

Partnership

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INTRODUCTION

In *partnership*, two or more persons carry on a business and share the profits of the business at an agreed proportion. Persons who have entered into partnership with one another are individually called *partners* and collectively called a *firm*. The name under which their business is carried on is called the *firm name*. The partnership may be simple or compound type.

Simple Partnership is one in which the capital of each partner is invested in the business for certain timespan.

Compound Partnership is one in which the capitals of the partners are invested for different time periods.

Again, a partner may be a working partner or a sleeping partner.

A Sleeping Partner is one who invests the capital in the business, but does not actively participate in the day-to-day activities of the business.

A Working Partner besides investing capital, takes part in running the business. For his work, he is either paid certain amount of salary and also share of profit.

SOME BASIC FORMULAE

1. (a) If capitals of two partners be ₹ C_1 and ₹ C_2 for the same period and the total profit be ₹ P , then shares of the partners in the profit are

$$₹\left(\frac{C_1 \times P}{C_1 + C_2}\right) \text{ and } ₹\left(\frac{C_2 \times P}{C_1 + C_2}\right).$$

- (b) If the capitals of three partners be ₹ C_1 , ₹ C_2 and ₹ C_3 for the same period, and the total profit be ₹ P , then shares of the partners in the profit are

$$₹\left(\frac{C_1 \times P}{C_1 + C_2 + C_3}\right), ₹\left(\frac{C_2 \times P}{C_1 + C_2 + C_3}\right) \\ \text{and } ₹\left(\frac{C_3 \times P}{C_1 + C_2 + C_3}\right).$$

Illustration 1: A, B and C invested ₹20,000, ₹50,000 and ₹40,000, in a business. The net profit for the year was ₹12,100. This T which was divided in proportion to investments. Find out the amount of profit each partner has earned.

Solution: We have, $C_1 = 20,000$, $C_2 = 50,000$, $C_3 = 40,000$ and $P = 12,100$.

Therefore, profit share of A:

$$\begin{aligned} &= \frac{C_1 \times P}{C_1 + C_2 + C_3} \\ &= \frac{20,000 \times 12,100}{20,000 + 50,000 + 40,000} \\ &= \frac{2}{11} \times 12,100 = ₹2,200. \end{aligned}$$

Profit share of B:

$$\begin{aligned} &= \frac{C_2 \times P}{C_1 + C_2 + C_3} \\ &= \frac{50,000 \times 12,100}{20,000 + 50,000 + 40,000} \\ &= \frac{5}{11} \times 12,100 = ₹5,500. \end{aligned}$$

Profit share of C:

$$\begin{aligned} &= \frac{C_3 \times P}{C_1 + C_2 + C_3} \\ &= \frac{40,000 \times 12,100}{20,000 + 50,000 + 40,000} \\ &= \frac{4}{11} \times 12,100 = ₹4,400. \end{aligned}$$

2. (a) If the capitals of two partners be ₹ C_1 and ₹ C_2 for the periods t_1 and t_2 , and the total profit be ₹ P , then shares of the partners in the profits are:

$$₹\left(\frac{C_1 \times t_1 \times P}{C_1 t_1 + C_2 t_2}\right) \text{ and } ₹\left(\frac{C_2 \times t_2 \times P}{C_1 t_1 + C_2 t_2}\right)$$

- (b) If the capitals of three partners be ₹ C_1 , ₹ C_2 and ₹ C_3 for the periods t_1 , t_2 and t_3 , respectively, and the total profit be ₹ P , then shares of the partners in the profit are

$$₹\left(\frac{C_1 \times t_1 \times P}{C_1 t_1 + C_2 t_2 + C_3 t_3}\right), ₹\left(\frac{C_2 \times t_2 \times P}{C_1 t_1 + C_2 t_2 + C_3 t_3}\right),$$

and $₹\left(\frac{C_3 \times t_3 \times P}{C_1 t_1 + C_2 t_2 + C_3 t_3}\right)$

Illustration 2: A and B are two partners in a business. A contributes ₹1,200 for 5 months and B contributes ₹750 for 4 months. If total profit is ₹450, find out their respective shares.

Solution: We have, $C_1 = 1200$, $C_2 = 750$, $t_1 = 5$, $t_2 = 4$ and $P = 450$.

∴ Profit share of A

$$= \frac{C_1 \times t_1 \times P}{C_1 t_1 + C_2 t_2} = \frac{1,200 \times 5 \times 450}{1,200 \times 5 + 750 \times 4}$$

$$= \frac{27,00,000}{9,000} = ₹300.$$

Profit share of B

$$= \frac{C_2 \times t_2 \times P}{C_1 t_1 + C_2 t_2}$$

$$= \frac{750 \times 4 \times 450}{1,200 \times 5 + 750 \times 4}$$

$$= \frac{13,50,000}{9,000} = ₹150.$$

SOME USEFUL SHORTCUT METHODS

1. (a) If the capitals of two partners be ₹ C_1 and ₹ C_2 for the periods t_1 and t_2 respectively then

$$\frac{\text{Profit of A}}{\text{Profit of B}} = \frac{C_1 \times t_1}{C_2 \times t_2}$$

- (b) If the capitals of three partners be ₹ C_1 , ₹ C_2 and ₹ C_3 for the periods t_1 , t_2 and t_3 respectively, then profit of A: profit of B: profit of C = $C_1 \times t_1 : C_2 \times t_2 : C_3 \times t_3$.

Note:

If there is a loss in the business, then

Loss of A : Loss of B : Loss of C

$$= C_1 \times t_1 : C_2 \times t_2 : C_3 \times t_3.$$

2. If the capitals of three partners in a business invested in the ratio of $C_1:C_2:C_3$ and their profits are in the ratio $P_1:P_2:P_3$, then the ratio

$$\text{of timing of their investments} = \frac{P_1}{C_1} : \frac{P_2}{C_2} : \frac{P_3}{C_3}.$$

Illustration 4: Anu, Manu and Tanu invested capitals in a business the ratio 4:6:9. At the end of the business, they received their shares of profits in the ratio 2:3:5. Find the ratio of time for which they invested their capitals.

Solution: We have $C_1:C_2:C_3 = 4:6:9$

and

$$P_1:P_2:P_3 = 2:3:5$$

Therefore, the ratio of time for which Anu, Manu and Tanu invested their capitals

$$= \frac{P_1}{C_1} : \frac{P_2}{C_2} : \frac{P_3}{C_3}$$

$$= \frac{2}{4} : \frac{3}{6} : \frac{5}{9}$$

$$\text{or, } \frac{1}{2} : \frac{1}{2} : \frac{5}{9}$$

$$\text{or, } 9:9:10.$$

Illustration 3: There are three partners A, B and C in a business. A invests ₹2000 for 5 months, B invests ₹1200 for 6 months and C invests ₹2500 for 3 months. Find out the ratio of their shares in the profit.

