Admission of a Partner

Question 1.

X, Y and Z are partners sharing profits and losses in the ratio of 5:3:2. They admit A into partnership and give him 1/5th share of profits. Find the new profit-sharing ratio.

Solution:

X: Y : Z

Old Ratio 5: 3: 2

A is admitted for 1/5 share of profit

Let the combined share of profit for all partners after A's admission be=1

Combined share of X, Y and Z after A's admission = 1- A's share

$= 1 - \frac{1}{5}$

$= \frac{4}{5}$

New Ratio= Old Ratio x Combined share of X, Y and Z

$X's = \frac{5}{10} \times \frac{4}{5} = \frac{20}{50}$

$Y's = \frac{3}{10} \times \frac{4}{5} = \frac{12}{50}$

$Z's = \frac{2}{10} \times \frac{4}{5} = \frac{8}{50}$

New Profit Sharing Ratio= $\underset{\frac{20}{50} : \frac{12}{50} : \frac{8}{50} : \frac{1}{5}}{X: \ Y: \ Z: \ A}$

$= \frac{20 : 12 : 8 : 10}{50}$

$= 10:6:4:5$

Question 2.

Ravi and Mukesh are sharing profits in the ratio of 7: 3. They admit Ashok for 3/7th share in the firm which he takes 2/7th from Ravi and 1/7th from Mukesh.

Calculate new profit-sharing ratio.

Solution:

Ravi :Mukesh

Old Ratio $\frac{7}{10}:\frac{3}{10}$

Ashok admits for $\frac{3}{7}$ share of profit

Ravi sacrifices in favour of Ashok = $\frac{2}{5}$

Mukesh sacrifices in favour of Ashok = $\frac{1}{7}$

New Ratio =Old Ratio -sacrificing Ratio

Ravi's = $\frac{7}{10}-\frac{2}{7}$

$=\frac{29}{70}$

Mukesh's = $\frac{3}{10}-\frac{1}{7}$

$=\frac{11}{70}$

Ravi:Mukesh:Ashok

New Profit Sharing Ratio= $\frac{29}{70}:\frac{11}{10}:\frac{3}{7}$

$=\frac{29:11:30}{70}$

= 29:11:30

Question 3.

A and B are partners sharing profits and losses in the proportion of 7: 5. They agree to admit C, their Manager, into partnership who is to get 1/6th share in the profits. He acquires this share as 1/24th from A and 1/8th from 8. Calculate new profit-sharing ratio.

(Delhi 2001)

Solution:

A :B

Old Ratio 7:5

C admits for 1/6 share of profit

A sacrifices his share of profit in favour of C= $\frac{1}{24}$

B sacrifices his share of profit in favour of C = $\frac{1}{8}$

New Ratio =Old Ratio -sacrificing Ratio

A's = $\frac{7}{12}-\frac{1}{24}$

$=\frac{13}{24}$

B's = $\frac{5}{12}-\frac{1}{8}$

$=\frac{7}{24}$

Ravi:Mukesh:Ashok

New Profit Sharing Ratio= $\frac{13}{24}:\frac{7}{24}:\frac{1}{6}$

$=\frac{13:7:4}{24}$

= 13:7:4

Question 4.

X and Yare partners in a firm sharing profits and losses in the ratio of 3: 2. Z is admitted as partner with 1/4 shares in profit. Z acquires his share from X and Y in the ratio of 2: 1.

Calculate new profit-sharing ratio.

Solution:

Old Profit Sharing Ratio amongst Partners (X and Y) is 3:2

Z is admitted for 1/4th Share in Profits

Sacrificing Ratio of X and Y is 2:1

Z acquired $\frac{2}{3} \times \frac{1}{4} = \frac{2}{12}$ from X

Z acquired $\frac{1}{3} \times \frac{1}{4} = \frac{1}{12}$ from Y

New Ratio= Old Ratio-Sacrificing Ratio

X's new share= $\frac{3}{5} - \frac{2}{12} = \frac{36-10}{60} = \frac{26}{60}$

Y's new share= $\frac{2}{5} - \frac{1}{12} = \frac{24-5}{60} = \frac{19}{60}$

Z's share = $\frac{1}{4} = \frac{15}{60}$

$\therefore$ NewRatio = 26 : 19 : 15

Question 5.

