ANSWERS AND EXPLANATIONS

EXERCISE 1

1. (e) Ratio of the capital of Rinku and Pooja

$$= \frac{5100}{6600} = \frac{51}{66} = \frac{17}{22}$$

∴ Rinku's share $= \frac{2730 \times 17}{17+22} = ₹\, 1190$

2. (c) Ratio of equivalent capitals of A, B and C for 1 month

= 35000 × 12 : 20000 × 5 : 15000 × 7

= 35 × 12 : 20 × 5 : 15 × 7

= 84 : 20 : 21

Sum of the ratios = 84 + 20 + 21 = 125

∴ B's share $= ₹ \left(\frac{20}{125} \times 84125 \right)$

= ₹13460

3. (b) Ratio of profit = 1 × 12 : 2 × 6 : 3 × 4

= 1 : 1 : 1

∴ Manav's share

$= 45000 \times \frac{1}{3} = ₹\, 15000$

4. (d) Ratio of capital

= 50000 × 12 : 80000 × 6

= 5 : 4

∴ Sarita's share = $\dfrac{18000 \times 5}{(5+4)}$

= ₹ 10000

5. (e) Ratio of profit = 60000 × 12 : 100000 × 6 = 6 : 5

∴ Shirish's share

$= \dfrac{151800 \times 5}{(6+5)} = ₹\, 69000$

6. (b) Ratio of rent amount

= 27 × 19 : 21 × 17 : 24 × 23

= 513 : 357 : 552

171 : 119 : 184

∴ Rent paid by C $= \dfrac{184}{474} \times 23,700 = Rs\, 9,200$

7. (d) Required ratio of profit distribution

= 2000 × 9 : 5000 × 7 = 18 : 35

8. (c) Ratio of their investment = 380 : 400 : 420

= 19 : 20 : 21

∴ A's profit $\dfrac{19}{60}$ 180 Rs 57;

B's profit $= \dfrac{20}{60} \times 180 = Rs\, 60$ and

C's profit $= \dfrac{21}{60} \times 180 = Rs\, 63$

9. (a) Ratio of their profits (Radha's : Sunidhi's : Neha's)

= 75 × 36 : 125 × 33 : 150 × 27

= 3 × 36 : 5 × 33 : 6 × 27

= 3 × 12 : 5 × 11 : 6 × 9

= 36 : 55 : 54

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

5 × 12 : 7 × 12 : 6 × 6 + 3 × 6

or, 60 : 84 : 54   or,   10 : 14 : 9

∴ Share of C $= \dfrac{9}{33}$ 33,000 ₹9,000

11. (c) Ratio of their investment

= 50000 × 12 : 90000 × 8 = 5 : 6

∴ Amount received by Praveen $= \dfrac{6}{11}$ 22,000

= ₹ 12000

12. (c) Ratio of their investments

= 70 × 36 : 105 × 30 : 140 × 24 = 12 : 15 : 16

13. (a) Let the initial investments of Hariprasad and Madhusudan be 2*x* and 3*x*, respectively.

From the question,

$$\frac{2x \quad 10000}{3x} \quad \frac{3}{2}$$

or, $4x + 20000 = 9x$

$\therefore$ $x = 4000$

$\therefore$ Amount invested by Hariprasad $= 2x = ₹\ 8000$

14. (b) Ratio of their investments $= 25,000 \times 1 + 35000 \times 1 + 45000 \times 1 : 35000 \times 2 : 35000 \times 1 = 3 : 2 : 1.$

$\therefore$ Rakesh's share $= \dfrac{2}{6} \times 150000 = ₹\ 50000$

15. (e) Ratio of Abhishek and Sudin for one month

$= (50,000 \times 36) + (30,000 \times 24) : (70,000 \times 24)$

$= (18,00,000 + 7,20,000) : 16,80,000 = 3 : 2$

Hence share of Sudin in the profit earned from the business.

$= \dfrac{87,500}{(3+2)} \times 2 = ₹\ 35,000.$

16. (b) Ratio for amount invested by P, Q & R

$= 5x \times 12 : 6x \times 12 : 6x \times 6$

$= 60x : 72x : 36x$

$= 5x : 6x : 3x$

Profit $= 98000 = 20\%$ of T

where, T = Total amount

$T = ₹\ 490000$

Amount received by

$R = \dfrac{3x}{6x\ \ 6x\ \ 5x}(490000)$

$= ₹\ 105000$

EXERCISE 2

1. (b) Ratio of distribution of profit

$=$ Ratio of their investments

$\Rightarrow \dfrac{2}{3} = \dfrac{40}{B}$

or $2B = 120$ or $B = ₹\ 60$

2. (b) Ratio of investment

$= 3500 : 4500 : 5500 = 35 : 45 : 55 = 7 : 9 : 11$

Since, Ratio of investment is same as ratio of profit.