Solution: Here, $C_1 \times t_1 = 2,000 \times 5 = 10,000$, $C_2 \times t_2 = 1,200 \times 6 = 7,200$ and $C_3 \times t_3 = 2,500 \times 3 = 7,500$.

$$\therefore \text{Profit of A: Profit of B: Profit of C}$$

$$= C_1 \times t_1 : C_2 \times t_2 : C_3 \times t_3$$

$$= 10,000:7,200:7,500 \text{ or } 100:72:75.$$

3. Three partners invested their capitals in a business. If the timing of their investments is in the ratio of $t_1:t_2:t_3$, and their profits are in the ratio of $P_1:P_2:P_3$, then the ratio of their capitals invested is $\frac{P_1}{t_1}:\frac{P_2}{t_2}:\frac{P_3}{t_3}$.

Illustration 5: Gupta, Singhal and Kansal starts a business. If the ratio of their periods of investments are 1:2:5 and their profits are in the ratio of 3:4:5, find the ratio of capitals of Gupta, Singhal and Kansal.

Solution: We have, $P_1:P_2:P_3 = 3:4:5$

and $t_1:t_2:t_3 = 1:2:5$.

$$\begin{aligned}\therefore \text{The required ratio} &= \frac{P_1}{t_1}:\frac{P_2}{t_2}:\frac{P_3}{t_3} \\ &= \frac{3}{1}:\frac{4}{2}:\frac{5}{5} \quad \text{or} \quad 3:2:1\end{aligned}$$

Thus, Gupta, Singhal and Kansal invested their capitals in the ratio of 3:2:1.

EXERCISE-I

- Nikita and Nishita enters into a partnership by investing ₹50,000 and ₹40,000, respectively. They agreed to share profits in the ratio of their capitals. Find out the share of Nikita when profit of the business is ₹22500 after a year.
 - ₹1,500
 - ₹9,500
 - ₹10,500
 - None of these
- Niki, Nisha and Anu formed a partnership with investments of ₹75,000, ₹60,000 and ₹40,000 respectively. After 3 years of operation, the partnership earned a net profit of ₹26,250. What was the share of Anu in the profit?
 - ₹6,000
 - ₹5,000
 - ₹8,000
 - None of these
- Mahesh, Suresh and Ganesh entered into a partnership business. Mahesh invested ₹16,000 for 9 months. Suresh invested ₹12,000 for 6 months and Ganesh invested ₹8,000 for 12 months. At the end of a year, there was a profit of ₹26,000. Find out the share of Suresh in the profit.
 - ₹8,000
 - ₹7,500
 - ₹6,000
 - None of these
- Sita and Gita enters into a partnership. Sita contributes ₹5,000 while Gita contributes ₹4,000. After 1 month, Gita withdraws $\frac{1}{4}$ part of her contribution and after 3 months Sita invests ₹2,000 more. When Gita withdraws her investment, at the same time, Rita joins them by investing ₹7,000. If at the end of 1 year there is a profit of ₹1,218, what will be share of Rita in the profit?
 - ₹488.47
 - ₹8,447.37
 - ₹588.47
 - None of these
- A starts business with an investment of ₹3500. Five months later B joins A as a partner. After a year, the profits are divided in the ratio of 2:3. How much did B contribute?
 - ₹7,000
 - ₹11,000
 - ₹9,000
 - None of these
- Gupta and Bansal enters into a partnership with their capitals in the ratio 5:6. At the end of 8 months, Gupta withdraws his capital. If they receive their shares profits in the ratio of 5:9, find out how long Bansal's capital was invested in the business?
 - 10 months
 - 12 months
 - 14 months
 - None of these
- Arvind began a business with ₹550. Later, Brij with ₹330. When did Brij join if the profit at the end of the year was divided in the ratio 10:3?
 - After 4 months
 - After 6 months
 - After 4.5 months
 - None of these
- A began a business with ₹3750. Later, with ₹5000. When did B join if the profits at the end of the year was divided equally?
 - After 5 months
 - After 9 months
 - After 7 months
 - None of these
- Anju and Brijesh enters into a partnership with their capitals in the ratio of 5:9. At the end of 8 months, Anju withdraws her capital. If they receive their share of profit in the ratio of 4:9, find out how long Brijesh's capital was invested in the business.
 - 8 months
 - 10 months
 - 12 months
 - None of these
- A, B and C invested capitals in the ratio 3:5:9; the timing of their investments being in the ratio 2:3:1. In what ratio would their profits be distributed?

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- (a) 2:5:3 (b) 3:2:5
(c) 7:5:3 (d) None of these
11. Sumit, Punit and Ramit started a business by investing their capitals in the ratio of 1:2:3. At the end of the business term, they received their shares of profit in the ratio of 1:2:3. Find out the ratio of time for which they invested their capitals.
(a) 1:1:1 (b) 2:3:4
(c) 2:4:3 (d) None of these
12. A, B and C starts a business. If the ratio of their periods of investments are 2:3:6 and their profits are in the ratio of 4:5:6, then the ratio of capitals of A, B and C is:
(a) 6:8:10 (b) 12:10:6
(c) 10:12:6 (d) None of these
13. A, B and C rented a pasture. A puts in 12 oxen for 6 months, B 8 oxen for 7 months and C 6 oxen for 8 months. If the rent of the field is ₹396, what amount of rent was paid by A?
(a) ₹126 (b) ₹108
(c) ₹162 (d) ₹168
14. A, B, C and D enters into partnership. A contributes $\frac{1}{3}$ of the capital, B contributes $\frac{1}{4}$, C contributes $\frac{1}{5}$ and D contributes the rest. What is the share of D when profit is ₹6000?
(a) ₹2000 (b) ₹1600
(c) ₹1200 (d) ₹1300
15. A and B enters into a partnership for a year. A contributes ₹1500 and B ₹2000. After 4 months, they admits C who contributes ₹2250. If B withdraws his contribution after 9 months, at the end of the year they share profit in the ratio:
(a) 2:1:3 (b) 1:3:2
(c) 1:1:2 (d) 1:1:1
16. A and B started a business with initial investments in the ratio of 5:7. If, after one year, their profits were in the ratio of 1:2 and the period for A's investment was for 7 months, B invested the money for:
(a) 6 months (b) $2\frac{1}{2}$ months
(c) 10 months (d) 4 months
17. A and B jointly invests ₹2100 and ₹3100 in a firm. A is an active partner, hence he receives 25% of the profit separately. If their business yields ₹1040 as profit, what will be the profit share for each of them?
(a) ₹415, ₹625 (b) ₹575, ₹465
(c) ₹515, ₹525 (d) ₹560, ₹480
18. Two partners invested ₹12500 and ₹8500 in a business, They decided that 60% of the profit incurred from the business will be equally divided between them while remaining profit will be assumed as interest on their capitals. If one of the partners receives ₹300 more profit than the other, what is the total profit in the business?
(a) ₹3937.50 (b) ₹4940.50
(c) ₹3936.50 (d) ₹4156
19. A, B, C enters 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 be ₹21600, then B's share in the profit is:
(a) ₹2100 (b) ₹2400
(c) ₹3600 (d) ₹4000
20. A and B invests in a business in the ratio of 3:2. If 5% of the total profit goes to charity and A's share is ₹855, then total profit is:
(a) ₹1576 (b) ₹1537.50
(c) ₹1500 (d) ₹1425
21. In a business B a sleeping partner and A is a working partner. A invests ₹5000 and B invests 6000. A receives $12\frac{1}{2}\%$ of profit for managing the business and the remaining amount is divided in proportion to their capitals. A's share of profit in a profit of ₹880 is:
(a) ₹350 (b) ₹400
(c) ₹420 (d) ₹460
22. A starts business with a capital of ₹1200. B and C join with some investments after 3 and 6 months, respectively. If, at the end of a year, the profit is divided in the ratio of 2:3:5, what is B's investment in the business?
(a) ₹2400 (b) ₹1800
(c) ₹3600 (d) ₹6000
23. A, B and C entered into a partnership with ₹35,12,420, ₹42,22,180 and ₹40,65,400. After 2 years, A withdrew ₹11 Lakhs. At the same time, C invested ₹8 Lakhs more. If at the end of 3 years, profit is ₹10,53,000, what is the share of C in the profit?
(a) ₹283,117.80 (b) ₹379,996.20
(c) ₹399,866 (d) ₹299,866
(e) None of these