X and Y were partners sharing profits in the ratio of 3: 2. They admitted P and Q as new partners. X surrendered 1/3rd of his share in favour of P and Y surrendered 1/4th of his share in favour of Q. Calculate new profit-sharing ratio of X, Y, P and Q. (AI 1998 C, Delhi 2000, 2002 C)

Solution:

X:Y

Old Ratio 3:2

Sacrificing Ratio= Old Ratio x Surrender Ratio

X's= $\frac{3}{5} \times \frac{1}{3} = \frac{3}{15}$

Y's = $\frac{2}{5} \times \frac{1}{4} = \frac{2}{20}$

New Ratio= Old Ratio-Sacrificing Ratio

X's = $\frac{3}{5} - \frac{3}{15}$

$= \frac{6}{15}$

Y's = $\frac{2}{5} - \frac{2}{20}$

$= \frac{6}{20}$

P's share= X's Sacrifice

$= \frac{3}{15}$

Q's share= X's Sacrifice

$= \frac{2}{20}$

New Profit Sharing Ratio= $\underset{}{\overset{X:}{\frac{6}{15}}} : \underset{}{\overset{Y:}{\frac{6}{20}}} : \underset{}{\overset{P:}{\frac{3}{15}}} : \underset{}{\overset{Q}{\frac{2}{20}}}$

$= \frac{24:18:12:6}{60}$

= 4:3:2:1

Question 6.

Rand S are partners sharing profits in the ratio of 5:3. T joins the firm as a new partner. R gives 1/4th of his share and S gives1/5th of his share to the new partner. Find out new profit-sharing ratio.

(Delhi 2007 C)

Solution:

R : S

Old Ratio 5:3

Sacrificing Ratio = Old Ratio × Surrender Ratio

$R's = \frac{5}{8} \times \frac{1}{4}$

$= \frac{5}{32}$

$S's = \frac{3}{8} \times \frac{1}{5}$

$= \frac{3}{40}$

New Ratio= Old Ratio-Sacrificing Ratio

$R's = \frac{5}{8} - \frac{5}{32}$

$= \frac{15}{32}$

$S's = \frac{3}{8} - \frac{3}{40}$

$= \frac{12}{40}$

T's share= R's Sacrifice + S's sacrifice

$= \frac{5}{32} + \frac{3}{40}$

$= \frac{25+12}{160}$

$= \frac{37}{160}$

R : S : T

New Profit Sharing Ratio= $\frac{15}{32} : \frac{12}{40} : \frac{37}{160}$

$= \frac{75 : 48 : 37}{160}$

∴ New Profit Sharing Ratio = 75 : 48 : 37

Question 7.

Kabir and Farid are partners in a firm sharing profits and losses in the ratio of 7:3. Kabir surrenders 2/10th from his share and Farid surrenders 1/10th from his share in favour of Jyoti; a new partner. Calculate new profit-sharing ratio and sacrificing ratio.

(CBSE Sample Paper 2015)

Solution:

Calculation of New Ratio

Old Ratio of Kabir and Farid 7 : 3

Kabir sacrifices his share of profit in favour of Jyoti = $\frac{2}{10}$

Farid sacrifices his share of profit in favour of Jyoti = $\frac{1}{10}$

Jyoti's Share = $\frac{2}{10} + \frac{1}{10} = \frac{3}{10}$

New Ratio = Old Share - Share Sacrificed

Kabir's New Share = $\frac{7}{10} - \frac{2}{10} = \frac{5}{10}$

Farid's New Share = $\frac{3}{10} - \frac{1}{10} = \frac{2}{10}$

New Profit Sharing Ratio = 5 : 2 : 3

Calculation of Sacrificing Ratio

Since, Kabir and Farid are sacrificing 2 / 10 share respectively, therefore the sacrificing ratio becomes 2 : 1.

Question 8.

