

Shares and Dividends

Question 1.

How much money will be required to buy 400, ₹ 12.50 shares at a premium of ₹ 1?

Solution:

Number of shares to be bought = 400

Rs. 12.50 shares at a premium of Re. 1 means;

nominal value of the share is Rs. 12.50 and

its market value = Rs. 12.50 + Re. 1 = Rs. 13.50

∴ Money required to buy 1 share = Rs. 13.50

⇒ Money required to buy 400 shares = $400 \times \text{Rs. } 13.50 = \text{Rs. } 5400$

Question 2.

How much money will be required to buy 250, ₹ 15 shares at a discount of ₹ 1.50?

Solution:

Number of shares to be bought = 250

Rs. 15 shares at a discount of Rs. 1.50 means;

nominal value of the share is Rs. 15 and

its market value = Rs. 15 - Rs. 1.50 = Rs. 13.50

∴ Money required to buy 1 share = Rs. 13.50

⇒ Money required to buy 250 shares = $250 \times \text{Rs. } 13.50 = \text{Rs. } 3375$

Question 3.

A person buys 120 shares at a nominal value of ₹ 40 each, which he sells at ₹ 42.50 each. Find his profit and profit percent.

Solution:

Nominal value of 120 shares = ₹ 40 × 120 = ₹ 4,800

Market value of 120 shares = ₹ 42.50 × 120 = ₹ 5,100

His profit = ₹ 5,100 - ₹ 4,800 = ₹ 300

profit = $\frac{300}{4800} \times 100\% = 6.25\%$

Question 4.

Find the cost of 85 shares of ₹ 60 each when quoted at ₹ 63.25.

Solution:

Market value of 1 share = ₹ 63.25

Market value of 85 shares = ₹ 63.25 × 85 = ₹ 5,376.25

Question 5.

A man invests ₹ 800 in buying ₹ 5 shares and when they are selling at a premium of ₹ 1.15, he sells all the shares. Find his profit and profit percent.

Solution:

Nominal value of 1 share = ₹ 5

Market value 1 share = ₹ 5 + ₹ 1.15 = ₹ 6.15

Total money invested = ₹ 800

No of shares purchased = $\frac{800}{5} = 160$

Market value of 160 shares = 160 × 6.15 = ₹ 984

His profit = ₹ 984 – ₹ 800 = ₹ 184

profit = $\frac{184}{800} \times 100\% = 23\%$

Question 6.

Find the annual income derived from 125, ₹ 120 shares paying 5% dividend.

Solution:

Nominal value of 1 share = ₹ 60

Nominal value 250 shares = ₹ 60 × 250 = ₹ 15,000

Dividend = 5% of ₹ 15,000

$= \frac{5}{100} \times 15,000 = ₹ 750$

Question 7.

A man invests ₹ 3,072 in a company paying 5% per annum, when its ₹ 10 share can be bought for ₹ 16 each. Find :

(i) his annual income

(ii) his percentage income on his investment.

Solution:

Market value of 1 share = ₹ 16

Nominal value of 1 share = ₹ 10

Money invested = ₹ 3,072

$$\therefore \text{No. of shares purchased} = \frac{3072}{16} = 192$$

Nominal value of 192 shares = $10 \times 192 = \text{Rs}1,920$

Annual income = 5% of Rs 1,920

$$\begin{aligned} &= \frac{5}{100} \times 1,920 \\ &= \text{Rs}96 \end{aligned}$$

$$\text{Income\%} = \frac{96}{3,072} \times 100\% = 3.125\% = 3\frac{1}{8}\%$$

Question 8.

A man invests ₹ 7,770 in a company paying 5% dividend when a share of nominal value of ₹ 100 sells at a premium of ₹ 5. Find:

- (i) the number of shares bought;
- (ii) annual income;
- (iii) percentage income.

Solution:

Total money invested = ₹ 7,770

Nominal value of 1 share = ₹ 100

Market value of 1 share = ₹ 100 + ₹ 5 = ₹ 105

$$\therefore \text{No. of shares purchased} = \frac{7770}{105} = 74$$

Nominal value of 74 shares = $74 \times 100 = \text{Rs}7,400$

Annual income = 5% of Rs 7,400

$$\begin{aligned} &= \frac{5}{100} \times 7,400 \\ &= \text{Rs}370 \end{aligned}$$

$$\text{Income\%} = \frac{370}{7,770} \times 100\% = 4.76\%$$

Question 9.

A man buys ₹ 50 shares of a company, paying 12% dividend, at a premium of ₹ 10. Find:

- (i) the market value of 320 shares;
- (ii) his annual income;
- (iii) his profit percent.

Solution:

Nominal value of 1 share = ₹ 50

Market value of 1 share = ₹ 50 + ₹ 10 = ₹ 60

Market value of 320 shares = $320 \times 60 = ₹ 19,200$

Nominal value of 320 shares = $320 \times 5 = ₹ 16,000$

Annual income = 12% of Rs 16,000

$$= \frac{12}{100} \times 16,000$$
$$= ₹ 1,920$$

$$\text{Profit\%} = \frac{1,920}{19,200} \times 100\% = 10\%$$

Question 10.

A man buys ₹ 75 shares at a discount of ₹ 15 of a company paying 20% dividend. Find:

- (i) the market value of 120 shares;
- (ii) his annual income;
- (iii) his profit percent.

Solution:

Nominal value of 1 share = ₹ 75

Market value of 1 share = ₹ 75 – ₹ 15 = ₹ 60

Market value of 120 shares = $120 \times 60 = ₹ 7,200$

Nominal value of 120 shares = $120 \times 75 = ₹ 9,000$

Annual income = 20% of Rs 9,000

$$= \frac{20}{100} \times 9,000$$
$$= ₹ 1,800$$

$$\text{Profit\%} = \frac{1,800}{7,200} \times 100\% = 25\%$$

Question 11.

A man has 300, ₹ 50 shares of a company paying 20% dividend. Find his net income after paying 3% income tax.

Solution:

Nominal value of 1 share = ₹ 50

Nominal value of 300 shares = $300 \times 50 = ₹ 15,000$

$$\begin{aligned}\therefore \text{Dividend} &= 20\% \text{ of Rs } 15,000 \\ &= \frac{20}{100} \times 15,000 = \text{Rs } 3,000\end{aligned}$$

$$\begin{aligned}\therefore \text{Income tax paid} &= 3\% \text{ of Rs } 3,000 \\ &= \frac{3}{100} \times 3,000 = \text{Rs } 90\end{aligned}$$

His net income = ₹ 3,000 – ₹ 90 = ₹ 2,910

Question 12.

A company pays a dividend of 15% on its ten-rupee shares from which it deducts income tax at the rate of 22%. Find the annual income of a man who owns one thousand shares of this company.

Solution:

Nominal value of 1 share = ₹ 10

Nominal value of 1000 shares = $1000 \times 10 = ₹ 10,000$

$$\begin{aligned}\therefore \text{Dividend} &= 15\% \text{ of Rs } 10,000 \\ &= \frac{15}{100} \times 10,000 = \text{Rs } 1,500\end{aligned}$$

$$\begin{aligned}\therefore \text{Income tax paid} &= 22\% \text{ of Rs } 1,500 \\ &= \frac{22}{100} \times 1,500 = \text{Rs } 330\end{aligned}$$

His net income = ₹ 1,500 – ₹ 330 = ₹ 1,170

Question 13.