24. A and B enters into a partnership. A supplies whole of the capital amounting to ₹45000 with the condition that the profits are to be equally distributed and that B pays A interest on half of the capital at 10% per annum, but receives, ₹120 per month for carrying on the concern. When B's income is $\frac{1}{2}$ of A's income, their total yearly profit is:
- (a) ₹9180 (b) ₹7150
(c) ₹3060 (d) ₹1440
(e) None of these
25. A, B and C entered into a partnership by investing ₹12000, ₹15000 and ₹18000, respectively. A is also a working partner and receiving 15% of the annual profit for his work. If B and C received ₹8500 and ₹10200 from the annual profit as their shares, what amount did A receive from the annual profit?
- (a) ₹10,500 (b) ₹11,500
(c) ₹11,300 (d) ₹14,000

EXERCISE-2 (BASED ON MEMORY)

1. 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?
- (a) 4 (b) 5
(c) 6 (d) 7
- [SSC (GL) Prel. Examination, 2005]**
2. Ninad, Vikas and Manav enter into a partnership. Ninad invests some amount at the beginning. Vikas invests double the amount after 6 months and Manav invests thrice the amount invested by Ninad after 8 months. They earn a profit of ₹45000 at the end of the year. What is Manav's share in the profit?
- (a) ₹25000 (b) ₹15000
(c) ₹12000 (d) ₹9000
- [SBI PO Examination, 2008]**
3. Arun started a business investing ₹38000. After 5 months Bakul joined him with a capital of ₹55000. At the end of the year the total profit was ₹22000. What is the approximate difference between the share of profits of Arun and Bakul?
- (a) ₹1192 (b) ₹1856
(c) ₹1007 (d) ₹1928
(e) ₹1568
- [IDBI Bank Examination, 2007]**
4. Sarita started a business investing ₹50000. After six months, Abhishek joined her with ₹75000. After another six months Nisha also joined them with ₹1.25 lakh. Profit earned at the end of 2 years from when Sarita started the business should be distributed among Sarita, Abhishek and Nisha in what respective ratio?
- (a) 4:5:6 (b) 8:9:10
(c) 8:9:12 (d) 4:5:8
(e) None of these
- [PNB Mgt. Trainee Examination, 2007]**
5. Four milkmen rented a pasture. A grazed 15 cows for 4 months, B grazed 12 cows for 2 months, C grazed 18 cows for 6 months, and D grazed 16 cows for 5 months. If A's share of rent is ₹1020, what is C's share of rent?
- (a) ₹1836 (b) ₹1360
(c) ₹816 (d) Cannot be determined
- [OBC PO Examination, 2007]**
6. Pankaj started a business investing ₹42000. After 4 months Nitin joined him with a capital of ₹57000. At the end of the year the total profit was ₹26000. What is the difference between the share of profits of Pankaj and Nitin?
- (a) ₹1200 (b) ₹1400
(c) ₹1600 (d) ₹1800
(e) None of these
- [Corporation Bank PO Examination, 2007]**
7. A started a business with ₹10000 and B joined him later with a capital of ₹40000. If at the end of the year, they both get an equal share of the profit, how many months after the business started did B join it?
- (a) 4 months (b) 6 months
(c) 8 months (d) 9 months
- [SI of Police Rec. Examination, 1997]**
8. A, B, C enter into a partnership investing ₹35000, ₹45000 and ₹55000 respectively. The respective shares of A, B, C in an annual profit of ₹40500 are:
- (a) ₹13500, ₹16500, ₹10500
(b) ₹10500, ₹13500, ₹16500
(c) ₹13500, ₹10500, ₹16600
(d) None of these
- [SI of Police Rec. Examination, 1997]**

9. Three men rent a pasture for ₹660. The first uses it to graze 50 sheep for 4 months, the second uses it to graze 40 sheep for 3 months and the third 46 sheep for 5 months. How much should the first man pay as rent?

(a) ₹276 (b) ₹220
(c) ₹144 (d) ₹240

[SI of Police Rec. Examination, 1997]

10. A began business with ₹45000 and B joined afterwards with ₹30000. At the end of a year, the profit is divided in the ratio 2:1. When did B join?

(a) 3 months after
(b) 6 months after
(c) 8 months after
(d) 9 months after

[Assistant's Grade Examination, 1997]

11. A, B and C invested ₹10000, ₹14000 and ₹12000, respectively in a business. If at the end of a year, they got a profit of ₹5400, the share of B in profit (if profit is divided in proportion to the investment of each) is:

(a) ₹1500 (b) ₹2100
(c) ₹1800 (d) ₹150

[Assistant's Grade Examination, 1998]

12. 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?

(a) ₹8000 (b) ₹8500
(c) ₹9000 (d) ₹7500

[SSC (GL) Prel. Examination, 2000]

13. A, B and C rent a pasture. A puts 10 oxen for 7 months, B puts 12 oxen for 5 months and C puts 15 oxen for 3 months for grazing. If the rent of the pasture is ₹175, then how much C must pay as his share of rent?

