Stocks, Shares and Debentures 20

INTRODUCTION

To start a big business or an industry, a large sum of money is required. It may not be possible for one or two persons to arrange for the requisite finance and expertise required for the project. So, a number of individuals join hands to form a company called a 'Joint Stock Company'. It is a registered body under the Companies Act. The persons who join together to form the company are called its 'Promoters'. The total amount of money required by the company is called the 'Capital'.

The promoters of the company issue a circular giving the details of the project, its benefits and drawbacks and invite the public to come forward and subscribe towards the capital of the company. The company divides the required capital into small units of equal amount. Each unit is called a 'share'. Each person, who purchases one or more shares of the company is called a 'shareholder' of the company. The company issues a 'share certificate' to each of its shareholders stating the number of shares alloted to the person and the value of each share. The value of a share, as stated on the share certificate is called the 'nominal value' (or **'face value'**, or **'par value'**) of the share.

When a company earns a profit during a financial year, a part of it is used in paying for working expenses, taxes, interest on loans and keeping some part of it as reserve fund for future expansion of the project, the remaining profit is distributed among the shareholders. The distributed profit is called the 'dividend'.

Dividends are declared annually, semi-annually, quarterly as per regulations of the company. The dividend on a share is expressed as certain percentage of its face value which is printed on the share certificate. Sometimes it is also expressed as a specified amount per share. For example, we may say that dividend on a share is 12% of its face value or the dividend is ₹2 per share.

Illustration 1: Find the annual dividend paid in each of the following cases:

Sl. No.	Par value of a share	Number of Common Shares	Rate of dividend declared on a Common Share
(1)	₹10	500	10% per annum
(2)	₹10	800	5% semi-annually
(3)	₹100	1500	5% quarterly
(4)	₹10	2500	2% per month

Solution:

(1) Annual dividend on one share

$= 10\%$ of ₹10 $= ₹\left(\frac{10}{100}\times 10\right) = ₹1$

Annual dividend on 500 shares

$= ₹(500 \times 1) = ₹500.$

(2) Annual dividend on one share

$= ₹(2 \times 5)\%$ of ₹10

$= ₹\left(\frac{10}{100}\times 10\right) = ₹1$

$\therefore$ Annual dividend on 800 shares

$= ₹(800 \times 1) = ₹800.$

(3) Annual dividend on one share

$= (4 \times 5)\%$ of ₹100

$= ₹\left(\frac{20}{100}\times 100\right) = ₹20$

$\therefore$ Annual dividend on 1500 shares

$= ₹(1500 \times 20) = ₹30000.$

(4) Annual dividend on one share

$= (12 \times 2)\%$ of ₹10

$= ₹\left(\frac{24}{100}\times 10\right) = ₹2.40$

$\therefore$ Annual dividend on 2500 shares

$= ₹(2500 \times 2.40) = ₹6000.$

TYPES OF SHARES

The shares are generally of two types:

(1) **Preferred shares** These shares get preference in terms of payment of dividend and return of capital over ordinary shares. The rate of dividend for these shares is decided when they are issued and dividend to preferred shareholders is paid before any dividend is paid to common shareholders.

(2) **Ordinary shares** Ordinary shareholders are paid dividend only when profits are left after preferred shareholders have been paid dividend at specified rate. The rate of dividend on these shares is also not fixed and depends upon the amount of available profit.

FACE VALUE AND MARKET VALUE OF A SHARE

The price at which the shares are initially issued by a company to its shareholders is called the *face value* of a share (This is also called *nominal* or *par value* of a share). In fact, this is that value of a share which is mentioned in the share certificate issued by the company to its shareholders.

As other things, shares are also sold in (or purchased from) the market. The value of a share quoted in the market is called the *market value* of the share. The market value of a share keeps on changing according to its demand and supply changes.

If the market value of a share is equal to the par value of the share, the share is said to be *at par*. If the market value of a share is more than its face (or par) value, the share is said to be at *premium*. On other hand, if the market value of a share is less than its face value, the share is said to be *at discount* (or *below par*).
For example, if the market value of a ₹100 share is ₹130, it is said to be at 30% premium.

If the market value of a ₹100 share is ₹90, it is said to be at 10% discount. If ₹100 share is quoted at 45 premium then its market value is

$$₹(100 + 45) = ₹145.$$

Every company declares dividend on the face value of its shares irrespective of the market value of the share.

Note:

The statement, '32%, ₹100 shares at ₹125' means:
(1) Face value of each share is ₹100.
(2) Dividend on each share is 32% of the face value.
(3) Market value of each share is ₹125.
(4) An investment of ₹125 earns an annual income of ₹32.

Illustration 2: Find out the cost of purchasing 150 shares of a company, each of par value ₹10, quoted at ₹16 each in the market, from the original shareholder. Also, find out the gain to the new shareholder if he sells each share at a premium of ₹10.

Solution: Market value of share = ₹16

∴ Market value of 150 shares

$$= ₹(150 \times 16) = ₹2400$$

Thus, the new shareholder spent ₹2400 for buying 150 shares. The new shareholder sold the shares at a premium of ₹10.

∴ Now, market value of a share

$$= ₹(10 + 10) = ₹20$$

The selling price of 150 shares at the new market value $= ₹(150 \times 20) = ₹3000$

∴ Gain of the new shareholder in the transaction

$$= ₹(3000 - 2400) = ₹600.$$

Illustration 3: Raja buys 200 shares, each of par value ₹10 of a company which pays annual dividend of 15% at such a price that he receives 12% on his investment. Find out the market value of a share.

Solution: Par value of 200 shares

$$= ₹(200 \times 10) = ₹2000.$$

Dividend received by Raja

$$= ₹\left(\frac{2000 \times 15}{100}\right) = ₹300.$$

Let, the market value of 200 shares be ₹x. We have to find x such that 12% of x = 300,

i.e., $\frac{12}{100} \times x = 300$ ∴ $x = \frac{100 \times 300}{12} = 2500$

i.e., Market value of 200 shares = ₹2500

Hence, the market value of one share = ₹12.50.