A man invests ₹ 8,800 in buying shares of a company of face value of rupees hundred each at a premium of 10%. If he earns ₹ 1,200 at the end of the year as dividend, find:

- (i) the number of shares he has in the company.
- (ii) the dividend percent per share.

Solution:

Total investment = ₹ 8,800

Nominal value of 1 share = ₹ 100

Market value of 1 share = ₹ 110

$$\therefore \text{No of shares purchased} = \frac{8800}{110} = 80$$

Nominal value of 80 shares = $80 \times 100 = ₹ 8,000$

Let dividend% = y%

then y% of ₹ 8,000 = ₹ 1,200

$$\Rightarrow \frac{y}{100} \times 8,000 = 1,200$$

$$\Rightarrow y = 15\%$$

Question 14.

A man invests ₹ 1,680 in buying shares of nominal value ₹ 24 and selling at 12% premium. The dividend on the shares is 15% per annum. Calculate:

(i) the number of shares he buys;

(ii) the dividend he receives annually.

Solution:

Nominal value of 1 share = ₹ 24

Market value of 1 share = ₹ 24 + 12% of ₹ 24

= ₹ 24 + ₹ 2.88 = ₹ 26.88

Total investment = ₹ 1,680

$$\therefore \text{No of shares purchased} = \frac{1680}{26.88} = 62.5$$

Nominal value of 62.5 shares = $62.5 \times 24 = ₹ 1,500$

Dividend = 15% of ₹ 1,500

$$= \frac{15}{100} \times 1,500 = ₹ 225$$

Question 15.

By investing ₹ 7,500 in a company paying 10 percent dividend, an annual income of ₹ 500 is received. What price is paid for each of ₹ 100 share ?

Solution:

Total investment = ₹ 7,500

Nominal value of 1 share = ₹ 100

No. of shares purchased = y

Nominal value of y shares = $100 \times y = ₹ (100y)$

Dividend% = 10%

Dividend = ₹ 500

∴ 10% of 100y = Rs500

$$\Rightarrow \frac{10}{100} \times 100y = \text{Rs}500$$

$$\Rightarrow y = \frac{500}{10} = 50 \text{ shares}$$

$$\therefore \text{Market value of 1 share} = \frac{7,500}{50} = \text{Rs}150$$

Exercise 3B

Question 1.

A man buys 75, ₹ 100 shares of a company which pays 9 percent dividend. He buys shares at such a price that he gets 12 percent of his money. At what price did he buy the shares ?

Solution:

Nominal value of 1 share = Rs100

Nominal value of 75 shares = $100 \times 75 = \text{Rs}7,500$

Dividend% = 9%

∴ Dividend = 9% of Rs7,500

$$= \frac{9}{100} \times \text{Rs}7,500 = \text{Rs}675$$

Let market price of 1 share = Rsy

Then market price of 75 shares = Rs75y

Profit% on investment = 12%

12% of 75y = Rs 657

$$\Rightarrow \frac{12}{100} \times 75y = \text{Rs } 657$$

$$\Rightarrow y = \text{Rs } 75$$

Question 2.

By purchasing ₹ 25 gas shares for ₹ 40 each, a man gets 4 percent profit on his investment. What rate percent is the company paying? What is his dividend if he buys 60 shares?

Solution:

Nominal value of 1 share = ₹ 25

Market value of 1 share = ₹ 40

Profit% on investment = 4%

Then profit on 1 share = 4% of ₹ 40 = ₹ 1.60

$$\therefore \text{Dividend\%} = \frac{1.60}{25} \times 100\% = 6.4\%$$

No. of shares purchased = 60

Then dividend on 60 shares = $60 \times ₹ 1.60 = ₹ 96$

Question 3.

Hundred rupee shares of a company are available in the market at a premium of ₹ 20. Find the rate of dividend given by the company, when a man's return on his investment is 15%.

Solution:

Nominal value of 1 share = ₹ 100

Market value of 1 share = ₹ 100 + ₹ 20 = ₹ 120

Profit% on investment of 1 share = 15%

Then profit = 15% of ₹ 120 = ₹ 18

$$\therefore \text{Dividend\%} = \frac{18}{100} \times 100\% = 18\%$$

Question 4.

₹ 50 shares of a company are quoted at a discount of 10%. Find the rate of dividend given by the company, the return on the investment on these shares being 20 percent.

Solution:

Nominal value of 1 share = ₹ 50

Market value of 1 share = ₹ 50 – 10% of ₹ 50
= ₹ 50 – ₹ 5 = ₹ 45

Profit % on investment = 20%

Then profit on 1 share = 20% of ₹ 45 = ₹ 9

$$\therefore \text{Dividend\%} = \frac{9}{50} \times 100\% = 18\%$$

Question 5.

A company declares 8 percent dividend to the share holders. If a man receives ₹ 2,840 as his dividend, find the nominal value of his shares.

Solution:

Dividend% = 8%

Dividend = ₹ 2,840

Let nominal value of shares = ₹ y

then 8% of y = ₹ 2,840

$$\Rightarrow \frac{8}{100} \times y = ₹ 2,840$$

$$\Rightarrow y = ₹ 35,000$$

Question 6.

How much should a man invest in ₹ 100 shares selling at ₹ 110 to obtain an annual income of ₹ 1,680, if the dividend declared is 12%?

Solution:

Nominal value of 1 share = ₹ 100

Market value of 1 share = ₹ 110

Let no. of shares purchased = n

Then nominal value of n shares = ₹ (100n)

Dividend% = 12%

Dividend = ₹ 1,680

$$\therefore 12\% \text{ of } 100n = ₹ 1,680$$

$$\Rightarrow \frac{12}{100} \times 100n = ₹ 1,680$$

$$\Rightarrow n = \frac{1,680 \times 100}{12 \times 100} = 140$$

Then market value of 140 shares = $140 \times 110 = ₹ 15,400$

Question 7.

A company declares a dividend of 11.2% to all its share-holders. If its ₹ 60 share is available in the market at a premium of 25%, how much should Rakesh invest, in buying the shares of this company, in order to have an annual income of ₹ 1,680?

Solution:

Nominal value of 1 share = ₹ 60

Market value of 1 share = ₹ 60 + 25% of ₹ 60

= ₹ 60 + ₹ 15 = ₹ 75

Let no. of shares purchased = n

Then nominal value of n shares = ₹ (60n)

Dividend% = 11.2%

Dividend = ₹ 1,680

$$\therefore 11.2\% \text{ of } 60n = \text{Rs}1,680$$

$$\Rightarrow \frac{11.2}{100} \times 60n = \text{Rs}1,680$$

$$\Rightarrow n = \frac{1,680 \times 100}{11.2 \times 60} = 250$$

Then market value of 250 shares = $250 \times 75 = \text{₹ } 18,750$

Question 8.

A man buys 400, twenty-rupee shares at a premium of ₹ 4 each and receives a dividend of 12%. Find:

- (i) the amount invested by him.
- (ii) his total income from the shares.
- (iii) percentage return on his money.