(a) ₹45 (b) ₹50
(c) ₹55 (d) ₹60

[SSC (GL) Prel. Examination, 2000]

14. A, B and C enters into a partnership their shares are in the of ratio $\frac{1}{2} : \frac{1}{3} : \frac{1}{4}$. After 2 months, A withdraws half of his capital After 10 months, a profit of ₹378 is divided among them. What is B's share?

(a) ₹129 (b) ₹144
(c) ₹156 (d) ₹168

[SSC (GL) Prel. Examination, 2000]

15. A and B are partners in a business. A contributes $\frac{1}{4}$ of the capital for 15 months and B received $\frac{1}{4}$ of the profit. Find for how long B's money was invested in the business?

(a) 1 year (b) 9 months
(c) 6 months (d) 10 months

[SSC (GL) Prel. Examination, 2000]

16. A, B and C are partners of a company. During a particular year A received $\frac{1}{3}$ of the profit, B received $\frac{1}{4}$ of the profit and C received the remaining ₹5000. How much did A receive?

(a) ₹5000 (b) ₹4000
(c) ₹3000 (d) ₹1000

[SSC (GL) Prel. Examination, 2000]

17. A began a business with ₹4500. Later, B joined A with ₹5400. When did B join if the profits at the end of the year were divided in the ratio of 2:1?

(a) 4 months (b) 5 months
(c) 6 months (d) 7 months

[SSC (GL) Prel. Examination, 2000]

18. Vinay started a business investing ₹70000. Ashok joined him after six months with an amount of ₹105000. Sunil joined them with ₹1.4 Lakh after another six months. The amount of profit earned should be distributed in what ratio among Vinay, Ashok and Sunil, three years after Vinay started the business?

(a) 42:45:56 (b) 7:6:10
(c) 12:15:16 (d) Cannot be determined
(e) None of these

[PNB Management Trainee Examination, 2003]

19. Veena started a business, investing ₹75000. After 3 months, Poonam joined her with an amount of ₹125000 and after another six months Sarita joined them with an amount of ₹150000. Profit earned at the end of three years from when Veena started the business should be distributed in what ratio among Veena, Poonam and Sarita, respectively?

(a) 36:55:54 (b) 18:28:27
(c) 35:54:55 (d) Cannot be determined
(e) None of these

[Bank of Maharashtra PO Examination, 2003]

20. Three friends X, Y and Z started a partnership for a period of 3 years by contributing capitals in the ratio of 5:4:2. What is the amount received by X as his share in the total profit?

I. Total amount invested in the business is ₹22000.
 II. Profit was distributed after a period of 2 years.
 III. The average amount of profit earned per year is ₹2750.

- (a) I only (b) II only
 (c) III only (d) I or III only

[SBI PO Examination, 1999]

21. Three friends A, B and C started a business by investing capitals in the ratios 5:7:6. After 6 months, C withdraws half of his capital. If the sum invested by A is ₹40000, out of the total annual profit of ₹33000. C's share will be:

- (a) ₹9000 (b) ₹12000
 (c) ₹11000 (d) ₹10000

[BSRB Hyderabad PO Examination, 1999]

22. Mr Saxena started a business investing ₹5000. Four months later, Mr Jain joined the business by investing ₹9000. If the profit at the end of the year was ₹22000, then how much amount would Mr Jain have received as the profit?

- (a) ₹16000 (b) ₹14000
 (c) ₹12000 (d) ₹11000

[BSRB Delhi PO Examination, 2000]

23. Vinod and Ankit started a business by investing capitals in the ratio of 2:3. If Vinod had invested an additional amount of ₹10000, the ratio of Vinod's investment to Ankit's investment would have been 3:2. What was the amount invested by Vinod?

- (a) ₹8000 (b) ₹12000
 (c) ₹9000 (d) Data inadequate

[BSRB Patna PO Examination, 2001]

24. Vinay started a business investing ₹50000. After 1 year, he invested another ₹30000 and Aditya also joined him with a capital of ₹70000. If the profit earned in 3 years from the starting of business was ₹87500, find out the share of Aditya in the profit.

- (a) ₹37500 (b) ₹32500
 (c) ₹38281 (d) None of these

[Corporation Bank PO Examination, 2002]

25. A started a business with ₹10000. B joined him later with a capital of ₹40000. If at the end of the year, they both received equal shares of the profit. How many months after the business started did B join it?

- (a) 4 months (b) 6 months
 (c) 8 months (d) 9 months

[SI of Police Rec. Examination, 1997]

26. A, B, C enters into a partnership investing ₹35000, ₹45000 and ₹55000. The respective shares of A, B, C in an annual profit of ₹40500 are:

- (a) ₹13500, ₹16500, ₹10500
 (b) ₹10500, ₹13500, ₹16500
 (c) ₹13500, ₹10500, ₹16600
 (d) None of these

[SI of Police Rec. Examination, 1997]

27. Three men rent a pasture for ₹660. The first uses it to graze 50 sheep for 4 months. The second uses it to graze 40 sheep for 3 months. The third uses it to graze 46 sheep for 5 months. How much should the first man pay as rent?

- (a) ₹276 (b) ₹220
 (c) ₹144 (d) ₹240

[SI of Police Rec. Examination, 1997]

28. A began a business with ₹45000. Later, B joined him with ₹30000. At the end of the year, the profit was divided in the ratio of 2:1. When did B join?

- (a) 3 months after (b) 6 months after
 (c) 8 months after (d) 9 months after

[Assistant's Grade Examination, 1997]

29. A, B and C invested ₹10000, ₹14000 and ₹12000 in a business. If at the end of a the business earns a profit of ₹5400, the share of B in profit (if profit is divided in proportion to the partner's investments) is:

- (a) ₹1500 (b) ₹2100
 (c) ₹1800 (d) ₹150

[Assistant's Grade Examination, 1998]

30. A starts business with ₹3500. 5 months later B joins A as his partner. After a year, the profit is divided in the ratio of 2:3. What is B's contribution in the capital?

- (a) ₹8000 (b) ₹8500
 (c) ₹9000 (d) ₹7500

[SSC (GL) Prel. Examination, 2000]

31. Average score of Rahul, Manish and Suresh is 63. Rahul's score is 15 less than Ajay and 10 more than Manish. If Ajay scored 30 marks more than the average scores of Rahul, Manish and Suresh, what is the sum of Manish's and Suresh's scores?

