \left(10 + 5 - \frac{10 \times 5}{100}\right)\% = 14.5\%$ Hence option [C] is correct answer.
7	Correct Option: C We can find the equivalent discount by applying the net % effect formula twice. Net % effect = x + y + $\frac{xy}{100}$% For 1st two discounts, Here, x = – 15, y = – 20 = – 15 – 20 + $\frac{15 \times 20}{100}$ = – 35 + 3 = –32% Applying the net % effect formula once again, we get = – 32 – 25 + $\frac{32 \times 25}{100}$ = – 57 + 8 = –49% ∴ Single equivalent discount = 49%. Hence, option C is correct.
8	**Option D** **Solution:** Let the CP be Rs. 100 SP = 150 * (88/100) * (86.5/100) = Rs. 114.18 Therefore , = (14.18/100)*100 =14.18%
9	**Option D** **Solution:** Required MP = [210 * (100+20)]/(100-12.5) = (210 *120)/87.5 = Rs. 288
10	**Option D** **Solution:** Fanta *0.9*0.75 = Coke *0.85*0.80 Fanta/Coke = 136/135
11	Correct Option: D Let the first discount be x%. Then, 85% of (100 – x)% of 200 = 136 or, $\frac{85}{100} \times \frac{(100 - x)}{100} \times 200 = 136$ or, 8500 – 85x = 136 × 50 = 6800 or, 85x = 1700 ∴ x = 20% Hence, option D is correct.
12	Correct Option: C Let the first discount be x%. Then, 85% of (100 – x)% of 1000 = 714 or, $\frac{85}{100} \times \frac{(100 - x)}{100} \times 1000 = 714$

	or, 8500 – 85x = 714 × 10 = 7140 or, 85x = 1360 ∴ x = 16% Hence, option C is correct.
13	**Answer - C** Let marked prize was Rs. 100. The trader buys at discount of 20%. Hence, his cost price = 100 – 20% of 100 = Rs. 80. He wants to make profit 25%, hence his selling price, = 80 + 25% of 80 = Rs. 100. However; he wants to get this Rs. 100 after allowing a discount of 20% i.e. he will sell at 80% of his marked price. Hence, his marked price, = 100/0.8 = Rs. 125 which is 25% more than original marked price.
14	**Answer - C** Let CP of the item = X. As he gets 55% profit, so, SP = X + 55% of X = 1.55X It is given that he incurs loss by selling 25 articles at the cost of 21 articles Loss = (25 - 21)/25 = 16%. Now, His, SP = SP - 16% of SP = 0.84*SP So, This SP must be equal to actual SP. 0.84SP = 1.55X SP = 1.55X/0.84 = 1.84X ----------(1) This selling price come after allowing 25% discount on MP. Let MP = Y SP = Y - 25% of Y 1.84X = 0.75Y Y/X = 1.84/0.75 Y/X = 63/155 So, CP : SP = 63 : 155.
15	**D) CP : MP = 2 : 5** Step-by-step explanation: Let Cost Price be Rs. 100 Now, He allows a 20% discount ⇒ Cost Price = 100 - 20% of 100 = 100 - 20 = Rs. 80 Also, Total articles sold = 5 (Purchased) + 3 (Given free on purchase of 5) = 8 So, Cost Price of one Article = 80/8 = Rs. 10 Now, He earns profit of 25% So, Marked Price = 100 + 25% of 100 = 100 + 25 = Rs. 125 Number of articles which are charged = 5 So, Marked Price of one article = 125/5 = Rs. 25 Now, CP : MP = 10 : 25 ⇒ CP : MP = 2 : 5
16	Ratio of selling price and Cost Price, SP : CP = 12 : 9 =4 : 3 Profit of 3 oranges = Rs. 1 (Let CP = Rs. 1) Profit = 1313

	= 33.33% and, Discount = 11.11% Since, CP : SP : MP = 3 : 4 : 4.5 Profit doubles that of discount. So, % point discount = 33.33% - 11.11% = 22.22% point. **Detail Explanation:** 12 C.P = 9 S.P, So profit % = 12C.P.−9C.P.9C.P.12C.P.−9C.P.9C.P. = 33.33. Then it is said that, 5 SP - 5 CP = 10 MP -10 SP From that we get relation between MP and SP, that is, 27 SP = 24 MP(With help of 12 CP = 9 SP) THEN DISCOUNT % = MP−SPMPMP−SPMP = **11.11%** So, % point discount 33.33% - 11.11% = 22.22%
17	
Type IX – Miscellaneous Examples	
1	Correct Option: A To solve this question, we can apply a short trick approach **Reduced price =** $(\frac{\mathbf{Ax}}{\mathbf{100n}})$**per kg** **Original price =** $(\frac{\mathbf{Ax}}{\mathbf{(100 - x)n}})$**per kg** **Where,** '**x**' is the percentage of reduction in the price of an article = 20% '**n**' is the increased weight after the reduction of price = 2 kg '**A**' is the price of increased weight = ₹ 30 The reduced price of rice = $\frac{30 \times 20}{100 \times 2}$ = **₹ 3** per kg. and The original price of rice = $\frac{30 \times 20}{(100 - 20)2} = \frac{15}{4}$ = **₹** $\mathbf{3\frac{3}{4}}$ per kg Hence, option A is correct.
2	Correct Option: B To solve this question, we can apply a short trick approach **Original price =** $(\frac{\mathbf{Ax}}{\mathbf{(100 + x)n}})$**per kg** **Where,** '**x**' is the percentage of hike in the price of an article = 10% '**n**' is the decreased weight after the hike of price = 2 kg '**A**' is the price of decreased weight = ₹ 110 The original price of rice = $\frac{110 \times 10}{(100 + 10)2} = \frac{1100}{220}$ = $\underline{110}$ = ₹ 5 per kg

	22 Hence, option B is correct.