Solution:

Nominal value of 1 share = ₹ 20

Market value of 1 share = ₹ 20 + ₹ 4 = ₹ 24

No. of shares purchased = 400

Nominal value of 400 shares = $400 \times 20 = \text{₹ } 8,000$

(i) Market value of 400 shares = $400 \times 24 = \text{₹ } 9,600$

(ii) Dividend% = 12%

Dividend = 12% of Rs8,000

$$= \frac{12}{100} \times \text{Rs}8,000 = \text{Rs}960$$

(iii)

$$\therefore \text{Percentage return} = \frac{\text{income}}{\text{investment}} \times 100\%$$

$$= \frac{960}{9,600} \times 100\% = 10\%$$

Question 9.

A man buys 400, twenty-rupee shares at a discount of 20% and receives a return of 12% on his money. Calculate:

- (i) the amount invested by him.
- (ii) the rate of dividend paid by the company.

Solution:

Nominal value of 1 share = ₹ 20

Market value of 1 share = ₹ 20 – 20% of ₹ 20

$$= ₹ 20 - ₹ 4 = ₹ 16$$

No. of shares purchased = 400

$$\text{Nominal value of 400 shares} = 400 \times 20 = ₹ 8,000$$

$$(i) \text{ Market value of 400 shares} = 400 \times 16 = ₹ 6,400$$

$$(ii) \text{ Return\%} = 12\%$$

$$\text{Income} = 12\% \text{ of } ₹ 6,400$$

$$= \frac{12}{100} \times ₹ 6,400 = ₹ 768$$

$$\text{Dividend\%} = \frac{\text{Income}}{\text{Nominal value}} \times 100\%$$

$$= \frac{768}{8,000} \times 100\% = 9.6\%$$

Question 10.

A company, with 10,000 shares of ₹ 100 each, declares an annual dividend of 5%.

(i) What is the total amount of dividend paid by the company?

(ii) What should be the annual income of a man who has 72 shares in the company?

(iii) If he received only 4% of his investment, find the price he paid for each share.

Solution:

$$\text{Nominal value of 1 share} = ₹ 100$$

$$\text{Nominal value of 10,000 shares} = 10,000 \times ₹ 100 = ₹ 10,00,000$$

$$(i) \text{ Dividend\%} = 5\%$$

$$\text{Dividend} = 5\% \text{ of } ₹ 10,00,000$$

$$= \frac{5}{100} \times 10,00,000 = ₹ 50,000$$

$$(ii) \text{ Nominal value of 72 shares} = ₹ 100 \times 72 = ₹ 7,200$$

$$\text{Dividend} = 5\% \text{ of } ₹ 7,200$$

$$= \frac{5}{100} \times 7,200 = ₹ 360$$

$$(iii) \text{ Let market value of 1 share} = ₹ y$$

$$\text{Then market value of 10,000 shares} = ₹ (10,000y)$$

$$\text{Return\%} = 4\%$$

$$\text{then } 4\% \text{ of } ₹ 10,000y = ₹ 50,000$$

$$\Rightarrow \frac{4}{100} \times 10,000y = ₹ 50,000$$

$$\Rightarrow y = ₹ 125$$

Question 11.

A lady holds 1800, ₹ 100 shares of a company that pays 15% dividend annually. Calculate her annual dividend. If she had bought these shares at 40% premium, what is the return she gets as percent on her investment. Give your answer to the nearest integer.

Solution:

Nominal value of 1 share = ₹ 100

Market value of 1 share = ₹ 100 + 40% of ₹ 100
= ₹ 100 + ₹ 40 = ₹ 140

No. of shares purchased = 1800

Nominal value of 1800 shares = $1800 \times 100 = ₹ 1,80,000$

Market value of 1800 shares = $1800 \times 140 = ₹ 2,52,000$

(i) Dividend% = 15%

Dividend = 15% of ₹ 1,80,000

$$= \frac{15}{100} \times ₹ 1,80,000 = ₹ 27,000 \text{ Ans.}$$

(ii)

$$\begin{aligned} \therefore \text{Return\%} &= \frac{\text{Income}}{\text{Investment}} \times 100\% \\ &= \frac{27,000}{2,52,000} \times 100\% = 10.7\% = 11\% \end{aligned}$$

Question 12.

A man invests ₹ 11,200 in a company paying 6 percent per annum when its ₹ 100 shares can be bought for ₹ 140. Find:

(i) his annual dividend

(ii) his percentage return on his investment.

Solution:

Nominal value of 1 share = ₹ 100

Market value of 1 share = ₹ 140

Total investment = ₹ 11,200

No of shares purchased = $\frac{11,200}{140} = 80$ shares

Then nominal value of 80 shares = $80 \times 100 = ₹ 8,000$

(i) Dividend% = 6%

Dividend = 6% of ₹ 8,000

$$= \frac{6}{100} \times \text{Rs} 8,000 = \text{Rs} 480$$

(ii)

$$\begin{aligned} \text{Return\%} &= \frac{\text{Income}}{\text{Investment}} \times 100\% \\ &= \frac{480}{11,200} \times 100\% \\ &= 4.29\% \end{aligned}$$

Question 13.

Mr. Sharma has 60 shares of nominal value ₹ 100 and decides to sell them when they are at a premium of 60%. He invests the proceeds in shares of nominal value ₹ 50, quoted at 4% discount, and paying 18% dividend annually. Calculate :

- (i) the sale proceeds
- (ii) the number of shares he buys and
- (iii) his annual dividend from the shares.

Solution:

1st case

Nominal value of 1 share = ₹ 100

Nominal value of 60 shares = ₹ 100 × 60 = ₹ 6,000

Market value of 1 share = ₹ 100 + 60% of ₹ 100
= ₹ 100 + ₹ 60 = ₹ 160

Market value of 60 shares = ₹ 160 × 60 = ₹ 9,600 Ans.

(ii) Nominal value of 1 share = ₹ 50

Market value of 1 share = ₹ 50 – 4% of ₹ 50
= ₹ 50 – ₹ 2 = ₹ 48

No of shares purchased = $\frac{9,600}{48} = 200$ shares

(iii) Nominal value of 200 shares = ₹ 50 × 200 = ₹ 10,000

Dividend% = 18%

Dividend = 18% of ₹ 10,000

$$= \frac{18}{100} \times 10,000 = ₹ 1800$$

Question 14.

A company with 10,000 shares of nominal value ₹ 100 declares an annual dividend of 8% to the share-holders.

- (i) Calculate the total amount of dividend paid by the company.
- (ii) Ramesh had bought 90 shares of the company at ₹ 150 per share. Calculate the

dividend he receives and the percentage of return on his investment.

Solution:

(i) Nominal value of 1 share = ₹ 100

Nominal value of 10,000 shares = ₹ 100 × 10,000 = ₹ 10,00,000

Dividend% = 8%

Dividend = 8% of ₹ 10,00,000

$$= \frac{8}{100} \times 10,00,000 = ₹ 80,000$$

(ii) Market value of 90 shares = ₹ 150 × 90 = ₹ 13,500

Nominal value of 90 shares = ₹ 100 × 90 = ₹ 9,000

Dividend = 8% of ₹ 9,000

$$= \frac{8}{100} \times 9,000 = ₹ 720$$

(iii)

$$\begin{aligned} \text{Return\%} &= \frac{\text{Income}}{\text{Investment}} \times 100\% \\ &= \frac{720}{13,500} \times 100\% \\ &= 5\frac{1}{3}\% \end{aligned}$$

Question 15.

Which is the better investment :

16% ₹ 100 shares at 80 or 20% ₹ 100 shares at 120?