- (a) 120 (b) 111
 (c) 117 (d) Cannot be determined

[Corporation Bank PO Examination, 2011]

32. A and B enter into partnership with capitals in the ratio 5:6. At the end of 8 months A withdraws his capital. They received profits in the ratio 5:9. B invested the capital for:

(a) 6 months (b) 8 months
(c) 10 months (d) 12 months

[SSC, 2010]

33. A, B and C started a business investing ₹42000, ₹30000 and ₹28000, respectively. After 4 months, A withdrew ₹12000, B withdrew ₹6000 and C withdrew ₹8000. If, after 10 months, a total profit of ₹46420 is earned, what is the share of C?

(a) ₹12580 (b) ₹13160
(c) ₹13020 (d) ₹12540
(e) ₹12760

[IBPS PO/MT, 2014]

34. Three men A, B and C starts a business together. They invests ₹30000, ₹24000 and ₹42000, respectively, at the beginning. After 4 months, B withdrew ₹6000 and C withdrew ₹10000. They received a profit of ₹11960 at the end of the year. B's share in the profit is:

(a) ₹2700 (b) ₹2803
(c) ₹2900 (d) ₹2785
(e) None of these

[IBPS PO/MT, 2013]

35. An amount of money is to be divided among P, Q and R in the ratio of 3:5:7, respectively. If the amount received by R is ₹4,000 more than the amount received by Q, what will be the total amount received by P and Q together?

(a) ₹8,000 (b) ₹12,000
(c) ₹16,000 (d) Cannot be determined
(e) None of these

[Allahabad Bank PO, 2010]

ANSWER KEYS

EXERCISE-1

1. (d) 2. (a) 3. (c) 4. (a) 5. (c) 6. (b) 7. (b) 8. (b) 9. (b) 10. (a) 11. (a) 12. (b) 13. (c)
14. (d) 15. (d) 16. (c) 17. (b) 18. (a) 19. (d) 20. (c) 21. (d) 22. (a) 23. (e) 24. (a) 25. (c)

EXERCISE-2

1. (d) 2. (b) 3. (b) 4. (b) 5. (a) 6. (e) 7. (a) 8. (b) 9. (d) 10. (d) 11. (b) 12. (c) 13. (a)
14. (b) 15. (d) 16. (b) 17. (d) 18. (c) 19. (a) 20. (c) 21. (a) 22. (c) 23. (a) 24. (d) 25. (d) 26. (b)
27. (d) 28. (d) 29. (b) 30. (c) 31. (b) 32. (d) 33. (e) 34. (b) 35. (c)

EXPLANATORY ANSWERS

EXERCISE-I

1. (d) Here, $C_1 = 50000$, $C_2 = 40000$ and $P = 22500$.

$$\therefore C_1 + C_2 = 50000 + 40000 = 90000.$$

$$\therefore \text{Nikita's share} = \frac{C_1 \times P}{C_1 + C_2} = \frac{50000 \times 22500}{90000} \\ = \frac{5}{9} \times 22500 = ₹12500.$$

2. (a) Ratio of the capitals

$$= 75000:60000:40000 = 15:12:8$$

$$\therefore \text{Profit-sharing ratio} = 15:12:8$$

$$\text{Sum of the profit-sharing ratio} = 15 + 12 + 8 = 35$$

$$\text{Total profit} = ₹26250$$

$$\therefore \text{Anu's share} = \frac{8}{35} \times 26250 \\ = ₹6000$$

3. (c) Here, $C_1 = 16000$, $C_2 = 12000$, $C_3 = 8000$, $t_1 = 9$, $t_2 = 6$, $t_3 = 12$ and $P = ₹26000$.

Suresh's share in the profit

$$= \frac{C_2 \times t_2 \times P}{C_1 t_1 + C_2 t_2 + C_3 t_3} \\ = \frac{12000 \times 6 \times 26000}{16000 \times 9 + 12000 \times 6 + 8000 \times 12} = \frac{187200000}{312000} \\ = ₹6000$$

4. (a) Here,

$$C_1 \times t_1 = 5000 \times 12 + 2000 \times 9 = 78000,$$

$$C_2 \times t_2 = 4000 \times 1 + 3000 \times 11 = 37000,$$

$$C_3 \times t_3 = 7000 \times 11 = 77000 \text{ and } P = 1218.$$

∴ Rita's share in the profit

$$= \frac{C_3 \times t_3 \times P}{C_1 t_1 + C_2 t_2 + C_3 t_3}$$

$$= \frac{77000 \times 1218}{78000 + 37000 + 77000} = ₹488.47.$$

5. (c) We have,
- $C_1 \times t_1 = 3500 \times 12 = 42000$

$$\text{and } C_2 \times t_2 = x \times 7 = 7x.$$

$$\text{Then, } \frac{\text{Profit for A}}{\text{Profit for B}} = \frac{C_1 \times t_1}{C_2 \times t_2}$$

$$\Rightarrow \frac{2}{3} = \frac{42000}{7x} \quad \text{or } x = \frac{42000 \times 3}{2 \times 7} = ₹9000.$$

6. (b) Let, Bansal's capital be invested for
- x
- months.

$$\text{Then, we have } \frac{5 \times 8}{6 \times x} = \frac{5}{9}$$

$$\Rightarrow x = \frac{5 \times 8 \times 9}{6 \times 5} = 12 \text{ months.}$$

∴ Bansal's capital was invested for 12 months.

7. (b) Let, Brij remain in the business for
- x
- months.

$$\text{We have, } C_1 \times t_1 = 550 \times 12 = 6600$$

$$C_2 \times t_2 = 330 \times x = 330x$$

$$\therefore \frac{\text{Arvind's share of profit}}{\text{Brij's share of profit}} = \frac{C_1 \times t_1}{C_2 \times t_2}$$

$$\Rightarrow \frac{10}{3} = \frac{6600}{330x} \Rightarrow x = \frac{6600 \times 3}{330 \times 10} = 6 \text{ months.}$$

8. (b) Let, B remain in the business for
- x
- months.

$$\text{We have, } C_1 \times t_1 = 3750 \times 12 = 45000$$

$$\text{and } C_2 \times t_2 = 5000 \times x = 5000x$$

$$\therefore \frac{\text{A's share in profit}}{\text{B's share in profit}} = \frac{C_1 \times t_1}{C_2 \times t_2}$$

$$\Rightarrow \frac{1}{1} = \frac{45000}{5000x}$$

$$\text{or, } x = \frac{45000}{5000} = 9 \text{ months}$$

9. (b) Let, Brijesh's capital be invested for
- x
- months.

Capital ratio of Anju and Brijesh is 5:9.

Let the capitals of Anju and Brijesh be ₹5y and ₹9y.

$$\text{We have, } C_1 \times t_1 = 5y \times 8 = 40y$$

$$\text{and, } C_2 \times t_2 = 9y \times x = 9yx$$

$$\therefore \frac{\text{Anju's share of profit}}{\text{Brijesh's share of profit}} = \frac{C_1 \times t_1}{C_2 \times t_2}$$

$$\Rightarrow \frac{4}{9} = \frac{40y}{9yx} \Rightarrow x = \frac{40 \times 9}{4 \times 9} = 10 \text{ months.}$$

10. (a) Ratio of capitals of A, B and C is 3:5:9. Let the capitals of A, B and C be 3x, 5x and 9x, respectively.

