Partnership

When two or more than two persons run a business jointly, they are called patners and the deal is known as patnership.

Ratio of Division of Gains :

(i) When investments of all the partners are for the same time, the gain or loss is distributed among the partners in the ratio of their investments.

Suppose A and B invest Rs. x and Rs. y respectively for a year in a business, then at the end of the year : (A's share of profit) : (B's share of profit) = x : y.

(ii) When investments are for different time periods, then equivalent capitals are calculated for a unit of time by taking (capitalnumber of units of time). Now, gain or loss is divided in the ratio of these capitals.

Suppose A invests Rs. x for 'p' months and B invests Rs. y for 'q' months, then (A's share of profit) : (B's share of profit) = xp : yq.

(III) When investments are altered in the given period we need to take the changes into consideration while calculating their profits.

Suppose A and B started their business with Rs.5000 and Rs.10,000 respectively. If after three months A invested another Rs.5000 then we have to consider A's capital for the remaining period is Rs.10,000

So A: B = (5000 X 3 + 10,000 X 9) : 10,000 X 12 = 1,05,000 : 1,20,000 = 7:8

3. Working and Sleeping Patners : A patner who manages the business is known as a working patner and the on who simply invests the money is a sleeping parnter.

Solved Examples

1. A, B, C enter into a paternership investing Rs. 35,000, Rs.45,000 and Rs.55,000 respectively. The respective shares of A, B, C in an annual profit of Rs.40,500 are

Solution : A : B : C = 35000 : 45000 : 55000 = 7 : 9 : 11.

A's share = Rs.$(40500 \times \frac{7}{27})$ = Rs. 10500.

B's share = Rs.$(40500 \times \frac{9}{27})$ = Rs. 13500.

C's share = Rs.$(40500 \times \frac{11}{27})$ = Rs. 16500.

2. In a business, Lucky invests Rs. 35,000 for 8 months and manju invests Rs 42,000 for 10 months. Out of a profit of Rs. 31,570. Manju's share is :

Lucky: Manju = (35000 X 8) : (42,000 X 10) = 2:3

Manju's share = Rs. $\frac{3}{5} \times 31570$ = Rs. 18,942

3. Amar started a business investing Rs. 70,000. Ramki joined him after six months with an amount of Rs. 1,05,000 and Sagar joined them with Rs. 1.4 lakhs after another six months. The amount of profit earned should be distributed in what ratio among Aman, Rakhi and Sagar respectively, 3 years after Aman started the business ?

Amar : Ramki : Sagar = (70000 X 36) : (105000 X 30) : (140000 X24) = 12 : 15 : 16.

4. A, B and C enter into a partnership. They invest Rs. 40,000, Rs. 80,000 and Rs. 1,20,000 respectively. At the end of the first year, B withdrawns Rs. 40,000, while at the end of the second year, C withdraws Rs. 80,000. In what ratio will the profit be shared at the end of 3 years ?

A : B : C = (40,000 X 36) : (80,000 X 12 + 40,000 X 24) : (120,000 X 24 + 40,000 X 12) = 3: 4: 16

5. Shekhar started a business investing Rs. 25,000 in 1999. In 2000, he invested an additional amount of Rs. 10,000 and Rajeev joined him with an amount of Rs. 35,000. In 2001, Shekhar invested another additional amount of Rs. 10,000 and Jatin joined them with an amount of Rs. 35,000. What will be Rajeev's share in the profit of Rs. 1,50,000 earned at the end of 3 years from the start of the business in 1999?.

Shekhar : Rajeev : Jatin = (25000 X 12 + 35000 X 12 + 45000 X 12) : (35000 X 24) : (35000 X 12)

= 1260000 : 840000 : 420000 = 3 : 2 : 1.