Solution:

1st case

16% of ₹ 100 shares at 80 means;

Market value of 1 share = ₹ 80

Nominal value of 1 share = ₹ 100

Dividend = 16%

Income on ₹ 80 = 16% of ₹ 100 = ₹ 16

$$\text{Income on ₹ 1} = \frac{16}{80} = ₹ 0.20$$

2nd case

20% of ₹ 100 shares at 120 means;

Market value of 1 share = ₹ 120

Nominal value of 1 share = ₹ 100

Dividend = 20%

Income on ₹ 120 = 20% of ₹ 100 = ₹ 20

Income on ₹ 1 = $\frac{20}{120}$ = ₹ 0.17

Then 16% ₹ 100 shares at 80 is better investment.

Question 16.

A man has a choice to invest in hundred-rupee shares of two firms at ₹ 120 or at ₹ 132. The first firm pays a dividend of 5% per annum and the second firm pays a dividend of 6% per annum. Find:

(i) which company is giving a better return.

(ii) if a man invests ₹ 26,400 with each firm, how much will be the difference between the annual returns from the two firms.

Solution:

(i) 1st firm

Market value of 1 share = ₹ 120

Nominal value of 1 share = ₹ 100

Dividend = 5%

Income on ₹ 120 = 5% of ₹ 100 = ₹ 5

Income on ₹ 1 = $\frac{5}{120}$ = ₹ 0.041

2nd firm

Market value of 1 share = ₹ 132

Nominal value of 1 share = ₹ 100

Dividend = 6%

Income on ₹ 132 = 6% of ₹ 100 = ₹ 6

Income on ₹ 1 = $\frac{6}{132}$ = ₹ 0.045

Then investment in second company is giving better return.

(ii) Income on investment of ₹ 26,400 in first firm

= $\frac{5}{120} \times 26,400$ = ₹ 1,100

Income on investment of ₹ 26,400 in second firm

= $\frac{6}{132} \times 26,400$ = ₹ 1,200

∴ Difference between both returns = ₹ 1,200 – ₹ 1,100 = ₹ 100

Question 17.

A man bought 360, ten-rupee shares of a company, paying 12% per annum. He sold the shares when their price rose to ₹ 21 per share and invested the proceeds in five-rupee shares paying 4.5 percent per annum at ₹ 3.50 per share. Find the annual change in his income.

Solution:

1st case

Nominal value of 1 share = ₹ 10

Nominal value of 360 shares = ₹ 10 × 360 = ₹ 3,600

Market value of 1 share = ₹ 21

Market value of 360 shares = ₹ 21 × 360 = ₹ 7,560

Dividend% = 12%

Dividend = 12% of ₹ 3,600

$$= \frac{12}{100} \times 3,600 = ₹ 432$$

2nd case

Nominal value of 1 share = ₹ 5

Market value of 1 share = ₹ 3.50

$$\therefore \text{No of shares purchased} = \frac{7,560}{3.50} = 2,160 \text{ shares}$$

Nominal value of 2160 shares = ₹ 5 × 2160 = ₹ 10,800

Dividend% = 4.5%

Dividend = 4.5% of ₹ 10,800

$$= \frac{4.5}{100} \times 10,800 = ₹ 486$$

Annual change in income = ₹ 486 – ₹ 432

= ₹ 54 increase

Question 18.

A man sold 400 (₹ 20) shares of a company, paying 5% at ₹ 18 and invested the proceeds in (₹ 10) shares of another company paying 7% at ₹ 12. How many (₹ 10) shares did he buy and what was the change in his income?

Solution:

1st case

Nominal value of 1 share = ₹ 20

Nominal value of 400 shares = ₹ 20 × 400 = ₹ 8,000

Market value of 1 share = ₹ 18

Market value of 400 shares = ₹ 18 x 400 = ₹ 7,200

Dividend% = 5%

Dividend = 5% of ₹ 8,000

$$= \frac{5}{100} \times 8,000 = ₹ 400$$

2nd case

Nominal value of 1 share = ₹ 10

Market value of 1 share = ₹ 12

$$\therefore \text{No of shares purchased} = \frac{7,200}{12} = 600 \text{ shares}$$

Nominal value of 600 shares = ₹ 10 x 600 = ₹ 6,000

Dividend% = 7%

Dividend = 7% of ₹ 6,000

$$= \frac{7}{100} \times 6,000 = ₹ 420$$

Annual change in income = ₹ 420 – ₹ 400

= ₹ 20 increase

Question 19.

Two brothers A and B invest ₹ 16,000 each in buying shares of two companies. A buys 3% hundred-rupee shares at 80 and B buys ten-rupee shares at par. If they both receive equal dividend at the end of the year, find the rate per cent of the dividend received by B.

Solution:

For A

Total investment = ₹ 16,000

Nominal value of 1 share = ₹ 100

Market value of 1 share = ₹ 80

$$\therefore \text{No of shares purchased} = \frac{16,000}{80} = 200 \text{ shares}$$

Nominal value of 200 shares = ₹ 100 x 200 = ₹ 20,000

Dividend% = 3%

Dividend = 3% of ₹ 20,000

$$= \frac{3}{100} \times 20,000 = ₹ 600$$

For B

Total investment = ₹ 16,000

Nominal value of 1 share = ₹ 10

Market value of 1 share = ₹ 10

∴ No of shares purchased = $\frac{16,000}{10} = 1600$ shares

Nominal value of 1600 shares = $10 \times 1600 = ₹ 16,000$

Dividend received by B = Dividend received by A = ₹ 600

$$\begin{aligned}\text{Dividend\%} &= \frac{\text{Dividend}}{\text{Nominal value}} \times 100\% \\ &= \frac{600}{16,000} \times 100\% \\ &= 3.75\%\end{aligned}$$

Question 20.

A man invests ₹ 20,020 in buying shares of nominal value ₹ 26 at 10% premium. The dividend on the shares is 15% per annum. Calculate :

- (i) the number of shares he buys.
- (ii) the dividend he receives annually.
- (iii) the rate of interest he gets on his money.

Solution:

Total investment = ₹ 20,020

Nominal value of 1 share = ₹ 26

Market value of 1 share = ₹ 26 + 10% of ₹ 26
= ₹ 26 + ₹ 2.60 = ₹ 28.60

∴ No of shares purchased = $\frac{20,020}{28.60} = 700$ shares

Nominal value of 700 shares = ₹ 26 × 700 = ₹ 18,200

Dividend% = 15%

Dividend = 15% of ₹ 18,200

$$= \frac{15}{100} \times 18,200 = ₹ 2,730$$

$$\begin{aligned}\therefore \text{Income\%} &= \frac{\text{Income}}{\text{Investment}} \times 100\% \\ &= \frac{2,730}{20,020} \times 100\% = \frac{150}{11}\% = 13\frac{7}{11}\%\end{aligned}$$

Exercise 3C

Question 1.

By investing ₹ 45,000 in 10% ₹ 100 shares, Sharad gets ₹ 3,000 as dividend. Find the market value of each share.

Solution:

Annual income from 1 share = 10% of Rs. 100 = Rs. 10

Total annual income = Rs. 3000

$$\therefore \text{Number of shares bought} = \frac{\text{Total annual income}}{\text{Annual income from 1 share}} = \frac{3000}{10} = 300$$

$$\Rightarrow \text{Market value of one share} = \frac{\text{Total investment}}{\text{Number of shares}} = \frac{45000}{300} = \text{Rs. 150}$$

Question 2.