Ratio of timing of their investments are 2:3:1. Let, A, B and C invest their capitals for 2y, 3y and y months, respectively.

Then, profit of A : profit of B : profit of C

$$= C_1 \times t_1 : C_2 \times t_2 : C_3 \times t_3$$

$$= 3x \times 2y : 5x \times 3y : 9x \times y$$

$$= 6:15:9 \quad \text{or } 2:5:3.$$

11. (a) We have,
- $C_1:C_2:C_3 = 1:2:3$

$$\text{and } P_1:P_2:P_3 = 1:2:3.$$

$$\therefore \text{Required ratio} = \frac{P_1}{C_1} : \frac{P_2}{C_2} : \frac{P_3}{C_3} = \frac{1}{1} : \frac{2}{2} : \frac{3}{3}$$

$$\text{or, } 1:1:1.$$

Thus, Sumit, Punit and Ramit invested their capitals for equal period of time.

12. (b) We have,
- $P_1:P_2:P_3 = 4:5:6$
- and
- $t_1:t_2:t_3 = 2:3:6$
- .

$$\therefore \text{Required ratio} = \frac{P_1}{t_1} : \frac{P_2}{t_2} : \frac{P_3}{t_3} = \frac{4}{2} : \frac{5}{3} : \frac{6}{6}$$

$$\text{or, } 12:10:6$$

Thus, A, B and C invested their capitals in the ratio of 12:10:6

13. (c) Ratio in which A, B, C pays the rent

$$= (6 \times 12):(8 \times 7):(6 \times 8)$$

$$= 72:56:48$$

$$= 9:7:6$$

$$\text{Rent paid by A} = \frac{9}{22} \times ₹396 = ₹162.$$

14. (d) D's capital =
- $1 - \frac{1}{3} - \frac{1}{4} - \frac{1}{5} = \frac{13}{60}$

$$\text{Profit ratio of A, B, C, D} = \frac{1}{3} : \frac{1}{4} : \frac{1}{5} : \frac{13}{60}$$

$$\Rightarrow 20:15:12:13$$

$$\therefore \text{Share of D} = \frac{13}{60} \times ₹6000 = ₹1300.$$

15. (d) Obviously, C invests for
- $12 - 4 = 8$
- months.

∴ Equivalent capitals are

$$₹1500 \times 1; ₹2000 \times \frac{9}{12} = ₹1500,$$

$$₹2250 \times \frac{8}{12} = ₹1500$$

∴ Profit is to be shared in the ratio of

$$1500:1500:1500 = 1:1:1.$$

16. (c) Let, investments of A and B be 5x and 7x. The period of B's investment be for y months

$$\text{Then, } \frac{(5x) \times 7}{(7x) \times y} = \frac{1}{2} \Rightarrow y = 10.$$

17. (b) Total profit in a business = ₹1040

Separate profit for A = 25% of ₹1040

$$= \frac{1040 \times 25}{100} = ₹260$$

$$\text{Remaining profit} = ₹(1040 - 260) = ₹780$$

8.10 Chapter 8

The remaining profit will be divided in proportion to their capitals.

∴ Ratio between capitals of A and B = 2100:3100 = 21:31

Sum of Editor : proportional? capital? = 21 + 31 = 52

$$\therefore \text{A's profit} = \frac{21}{52} \times 780 = ₹315$$

$$\text{B's profit} = \frac{31}{52} \times 780 = ₹465$$

Total profit of A = ₹(315 + 260) = ₹575

Therefore, A and B's profit shares will be ₹575 and ₹465.

18. (a) Suppose, total profit in the business = ₹x

$$\therefore 60\% \text{ of total profit} = 60\% \text{ of } x = ₹\frac{3x}{5}$$

∴ The two partners will receive profit of ₹ $\frac{3x}{10}$ and ₹ $\frac{3x}{10}$, respectively.

$$\therefore \text{Remaining profit} = x - \frac{3x}{5} = ₹\frac{2x}{5}$$

The remaining profit assumed as interest on the capital will be divided in the proportion of their capitals.

Their capital ratio = 12500:8500 = 25:17

Sum of proportionals = 25 + 17 = 42

$$\therefore \text{The first partner's profit} = \frac{25}{42} \times \frac{2x}{5} = ₹\frac{5x}{21}$$

$$\text{The second partner's profit} = \frac{17}{42} \times \frac{2x}{5} = ₹\frac{17x}{105}$$

$$\text{Given } \frac{3x}{10} + \frac{5x}{21} = \frac{3x}{10} + \frac{17x}{105} + 300$$

$$\therefore \frac{8x}{105} = 300$$

$$\text{or, } x = \frac{105 \times 300}{8} = ₹3937.50$$

∴ Total profit in the business = ₹3937.50.

19. (d) The given ratio = $\frac{7}{2} : \frac{4}{3} : \frac{6}{5} = 105:40:36$

Let they initially invest ₹105, ₹40 and ₹36, respectively.

Ratio of investments

$$= [105 \times 4 + (150\% \text{ of } 105) \times 8] : (40 \times 12) : (36 \times 12) \\ = 1680:480:432 = 35:10:9$$

$$\text{B's share} = ₹\left(21600 \times \frac{10}{54}\right) = ₹4000.$$

20. (c) Let the total profit be ₹100.

$$\text{After paying the charity, A's share} = ₹\left(95 \times \frac{3}{5}\right) \\ = ₹57$$

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

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

21. (d) A's share for managing the business

$$= 12\frac{1}{2}\% \text{ of } ₹880 = ₹110$$

Remaining profit = ₹770

Profit ratio of A and B = 5:6

$$\text{A's share} = \frac{5}{11} \text{ of } ₹770 = ₹350$$

A's total profit = ₹350 + ₹110 = ₹460.