Rajeev's share = Rs. $(150000 \times \frac{2}{6})$ = Rs. 50000

6. A,B and C started a business with Rs.15000, Rs.25000 and Rs.35000 respectively. A was paid 10% of the total profit as a salary and the balance was divided in the ration of investment. If A's share is Rs.4,200, then C's share is:

A, B and C must devide their salaries in the ratio : 15,000 : 25,000: 35,000 = 3:5:7

Assume total Profit = 100X. then A share is 10% of 100X for managing business and 3/15 part of 90X for his investment (as the remaining profit is (100X - 10X = 90X)

So total A's share = $10X + \frac{3}{15} \times 90X = 4,200$

$\Rightarrow X = 150$

Substituting X = 150 in 90X we get remaining profit for sharing. That is Rs.13,500

Now C's share = $\frac{7}{15} \times 13,500 = Rs.6,300$

MCQ's

1. Karim invests Rs.30000 for one year in a shop. How much his partner Raunaq should invest in order that the profit after one year may be in the ratio 2: 3 ?

a. Rs.20000

b. Rs.40000

c. Rs.45000

d. Rs.18000

Correct Option: C

Explanations:

$\frac{30000}{x} = \frac{2}{3} \Rightarrow 2x = 90000$

or x = 45000

2. A,B and C are three partners in a business. If twice the investment of A is equal to thrice the capital of B and the capital of B is four times the capital of C. Out of a total profit of Rs.5940, the share of C is :

a. Rs.700

b. Rs.900

c. Rs.740

d. Rs.540

Correct Option: D

Explanations:

Let C's capital = Rs.x. Then, B's capital = Rs.4x

2(A's capital)=3(B's capital)=12x

So, A's capital = 6x

A:B:C = 6x : 4x : x=6:4:1

C's share = Rs.$(5940 \times \frac{1}{11})$ = Rs.540

3. A invested Rs.2000/- in a firm which is half the investment of 'B's. But C's investment is sum of A and B. Find their investments ratio:

a. 3:2:1

b. 2:3:1

c. 1:2:3

d. None of these

Correct Option: C

Explanations:

Let Investment of A = Rs.2000/-

Let Investment of B = Rs.4000/- $(2 \times Rs.2000)$

Let Investment of C = Rs.6000/- (2000+4000)

A:B:C = 1:2:3

4. A's capital is equal to twice B's capital and B's capital is three times C's capital. The ratio of the capital is :

a. 2:1:3

b. 1:2:6

c. 6:3:1

d. 1:3:6

Correct Option: C

Explanations:

Let C's capital = Rs.x. Then B's capital = 3x and

A's capital = $2 \times 3x = 6x$

Ratio of capitals of A,B and C =6x : 3x : x = 6:3:1

5. Three partners A,B,C invest Rs.26,000, Rs.34000 and Rs.10000 respectively in a business. Out of a profit of Rs.3500, B's share is :

a. Rs.1300

b. Rs.1700

c. Rs.500

d. Rs.1500

Correct Option: B

Explanations:

Ratio of shares of A,B,C

=26000:34000:10000=13:17:5

B's share = Rs.$(3500 \times \frac{17}{35})$ = Rs.1700

6. A and B started a joint firm. A's investment was thrice the investment of B and the period of his investment was two times the period of investment of B. If B got Rs.4000 as profit, then their total profit is :

a. Rs.24000

b. Rs.16000

c. Rs.28000

d. Rs.20000

Correct Option: C

Explanation:

Suppose B invested Rs.x for y months.

Then, A's investment is Rs.3x for 2y months.

Ratio of investments of A and B = 6xy : xy = 6 : 1

Now, B's share = Rs.4000

A's share = Rs.24000

Hence, total profit = Rs.28000

7. A, B and C enter into partnership by making investments in the ratio 3:5:7. After a year,C invests another Rs.337600 while A withdraw Rs.45600. The ratio of investments then changes to 24:59:167. How much did A invest initially ?

a. Rs.45600

b. Rs.96000

c. Rs.141600

d. None of these

Correct Option: C

Explanation:

Let initial investments be 3x, 5x and 7x rupees

=(3x-45600):5x:(7x + 337600)

=24:59:167

$\frac{3x-45600}{5x} = \frac{24}{59}$ or x= 47200

Initial investment of A = Rs.$(47200 \times 3) = Rs.141600$

8. A, B and C invest Rs.2000, Rs.3000 and Rs.4000 in a business. After one year, A removed his money but B and C continued for one more year. If the net profit after 2 years is Rs.3200 then A's share in the profit is :

a. Rs.1000

b. Rs.600

c. Rs.800

d. Rs.400

Correct Option: D

Explanations:

A:B:C=$2000 \times 12 : 3000 \times 24 : 4000 \times 24$ =1:3:4

A's share = Rs.$(3200 \times \frac{1}{8})$ =Rs.400

9. A and B enter into partnership, investing Rs.12000 and Rs.16000 respectively. After 8 months, C joins them with a capital of Rs.15,000. The share of C in a profit of Rs.45,600 after 2 years will be :

a. Rs.21,200

b. Rs.19,200

c. Rs.14,400

d. Rs.12,000

Correct Option: D

Explanations:

Ratio of shares = $12000 \times 24 : 16000 \times 24 : 15000 \times 16 = 6 : 8 : 5$

C's share = Rs.$(45000 \times \frac{5}{19})$ =Rs.12000

10. Dilip, Ram and Amar started a shop by investing Rs.27000, Rs.81000 and Rs,72000 respectively. At the end of one year, the profit was distributed. If Ram's share of profit be Rs.36,000, the total profit was :

a. Rs.1,08,000

b. Rs.1,16,000

c. Rs.80,000

d. None of these

Correct Option: C

Explanations:

Ratio of shares = 27000:81000:72000=3:9:8

If Ram's share is Rs.9, total profit = Rs.20

If Ram's share is Rs.36000

Total profit = Rs. $\frac{20}{9} \times 36000$ =Rs.80000

11. Manoj got Rs.6000 as his share out of a total profit of Rs.9000 which he and Ramesh earned at the end of one year. If Manoj invested Rs.20,000 for 6 months, where as Ramesh invested his amount for the whole year, what was the amount invested by Ramesh ?

a. Rs.30000

b. Rs.40000

c. Rs.10000

d. Rs.5000

Correct Option: D

Explanation:

Let the amount invested by Ramesh = Rs.x.

Then, 20000×6 : 12x=6000:3000

or $\frac{120000}{12}x = \frac{2}{1}$ or x = 5000

12. Rs.700 is divided among A,B and C so that A receives half as much as B and B half as much as C. Then C's share is :

a. Rs.200

b. Rs.300

c. Rs.400

d. Rs.600

Correct Option: C

Explanation:

Let C's share = Rs.x. Then

B's share = Rs. $\frac{x}{2}$

And, A's share = Rs. $\frac{x}{4}$

A:B:C = $\frac{x}{4} : \frac{x}{2} : x = 1 : 2 : 4$

Hence, C's share = Rs. $(700 \times \frac{4}{7})$ = Rs.400

13. A and B entered into a partnership investing Rs.16000 and Rs.12000 respectively. After 3 months, A withdrew Rs.5000 while B invested Rs.5000 more. After 3 more months C joins the business with a capital of Rs.21,000. The share of B exceeds that of C, out of a total profit of Rs.26,400

after one year, by :

a. Rs.1200

b. Rs.2400

c. Rs.3600

d. Rs.4800

Correct Option: C

Explanation:

A:B:C = Rs.$(16000 \times 3 + 11000 \times 9 : 12000 \times 3 + 17000 \times 9 + 21000 \times 6)$ = 7:9:6

(B's share)-(C's share)

=$[(26400 \times \frac{9}{22}) - (26400 \times \frac{6}{22})]$

=(10800-7200)=Rs.3600

14. Jayant started a business, investing Rs.6000. Six months later Madhu joined him, investing Rs.4000. If they made a profit of Rs.5200 at the end of the year, how much be the share of Madhu ?

a. Rs.2080

b. Rs.1300

c. Rs.1800

d. Rs.2600

Correct Option: B

Explanation:

Ratio of their shares $6000 \times 12 : 4000 \times 6 = 3 : 1$

Madhu's share = Rs.$(5200 \times \frac{1}{4})$ = Rs.1300

15. A,B,C subscribe Rs.47000 for a business. A subscribes Rs.7000 more than B and B Rs.5000 more than C. Out of a total profit of Rs.9400, B receives:

a. Rs.4400

b. Rs.3000

c. Rs.2000

d. Rs.1737.90

Correct Option: B

Explanation:

Suppose C invests Rs.x

Then, B's investment = Rs.(x+5000)

And A's investment = /rs.(x+12000)

x + x + 5000 + x + 12000

=47000 or x = 10000

Thus, A:B:C = 22000 : 15000: 10000

=22:15:10

B's share = Rs.$(9400 \times \frac{15}{47})$ = Rs.3000

16. 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 is Rs.855, total profit is :

a. Rs.1576

b. Rs.1537.50

c. Rs.1500

d. Rs.1425

Correct Option: C

Explanation:

Let the total profit be Rs.100

After paying to charity, A's share

= Rs.$(95 \times \frac{3}{5})$ =Rs.57

If A's share is Rs.57, total profit = Rs.100

If A's share is Rs.855, total profit = Rs.$(855 \times \frac{100}{57})$ =Rs.1500

17. A,B,C enter into a partnership with shares in the ratio $\frac{7}{2} : \frac{4}{3} : \frac{6}{5}$. After 4 months, A increases his share by 50%. If the total profit at the end of one year is Rs.21600, then B's share in the profit is :

a. Rs.2100

b. Rs.2400

c. Rs.3600

d. Rs.4000

Correct Option: D

Explanation:

Given Ratio = $\frac{7}{2} : \frac{4}{3} : \frac{6}{5}$=105:40:36 (multiply the entire ratio by LCM (2, 3, 5) = 30)

Let them initially invest Rs.105, Rs.40 and Rs.36 respectively.

As A increase his capital by 50% after 4 months, his capital for the first 4 months is 105 and for the remaining 8 months is 150% (105).

Ratio of investments = $(105 \times 4 + (150\% \text{ of } 105) \times 8) : (40 \times 12) : (36 \times 12)$

=1680:480:432=35:10:9

B's share = Rs.$(21600 \times \frac{10}{54})$ =Rs.4000

18. Four milkmen rented a pasture, A grazed 18 cows for 4 months; B 25 cows for 2 months, C 28 cows for 5 months and D 21 cows for 3 months. If A's share of rent is Rs.360, the total rent of the field is :

a. Rs.1500

b. Rs.1600

c. Rs.1625

d. Rs.1650

Correct Option: C

Explanation:

Ratio of rents

$=(18\times4:25\times2:28\times5:21\times3)$

=72:50:140:63

Let total rent = Rs.x

Then, A's share = Rs.$(x\times\frac{72}{325})=$ Rs.$(\frac{72x}{325})$

$\frac{72x}{325}=360$ or x = $\frac{325\times360}{72}=1625$

19. A, B and C start a business. A Invests 3 times as much as B Invests two-third of what C Invests. Then, the ratio of capitals of A, B and C:

a. 3:9:2

b. 6:10:15

c. 5:3:2

d. 6:2:3

Correct Option: D

Explanation:

Suppose C invests Rs.x. Then, B invests Rs.$(\frac{2x}{3})$ and A invests Rs.(2x)

Ratio of investments of A,B,C

=2x : $\frac{2}{3}$x : 2x or 6:2:3

Alternatively:

Check the answer options where 2/3 rd of C is B and 3 times of B is A. Only D satisfies.

20. A,B,C enter into a partnership and their capitals are in the proportion of $\frac{1}{3}:\frac{1}{4}:\frac{1}{5}$, A withdraws half his capital at the end of 4 months. Out of total annual profit of Rs.847, A's share is :

a. Rs.252

b. Rs.280

c. Rs.315

d. Rs.412

Correct Option: B

Explanation:

Ratio of capitals in the beginning = $\frac{1}{3}:\frac{1}{4}:\frac{1}{5}$ = 20:15:12 (by multiplying the ratio by 60)

Ratio of investments for the whole year = $(20\times4+10\times8):(15\times12):(12\times12)=40:45:36$

A's share = Rs.$(847\times\frac{40}{121})$ = Rs.280