$\therefore$ Ratio of profit $= 7 : 9 : 11$

Now, profit $= ₹\ 405$

$\therefore$ A's share $= \dfrac{7}{27} \times 405 = Rs\ 105$

3. (b) Let the amount invested by B $= ₹\ x$

As we know, Ratio of profit = ratio of investments

Given, Ratio of profit $= 2 : 3$

$\therefore$ Ratio of investment $= 2 : 3$

$\Rightarrow \dfrac{2}{3} = \dfrac{40}{x}$

$\Rightarrow x = ₹\ 60$

4. (a) Let B joined after x months.

Then, $4500 \times 12 : 3000 (12 - x) = 2 : 1$

Ratio of their investments $= \dfrac{4500 \times 12}{3000(12 - x)} = \dfrac{2}{1}$

$\Rightarrow x = 3$

5. (b) According to the given information

$\dfrac{50,000 \times 12}{60,000 \times (12 - x)} = \dfrac{20}{18}$

$\Rightarrow \dfrac{50,000 \times 12 \times 18}{60,000 \times 20} = 12 - x$

$\therefore x = 3$ months

6. (a) Let Sanjay invest $₹\ x$ in the business.

Since, at the end of the year Rahul and Sanjay both get equal amount as profit

Then, $\dfrac{8000 \times 12}{x \times 6} = \dfrac{1}{1}$

$\therefore x = ₹\ 16,000$

7. (c) Total profit $= 337.50 + 1125.00 + 675$

$= ₹\ 2137.50$

Percentage profit $= \dfrac{2137.50}{114000} \times 100 = 1.8\%$

8. (d) Ratio of capital investment

$= 9,000 \times 12 : (12,000 \times 6) + (6,000 \times 6)$

$= 1 : 1$

$\therefore$ Kapil's share $= \dfrac{1}{2} \times 4600 = Rs\ 2,300$

9. (b) If C puts in ₹ x, then B puts in ₹ x + 500 and A puts in (x + 500) + 700 i.e. x + 1200

$\Rightarrow$ (x + 1200) + (x + 500) + x = 4700

$\Rightarrow$ 3x + 1700 = 4700 $\Rightarrow$ x = 1000

Ratio of their investment 2200 : 1500 : 1000 = 22 : 15 : 10

Thus, share of B $\dfrac{15}{22+15+10} \times 4230 = Rs. 1350$

10. (c) Let the total profit be ₹ z. Then,

B's share = ₹ $\dfrac{2z}{3}$, A's share = ₹ $\left(z - \dfrac{2z}{3}\right) = Rs. \dfrac{z}{3}$.

$A : B = \dfrac{z}{3} : \dfrac{2z}{3} = 1 : 2.$

Let the total capital be ₹ x and suppose B's money was used for y months. Then,

$\dfrac{\frac{1}{4}x \times 15}{\frac{3}{4}x \times y} = \dfrac{1}{2} \Rightarrow y = \left(\dfrac{15 \times 2}{3}\right) = 10.$

Thus, B's money was used for 10 months.

11. (c) Let B's capital is x and C's capital is y.

$\therefore$ A's profit = 200 = $\dfrac{4000}{4000 + x + y} \times 800$ ...(i)

and C's profit = 100 = $\dfrac{y}{4000 + x + y} \times 800$ ... (ii)

(i) ÷ (ii) $\Rightarrow 2 = \dfrac{4000}{y} \Rightarrow$ y = Rs 2000

$\therefore$ x = ₹ 10,000

12. (a) Let B join after x months of the start of the business so that B's money is invested for (12–x) months.

$\therefore$ Profit ratio is 12 × 12500 : (12 – x) × 37500

or 12 : 3(12 – x)

Since profit is equally divided. therefore

12 = 3(12 – x) or x = 8. Thus B joined after 8 months.

13. (c) Let B join after 'x' month of the start of the business.

$\Rightarrow$ (45,000 × 12) : 54,000 × (12 – x) = 2 : 1

$\therefore$ (45,000 × 12) × 1 = 54,000 × (12 – x) × 2

$\Rightarrow$ x = 7

Thus B joined after 7 months.

14. (d) Let B puts in x cows

Then amount paid by $B = \dfrac{3}{2} \times$ amount paid by A.

$\dfrac{80 \times 7}{x \times 3} = \dfrac{\text{Amount paid by A}}{\text{Amount paid by B}}$

$= \dfrac{\text{amount paid by A}}{3/2 \times \text{amount paid by A}}$

$x = \dfrac{80 \times 7 \times 3}{3 \times 2} = 280$

Hence, B puts in 280 cows

15. (c) Let the total investment be ₹ x.