22. (a) Profit ratio of A, B and C is

$$(1200 \times 12):(x \times 9):(y \times 6) = 2:3:5$$

$$\Rightarrow \frac{1200 \times 12}{2} = \frac{9x}{3}$$

$$\therefore x = ₹2400.$$

23. (e) Share of C in profit = $\frac{C_3 t_3 \times P}{C_1 t_1 + C_2 t_2 + C_3 t_3}$

$$[\text{Here, } C_1 \times t_1 = 3512420 \times 2 + 2412420 \times 1$$

$$C_2 \times t_2 = 4222180 \times 3, C_3 \times t_3$$

$$= 4065400 \times 2 + 4865400 \times 1 \text{ and } P = 1053000]$$

$$\frac{(4065400 \times 2 + 4865400 \times 1) \times 1053000}{(3512420 \times 2 + 2412420 \times 1) + 4222180 \times 3 + (4065400 \times 2 + 4865400 \times 1)} \\ = ₹389886.$$

24. (a) Let the total profit be ₹x

Salary given to B = ₹1440

∴ Net profit = x - 1440

$$\therefore \text{Share of A and B each} = \frac{x - 1440}{2}$$

$$\text{Interest given by B to A} = \frac{10}{100} \times 22500 = ₹2250.$$

$$\therefore \frac{\frac{x - 1440}{2} + 1440 - 2250}{\frac{x - 1440}{2} + 2250} = \frac{1}{2}$$

$$\text{or, } \frac{x - 3060}{x + 3060} = \frac{1}{2}$$

$$\therefore x = ₹9180.$$

25. (c) Capital ratio of A, B, C is 12000:15000:18000 = 4:5:6

Profit ratio of B and C = 8500:10200 = 5:6

$$\therefore \text{A's share of profit} = \frac{4}{5} \times \text{Rs. } 8500 = ₹6800$$

$$85\% \text{ of } x = 6800 + 8500 + 10200 \\ = 25500$$

$$\therefore 15\% \text{ of } x = \frac{25500 \times 15}{85} = 4500$$

Total profit of A = ₹6800 + ₹4500 = ₹11300.

EXERCISE-2 (BASED ON MEMORY)

1. (d) Suppose B joined after x months

$$\begin{aligned}\therefore \frac{45000 \times 12}{54000 \times (12 - x)} &= \frac{2}{1} \\ \Rightarrow 45000 \times 12 &= 54000 \times 12 \times 2 - 54000 \times 2 \times x \\ \Rightarrow 108x &= 54 \times 24 - 45 \times 12 \\ \Rightarrow 27x &= 54 \times 6 - 45 \times 3 \\ \Rightarrow 27x &= 324 - 135 = 189 \Rightarrow x = 7 \\ \therefore \text{B joined after 7 months.}\end{aligned}$$

2. (b) Let the investment of Ninad be ₹ x

$$\begin{aligned}\therefore \text{Investment of Vikas} &= ₹2x \\ \text{and investment of Manav} &= ₹3x \\ \therefore \text{Ratio of their investments} &= x \times 12 : 2x \times 6 : 3x \times 4 \\ &= 12x : 12x : 12x = 1 : 1 : 1 \\ \therefore \text{Manav's share in the profit} &= \frac{1}{3} \times 45000 = ₹15000\end{aligned}$$

3. (b) Ratio of investment is: Arun:Bakul
 $= 38000 \times 12 : 55000 \times 7 = 38 \times 12 : 55 \times 7$
 $= 456 : 385 \approx 45 : 38$

$$\begin{aligned}\text{Required difference} &= \frac{22000}{45 + 38} \times (45 - 38) \\ &= \frac{22000 \times 7}{83} \approx \frac{22000}{12} \approx 1835 \approx ₹1856\end{aligned}$$

4. (b) Sarita:Abhihek:Nisha
 $= 50000 \times 24 : 75000 \times 18 : 125000 \times 12$
 $= 2 \times 24 : 3 \times 18 : 5 \times 12$
 $= 2 \times 4 : 3 \times 3 : 5 \times 2 = 8 : 9 : 10$

5. (a) $15 \times 4 = ₹1020$

$$\therefore 18 \times 6 = \frac{1020}{15 \times 4} (18 \times 6) = ₹1836$$

6. (e) Ratio of their shares $= 42 \times 12 : 57 \times 8$
 $= 14 \times 12 : 19 \times 8 = 21 : 19$
 Required difference in shares

$$= \frac{26000}{21 + 19} \times (21 - 19) = ₹1300$$

7. (d) Suppose, B joins A after K months.

$$\begin{aligned}\therefore \text{Investments of A and B are in the ratio of} &10000 \times 12 : 40000 \times (12 - K) \\ \therefore 10000 \times 12 &= 40000 \times (12 - K) \\ \text{i.e., } 4(12 - K) &= 12 \Rightarrow K = 9.\end{aligned}$$

8. (b) A, B, C invest in the ratio

$$35000 : 45000 : 55000 \text{ i.e., } 7 : 9 : 11$$

$$\begin{aligned}\therefore \text{A's share in the profit} &= \frac{7}{27} \times 40500 \\ &= 7 \times 1500 = ₹10500\end{aligned}$$

$$\text{B's share in the profit} = 9 \times 1500 = ₹13500$$

$$\text{C's share in the profit} = 11 \times 1500 = ₹16500.$$

9. (d) They pay in the ratio $50 \times 4 : 40 \times 3 : 46 \times 5$

$$\text{i.e., } 200 : 120 : 230$$

$$\text{i.e., } 20 : 12 : 23$$

$$\therefore \text{1st man should pay } ₹ \frac{20}{55} \times 660 = ₹240.$$

10. (d) Suppose B joined after K months

$$\therefore \text{Profit is divided in the ratio of}$$

$$45000 \times 12 : 30000 \times K$$

$$\therefore \frac{45000 \times 12}{30000 \times K} = \frac{2}{1} \Rightarrow 60000K = 540000$$

$$\therefore K = 9.$$

11. (b) Profit is divided between A, B and C in the ratio
 $10 : 14 : 12$

$$\text{i.e., } 5 : 7 : 6$$

$$\therefore \text{B's share} = \frac{7}{18} \times 5400 = ₹2100.$$

12. (c) Let B's contribution be ₹ x

$$\therefore \frac{3500 \times 12}{7x} = \frac{2}{3}$$

$$\text{or, } x = \frac{3500 \times 12 \times 3}{7 \times 2} \therefore x = 9000.$$

13. (a) A, B and C pay in the ratio of

$$10 \times 7 : 12 \times 5 : 15 \times 3$$

$$\text{i.e., } 70 : 60 : 45$$

$$\text{i.e., } 14 : 12 : 9$$

$$\therefore \text{C pay } ₹ \frac{9}{35} \times 175 = ₹45.$$

14. (b) Suppose, shares of A, B and C are $6K$, $4K$ and $3K$, respectively.

$$\therefore \text{Profit of 378 is divided among them in the ratio of } 6K \times 2 + 3K \times 10 : 4K \times 12 : 3K \times 12$$

$$\text{i.e., } 42 : 48 : 36$$

$$\text{i.e., } 7 : 8 : 6$$

$$\therefore \text{B's share} = \frac{8}{21} \times 378 = ₹144.$$

8.12 Chapter 8

15. (d) A's capital = $\frac{1}{4}K$

B's capital = $\frac{3}{4}K$

A and B share the total profit in the ratio 1:2. Let B contribute for x months

$$\therefore \frac{\frac{1}{4}K \times 15}{\frac{3}{4}K \times x} = \frac{1}{2} \Rightarrow x = 10.$$

16. (b) Profit earned by

$$C = 1 - \left(\frac{1}{3} + \frac{1}{4} \right) = 1 - \frac{7}{12} = \frac{5}{12}$$

So, $\frac{5}{12} = 5000 \quad \therefore 1 \rightarrow 12000$

\therefore Profit received by A = $\frac{1}{3} \times 12000 = ₹4000$.