STOCKS AND BROKERAGE

Stock

In the previous section, we have learnt about shares, which can be sold and purchased by the public. The nominal value or face value of shares is fixed (usually ₹10 or ₹100), but their market value varies.

Sometimes, joint stock companies or the government also raises loans from the market by issuing *bonds* or *promisory notes*. They promise to pay a fixed amount (called *redemption value*) on a future date and interest payments at fixed periods until that time. The money paid to company or government for buying such bonds is called *stock*.

The stocks are usually known by their rates of dividend. Thus, by 9% stock we mean that the dividend on a ₹100 stock is ₹9.

If the market value of ₹100 stock, which yields a dividend of ₹5, is ₹115, the stock is called, '5% stock at 115. Similarly, 10% stock at 120 means that a stock of face value ₹100 gives a dividend of ₹10 and is available in the market of 120.

Note:

There can be stocks in units different from ₹100, say ₹500, ₹1000, etc., but the phrase, '8% stock at 90' can be used only in case of that stock whose face value is ₹100. Dividend on a stock is fixed (declared at the time of issue) whereas for a share it varies with time. Usually, the *date of maturity* of the stock is fixed. In case, the holder of the stock requires money before the due date, he may sell his stock to some other person, whereby his claim of interest is transferred to that person.

Brokerage

The sale and purchase of stock is, generally, executed through a stockbroker who charges some money, called *Brokerage* from both the seller and buyer. *The brokerage is charged either as some fixed amount on each unit of stock or as some percentage of the market value of unit of stock.*

Thus, the brokerage of ₹x means that x rupees are to be added or subtracted from the market value of the stock. Similarly, brokerage 2% means that the brokerage equal to 2% of the market value of a unit of stock and be added to (or subtracted from) the market value of a unit of stock.

Notes:

(1) The brokerage is added to the market value when the stock is purchased.
(2) The brokerage is subtracted from the market value when the stock is sold.

CALCULATION OF INCOME ON A STOCK

When the face value of the total stock is given, the income can be calculated on the assumption that the face value of each unit of stock is ₹100. On the contrary, if the market value of the total investment is given, the income can be calculated on the basis of the market value of a unit of stock.

Illustration 4: Find the income from ₹2875 of 4% stock.
Solution: By 4% stock, we mean a stock of ₹100 will fetch a dividend of ₹4 p.a.

Hence, the income from ₹2875 of 4% stock

$$= \frac{2875 \times 4}{100} = ₹115.$$

Illustration 5: Find the income on 10% stock of ₹25000 purchased at ₹120.
Solution: Face value of stock = ₹25000

Income on ₹100 stock = ₹10

Income on ₹1 stock = $₹\left(\frac{10}{100}\right)$

Income on ₹25000 stock = $₹\left(\frac{25000 \times 10}{100}\right)$

= ₹2500.

COMPUTATION OF INVESTMENT OR MARKET VALUE OF A STOCK

If the face value of a stock is given, the market value of the stock can be found on the basis of market value of each unit of stock.

Illustration 6: Find out the investment required to purchase ₹75000 of 10% stock at 95.
Solution: Market value of ₹100 stock = ₹95

∴ Market value of ₹75000 stock

$$= ₹\left(\frac{95}{100} \times 75000\right) = ₹71250$$

∴ An investment of ₹71250 is required to purchase ₹75000 of 10% stock at ₹95.

Illustration 7: Find the investment required to get an income of ₹4200 from $10\frac{1}{2}$% stock at 80 (Brokerage: 2%).
Solution: Brokerage = 2% of ₹80 = $₹\left(\frac{2}{100} \times 80\right)$

= ₹1.60

∴ Investment needed to buy ₹100 stock

= ₹81.60 on which the income is $₹10\frac{1}{2}$

For income of $₹10\frac{1}{2}$, the investment = ₹81.60

For income of ₹4200, the investment

$$= ₹\left(81.60 \times \frac{2}{21} \times 4200\right) = ₹32640.$$

COMPUTATION OF GAIN OR LOSS IN THE SALE AND PURCHASE OF A STOCK

When the market is favourable to stock holders, i.e., they are likely to get better proceeds for their stock, they sell the stock and may reinvest the money so obtained in another stock which may give them more income.

Illustration 8: Ram bought ₹12000 of 8% stock at 92 and sold it when the price rose to 98. Find his total gain and gain per cent.

Solution: Investment made by Ram in buying ₹12000 of 8% stock at 92

$$= ₹\left[12000 \times \frac{92}{100}\right] = ₹11040$$

When the price rose to ₹98, Ram sold the stock, thus money realized from selling the stock

$$= ₹\left[12000 \times \frac{98}{100}\right] = ₹11760$$

∴ Gain realized in the transaction

$$= ₹(11760 - 11040) = ₹720$$

∴ Gain per cent $= \frac{(720 \times 100)}{11040} - 3\frac{12}{23}\%$

CHANGE IN INCOME ON SALE OR REINVESTMENT

A person having one type of stock may sell it to buy another which gives higher income. In such problems, the income in two cases is calculated and change is found out.

Illustration 9: Ram invests ₹46500 in 6% stock at 93 and sells the stock when its price rose to ₹95. He invests the sale proceeds in 9% stock at 95. Find out the change in Ram's income.

Solution: Income from first stock $= ₹\left(\frac{6}{93} \times 46500\right)$

$= ₹3000$

We have to find the amount realized on selling this stock.

Amount realized on selling ₹93 stock = ₹95

∴ Amount realized on selling ₹46500 stock

$$= ₹\frac{95}{93} \times 4650 = ₹47500$$

This amount is invested in 9% stock at 95.

∴ Income from the second stock

$$= ₹\left(\frac{9}{95} \times 47500\right) = ₹4500$$

Hence, increase in income

$$= ₹(4500 - 3000) = ₹1500.$$

DEBENTURES

Sometimes, a running joint stock company may require more capital for its further expansion. The company borrows the required sum of money from the general public for a fixed period of time and at a fixed rate of interest by dividing the amount required into small parts. These small parts are called *debentures*.

The debenture-holders are creditors of the company and do not have any right on the profits declared by the company. However, interest at fixed rate and fixed time is payable to debenture-holders, irrespective of the fact whether the company is running in profits or losses.