Find New Profit-sharing Ratio:

i. R and T are partners in a firm sharing profits in the ratio of 3:2. S joins the R surrenders 1/4th of his share and T 1/5th of his share in favour of S.

ii. A and B are partners. They admit C for 1/4th share. In future, the ratio between A and B would be 2:1.

iii. A and B are partners sharing profits and losses in the ratio of 3: 2. They admit C for 1/5th share in the profit. C acquires 1/5th of his share from A and 4/5th share from B.

iv. X, Y and Z are partners in the ratio of 3:2:1. W joins the firm as a new partner for 1/6th share in profits. Z would retain his original share.

v. A and B are equal partners. They admit C and D as partners with 1/5th and 1/6th share respectively

vi. A and B are partners sharing profits/losses in the ratio of 3: 2. C is admitted for 1/4th share. A and B decide to share equally in future.

Solution:

i. R : T

Old Ratio 3 : 2

Sacrificing Ratio= Old Ratio × Surrender Ratio

$$R's = \frac{3}{5} \times \frac{1}{4}$$

$$= \frac{3}{20}$$

$$T's = \frac{2}{5} \times \frac{1}{5}$$

$$= \frac{2}{25}$$

New Ratio= Old Ratio-Sacrificing Ratio

$$R's = \frac{3}{5} - \frac{3}{20}$$

$$= \frac{9}{20}$$

$$T's = \frac{2}{5} - \frac{2}{25}$$

$$= \frac{8}{25}$$

S's share= R's Sacrifice+ S's sacrifice

$$= \frac{3}{20} + \frac{2}{25}$$

$$= \frac{23}{100}$$

R : T : S

$$\text{New Profit Sharing Ratio} = \frac{9}{20} : \frac{8}{25} : \frac{23}{100}$$