Mrs. Kulkarni invests ₹ 1, 31,040 in buying ₹ 100 shares at a discount of 9%. She sells shares worth Rs.72,000 at a premium of 10% and the rest at a discount of 5%. Find her total gain or loss on the whole.

Solution:

Investment = Rs. 131040

N.V. of 1 share = Rs. 100

Discount = 9% of Rs. 100 = Rs. 9

$\therefore$ M.V. of 1 share = Rs. 100 - Rs. 9 = Rs. 91

$$\therefore \text{Number of shares purchased} = \frac{\text{Investment}}{\text{M.V. of 1 share}} = \frac{131040}{91} = 1440$$

$$\text{Number of shares worth Rs. 72000} = \frac{72000}{100} = 720$$

$\therefore$ Mrs. Kulkarni sells 720 shares at a premium of 10%

M.V. of 1 share = Rs. 100 + Rs. 10 = Rs. 110

$\therefore$ Selling price of 720 shares = 720 x Rs. 110 = Rs. 79200

Number of remaining shares = 1440 - 720 = 720

She sells 720 shares at a discount of 5%

$$\begin{aligned}
 \text{M.V. of 1 share} &= \text{Rs. } 100 - \text{Rs. } 5 = \text{Rs. } 95 \\
 \therefore \text{Selling price of 720 shares} &= 720 \times \text{Rs. } 95 = \text{Rs. } 68400 \\
 \therefore \text{Total selling price} &= \text{Rs. } (79200 + 68400) = \text{Rs. } 147600 \\
 \therefore \text{Total gain} &= \text{Total selling price} - \text{Total investment} \\
 &= \text{Rs. } (147600 - 131040) \\
 &= \text{Rs. } 16560
 \end{aligned}$$

Question 3.

A man invests a certain sum on buying 15% ₹ 100 shares at 20% premium. Find :

- His income from one share
- The number of shares bought to have an income, from the dividend, ₹ 6480
- Sum invested

Solution:

$$\begin{aligned}
 \text{(i) Dividend on one share} &= 15\% \text{ of Rs. } 100 \\
 &= \text{Rs. } \left(\frac{15}{100} \times 100 \right) \\
 &= \text{Rs. } 15
 \end{aligned}$$

So, the income from one share is Rs. 15.

$$\begin{aligned}
 \text{(ii) Number of shares bought by the man} \\
 &= \frac{\text{annual income}}{\text{dividend on one share}} \\
 &= \frac{6480}{15} \\
 &= \text{Rs. } 432
 \end{aligned}$$

$$\begin{aligned}
 \text{(iii) Since the man bought shares of Rs. } 100 \text{ at } 20\% \text{ premium, the market value of one share} \\
 &= \text{Rs. } \left(1 + \frac{20}{100} \right) \times 100 \\
 &= \text{Rs. } \left(\frac{120}{100} \times 100 \right) \\
 &= \text{Rs. } 120 \\
 \therefore \text{His total investment} &= \text{number of shares} \times \text{market value of one share} \\
 &= 432 \times 120 \\
 &= \text{Rs. } 51,840
 \end{aligned}$$

Question 4.

Gagan invested ₹ 80% of his savings in 10% ₹ 100 shares at 20% premium and the rest of his savings in 20% ₹ 50 shares at ₹ 20% discount. If his incomes from these shares is

₹ 5,600 calculate:

- (i) His investment in shares on the whole
- (ii) The number of shares of first kind that he bought
- (iii) Percentage return, on the shares bought on the whole.

Solution:

(i) Let the total savings be Rs. x .

For 1st part:

N.V. of each share = Rs. 100

M.V. of each share = $100 + \frac{20}{100}(100) = \text{Rs. } 120$

Number of shares bought = $\frac{0.8x}{120}$...(Investment = Rs. x)

Dividend on each share = 10% of 100 = Rs. 10 ...(Rate = 10%)

Total dividend = $10 \times \frac{0.8x}{120} = \text{Rs. } \frac{0.8x}{12}$

For 2nd part:

N.V. of each share = Rs. 50

M.V. of each share = $50 - \frac{20}{100}(50) = \text{Rs. } 40$

Number of shares bought = $\frac{0.2x}{40}$...(Investment = Rs. x)

Dividend on each share = 20% of 50 = Rs. 10 ...(Rate = 20%)

Total dividend = $10 \times \frac{0.2x}{40} = \frac{0.2x}{4}$

Given that dividends (incomes) from both the investments are is Rs. 5600.

$$\Rightarrow \frac{0.8x}{12} + \frac{0.2x}{4} = 5600$$

$$\Rightarrow \frac{0.8x + 0.6x}{12} = 5600$$

$$\Rightarrow x = \frac{5600 \times 12}{1.4}$$

$$\Rightarrow x = 48,000$$

Thus, his investment in shares on the whole is Rs. 48,000.

$$(ii) \text{ So, number of shares bought} = \frac{0.8x}{120} = \frac{0.8 \times 48,000}{120} = \text{Rs. } 320$$

$$\begin{aligned} (iii) \text{ The total dividend (return)} &= \frac{0.8x}{12} + \frac{0.2x}{4} \\ &= \frac{0.8(48,000)}{12} + \frac{0.2(48,000)}{4} \\ &= 0.8 \times 4,000 + 0.2 \times 12,000 \\ &= \text{Rs. } 5600 \end{aligned}$$

$$\text{Percentage return} = \frac{5600}{48,000} \times 100 = 11\frac{2}{3}\%$$

Question 5.

Ashwarya bought 496, ₹ 100 shares at ₹ 132 each, find :

- Investment made by her
- Income of Ashwarya from these shares, if the rate of dividend is 7.5%.
- How much extra must ashwarya invest in order to increase her income by ₹ 7,200.

Solution:

(i) N.V. of each share = Rs. 100

M.V. of each share = Rs. 132

Investment made by her = $496 \times 132 = \text{Rs. } 65,472$

(ii) Dividend on 1 share = 7.5% of Rs. 100 = Rs. 7.5

So, income of Ashwarya from these shares = $496 \times 7.5 = \text{Rs. } 3,720$

(iii) If she wants to increase her income by Rs. 7,200,

the number of shares she should buy = $\frac{\text{increase in the income}}{\text{income of one share}} = \frac{7,200}{7.5} = \text{Rs. } 960$

So, she should invest = $960 \times 7.5 = \text{Rs. } 1,26,720$

A company pays a dividend of 15% on its ₹ 100 shares from which income tax at the rate of 20% is deducted. Find :

- The net annual income of Gopal who owns 7,200 shares of this company
- The sum invested by Ramesh when the shares of this company are bought by him at 20% premium and the gain required by him(after deduction of income tax) is ₹ 9,000

Solution:

(i) Let the number of shares be x .

Annual income = Rate of dividend $\times$ Nominal Value $\times$ Number of shares

$$\begin{aligned} &= \frac{15}{100} \times 100 \times x \\ &= 15x \quad \dots\dots(i) \end{aligned}$$

Since the income tax is given to be 20% which is deducted,

$$15x - 20\% \text{ of } 15x = 15x - \frac{20}{100}(15x) = 15x - 3x = 12x$$

Thus, the net annual income of Gopal who owns 7,200 shares of this company
 $= 12x$

$$= 12(7,200)$$

$$= \text{Rs. } 86,400$$

(ii) Let the sum invested by him be Rs. S .