Like shares, debentures can also be sold in or purchased from the market. The terms used in case of shares, are also used with the same meaning in case of debentures. Thus, we use the terms '*debentures at premium*', '*debentures at discount*', etc. Furthermore, the rules for calculating the brokerage on debenture are also the same as those in case of shares.

DIFFERENCE BETWEEN SHARES ANDDEBENTURES

	Shares		Debentures
(a)	Share money forms a part of the capital of the company.	(a)	Debentures are a mere debt.
(b)	Shareholders have right on the profit declared by the company.	(b)	Debenture holders are creditors of the company and do not have any right on the profit declared by the company.
(c)	Shareholders may receive different dividend according as profit is more or less.	(c)	Debenture holders receive interest at a fixed rate.

Illustration 10: Find the income per cent of a buyer on 8% debentures of face value ₹120 and available in the market at ₹180.

Solution: The market value of a debenture is ₹180.

∴ Income on ₹180 is ₹8.

∴ Income on ₹120 is $₹\left(\frac{8}{180} \times 120\right) = ₹5\frac{1}{3}$.

∴ Per cent income on the debenture is $5\frac{1}{3}\cdot\%$.

Illustration 11: Ram has 500 shares of par value ₹10 each of a company and 500 debentures of par value ₹100 each. The company pays a dividend of 8% on the shares and pays an interest of 10% on its debentures. Find the total annual income of Ram and the rate of return on her investments.

Solution: Annual dividend on 500 shares

$$= ₹\frac{(500 \times 10 \times 8)}{100}$$

$= ₹400.$

Annual interest on 500 debentures

$$= ₹\frac{(500\times100\times10)}{100}$$

$$= ₹5000.$$

$\therefore$ Total annual income of Ram

$= ₹(5000 + 400) = ₹5400.$

Total investment of Ram

$= ₹(500 \times 10 + 500 \times 100) = ₹55000$

Rate of return on Ram's investment

$$= \left(\frac{5400}{55000}\times100\right)\%$$

$$= \frac{108}{11}\% \quad \text{or,} \quad 9\frac{9}{11}\%$$

EXERCISE- I

1. A company declared an annual dividend of 10%. Find out the annual dividend of Ram owning 1500 shares of the company of par value ₹10 each.

(a) ₹1400 (b) ₹1500
(c) ₹1700 (d) ₹1600

2. A company declared an annual dividend of 10%. Find out the annual dividend received by Anu owning 4000 shares of the company having a par value of ₹100 each.

(a) ₹45000 (b) ₹40000
(c) ₹50000 (d) ₹60000

3. Jatin invested ₹27260 in buying ₹100 shares of a company at ₹116 each. If the company paid 16% dividend at the end of the year, find his income from the dividend.

(a) ₹3560 (b) ₹2760
(c) ₹3760 (d) ₹3660

4. A company issued 50000 shares of par value ₹10 each. If the total dividend declared by the company is ₹62500, then find out the rate of dividend paid by the company.

(a) $8\frac{1}{2}\%$ (b) $12\frac{1}{2}\%$

(c) 12% (d) $13\frac{3}{4}\%$

5. A company declared a semi-annual dividend of $7\frac{1}{2}\%$. Find out the annual dividend of Chetan, owning 1250 shares of the company having a par value of ₹10 each.

(a) ₹1875 (b) ₹1757
(c) ₹1680 (d) ₹1575

6. A medicine company issued 125000 shares of par value ₹20 each. If the total dividend declared by the company is ₹375000, find out the rate of dividend paid by the company.

(a) 15 % (b) 13%
(c) 10% (d) 14%

7. Seema had 50 preferred shares and 400 common shares of par value ₹100 each. If the dividend declared on preferred shares is 10% per annum and a semi-annual dividend of 7.5% is on common shares find the annual dividend received by Seema.

(a) ₹7500 (b) ₹6500
(c) ₹8500 (d) ₹5500

8. Find out the annual dividend received by Sunil for his 200 preferred shares and 1000 common shares, both of par value ₹100 each if the dividend declared on a preferred share is 10% per annum and an annual dividend of $12\frac{1}{2}\%$ on the common shares.

(a) ₹4500 (b) ₹550
(c) ₹4000 (d) ₹3500

9. A company issued 50000 shares of par value ₹100 each. If the total dividend declared by the company is ₹125000, out of which ₹50000 have been kept in reserve fund and the remaining is distributed as dividend, find out the rate of dividend paid by the company.

(a) $2\frac{3}{4}\%$ (b) $1\frac{1}{2}\%$

(c) $1\frac{1}{4}\%$ (d) 2%

10. Find the annual dividend received by Nishita from 1200 preferred shares and 3000 common shares both of par value ₹50 each if the dividend paid on preferred shares is 10% and semi-annual dividend of $3\frac{1}{2}\%$ is declared on common shares.

(a) ₹18500 (b) ₹16500
(c) ₹14500 (d) ₹14500

11. 12500 shares, of par value ₹20 each, are purchased from Ram by Mohan at a price of ₹25 each. Find out the amount required to purchase the shares. If Mohan further sells the shares at a premium of ₹11 each, then find out his gain in the transaction.

(a) ₹75000 (b) ₹85000
(c) ₹70000 (d) ₹65000

12. Mac buys 200 shares of par value ₹10 each, of a company, which pays an annual dividend of 8% at such a price that he gets 10% on his investment. Find the market value of share.

(a) ₹8 (b) ₹10
(c) ₹6 (d) ₹12

13. Shyam purchased 12000 shares of a company, of par value ₹10 each, paying an annual dividend of 15% at such a price that she gets 10% on her investment. Find the market value of a share.

(a) ₹25 (b) ₹15
(c) ₹20 (d) ₹14

14. The capital of a company is made up of 50000 preferred shares with dividend of 20% and 20000 common shares, the par value of each type of share being ₹10. The company had a total profit of ₹180000 out of which ₹30000 were kept in reserve fund and the remaining distributed to shareholders. Find out the dividend per cent to the common shareholders.

