

Question Bank

Shares And Dividend

1. Find the dividend due at the end of a year on 250 shares of Rs 50 each, if the half yearly dividend is 4% of the value of the share.

Solution.

∴ Half-yearly dividend on 1 share = 4% of Rs 50

⇒ The yearly dividend on 1 share = 8% of Rs 50

$$= \frac{8}{100} \times \text{Rs } 50 = \text{Rs } 4$$

⇒ Total dividend due at the end of the year

$$= 250 \times \text{Rs } 4 = \text{Rs } 1000$$

2. A dividend of 9% was declared on Rs 100 shares selling at a certain price. If the rate of return is 7%, calculate:

(i) the market value of the share.

(ii) the amount to be invested to obtain an annual dividend of Rs 630.

Solution. Dividend on one share of Rs 100 = Rs 9

(i) Let the market value of one share be Rs x .

$$\text{The profit on one share} = 7\frac{1}{2}\% \text{ of Rs } x$$

$$= \text{Rs } \left[\frac{15}{2} \times \frac{1}{100} \times x \right]$$

$$= \text{Rs } \frac{3x}{40}$$

Since the dividend paid on one share = Rs 9.

$$\therefore \frac{3x}{40} = 9 \Rightarrow x = 120$$

∴ The market value of each share = Rs 120 .

(ii) As the total income is Rs 630

$$\therefore \text{The number of shares bought} = \frac{630}{9} = 70$$

Since the market value of each share = Rs 120,

$$\begin{aligned}\therefore \text{The amount to be invested} &= \text{Rs } (120 \times 70) \\ &= \text{Rs } 8400\end{aligned}$$

3. A man buys 500, Rs 20 shares at a discount of 20% and receives a return of 10% on his money. Calculate :

(i) the amount invested by him,

(ii) the rate of dividend paid by the company.

Solution.

$$\begin{aligned}\text{(i) Market value of 1 share} &= (\text{Rs } 20 - 20\% \text{ of Rs } 20) \\ &= \text{Rs } \left[20 - \frac{20}{100} \times 20 \right] \\ &= \text{Rs } 16\end{aligned}$$

$$\begin{aligned}\therefore \text{Amount invested in 500 shares} &= \text{Rs } (500 \times 16) \\ &= \text{Rs } 8000\end{aligned}$$

(ii) Amount invested = Rs 8000.

$$\begin{aligned}\text{Dividend received} &= 10\% \text{ of Rs } 8000 \\ &= \text{Rs } \left[8000 \times \frac{10}{100} \right] \\ &= \text{Rs } 800\end{aligned}$$

$$\begin{aligned}\text{Face value of 500 shares} &= \text{Rs } (500 \times 20) \\ &= \text{Rs } 10000\end{aligned}$$

$$\begin{aligned}\text{Rate of dividend} &= \left[\frac{800}{10000} \times 100 \right] \% \\ &= 8\% .\end{aligned}$$

4. Dheeraj sold a certain number of Rs 20 shares, paying 8% dividend at Rs 18 and invested the proceeds in Rs 10 shares paying 12% premium at 50% premium. If his annual dividend income decreases by Rs 120, find the number of shares sold by Dheeraj.

Solution.

Case I :

Let Dheeraj sold x shares.

Income from 1 share = 8% of Rs 20 = Rs 1.60

$\therefore$ Income from x shares = Rs 1.60 x .

Sale value of 1 share = Rs 18

Total sale value of x shares = Rs 18 x .

Case II :

Market value of 1 share = Rs 10 + 50% of Rs 10 = Rs 15

$$\begin{aligned}\text{No. of new shares bought} &= \frac{\text{Total investment}}{\text{Market value of 1 share}} \\ &= \frac{18x}{15} = \frac{6x}{5}\end{aligned}$$

Income from 1 share = 12% of Rs 10 = Rs 1.20

$$\begin{aligned}\text{Total income from } \frac{6x}{5} \text{ shares} &= \text{Rs } 1.20 \times \frac{6x}{5} \\ &= \text{Rs } 1.44x\end{aligned}$$

$$\begin{aligned}\text{Decrease in income} &= \text{Rs } (1.60x - 1.44x) \\ &= \text{Rs } 0.16x\end{aligned}$$

$$\therefore 0.16x = 120$$

$$\Rightarrow x = \frac{120}{0.16} = 750$$

Hence, Dheeraj sold 750 shares .

5. Mukesh invested in Rs 25 shares of a company paying 12% dividend. If he received 10% per annum on his investment, at what price did he buy each share?

Solution. Let Mukesh bought each share for Rs x .