N.V. of each share = Rs. 100

M.V. of each share = Rs. 100 + 20% of Rs. 100 = Rs. 120

$$\text{Number of each share} = \text{Rs. } \frac{S}{120}$$

Dividend on each share = Rs. 15% of Rs. 100 = Rs. 15

$$\text{Total dividend} = \text{Rs. } 15 \times \frac{S}{120} = \text{Rs. } \frac{S}{8}$$

Since the income tax is given to be 20% which is deducted,

$$\text{The gain} = \frac{S}{8} - \frac{20}{100} \left(\frac{S}{8} \right) = \frac{S}{8} - \frac{S}{40} = \frac{S}{10}$$

Given the gain required by him is Rs. 9000.

$$\text{So, } \frac{S}{10} = 9000$$

$$\Rightarrow S = \text{Rs. } 90,000$$

Hence, the sum invested by Ramesh is Rs. 90,000.

Mr. Joseph sold some ₹ 100 shares paying 10% dividend at a discount of 25% and invested the proceeds in ₹ 100 shares paying 16% dividend at a discount of 20%. By doing so, his income was increased by ₹ 4,800. Find the number of shares originally held by Mr. Joseph.

Solution:

Let the number of shares be x .

Annual income = Rate of dividend $\times$ Nominal Value $\times$ Number of shares

$$\begin{aligned} &= \frac{10}{100} \times 100 \times x \\ &= 10x \quad \dots\dots(i) \end{aligned}$$

Since each share is sold at a discount of 25%,

selling price of one share = Rs. $100 - \frac{25}{100} = \text{Rs.} 75$

So, selling price of x shares = Rs. $75x$

The proceeds = the new investment = Rs. $75x$

Here the N.V. = Rs. 100

M.V. of each share = Rs. 80

Rate of dividend = 16%

Number of shares = $\frac{75x}{80}$

Annual income = Rate of dividend $\times$ Nominal Value $\times$ Number of shares

$$\begin{aligned} &= \frac{16}{100} \times 100 \times \frac{75x}{80} \\ &= 15x \quad \dots\dots(ii) \end{aligned}$$

From (i) and (ii), we get

$$15x - 10x = 4800$$

$$\Rightarrow 5x = 4800$$

$$\Rightarrow x = 960$$

So, the number of shares originally were 960.

Question 6.

Gopal has some ₹ 100 shares of company A, paying 10% dividend. He sells a certain number of these shares at a discount of 20% and invests the proceeds in ₹ 100 shares at ₹ 60 of company B paying 20% dividend. If his income, from the shares sold, increases by ₹ 18,000, find the number of shares sold by Gopal.

Solution:

Let the number of shares the man sold be x .

N.V. of share = Rs.100

Rate of dividend = 10%

Dividend on each share = 10% of Rs. 100 = Rs.10

So, the dividend on x shares = Rs. $10 \times x$ = Rs. $10x$

Selling price of each share = Rs.100 – 20% of Rs. 100 = Rs. 80

Amount obtained on selling x shares = Rs. $80 \times x$ = Rs. $80x$

The proceeds he invested in Rs. 100 shares at Rs. 60 of company B paying 20% dividend.

N.V. of share = Rs.100

M.V. of each share = Rs. 60 = Rs. 60

$$\begin{aligned}\text{Number of shares bought by the man} &= \frac{\text{Amount invested}}{\text{M.V. of each share}} \\ &= \frac{80x}{60} \\ &= \frac{4x}{3}\end{aligned}$$

Dividend on each share = 20% of Rs. 100 = Rs. 20

Total dividend received = Dividend on each share $\times$ Number of shares

$$\begin{aligned}&= 20 \times \frac{4x}{3} \\ &= \frac{80x}{3}\end{aligned}$$

Increase in the income = Rs. 18,000

$$\Rightarrow \frac{80x}{3} - 10x = 18,000$$

$$\Rightarrow \frac{50x}{3} = 18,000$$

$$x = \text{Rs. } 1080$$

Hence, the number of shares sold by Gopal is Rs. 1080.

Question 7.

A man invests a certain sum of money in 6% hundred-rupee shares at ₹ 12 premium. When the shares fell to ₹ 96, he sold out all the shares bought and invested the proceed in 10%, ten-rupee shares at ₹ 8. If the change in his income is ₹ 540, Find the sum

invested originally

Solution:

Let the original sum invested = x

Then number of Rs. 100 shares purchased at premium of Rs. 12

$$= \frac{x}{100 + 12} = \frac{x}{112}$$

The income per original share at 6% = Rs. 6

Total Income = (Number of shares) $\times$ (earning per share)

$$= (\text{Number of shares}) \times 6 = \frac{x}{112} \times 6 = \frac{3x}{56}$$

Proceeds from sale of original shares at Rs. 96 per share

$$= (\text{Number of Shares}) \times 96 = \frac{x}{112} \times 96 = \frac{6x}{7}$$

Number of Rs. 10 shares purchased at Rs. 8 per share from proceeds of original shares

$$= \frac{(\text{Proceeds from sale of original shares})}{8} = \frac{\frac{6x}{7}}{8} = \frac{3x}{28}$$

$$\text{Income per new share of Rs. 10 at 10\%} = \frac{10}{100} \times 10 = \text{Rs. 1}$$

Total income from new shares

= (Number of shares) $\times$ (Income per share)

$$= \frac{3x}{28} \times 1 = \frac{3x}{28}$$

Given change in income = 540

Income from old shares – Income from new shares = 540

$$\therefore 540 = \frac{3x}{28} - \frac{3x}{56} = \frac{3x}{56}$$

$$\therefore x = \frac{540 \times 56}{3} = 10,080$$

Thus, the original sum invested is Rs.10,080.

Question 8.

Mr. Gupta has a choice to invest in ten-rupee shares of two firms at ₹ 13 or at ₹ 16. If the first firm pays 5% dividend and the second firm pays 6% dividend per annum, find:

(i) which firm is paying better.

(ii) if Mr. Gupta invests equally in both the firms and the difference between the returns from them is ₹ 30, find how much, in all, does he invest.

Solution:

(i) 1st firm

Nominal value of 1 share = ₹ 10

Market value of 1 share = ₹ 13

Dividend% = 5%

Dividend = 5% of ₹ 10 = ₹ 0.50

$$\begin{aligned}\therefore \text{Income\%} &= \frac{\text{Income}}{\text{Investment}} \times 100\% \\ &= \frac{0.50}{13} \times 100\% = 3.846\%\end{aligned}$$

2nd firm

Nominal value of 1 share = ₹ 10

Market value of 1 share = ₹ 16

Dividend% = 6%

Dividend = 6% of ₹ 10 = ₹ 0.60

$$\begin{aligned}\therefore \text{Income\%} &= \frac{\text{Income}}{\text{Investment}} \times 100\% \\ &= \frac{0.60}{16} \times 100\% = 3.75\%\end{aligned}$$

Then first firm is paying better than second firm.