(a) 24% (b) 20%
(c) 25% (d) 30%

15. A company has issued 10000 preferred shares and 50000 common shares both of par value ₹100 each. The dividend on a preferred share and a common share is 12% and 17.6%, respectively. The company had a total profit of ₹15 Lakhs, out of which some amount was kept in reserve fund and the remaining distributed as dividend. Find out the amount kept in reserve fund.

(a) ₹5 Lakhs (b) ₹6 Lakhs
(c) ₹6.5 Lakhs (d) ₹5.5 Lakhs

16. A man sells 5000 common shares of Company X (each of par value ₹10), which pays a dividend of 20%, at ₹30 per share. He invests the sale proceeds in ordinary shares of Company Y (each of par value ₹25) that pays a dividend of 15%. If the market value of a share of Company Y is ₹40, find out the number of shares of Company Y purchased by the man.

(a) 3850 (b) 3750
(c) 3700 (d) 3800

17. The shares of a company of par value ₹10 each, are available at 20% premium. Find out the amount paid by the buyer who wants to buy 2500 shares. What would be the gain of the buyer if he sells those shares at the rate of ₹20 per share?

(a) ₹25000 (b) ₹30000
(c) ₹20000 (d) ₹22000

18. Find the income on 12% stock of ₹60000 purchased at ₹110.

(a) ₹7200 (b) ₹7500
(c) ₹7400 (d) ₹8200

19. Find the income on $7\frac{1}{2}$% stock of ₹20000 purchased at ₹120.

(a) ₹1550 (b) ₹1450
(c) ₹1500 (d) ₹1600

20. Find the income by investing ₹81000 in 9% stock at 135.

(a) ₹5500 (b) ₹6400
(c) ₹5400 (d) ₹6000

21. Find the income obtained by investing ₹90000 in $7\frac{1}{2}$% stock at $112\frac{1}{2}$.

(a) ₹6000 (b) ₹6500
(c) ₹7500 (d) ₹7000

22. A person buys $9\frac{1}{2}$% stock of ₹72000 at 144. Find his annual income.

(a) ₹6640 (b) ₹6840
(c) ₹6900 (d) ₹7240

23. Mr Lal invested ₹92000 in $9\frac{1}{2}$% stock at 91 (Brokerage: ₹1). Find out the annual income of Mr Lal from this investment.

(a) ₹9000 (b) ₹9500
(c) ₹10500 (d) ₹8000

24. Raja invested ₹99000 in $7\frac{1}{2}$% stocks at $81\frac{1}{2}$ (Brokerage: ₹1). Find out Ram's annual income from his investment.

(a) ₹9500 (b) ₹10000
(c) ₹10500 (d) ₹9000

25. Ram invested ₹88008 in $9\frac{1}{2}$% stock at 112 (Brokerage: ₹2). Find out annual income of Ram from this investment.

(a) ₹6334 (b) ₹6874
(c) ₹7334 (d) ₹6534

26. Find the investment required to purchase ₹125000 of 8% stock at 92.

(a) ₹115000 (b) ₹120000
(c) ₹105000 (d) ₹125000

27. What investment will be required to purchase ₹90000 of 8% stock at 110?

(a) ₹88000 (b) ₹99000
(c) ₹88500 (d) ₹9950

28. Find out the investment required to get an income of ₹1938 from $9\frac{1}{2}\%$ stock at 90 (Brokerage 1%).

(a) ₹19642.60 (b) ₹17543.00
(c) ₹18543.60 (d) ₹18600.60

29. A man bought ₹20000 of 5% stock at 90 and sold it when its price rose to ₹$93\frac{3}{4}$. Find out his gain per cent.

(a) $5\frac{1}{6}\%$ (b) $4\frac{1}{6}\%$
(c) $5\frac{5}{6}\%$ (d) $4\frac{5}{6}\%$

30. Meena bought ₹36000 of $7\frac{1}{2}\%$ stock at 92 and sold it when its price rose to ₹$93\frac{3}{4}$. Find out her gain per cent.

(a) 1.9% (b) 2.9%
(c) 2.3% (d) 1.4%

31. A man invests ₹27600 in 4% stock at 92. He sold ₹20000 stock when the price rose to ₹96, and sold the remaining stock when the market value fell to ₹90. How much does he gain or loss in the transaction?

(a) Gain = ₹600 (b) Loss = ₹600
(c) Loss = ₹650 (d) Gain = ₹650

32. A person invests ₹28500 in 5% stock at 95. He sold ₹15000 stock when the price rose to ₹98 and sold the remaining stock when the market value of the stock fell to ₹90. How much does he gain or loss in the transaction?

(a) Gain = ₹300 (b) Loss = ₹300
(c) Gain = ₹400 (d) Loss = ₹400

33. Sushma invested ₹245000 in 7% stock at 98 and sold the stock when its price rose to ₹100. She invested the sale proceeds in 9% stock at 125. Find out the change in income of Sushma.

(a) ₹600 (b) ₹400
(c) ₹500 (d) ₹650

34. Anu invested ₹32400 in 8% stock at 90. She sold out ₹18000 stock when the price rose to ₹95 and the remaining stock at ₹98. She invested the total sale proceeds in 10% stock at $96\frac{1}{2}$. Find the change in income of Anu.

(a) ₹750 (b) ₹720
(c) ₹760 (d) ₹740

35. A man invested ₹50490 in 5% stock at 99 and sold it when the price rose to ₹102. He invested the sale proceeds in 8% stock at 96. Find out the change in man's income (Brokerage: ₹3)

(a) ₹1485
(b) ₹1585
(c) ₹1385
(d) ₹1685

36. A man invested ₹260000 in 5% stock at 104. He sold the stock when the price rose to ₹125 and invested the sale proceeds in 6% stock. By doing this his income increased by ₹2500. At what price did he purchase the second stock?