$$= \frac{45 : 32 : 23}{100}$$

$$= 45 : 32 : 23$$

ii. A : B

Old Ratio 1:1

C admits for 1/4th share of profit

Let the combined share of A,B and C be= 1

Combined share of A and B =1 - C's Share

$=1-\frac{1}{4}$

$=\frac{3}{4}$

New Ratio = Combined share of A and B $\times\frac{2}{3}$

A's $=\frac{3}{4}\times\frac{2}{3}$

$=\frac{6}{12}$

B's $=\frac{3}{4}\times\frac{1}{3}$

$=\frac{3}{12}$

A : B : C

New Profit Sharing Ratio= $\frac{6}{12}:\frac{3}{12}:\frac{1}{4}$

$=\frac{6:3:3}{12}$

$=2:1:1$

iii. A : B

Old Ratio 3 : 2

C admits for $\frac{1}{5}$ share of profit

A's sacrifice= C's share $\times\frac{1}{5}$

$=\frac{1}{5}\times\frac{1}{5}$

$=\frac{1}{25}$

B's sacrifice = C's share $\times\frac{4}{5}$

$=\frac{1}{5}\times\frac{4}{5}$

$=\frac{4}{25}$

New ratio = Old Ratio - Sacrificing Ratio

A's $=\frac{3}{5}-\frac{1}{25}$

$=\frac{14}{25}$

B's $=\frac{2}{5}-\frac{4}{25}$

$=\frac{6}{25}$

A : B : C

New Profit Sharing Ratio= $\frac{14}{25}:\frac{6}{25}:\frac{1}{5}$

$=\frac{14:6:5}{25}$

$=14:6:5$

iv. X : Y : Z

Old Ratio 3 : 2 : 1

W admits for $\frac{1}{6}$ share of profit

Let combined share of all partner after W's admission be=1

Combined share X and Y in the new firm = 1- Z's share -W's Share

$=1-\frac{1}{6}-\frac{1}{6}$

$=\frac{4}{6}$

New Ratio= Old Ratio x Combined share of X and Y

X's= $\frac{3}{5}\times\frac{4}{6}=\frac{12}{30}$

Y's $=\frac{2}{5}\times\frac{4}{6}=\frac{8}{30}$

X : Y : Z : W

New Profit Sharing Ratio= $\frac{12}{30}:\frac{8}{30}:\frac{1}{6}:\frac{1}{6}$

$=\frac{12:8:5:5}{30}$

$=12:8:5:5$

v. A : B

Old Ratio 1 : 1

C admits for $\frac{1}{5}$ share

D admits for $\frac{1}{6}$ share

Let the combined share of all partners after C's and D's admission be=1

Combined share of A and B after C's and D's admission= 1-C's share - D's Share

$=1-\frac{1}{5}-\frac{1}{6}$

$=\frac{19}{30}$

New Ratio = Old Ratio x Combined share of A and B

A's $=\frac{1}{2}\times\frac{19}{30}$

$=\frac{19}{60}$

B's $=\frac{1}{2}\times\frac{19}{30}$

$=\frac{19}{60}$

A : B : C : D

New Profit Shareing Ratio = $\frac{19}{60}:\frac{19}{60}:\frac{1}{5}:\frac{1}{6}$

$=\frac{19:19:12:10}{60}$

= 19:19:12:10

vi. A : B

Old Ratio 3 : 2

C admits for $\frac{1}{4}$ share of profit

Let the combined share of all partners after C's admission be=1

Combined share of A and B after C's admission= 1-C's share

$= 1 - \frac{1}{4}$

$= \frac{3}{4}$

New Ratio of A and B each = Combined share of A and B $\times \frac{1}{2}$

$= \frac{3}{4} \times \frac{1}{2}$

$= \frac{3}{8}$ each

New profit sharing ratio = A : B : C

$\frac{3}{8} : \frac{3}{8} : \frac{1}{4}$

$= \frac{3:3:1}{8}$

= 3:3:2

Question 9.

Rakesh and Suresh profits in the ratio of 4:3. Zaheer joins and the new ratio among Rakesh, Suresh and Zaheer is 7:4:3. Find out the sacrificing ratio.

Solution:

Rakesh : Suresh

Old Ratio 4 : 3

Rakesh : Suresh : Zaheer

New Ratio 7 : 4 : 3

Sacrificing Ratio = Old Ratio-Sacrificing Ratio

Rakesh's = $\frac{4}{7} - \frac{7}{14}$

$= \frac{1}{14}$

Suresh's = $\frac{3}{7} - \frac{4}{14}$

$= \frac{2}{14}$

Rakesh : Suresh

Sacrificing Ratio $\frac{1}{14} : \frac{2}{14}$

1 : 2

Question 10.

A, B and C are partners sharing profits in the ratio of 4:3:2. D admitted for 1/3rd share in future profit. What is the sacrificing ratio?

Solution:

A : B : C

Old Ratio 4 : 3 : 2

D is admitted for $\frac{1}{3}$ share of profit

Let the combined share of profit of A,B,C and D be=1

Combined share of A,B and C after D's admission= 1-D's share

$= 1-\frac{1}{3}$

$=\frac{2}{3}$

New Ratio = Old Ratio- Combined share of A and B and C

A's = $\frac{4}{9}\times\frac{2}{3}$

$=\frac{8}{27}$

B's = $\frac{3}{9}\times\frac{2}{3}$

$=\frac{6}{27}$

C's = $\frac{2}{9}\times\frac{2}{3}$

$=\frac{4}{27}$

Sacrificing Ratio= Old Ratio- New Ratio

A's = $\frac{4}{9}-\frac{8}{27}$

$=\frac{4}{27}$

B's = $\frac{3}{9}-\frac{6}{27}$

$=\frac{3}{27}$

C's = $\frac{2}{7}-\frac{4}{27}$

$=\frac{2}{27}$

A : B : C

Sacrificing ratio = $\frac{4}{27}:\frac{3}{27}:\frac{2}{27}$

= 4 : 3 : 2

Question 11.

A and B are partners sharing profits in the ratio of 3:2 . C is admitted as a partner. The new profit sharing ratio among, A B and C is 4:3:2. Find out the sacrificing ratio.

Solution:

A : B

Old Ratio 3 : 2

A : B : C

New Ratio 4 : 3 : 2

Sacrificing Ratio = Old Ratio-New Ratio

A's = $\frac{3}{5}-\frac{4}{9}$

$=\frac{7}{45}$

B's = $\frac{2}{5}-\frac{3}{9}$

$=\frac{3}{45}$

A : B

Sacrificing Ratio $\frac{7}{45}:\frac{3}{45}$

7 : 3

Question 12.