(ii) Let money invested in each firm = ₹ y

For 1st firm

$$\therefore \text{No. of shares purchased} = \frac{y}{13} \text{ shares}$$

$$\text{Total dividend} = \text{Rs} 0.50 \times \frac{y}{13} = \text{Rs} \frac{y}{26}$$

For 2nd firm

$$\therefore \text{No. of shares purchased} = \frac{y}{16} \text{ shares}$$

$$\text{Total dividend} = \text{Rs} 0.60 \times \frac{y}{16} = \text{Rs} \frac{3y}{80}$$

Given- difference of both dividend = Rs 30

$$\Rightarrow \frac{y}{26} - \frac{3y}{80} = \text{Rs} 30$$

$$\Rightarrow \frac{y}{1040} = \text{Rs}30$$

$$\Rightarrow y = \text{Rs}30 \times 1040 = \text{Rs}31,200$$

Total money invested in both firms = ₹ 31,200 × 2

= ₹ 62,400

Question 9.

Ashok invested Rs. 26,400 in 12%, Rs. 25 shares of a company. If he receives a dividend of Rs. 2,475, find the :

- (i) number of shares he bought.
- (ii) market value of each share.

Solution:

(i) Total dividend = Rs. 2,475

And, dividend on each share = 12% of Rs. 25 = $\frac{12}{100} \times \text{Rs. } 25 = \text{Rs. } 3$

$\therefore$ Number of shares bought = $\frac{\text{Total dividend}}{\text{Dividend on 1 share}} = \frac{2475}{3} = 825$

(ii) Market value of 825 shares = Rs. 26,400

$\therefore$ Market value of each share = $\frac{\text{Total investment}}{\text{No. of shares}} = \frac{26400}{825} = \text{Rs. } 32$

Question 10.

A man invested ₹ 45,000 in 15% Rs100shares quoted at ₹ 125. When the market value of these shares rose to ₹ 140, he sold some shares, just enough to raise ₹ 8,400.

Calculate:

- (i) the number of shares he still holds;
- (ii) the dividend due to him on these remaining shares.

Solution:

(i) Total investment = ₹ 45,000

Market value of 1 share = ₹ 125

$\therefore$ No of shares purchased = $\frac{45,000}{125} = 360$ shares

Nominal value of 360 shares = ₹ 100 × 360 = ₹ 36,000

Let no. of shares sold = n

Then sale price of 1 share = ₹ 140

Total sale price of n shares = ₹ 8,400

Then $n = \frac{8,400}{140} = 60$ shares

The no. of shares he still holds = $360 - 60 = 300$

(ii) Nominal value of 300 shares = ₹ $100 \times 300 = ₹ 30,000$

Dividend% = 15%

Dividend = 15% of ₹ 30,000

$$= \frac{15}{100} \times 30,000 = ₹ 4,500$$

Question 11.

Mr. Tiwari. invested ₹ 29,040 in 15% Rs100 shares quoted at a premium of 20%.

Calculate:

(i) the number of shares bought by Mr. Tiwari.

(ii) Mr. Tiwari's income from the investment.

(iii) the percentage return on his investment.

Solution:

Total investment = ₹ 29,040

Nominal value of 1 share = ₹ 100

Market value of 1 share = ₹ $100 + 20\% \text{ of } ₹ 100$

= ₹ $100 + ₹ 20 = ₹ 120$

∴ No of shares purchased = $\frac{29,040}{120} = 242$ shares

Nominal value of 242 shares = ₹ $100 \times 242 = ₹ 24,200$

Dividend% = 15%

Dividend = 15% of ₹ 24,200

$$= \frac{15}{100} \times 24,200 = ₹ 3,630$$

$$\begin{aligned} \text{Income\%} &= \frac{\text{Income}}{\text{Investment}} \times 100\% \\ &= \frac{3,630}{29,040} \times 100\% \\ &= 12.5\% \end{aligned}$$

Question 12.

A dividend of 12% was declared on ₹ 150 shares selling at a certain price. If the rate of return is 10%, calculate:

(i) the market value of the shares.

(ii) the amount to be invested to obtain an annual dividend of ₹ 1,350.

Solution:

(i) Nominal value of 1 share = Rs 150

Dividend% = 12%

Dividend on 1 share = 12% of Rs 150

$$= \frac{12}{100} \times \text{Rs} 150 = \text{Rs} 18$$

Let market value of 1 share = Rs y

Return% = 10%

10% of Rs(y) = Rs 18

$$= \frac{10}{100} \times y = \text{Rs} 18$$

$$= y = \text{Rs} 180$$

(ii) when dividend is Rs 18, then investment is Rs 180

When dividend is Rs 1,350, then investment

$$= \frac{180}{18} \times \text{Rs} 1,350$$

$$= \text{Rs} 13,500$$

Question 13.

Divide ₹ 50,760 into two parts such that if one part is invested in 8% ₹ 100 shares at 8% discount and the other in 9% ₹ 100 shares at 8% premium, the annual incomes from both the investments are equal.

Solution:

Total investment = Rs 50,760

Let 1st part = Rs y

2nd part = Rs (50,760 - y)

For 1st part

Nominal value of 1 share = Rs 100

Market value of 1 share = Rs 100 - 8% of Rs 100

$$= \text{Rs} 100 - \text{Rs} 8 = \text{Rs} 92$$

$$\therefore \text{No. of shares purchased} = \frac{y}{92} \text{ shares}$$

Dividend% = 8%

Dividend on 1 share = 8% of Rs 100 = Rs 8

$$\text{Total dividend} = \frac{y}{92} \times \text{Rs} 8 = \text{Rs} \frac{2y}{23}$$

For 2nd part

Nominal value of 1 share = Rs100

Market value of 1 share = Rs100 + 8% of Rs100

= Rs100 + Rs8 = Rs108

$$\therefore \text{No. of shares purchased} = \frac{50760 - y}{108} \text{ shares}$$

Dividend% = 9%

Dividend on 1 share = 9% of Rs100 = Rs9

$$\text{Total dividend} = \frac{50760 - y}{108} \times \text{Rs}9 = \text{Rs} \frac{9(50760 - y)}{108}$$

Given that both dividend are equal

$$\text{Then } \text{Rs} \frac{2y}{23} = \text{Rs} \frac{9(50760 - y)}{108}$$

$$\Rightarrow 2y \times 108 = 23(456840 - 9y)$$

$$\Rightarrow 216y = 456840 \times 23 - 207y$$

$$\Rightarrow 423y = 456840 \times 23$$

$$\Rightarrow y = \frac{456840 \times 23}{423} = \text{Rs}24,840$$

1st part = Rs24,840

2nd part = Rs50760 - Rs24,840 = Rs25,920 Ans.

Question 14.

Mr. Shameem invested $33\frac{1}{3}\%$ of his savings in 20% ₹ 50 shares quoted at ₹ 60 and the remainder of the savings in 10% ₹ 100 share quoted at ₹ 110. If his total income from these investments is ₹ 9,200; find :

(i) his total savings

(ii) the number of ₹ 50 share

(iii) the number of ₹ 100 share.