(a) ₹225 (b) ₹175
(c) ₹125 (d) ₹150

37. Find out the income per cent of a buyer on 5% debentures of face value ₹95 and available in the market for ₹125.

(a) 4.8% (b) 5.8%
(c) 3.8% (d) 2.8%

38. Find out the income per cent on 10% debentures of par value ₹120 available in the market for ₹150.

(a) 9% (b) 8%
(c) 7% (d) 6%

39. Brij has 800 shares of par value ₹50 each and 600 debentures of par value ₹100 each of the company. The company pays an annual dividend of 6% on the shares and interest of 12% on the debentures. Find out the total annual income of Brij and rate of return on his investment.

(a) ₹9600, 9.6% (b) ₹8000, 8%
(c) ₹10600, 10.6% (d) ₹9000, 8.6%

40. A man bought 20 shares of ₹50 at 5 discount, the rate of discount being $4\frac{3}{4}\%$. The rate of interest obtained is:

(a) $4\frac{3}{4}\%$ (b) $3\frac{1}{4}\%$
(c) 5.28% (d) 4.95%

EXERCISE-2
(BASED ON MEMORY)

1. A sum of ₹2236 is divided among A, B and C such that A receives 25% more than C and C receives 25% less than B. What is A's share in the amount?

(a) ₹460 (b) ₹890
(c) ₹780 (d) ₹1280

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2. A sum of money is divided among A, B, C and D in the ratio of 2:3:7:11, respectively. If the share of C is ₹2755 more than the share of A, then what is the total amount of money of B and D together?

(a) ₹4408 (b) ₹5510
(c) ₹6612 (d) ₹7714

[SBI PO Examination, 2008]

3. Mrudul invested an amount of ₹29500 in order to start a business. Shalaka joined her 4 months later by investing an amount of ₹33500. If the business earned a profit of ₹120575 at the end of two years, what was Mrudul's share of the profit?

(a) ₹60725 (b) ₹61950
(c) ₹59250 (d) ₹58625

[Indian Bank PO Examination, 2011]

4. Rahul spends 50% of his monthly income on household items, 20% of his monthly income on buying clothes, 5% of his monthly income on medicines and the remaining amount of ₹11250 he saves. What is Rahul's monthly income?

(a) ₹38200 (b) ₹34000
(c) ₹41600 (d) ₹45000

[IDBI PO Examination, 2009]

5. Sonu invested 10% more than Mona. Mona invested 10% less than Raghu. If the total sum of their investment is ₹5780, how much amount did Raghu invest?

(a) ₹2010 (b) ₹2000
(c) ₹2100 (d) ₹2210

[Bank of Baroda PO Examination, 2010]

6. In a business partnership among A, B, C and D, the profit is shared as follows

$$\frac{\text{A's share}}{\text{B's share}} = \frac{\text{B's share}}{\text{C's share}} = \frac{\text{C's share}}{\text{D's share}} = \frac{1}{3}$$

If the total profit is ₹4,00,000 the share of C is

(a) ₹1,12,500 (b) ₹1,37,500
(c) ₹90,000 (d) ₹2,70,000

[SSC (GL) Examination, 2011]

ANSWER KEYS

EXERCISE-1

1. (b)	**2.** (b)	**3.** (c)	**4.** (b)	**5.** (a)	**6.** (a)	**7.** (b)	**8.** (a)	**9.** (b)	**10.** (b)	**11.** (a)	**12.** (a)	**13.** (b)
14. (c)	**15.** (a)	**16.** (b)	**17.** (c)	**18.** (a)	**19.** (c)	**20.** (c)	**21.** (a)	**22.** (b)	**23.** (b)	**24.** (d)	**25.** (c)	**26.** (a)
27. (b)	**28.** (c)	**29.** (b)	**30.** (a)	**31.** (a)	**32.** (b)	**33.** (c)	**34.** (b)	**35.** (a)	**36.** (c)	**37.** (c)	**38.** (b)	**39.** (a)
40. (c)												

EXERCISE-2

1. (c)	**2.** (d)	**3.** (b)	**4.** (d)	**5.** (b)	**6.** (c)

EXPLANATORY ANSWERS

EXERCISE-I

1. (b) Annual dividend on one share
= 10% of ₹10
$= ₹\left(10 \times \frac{10}{100}\right) = ₹1$
Annual dividend of Ram owning 1500 shares
= (1500 ×1) = ₹1500.
Alternatively, we could have found the total par value of 1500 shares first and then find dividend at 10% of it as shown below:
Total par value of 1500 shares
= ₹(1500 × 10)= ₹15000
∴ Total annual dividend of Ram
$= \left(15000 \times \frac{10}{100}\right) = ₹1500.$

2. (b) Annual dividend on one share = 10% of ₹100
$= ₹\left(\frac{10}{100} \times 100\right) = ₹10$
∴ Annual dividend on 4000 shares
= ₹(4000 × 10) = ₹40000.

3. (c) Number of shares purchased by Jatin
$= \frac{27260}{116} = 235.$
Face value of 235 shares
= ₹(235 × 100) = ₹23500.
Annual income from 235 shares
= 16% of ₹23500
$= ₹\left(\frac{16}{100} \times 23500\right) = ₹3760.$

4. (b) Number of shares = 50000
Par value of a share = ₹10
∴ Total par value of 50000 shares = ₹500000
Total dividend = ₹62500
∴ Rate of dividend paid by the company
$= \left(\frac{62500}{500000} \times 100\right)\% = 12\frac{1}{2}\%.$

5. (a) Annual dividend on one share = $\left(2 \times 7\frac{1}{2}\right)\%$
i.e., 15% of ₹10
$= \left(\frac{15}{100} \times 10\right) = ₹1.50$
∴ Annual dividend on 1250 shares
= ₹(1250 × 1.50) = ₹1875.

6. (a) Number of shares = 125000
Par value of a share = ₹20
∴ Total par value of 125000 shares
= ₹(1250000 × 20) = ₹2500000
Total dividend = ₹375000
∴ Rate of dividend paid by the company
$= \left(\frac{375000}{2500000} \times 100\right)\% = 15\%.$

7. (b) Dividend on 50 preferred shares
$= ₹\left(50 \times 100 \times \frac{10}{100}\right) = ₹500$
Dividend on 400 common shares
$= ₹\left(400 \times \frac{100}{100} \times \frac{15}{2} \times 2\right) = ₹6000.$
∴ Total dividend received by Seema
= ₹(500 + 6000) = ₹6500.