A, B, C and D are in partnership sharing profits and losses in the ratio 36:24:20:20 respectively. E joins the partnership for 20% share and A, B, C and DS in future would share profits among themselves as 3/10:4/10: 2/10:1/10. Calculate new profit-sharing ratio after E's admission.

Solution:

A : B : C : D

Old Ratio 36 : 24 : 20 : 20

E is admitted for $\frac{20}{100}$ share

Let the combined share of all partners profit after E's admission =1

Combined share of A,B,C and D after E's admission= 1-E's share

$= 1-\frac{20}{100}$

$= \frac{80}{100}$

New Ratio = Combined of A,B,C and D. Agreed Share of A,B,C and D

A's = $\frac{80}{100} \times \frac{3}{10} = \frac{24}{100}$

B's = $\frac{80}{100} \times \frac{3}{10} = \frac{32}{100}$

C's = $\frac{80}{100} \times \frac{2}{10} = \frac{16}{100}$

D's = $\frac{80}{100} \times \frac{1}{10} = \frac{8}{100}$

A : B : C : D : E

New Profit Sharing Ratio = $\frac{24}{100} : \frac{32}{100} : \frac{16}{100} : \frac{8}{100} : \frac{20}{100}$

= 6 : 8 : 4 : 2 : 5

Question 13.

A and B are in partnership sharing profits and losses as 3:2. C is admitted for 1/4th share. Afterwards D enters for 20 paise in the rupee. Compute profit- sharing ratio of A, B, C and D after D's admission.

Solution:

A : B

Old Ratio 3 : 2

C is admitted for $\frac{1}{4}$ share of profit

Let the combined share of profit of all partners be =1

Combined share of A and B after C's admission= 1-C's share

$= 1-\frac{1}{4}$

$= \frac{3}{4}$

New Ratio = Old Ratio - Combined share of A and B

A's = $\frac{3}{5} \times \frac{3}{4} = \frac{9}{20}$

B's = $\frac{2}{5} \times \frac{3}{4} = \frac{6}{20}$

A : B : C

New Profit Sharing Ratio after C's admission= $\frac{9}{20} : \frac{6}{20} : \frac{1}{4}$

$= \frac{9:6:5}{20}$

=9:6:5

Profit sharing ratio after C's admission will become old ratio to determine the ratio after D's admission

A : B : C

Ratio before D's admission 9 : 6 : 5

D is admitted for $\frac{20}{100}$ share of profit

Let the combined share of all partners after D's admission =1

Combined share of A , B and C after D's admission= 1-D's share

$= 1-\frac{20}{100}$

$= \frac{80}{100}$

New Ratio = Old Ratio - Combined share of A, B and C

A's = $\frac{9}{20} \times \frac{80}{100} = \frac{72}{200}$

B's = $\frac{6}{20} \times \frac{80}{100} = \frac{48}{200}$

C's = $\frac{5}{20} \times \frac{80}{100} = \frac{40}{200}$

A : B : C : D

New Profit Sharing Ratio after C's admission= $\frac{72}{200} : \frac{48}{200} : \frac{40}{200} : \frac{20}{100}$

=9:6:5:5

Question 14.

X and Y partners sharing profits and losses as 3:2. They admit Z into partnership. X gives 1/3rd of his share while Y gives 1/10th from his share while Y gives 1/10th from his share to Z. Calculate new profit-sharing ratio and sacrificing ratio.

Solution:

Old Ratio of X and Y are 3:2.

X's sacrifice = $\frac{1}{3} \times \frac{3}{5} = \frac{3}{15}$

Y's sacrifice = $\frac{1}{10}$

Sacrificing Ratio = $\frac{3}{15} : \frac{1}{10}$ or 2 : 1

New Ratio = Old share - share sacrificed

X's new share = $\frac{3}{5} - \frac{3}{15} = \frac{6}{15}$

Y's new share = $\frac{2}{5} - \frac{1}{10} = \frac{3}{10}$

Z's new share = $\frac{3}{15} + \frac{1}{10} = \frac{9}{30}$

New Ratio = $\frac{6}{15} : \frac{3}{10} : \frac{9}{30}$

= 4 : 3 : 3