Solution:

Let his total savings is Rs y

1st case

$$\text{His saving} = 33\frac{1}{3}\% \text{ of } y = \text{Rs} \frac{y}{3}$$

Market price of 1 share = Rs60

$$\text{Then shares purchased} = \frac{y}{3 \times 60} = \frac{y}{180}$$

Dividend on 1 share = 20% of Rs50 = Rs10

$$\text{Total dividend} = \frac{y}{180} \times 10 = \text{Rs } \frac{y}{18}$$

2nd case

$$\text{His saving} = 66\frac{2}{3}\% \text{ of } y = \text{Rs } \frac{2y}{3}$$

Market price of 1 share = Rs110

$$\text{Then shares purchased} = \frac{2y}{3 \times 110} = \frac{y}{165}$$

Dividend on 1 share = 10% of Rs100 = Rs10

$$\text{Total dividend} = \frac{y}{165} \times 10 = \text{Rs } \frac{2y}{33}$$

According to question

Total income = Rs9,200

$$\Rightarrow \frac{y}{18} + \frac{2y}{33} = \text{Rs}9,200$$

$$\Rightarrow \frac{23y}{198} = \text{Rs}9,200$$

$$\Rightarrow y = \frac{9,200 \times 198}{23} = \text{Rs}79,200 \quad \text{Ans.}$$

$$\text{The number of Rs50 share} = \frac{79,200}{180} = 440 \text{ Ans.}$$

$$\text{The number of Rs100 share} = \frac{79,200}{165} = 480 \text{ Ans.}$$

Question 15.

Vivek invests ₹ 4,500 in 8%, ₹ 10 shares at ₹ 5. He sells the shares when the price rises to ₹ 30, and invests the proceeds in 12% ₹ 100 shares at ₹ 125. Calculate :

- the sale proceeds
- the number of ₹ 125 shares he buys.
- the change in his annual income from dividend.

Solution:

1st case

Total investment = ₹ 4,500

Market value of 1 share = ₹ 15

$$\therefore \text{No of shares purchased} = \frac{4,500}{15} = 300 \text{ shares}$$

Nominal value of 1 share = ₹ 10

Nominal value of 300 shares = ₹ 10 × 300 = ₹ 3,000
Dividend = 8% of ₹ 3,000

$$= \frac{8}{100} \times 3,000 = ₹ 240$$

Sale price of 1 share = ₹ 30

Total sale price = ₹ 30 × 300 = ₹ 9,000

(ii) new market price of 1 share = ₹ 125

$$\therefore \text{No of shares purchased} = \frac{9,000}{125} = 72 \text{ shares}$$

(iii) New nominal value of 1 share = ₹ 100

New nominal value of 72 shares = ₹ 100 × 72 = ₹ 7,200

Dividend% = 12%

New dividend = 12% of ₹ 7,200

$$= \frac{12}{100} \times 7,200 = ₹ 864$$

Change in annual income = ₹ 864 – ₹ 240 = ₹ 624

Question 16.

Mr. Parekh invested ₹ 52,000 on ₹ 100 shares at a discount of ₹ 20 paying 8% dividend. At the end of one year he sells the shares at a premium of ₹ 20. Find:

(i) The annual dividend

(ii) The profit earned including his dividend.

Solution:

Rate of dividend = 8%

Investment = ₹ 52,000

Market Rate = ₹ 100 – 20 = ₹ 80

$$\text{No. of shares purchased} = \frac{52,000}{80} = 650$$

(i) Annual dividend = 650 × 8 = ₹ 5,200

(ii) On selling, market rate = ₹ 100 + 20 = ₹ 120

⇒ Sale price = 650 × 120 = ₹ 78,000

Profit = ₹ 78,000 – ₹ 52,000 = ₹ 26,000

⇒ Total gain = 26,000 + 5,200 = ₹ 31,200

Question 17.

Salman buys 50 shares of face value ₹ 100 available at ₹ 132.

(i) What is his investment?

(ii) If the dividend is 7.5%, what will be his annual income?

(iii) If he wants to increase his annual income by ₹ 150, how many extra shares should he buy?

Solution:

Number of shares bought = 50

N.V. of one share = Rs. 100

M.V. of each share = Rs. 132

(i) Investment = M.V. of each share $\times$ Number of shares

$$= \text{Rs. } 132 \times 50$$

$$= \text{Rs. } 6600$$

(ii) Since dividend on 1 share = 7.5% of N.V. = $\frac{7.5}{100} \times 100 = \text{Rs. } 7.50$

His annual income = Rs. 7.50 $\times$ 50 = Rs. 375

(iii) Extra shares to be bought = $\frac{\text{Increase in annual income}}{\text{Income in one share}} = \frac{150}{7.50} = 20$

Question 18.

Salman invests a sum of money in ₹ 50 shares, paying 15% dividend quoted at 20% premium. If his annual dividend is ₹ 600, calculate :

(i) The number of shares he bought.

(ii) His total investment.

(iii) The rate of return on his investment.

Solution:

N.V. of each share = Rs. 50

M.V. of each share = Rs. 50 + 20% of Rs. 50

$$= 50 + \frac{20}{100} \times 50$$

$$= 50 + 10$$

$$= \text{Rs. } 60$$

Dividend on one share = 15% of Rs. 50 = $\frac{15}{100} \times 50 = 7.5$

- (i) Number of shares bought = $\frac{\text{Total dividend}}{\text{Dividend on one share}} = \frac{600}{7.5} = 80$
- (ii) His total investment = Number of shares $\times$ M.V. of one share
 $= 80 \times \text{Rs. } 60$
 $= \text{Rs. } 4800$
- (iii) Rate of return = $\frac{\text{Total dividend}}{\text{Total investment}} \times 100\% = \frac{600}{4800} \times 100\% = 12.5\%$

Question 19.

Rohit invested ₹ 9,600 on ₹ 100 shares at ₹ 20 premium paying 8% dividend. Rohit sold the shares when the price rose to ₹ 160. He invested the proceeds (excluding dividend) in 10% ₹ 50 shares at ₹ 40. Find the :

- (i) Original number of shares.
- (ii) Sale proceeds.
- (iii) New number of shares.
- (iv) Change in the two dividends.

Solution:

- (i) 100 shares at Rs. 20 premium means
 Nominal value of the share is Rs. 100
 and its market value = $100 + 20 = \text{Rs. } 120$
 Money required to buy 1 share = Rs. 120
 $\therefore$ Number of shares = $\frac{\text{Money Invested}}{\text{Market Value of 1 Share}} = \frac{9600}{120} = 80$
- (ii) Each share is sold at Rs. 160
 $\therefore$ Sale Proceeds = $80 \times \text{Rs. } 160 = \text{Rs. } 12,800$
- (iii) Now, investment = Rs. 12800
 Dividend = 10%
 Net Value = 50
 Market Value = Rs. 40
 $\therefore$ Number of shares = $\frac{\text{Investment}}{\text{Market Value}} = \frac{12800}{40} = 320$
- (iv) Now, dividend on 1 share = 10% of N.V. = 10% of 50 = 5
 $\Rightarrow$ Dividend on 320 shares = $320 \times 5 = 1600$
 Thus, change in two dividends = $1600 - 640 = 960$

Question 20.

How much should a man invest in Rs. 50 shares selling at Rs. 60 to obtain an income of Rs. 450, if the rate of dividend declared is 10%. Also find his yield percent, to the nearest whole number.

Solution:

Face value of each share = Rs. 50

Dividend(%)=10%

$$\text{Dividend on 1 share} = \frac{10}{100} \times 50 = \text{Rs. } 5$$

$$\therefore \text{Number of shares bought} = \frac{\text{Total dividend}}{\text{Dividend per share}} = \frac{450}{5} = 90$$

Market value of each share = Rs. 60

$$\therefore \text{Total investment} = 90 \times 60 = \text{Rs. } 5400$$

$$\text{Percentage return} = \frac{\text{Total dividend}}{\text{Total investment}} \times 100 = \frac{450}{5400} \times 100 = 8.33 \approx 8\%$$