8. (a) Dividend on 200 preferred shares
= 10% of ₹(200 × 100)
$= ₹\left(\frac{10}{100} \times 20000\right) = ₹2000$
Dividend on 1000 common shares
$= 12\frac{1}{2}\%$ of ₹(1000 × 100)
$= ₹\left(\frac{25/2}{100} \times 100000\right)$
$= ₹\left(\frac{25}{2} \times 1000\right) = ₹12500$
∴ Total dividend received
= ₹(2000 + 12500) = ₹4500.

9. (b) Total dividend declared = ₹125000
Amount kept in reserve fund = ₹50000
Net amount paid as dividend to the shareholders
= ₹(125000 – 50000) = ₹75000
Number of shares of par value ₹100 each = 50000
Total par value of 50000 shares
= ₹(50000 × 100) = ₹5000000
Rate of dividend paid by the company
$= \left(\frac{75000}{5000000} \times 100\right)\% = \frac{3}{2}\% = 1\frac{1}{2}\%.$

10. (b) Dividend on 1200 preferred shares
= 10% of ₹(1200 × 50)
$= ₹\left(\frac{10}{100} \times 1200 \times 50\right) = ₹6000$
Dividend on 3000 common shares
$= \left(3\frac{1}{2} \times 2\right)\%$ of ₹(3000 × 50)

$= ₹\left(\frac{7}{100} \times 3000 \times 50\right) = ₹10500$

$\therefore$ Total dividend received by Nishita

$= ₹(6000 + 10500) = ₹16500.$

11. (a) Market value of a share = ₹25

$\therefore$ Market value of 12500 shares

$= ₹(25 \times 12500) = ₹312500$

Thus, the amount required to purchase 12500 shares = ₹312500

Then, Mohan sells these shares at a premium of ₹11 each.

$\therefore$ New market rate per shares

$= ₹(20 + 11) = ₹31$

$\therefore$ Selling price of these shares

$= ₹(31 \times 12500) = ₹387500$

$\therefore$ Gain = S.P. − C.P. = ₹(387500 − 312500)

= ₹75000.

12. (a) Par value of 200 shares = ₹(200 × 10)= ₹2000

Dividend received by Mac $= ₹\left(\frac{8}{100} \times 2000\right)$

= ₹160

Let, the market value of 200 shares be ₹x.

We have to find x such that 10% of x = 160

$\Rightarrow \frac{10}{100} \times x = 160 \Rightarrow x = 160 \times 10 = 1600$

i.e., Market value of 200 shares = ₹1600.

Hence, the market value of one share

$= ₹\left(\frac{1600}{200}\right) = ₹8.$

13. (b) Par value of 12000 shares = ₹(12000 × 10)

= ₹120000

Dividend received by Shyam $= ₹\left(\frac{15}{100} \times 120000\right)$

= ₹18000

Let, the market value of 12000 shares be ₹x.

We have to find x such that 10% of x = 18000

$\Rightarrow \frac{10}{100} \times x = 18000 \Rightarrow x = 18000 \times 10 = 180000$

i.e., Market value of 12000 shares = ₹180000.

Hence, the market value of one share

$= ₹\left(\frac{180000}{12000}\right) = ₹15.$

14. (c) The total profit of the company = ₹180000.

Amount kept in reserve fund = ₹30000

$\therefore$ Net amount paid as dividend to shareholders

$= ₹(180000 - 30000) = ₹150000$

Dividend paid by the company on 50000 preferred shares

$= ₹\left(50000 \times \frac{10 \times 20}{10}\right) = ₹100000$

$\therefore$ Dividend to be paid to common shareholders

$= ₹(150000 - 100000) = ₹50000.$

Thus, dividend paid on a common share

$= ₹\left(\frac{50000}{20000}\right) = ₹2.50$

Hence, dividend per cent paid on a common share

$= ₹\left(\frac{2.50}{10} \times 100\right)\% = 25\%.$

15. (a) 12% of ₹(10000 × 100)

$= ₹\left(\frac{12}{100} \times 10000 \times 100\right) = ₹120000$

Dividend on 50000 common shares

= 17.6% of ₹(50000 × 100)

$= ₹\left(\frac{17.6}{100} \times 50000 \times 100\right) = ₹880000$

$\therefore$ Total dividend paid = ₹(120000 + 880000)

= ₹1000000 = ₹10 Lakhs

$\therefore$ Amount kept in reserve fund

= ₹15 Lakhs − 10 Lakhs = ₹5 Lakhs.

16. (b) Income of the man from 5000 ordinary shares of Company X, which pays a dividend of 20%

$= ₹\left(\frac{5000 \times 10 \times 20}{100}\right) = ₹10000.$

Selling price of a share of Company X = ₹30

$\therefore$ Selling price of 5000 shares of Company X

$= ₹(5000 \times 30)$

= ₹150000.

Now, the market value of a share of Company Y is given to be ₹40.

$\therefore$ Number of shares of Company Y purchased by the man from ₹150000

$= \left(\frac{150000}{40}\right) = ₹3750.$

17. (c) Par value of a share = ₹10

Market value of a share $= ₹\left(10 \times \frac{120}{100}\right) = ₹12$

The amount to be paid by the buyer to purchase 2500 shares = ₹(2500 × 12) = ₹30000.

Gain of the shareholder on selling one share

$= ₹(20 - 12) = ₹8.$

$\therefore$ Gain from selling 2500 shares

$= ₹(2500 \times 8) = ₹20000.$

18. (a) Face value of the stock = ₹60000

Income on ₹100 stock = ₹12

Income on ₹1 stock = ₹$\left(\frac{12}{100}\right)$

Income on ₹60000 = ₹$\left(\frac{12}{100}\times 60000\right)$ = ₹7200.

19. (c) Face value of the stock = ₹20000

Income on ₹100 stock = ₹$7\frac{1}{2}$

Income on ₹1 stock = ₹$\left(\frac{15/2}{100}\right)$ = ₹$\left(\frac{15}{200}\right)$

Income on ₹20000 stock = ₹$\left(\frac{15}{200}\times 20000\right)$

= ₹1500.