17. (d) Suppose, B joined after K months

$\therefore 4500 \times 12 : 5400 \times (12 - K) = 2:1$

$$\Rightarrow \frac{4500 \times 12}{5400 \times (12 - K)} = \frac{2}{1}$$

$$\Rightarrow \frac{60}{6(12 - K)} = \frac{2}{1}$$

$\Rightarrow 12(12 - K) = 60 \Rightarrow K = 7$.

18. (c) Ratio of their investments

$= 70 \times 36 : 105 \times 30 : 140 \times 24$
 $= 12:15:16$.

19. (a) Ratio of their profits

$= 75 \times 36 : 125 \times 33 : 150 \times 27$
 $= 3 \times 36 : 5 \times 33 : 6 \times 27$
 $= 3 \times 12 : 5 \times 11 : 6 \times 9$
 $= 36:55:54$.

20. (c) When investment ratio is given, the amount of profit can be found out with the help of III only.

21. (a) Sum invested by A, B and C is

$5 \times 12 : 7 \times 12 : 6 \times 6 + 3 \times 6$

or, $60:84:54$

or, $10:14:9$

\therefore Share of C = $\frac{9}{33} \times 33000 = ₹9000$.

22. (c) Ratio of their investments

$= 50000 \times 12 : 90000 \times 8 = 5:6$

\therefore Amount received by Mr Jain

$= \frac{6}{11} \times 22000 = ₹12000$.

23. (a) Let the initial investments of Vinod and Ankit be $2x$ and $3x$, respectively.

As per the question,

$$\frac{2}{3} \times \frac{10000}{2} = \frac{3}{2}$$

or, $4x + 20000 = 9x$

$\therefore x = 4000$

\therefore Amount invested by Vinod

$= 2x = ₹8000$.

24. (d) Ratio of Vinay and Aditya for one month

$= (50000 \times 12) + (80000 \times 24) : (70000 \times 24)$
 $= 60000 + 1920000 : 1680000 = 3:2$

Hence, share of Aditya in the profit earned from the

business = $\frac{87,500}{3+2} \times 2 = ₹35000$.

25. (d) Suppose, B joins A after K months.

\therefore Investments of A and B are in the ratio of

$10000 \times 12 : 40000 \times (12 - K)$

$\therefore \frac{10000 \times 12}{40000 \times (12 - K)}$

That is, $\frac{1}{4} (12 - K) = \frac{1}{2} \Rightarrow K = 9$.

26. (b) A, B, C invest in the ratio 35000:45000:55000

That is, 7:9:11

\therefore A's share in the profit = $\frac{7}{27} \times 40500$

$= 7 \times 1500 = ₹10500$

B's share in the profit = $9 \times 1500 = ₹13500$

C's share in the profit = $11 \times 1500 = ₹16500$.

27. (d) They pay in the ratio of $50 \times 4 : 40 \times 3 : 46 \times 5$

That is, $200:120:230$

That is, $20:12:23$

\therefore The first man should pay $₹ \frac{20}{55} \times 660 = ₹240$.

28. (d) Suppose, B joined after K months

\therefore Profit is divided in the ratio of

$45000 \times 12 : 30000 \times K$

$\therefore \frac{45000 \times 12}{30000 \times K} = \frac{2}{1}$

$\Rightarrow 60000 K = 540000$

$\therefore K = 9$.

29. (b) Profit is divided among A, B and C in the ratio of 10:14:12.

That is, 5:7:6

\therefore B's share = $\frac{7}{18} \times 5400 = ₹2100$.

30. (c) Let, B's contribution be $₹x$

$\therefore \frac{3500 \times 12}{7x} = \frac{2}{3}$

or, $x = \frac{3500 \times 12 \times 3}{7 \times 2}$

$\therefore x = 9000$.

31. (b) Let the score of Ajay = x

$$\text{Rahul} = x - 15$$

$$\text{Manish} = x - 25$$

As per the question, $x = 63 + 30$

$$\therefore x = 93$$

$$\therefore \text{Score of Ajay} = 93$$

$$\text{then, Rahul} = 93 - 15 = 78$$

$$\text{then, Manish} = 93 - 25 = 68$$

Total marks of Rahul, Manish and Suresh

$$= 3 \times 63 = 189$$

$$\therefore \text{Suresh} = 189 - (78 + 68) = 43$$

$$\therefore \text{Manish} + \text{Suresh} = 68 + 43 = 111$$

32. (d) Let A's amount be $5x$

B's amount be $6x$

Again, let B invested the capital for y months

Now, according to the question,

$$\frac{5x \times 8}{6x \times y} = \frac{5}{9}$$

$$\Rightarrow \frac{40}{6y} = \frac{5}{9}$$

$$\therefore y = \frac{9 \times 40}{6 \times 5} = 12 \text{ months}$$

33. (e) Ratio of profits among A, B and C

$$= (42000 \times 4 + 30000 \times 6) : (30000 \times 4 + 24000 \times 6) : (28000 \times 4 + 20000 \times 6)$$

$$= (168000 + 180000) : (120000 + 144000) : (112000 + 120000)$$

$$= 348000 : 264000 : 232000$$

$$= 348 : 264 : 232$$

$$\text{Hence, C's share} = \frac{46420}{844} \times 232 = ₹12760$$

34. (b) Ratio of capital

$$= (30000 \times 12) : (24000 \times 4 + 18000 \times 8) : (42000 \times 4 + 32000 \times 8)$$

$$= 36000 : (96000 + 144000) : (168000 + 256000)$$

$$= 360000 : 240000 : 424000$$

$$= 360 : 240 : 424 = 45 : 30 : 53$$

$$\text{Sum of ratios} = 45 + 30 + 53 = 128$$

$$\text{Now, B's share} = \frac{30}{128} \times 11960 = ₹2803.125 \approx ₹2803$$

35. (c) Difference of amount received by R and Q is $(7 - 5)$

$$= 2, \text{ Total amount received by P and Q} = (3 + 5) = 8.$$

Then, 2 corresponds to ₹4000 implies that 8 corresponds

$$\text{to } \frac{4000}{2} \times 8 = ₹16000.$$

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