Dividend earned from a share = 12% of Rs 25 = Rs 3

Also, return on his investment = 10% of Rs x = Rs $\frac{x}{10}$

$$\therefore \frac{x}{10} = 3 \Rightarrow x = 30$$

Hence, Mukesh bought each share for Rs 30

6. A man invests some money in shares. He invests 60% of his money in 10% Rs 100 shares at Rs 110 and the rest in 20% Rs 50 shares at Rs 60. If his total annual income from both the investments is Rs 2000, calculate :

- (i) his total investment
- (ii) the number of shares of the first kind that he bought
- (iii) total number of shares that he bought

Solution. Let the total investment be Rs x .

$$\text{Investment in first kind of shares} = \text{Rs } \frac{60 \times x}{100} = \text{Rs } \frac{3x}{5}$$

$$\text{Investment in second kind of shares} = \text{Rs } \left(x - \frac{3x}{5} \right) = \text{Rs } \frac{2x}{5}$$

$$\text{Number of shares of first kind bought} = \frac{3x}{5 \times 110} = \frac{3x}{550}$$

$$\text{Number of shares of second kind bought} = \frac{2x}{5 \times 60} = \frac{x}{150}$$

Face value of 1 share of first kind = Rs 100

$$\text{Face value of } \frac{3x}{550} \text{ shares of first kind} = \text{Rs } \frac{6x}{11}$$

$$\text{Dividend earned from first kind of shares} = 10\% \text{ of Rs } \frac{6x}{11}$$

$$= \text{Rs } \frac{3x}{55} \quad \dots (i)$$

Face value of 1 share of second kind = Rs 50

Face value of $\frac{x}{150}$ shares of second kind = Rs $\frac{x}{3}$.

Dividend earned from second kind of shares

$$= 20\% \text{ of Rs } \frac{x}{3} = \text{Rs } \frac{x}{15} \quad \dots (ii)$$

From (i) and (ii), we get $\frac{3x}{55} + \frac{x}{15} = 2000$

$$\Rightarrow \frac{9x + 11x}{165} = 2000$$

$$\Rightarrow x = \frac{2000 \times 165}{20} = 16500$$

(i) His total investment = Rs 16500

(ii) Number of shares of first kind he bought

$$= \frac{3x}{550} = \frac{3 \times 16500}{550} = 90$$

(iii) Number of shares of second kind he bought

$$= \frac{x}{150} = \frac{16500}{150} = 110$$

$$\therefore \text{Total number of shares that he bought} \\ = 90 + 110 = 200$$

7. Anurag invests Rs 120000 in 10% Rs 100 shares at 20% premium. If tax is deducted at the rate of 10%, find his annual income from his investment. Later on he sells half of his shares at Rs 140 per share. He invests the proceeds in 15% Rs 10 shares available at 20% discount. What annual income will he receive now from his investments in shares, if tax is deducted at the same rate?

Solution.

Case I :

Market value of 1 share = Rs 100 + 20% of Rs 100 = Rs 120

$$\text{Number of shares bought} = \frac{\text{Total investment}}{\text{M.V. of 1 share}} = \frac{120000}{120} = 1000$$

$$\text{Face value of 1000 shares} = \text{Rs } 1000 \times 100 = \text{Rs } 100000$$

$$\text{Dividend received} = 10\% \text{ of Rs } 100000 = \text{Rs } 10000$$

$$\text{Tax deducted} = 10\% \text{ of Rs } 10000 = \text{Rs } 1000$$

$$\begin{aligned} \therefore \text{Annual income from his investment} \\ = \text{Rs } (10000 - 1000) = \text{Rs } 9000 \end{aligned}$$

Case II :

$$\text{Half of 1000 shares} = 500$$

$$\text{Total sale proceeds} = \text{Rs } 500 \times 140 = \text{Rs } 70000$$

$$\begin{aligned} \text{Market value of 1 share of second kind} \\ = \text{Rs } 10 - 20\% \text{ of Rs } 10 = \text{Rs } 8 \end{aligned}$$

$$\text{No. of second kind of shares bought} = \frac{70000}{8} = 8750$$

$$\text{Face value of 8750 shares} = \text{Rs } 8750 \times 10 = \text{Rs } 87500$$

$$\begin{aligned} \text{Annual dividend received} &= 15\% \text{ of Rs } 87500 \\ &= \text{Rs } \frac{87500 \times 15}{100} = \text{Rs } 13125 \end{aligned}$$

$$\text{Tax deducted} = 10\% \text{ of Rs } 13125 = \text{Rs } 1312.50$$

$$\begin{aligned} \therefore \text{Annual income from this investment} \\ = \text{Rs } (13125 - 1312.50) = \text{Rs } 11812.50 \end{aligned}$$

$$\begin{aligned} \text{Also, annual income from 500 shares of first kind} \\ = 50\% \text{ of Rs } 9000 = \text{Rs } 4500 \end{aligned}$$

$$\begin{aligned} \therefore \text{Total income from both the investments} \\ = \text{Rs } (4500 + 11812.50) \\ = \text{Rs } 16312.50 \end{aligned}$$