20. (c) Here, the market value of the stock = ₹81000.

By investing ₹135, stock of par value ₹100 is available

∴ Income on ₹135 is ₹9.

∴ Income on ₹81000 is ₹$\left(\frac{9}{135}\times 81000\right)$ = ₹5400.

21. (a) Here, market value of the stock = ₹90000.

By investing ₹$112\frac{1}{2}$, stock of par value ₹100 is available.

∴ Income on ₹$112\frac{1}{2}$ is $7\frac{1}{2}$%

∴ Income on ₹90000 is ₹$\left(\frac{15}{2}\times\frac{2}{225}\times 90000\right)$

= ₹6000.

22. (b) Face value of the stock = ₹72000

∴ Income on stock = ₹$\left(\frac{72000}{100}\times\frac{19}{2}\right)$ = ₹6840.

23. (b) Market value of ₹100 stock = ₹(91 + 1) = ₹92

Income on ₹92 = ₹$9\frac{1}{2}$

∴ Income on ₹92000 = ₹$\left(\frac{19}{2}\times\frac{19}{92}\times 92000\right)$

= ₹9500.

24. (d) Market value of ₹100 stock

= ₹$\left(81\frac{1}{2}+1\right)$ = ₹$82\frac{1}{2}$

Income on ₹$82\frac{1}{2}$ = ₹$7\frac{1}{2}$

∴ Income on ₹99000 = ₹$\left(\frac{15}{2}\times\frac{2}{165}\times 99000\right)$

= ₹9000.

25. (c) Market value of ₹100 stock = ₹(112 + 2) = ₹114

Income on ₹114 = ₹$9\frac{1}{2}$

∴ Income on ₹88008 = ₹$\frac{19}{2}\times\frac{1}{114}\times 88008$

= ₹7334.

26. (a) Market value of ₹100 stock = ₹92

∴ Market value of ₹125000 stock

= ₹$\left(\frac{92}{100}\times 125000\right)$ = ₹115000.

∴ An investment of ₹115000 is required to purchase ₹125000 of 8% stock at 92.

27. (b) Market value of ₹100 stock = ₹110.

∴ Market value of ₹90000 stock

= ₹$\left(\frac{110}{100}\times 90000\right)$ = ₹99000

∴ An investment of ₹99000 is required to purchase ₹90000 of 8% stock at 110.

28. (c) Brokerage = 1% of ₹90 = ₹0.90

∴ Investment needed to buy ₹100 stock = ₹90.90 on which the income is ₹9%

For income of ₹$9\frac{1}{2}$, the investment = ₹90.90

For income of ₹1938, the investment

= ₹$\left(\frac{90.90\times 2}{19}\times 1938\right)$ = ₹18543.60.

29. (b) Investment made by the man in buying ₹20000 of 5% stock at 90 = ₹$\left(\frac{90}{100}\times 20000\right)$ = ₹18000.

When the price rose to ₹$93\frac{3}{4}$, the man sold the stock. Thus, money realized from selling the stock

= ₹$\left(\frac{375}{4}\times\frac{1}{100}\times 20000\right)$ = ₹18750

∴ Gain in the transaction

= ₹(18750 − 18000) = ₹750

∴ Gain per cent = $\left(\frac{750}{18000}\times 100\right)$% = $4\frac{1}{6}$ %

30. (a) Investment made by Meena in buying ₹36000 of $7\frac{1}{2}$% stock at 92 = ₹$\left(\frac{92}{100}\times 36000\right)$ = ₹33120.

When the price rose to ₹$93\frac{3}{4}$, Meena sold the stock. Thus, money realized from selling the stock

= ₹$\left(\frac{375}{4}\times\frac{1}{100}\times 36000\right)$ = ₹33750

∴ Gain in the transaction

= ₹(33750 − 33120) = ₹630

∴ Gain per cent = $\left(\frac{630}{33120}\times 100\right)$% = 1.9 (approx).

31. **(a)** Stock purchased by investing ₹27600 in 4% stock at 92

$= ₹\left(\frac{27600 \times 100}{92}\right) = ₹30000.$

Money realized by selling ₹20000 stock at market value of ₹96

$= ₹\left(\frac{20000 \times 96}{100}\right) = ₹19200.$

Remaining stock = ₹(30000 − 20000) = ₹10000.

Money realized by selling ₹10000 stock at ₹90

$= ₹\left(10000 \times \frac{90}{100}\right) = ₹9000.$

∴ Total money realized by selling the whole stock

= ₹(19200 + 9000) = ₹28200.

Money invested = ₹27600

∴ Gain = ₹(28200 − 27600) = ₹600.

32. **(b)** Stock purchased by investing ₹28500 in 5% stock at 95

$= ₹\left(\frac{100}{95} \times 28500\right) = ₹30000$

Money realized by selling ₹15000 stock market value of ₹98.

$= ₹\left(\frac{98}{100} \times 15000\right) = ₹14700$

Remaining stock = ₹(30000 − 15000) = ₹15000

Money realized by selling ₹15000 stock at ₹90

$= ₹\left(\frac{90}{100} \times 15000\right) = ₹13500$

∴ Total money realized

= ₹(14700 + 13500) = ₹28200

Money invested = ₹28500

∴ Loss = ₹(28500 − 28200) = ₹300.

33. **(c)** Income from first stock $= ₹\left(\frac{7}{98} \times 245000\right) = ₹17500$

We have to find the amount realized on selling this stock.

Amount realized on selling ₹98 stock = ₹100

∴ Amount realized on selling ₹245000 stock

$= ₹\left(\frac{100}{98} \times 245000\right) = ₹250000$

This amount is invested in 9% stock at 125

∴ Income from second stock

$= ₹\left(\frac{9}{125} \times 250000\right) = ₹18000$

Hence, increase in income

= ₹(18000 − 17500) = ₹500.