Then, 20% of x = 98000

$\Rightarrow x = \left(\dfrac{98000 \times 100}{20}\right) = 490000.$

Let the capitals of P, Q and R be ₹ 5x, ₹ 6x and ₹ 6x respectively. Then,

(5x × 12) + (6x × 12) + (6x × 6) = 490000 × 12

$\Rightarrow 168x = 490000 \times 12 \Rightarrow x = \left(\dfrac{490000 \times 12}{168}\right) = 35000.$

$\therefore$ R's investment = 6x = ₹ (6 × 35000) = ₹ 210000.

EXERCISE 3

1. (a) Remaining capital $= 1 - \left(\dfrac{1}{6} + \dfrac{1}{3}\right) = \dfrac{1}{2}$

Ratio of their profit

$= \dfrac{1}{6} \times \left[\dfrac{1}{6} \times 12\right] : \dfrac{1}{3} \times \left[\dfrac{1}{3} \times 12\right] : \dfrac{1}{2} \times 12$

$$= \frac{1}{3} : \frac{4}{3} : 6 = 1 : 4 : 18$$

$\therefore$ A's share $= \frac{1}{1+4+18} \times 2300 = $ Rs 100

2. (b) Ratio of the capitals of A, B and C

= 20000 ×5 + 15000 × 7 : 20000 × 5 + 16000 × 7 : 20000 ×   5 + 26000 × 7

= 205000 : 212000 : 282000 = 205 : 212 : 282.

B's share $= ₹\left(69900 \times \frac{212}{699} \right) = ₹ \, 21{,}200$

3. (b) The amount A gets for managing the business

= 12.5% of ₹ 8800 = ₹ 1100

Remaining profit = ₹ 8800 – ₹ 1100 = ₹ 7700

This is to be divided in the ratio 5 : 6.

A's share $\frac{5}{5 \, 6}$ 7700 = ₹ 3500

$\Rightarrow$ Total share of A = ₹ 3500 + ₹ 1100 = ₹ 4600.

4. (a) Initially A's investment = 3x and B's investment = 4x

Let B remain in the business for 'n' months.

$\Rightarrow$ 3x × 10 : 4x × n = 5 : 6

$\therefore$ 3x ×10 × 6 = 4x × n × 5 $\Rightarrow$ n = 9

Hence, B remained for 9 months in the business

5. (b) In a year, for A, total amount as a remuneration

= 10 ×12 = ₹ 120

$\therefore$ Amount of A's profit = 390 – 120 = ₹ 270

Ratio of investment = 3 : 4

Let total profit be ₹ x

Then, B's profit = ₹(x – 270)

$\therefore$ A's share $= \frac{3}{3 \, 4}$ x   270 $\frac{3x}{7}$ x   630

$\therefore$ B's profit = 630 – 270 = ₹ 360

6. (a) Let B joined after x months.

Then, 4500 × 12 : 3000 × (12 – x) = 2 : 1

$\frac{4500 \quad 12}{3000 \quad (12 \quad x)}$ $\frac{2}{1} \Rightarrow$ x = 3

Thus, B joined after 3 months

7. (b) Let A's capital be ₹ 4x and B's capital be ₹ 5x

$\therefore$ Ratio of profit

8. (c) Since, X's capital $= \frac{2}{5}$ of total

$\therefore$ Y's capital $= 1 - \frac{2}{5} = \frac{3}{5}$ of total

Let Y invested capital for t years.

$\therefore$ Ratio of profit $= \frac{2}{5} \times \frac{2}{3} : \frac{3}{5} \times t$

$$= \frac{4}{15} : \frac{3t}{5} \qquad \ldots (i)$$

Share of Y's profit $= 1 - \frac{4}{7} = \frac{3}{7}$ of the total

Actual ratio of profit = 4 : 3

$\therefore$ By (i), $\frac{4/15}{3t/5} = \frac{4}{3} \Rightarrow t = \frac{1}{3}$ year.

9. (a) For first year, ratio of profit = 3 : 4

X's profit of first year $= \frac{3}{7} \times 2100 = $ Rs 900

Now, for second year,

Ratio of profit = 3000 × 12 + 900 × 12 : 4000 × 12

= 46800 : 48000 = 39 : 40

$= 4x \times 3 + \frac{3}{4}(4x) \times 7 \;:\;$

$5x \times 3 + \frac{4}{5}(5x) \times 7$

= 33 : 43

$\therefore$ Profit of B $= \frac{43}{33+43} \times 760 = ₹ \, 430$