34. **(b)** Income from first stock

$= ₹\left(\frac{8}{90} \times 32400\right) = ₹2880$

Amount of stock purchased by Anu

$= ₹\left(\frac{100}{90} \times 32400\right) = ₹36000$

Amount received by selling ₹18000 stock at 95

$= ₹\left(\frac{95}{100} \times 18000\right) = ₹17100$

Amount received by selling the remaining ₹18000 stock at 98

$= ₹\left(\frac{98}{100} \times 18000\right) = ₹17640$

∴ Total amount received

= ₹(17100 + 17640) = ₹34740

The amount of ₹34740 is invested in 10% stock at $96\frac{1}{2}$

∴ Income from this stock

$= ₹\left(10 \times \frac{2}{193} \times 34740\right) = ₹3600$

Hence, change in income

= ₹(3600 − 2880) = ₹720.

35. **(a)** Purchase price of first stock

= ₹(99 + 3) = ₹102

∴ Income on first stock

$= ₹\left(\frac{5}{102} \times 50490\right) = ₹2475$

Sale price of stock = ₹(102 − 3) = ₹99

∴ Amount received by selling the first stock

$= ₹\left(\frac{99}{102} \times 50490\right) = ₹49005$

Purchase price of the second stock

= ₹(96 + 3) = ₹99

∴ Income on second stock

$= ₹\left(\frac{8}{99} \times 49005\right) = ₹3960$

Hence, change in income

= ₹(3960 − 2475) = ₹1485.

36. **(c)** Income on first stock $= ₹\left(\frac{5}{104} \times 260000\right) = ₹12500$

Money realized by selling the stock when price rose to ₹125

$= ₹\left(\frac{125}{104} \times 260000\right) = ₹312500$

Income on second stock is ₹2500 more on the first stock

∴ Income on second stock

= ₹(12500 + 2500) = ₹15000

Let, ₹x be the market value of the second stock

∴ $\frac{312500 \times 6}{x} = 15000 \Rightarrow x = \frac{312500 \times 6}{15000} = 125$

i.e., The man purchased the stock at ₹125.

37. (c) The market value of a debenture = ₹125

$\therefore$ Income on ₹125 is ₹5.

$\therefore$ Income on ₹95 is $₹\left(\frac{5}{125}\times 95\right) = ₹\frac{19}{5}$.

$\therefore$ Per cent income on the debentures is 3.8%

38. (b) The market value of a debenture = ₹150.

$\therefore$ Income on ₹150 is ₹10.

$\therefore$ Income on ₹120 $= ₹\left(\frac{10}{150}\times 120\right) = ₹8$

$\therefore$ Per cent income on the debentures = 8%.

39. (a) Annual dividend on 800 shares

$= ₹\left(\frac{800\times 50\times 6}{100}\right) = ₹2400$

Annual interest on 600 debentures

$= ₹\left(\frac{600\times 100\times 12}{100}\right) = ₹7200$

$\therefore$ Total annual income of Brij

= ₹(2400 + 7200) = ₹9600

Total investment of Brij

= ₹(800 × 50 + 600 × 100)

= ₹(40000 + 60000)

= ₹100000

$\therefore$ Rate of return $= \left(\frac{9600}{100000}\times 100\right)\% = 9.6\%$

40. (c) Face value = ₹(50 × 20) = ₹1000

Dividend $= ₹\left(\frac{1000\times 19}{4\times 100}\right) = ₹\left(\frac{95}{2}\right)$

Investment = ₹(45 × 20) = ₹900

Rate $= ₹\left(\frac{95\times 100}{2\times 900}\right) = 5.28\%$

EXERCISE-2
(BASED ON MEMORY)

1. (c) Suppose B got ₹x.

Amount to C $= x - x\times\frac{25}{100}$

$= \frac{100x-25x}{100}$

$= \frac{75x}{100} = ₹\frac{3x}{4}$

So, the amount to A $= \frac{3x}{4}\times\frac{125}{100} = \frac{15x}{16}$

A:B:C $= \frac{15x}{16} : x : \frac{3x}{4}$

$= 15x:16x:12x$

Sum of the ratio = $15x + 16x + 12x = 43x$

$\therefore$ Share of A $= \frac{2236\times 15x}{43x} = ₹780$

2. (d) Suppose the amount of A, B, C and D are $2x$, $3x$, $7x$, $11x$.

$\because\ 7x - 2x = 2755$

$\therefore\ 5x = 2755$

$x = \frac{2755}{5} = 551$

$\therefore$ Total amount of B and D

$= (3 + 11)x$

$= 14 \times 551\ [x = 551]$

= 7714

3. (b) Monthly investment by Mrudul

= 29500 × 24 = 708000

and by Shalaka = 33500 × 20 = 670000

Ratio = 708000:670000

= 708:670

Share of Mrudul $= \frac{708}{708+670}\times 120575 = 61950$

4. (d) Suppose monthly income is x

$x\times\frac{(100-75)}{100} = 11250$

$\Rightarrow\ x\times\frac{25}{100} = 11250$

$\Rightarrow\ x\times\frac{1}{4} = 11250$

$\Rightarrow\ x = 11250\times 4$

x = ₹45000

Short cut

$\frac{100}{(100-50-20-5)}\times 11250 = ₹45000$

5. (b) Suppose amount invested by Raghu = ₹x

Amount invested by Mona

$= \frac{9}{10}x = 0.9x$

Amount invested by Sonu

$= \frac{9}{10}x\times\frac{110}{100} = 0.99x$

$x + 0.9x + 0.99x = 5780$

$2.89x = 5780$

$x = \dfrac{5780}{2.89} = ₹2000$

6. (c) A's share = $\dfrac{1}{3}$ of B's share

B's share = $\dfrac{1}{3}$ of C's share

C's share = $\dfrac{1}{3}$ of D's share

Let, D's share be ₹x, then

C's share $= \dfrac{1}{3}x$

B's share $= \dfrac{1}{9}x$

A's share $= \dfrac{1}{27}x$

And, so

$x + \dfrac{1}{3}x + \dfrac{1}{9}x + \dfrac{1}{27}x = 4,00,000$

$\Rightarrow \quad x = 2,70,000$

$\therefore$ C's share $= \dfrac{1}{3}x = \dfrac{1}{3} \times 2,70,00$

$= ₹90,000$