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Forms of Business Organisation

In broad sense, business includes industry, commerce and trade. Its main aim is to increase wealth. Industry means a place where materials are extracted or converted into finished or semi-finished products. Trade means a process of buying and selling of commodities, while commerce relates to financial, transportation, insuring and allied activities. The form of organisation will be decided by various factors, such as :

1. Size and nature of the business to be started ;
2. Technical difficulties ;
3. Market conditions (*i.e.* competition and scope of the article in the market) ;
4. Capital required to start the business and the means to collect the funds ;
5. Limitations and restrictions put forth by the government (*i.e.* grant of loan, licence, foreign exchange and other such things).

Definitions of Business

Business may be defined as "an activity, in which different persons exchange something of value whether goods or service for mutual gain or profit."

It may also be defined as "an enterprise engaged in production and distribution of goods for sale in market or rendering services for a price."

Business Characteristics

(*i*) Business activities are directly or indirectly concerned with the transfer or exchange of goods and services for value.

(*ii*) Business consists of dealings in goods and services.

(*iii*) Business means exchange of goods and services undertaken continually or at least recurrently.

(*iv*) Business is a human activity directed towards the acquisition of wealth.

(*v*) Element of risk, that is possibility of loss arising out of the uncertainty that goes with the profit expected from a business activity.

Classification of Business

(*a*) **Industry.** This is a business activity which concerns itself with the production, processing or fabrication of products. The industries may be either of these 4 types : Extractive (fishing, mining, agriculture etc.). Genetic (breading farms, poultry farms, selling of horticulture plants etc.). Construction (buildings, bridges, roads, dams, canals etc.), and Manufacturing industries (like analytical, synthetic, processing and assembly line industries etc.)

(*b*) **Commerce.** Commerce is an activity whereby goods are transferred to those who need them.

(*c*) **Trade**

Objectives of Business

(*i*) *Organic Objectives.* To try for survival, and then to gain prestige and win recognition from the society and thus try to grow.

(*ii*) *Economic Objectives.* To earn as much profit as possible.

(*iii*) *Social Objectives.* Business must fulfill its obligations to society, by way of supply of quality goods, avoidance of profiteering and antisocial practices, and providing employment.

(*iv*) *Human Objectives.* These are (*a*) fair deal to employees, (*b*) development of human resources, (*c*) participation, and (*d*) job satisfaction.

(*v*) *National Objectives.* These are (*a*) ensuring social justice, (*b*) development of small enterprises, (*c*) production according to national priorities, (*d*) self sufficiency and export development and (*e*) development of skill of personnel.

TYPES OF BUSINESS ORGANISATIONS

Several types of business organisations are existing in order to satisfy various social, economic and human requirements. Following are the main types of business organisations :

(*A*) *Private Sector :*

1. Individual Ownership or Sole Proprietorship
2. Partnership Organisations
3. Joint Stock Companies
4. Co-operative Organisations
5. Joint Hindu Family Firm.

(*B*) *Public Sector* (State Ownership and Control) :

1. Departmental Organisations
2. Public Corporations (or Statutory Companies)
3. Government Companies.

(*C*) *Joint Sector :*

Ownership and control shared by private enterpreneur, state and public.

PRIVATE SECTOR ORGANISATIONS

1. Private Companies (Individual Ownership)

As the name suggests, such type of business is owned by one man. The businessman invests capital, employs labour and machines. This is the oldest and simplest form of business organisation. In such business owner supplies all the capital needed to run the organisation. He produces only with the help of his own land, capital and labour. Hence owner alone enjoys the profits and suffers the losses in his business. Therefore, he is the supreme authority to decide into different matters concerning to his business and has unlimited freedom of action within legal jurisdiction.

Overall control in single hand helps him in quick decision, efficient administation and working. In this type of organisation, owner must be anxious to obtain valuable advice and guidance from other sources.

In such organisations owner himself is responsible for all the liabilities. Hence creditor can collect money even from the personal property. Therefore, to have this type of business it is not the money alone of the debtor that is necessary to start but also the zeal, enthusiasm, courage and faith of the person.

Applications. This form of organisation is most satisfactory in the following cases :

1. In small enterprises requiring small capital which can be spared by the one man (owner).
2. Where risk required is not too heavy. Because in this system risk involved is very high.
3. Where management by one man is possible.

Advantages. Following are the advantages of this form of organisation :

1. Such individual enterprises can easily be formed and simple to run and at the same time owner is free from all legal restrictions.
2. His (owner's) interest, care and efficiency directly effects the profit in the business. Hence efforts and rewards are directly related.
3. In this system owner himself is in touch with customers and hence can know their likings.
4. Since it is supervised by the proprietor himself, the overheads are very less and products can be sold cheaply.
5. Most of the business have their monoploy because of certain secrecy in their functioning. In this form of organisation such secret functions are performed by the owner himself and he does not disclose it to any body else. Therefore, he has the greatest possibility of running business well. In other forms of organisation, there are little chances of keeping such activities secret for a longer period.
6. It offers full freedom for work and hence such persons who do not want to serve under or with any body can get the chance to work independently and can show their talent. Thus they can enjoy free life.
7. As he has not to seek direction for any decision to be taken, he can act promptly. If at any time he feels some benefit in doing some work, he can act quickly without any body's advice and can avail the benefit.

Disadvantages. This type of organisation has the following disadvantages :

1. Amount of capital that can be invested is limited, therefore, modern factory cannot be run with this system of organisation.
2. Owner cannot be the master of all techniques like management, sales, engineering processes etc. Hence work suffers.
3. Due to unlimited liability owner cannot take risk to start a big industry.

2. Partnership Organisations

Some of the above mentioned drawbacks of private companies are removed in the partnership organisation upto some extent.

Partnership is the relationship between the persons desirous of starting a business and they combine or invite together to incease their resources, *i.e.* capital, labour, skill and ability. The success of partnership depends upon mutual confidence, understanding, co-operation and adjustment of the members to accommodate and appreciate each other's view. Each of the partner should realise that it is his business and he should work hard to earn greater and greater profit.

Partnership has been defined by the Indian Partnership Act 1932. As "the relationship between persons who have agreed to share profit of a business concern carried on by all or any one of them acting for all". When two and upto twenty persons in case of nonbanking business and upto ten in case of banking business enter into a contract to carry on a business allowed by law, with the object of making profit, a partnership is said to be formed.

Every partner is liable and responsible for the acts of other partners in that business. To avoid any complication at a later stage the constitution of the company may be written in an agreement form. For the best partnership the number of partners should not be more than six, the lesser the better. It generally happens that persons with a good idea and experience of a business make partnership with moneyed people. Thus money and knowledge both are combined to earn profit.

Advantages. This type of organisation has the following important advantages :

1. It can be formed without much legal formalities and without heavy expenditure of organisation and stamp duty.
2. This type of organisation enjoys more freedom and is not subject to strict government supervision.
3. Due to more number of owners the amount of capital that can be collected is more than that in the case of sole trade organisation.
4. In this type of organisation persons possessing different abilities and skills are chosen and brought together. Therefore, the managerial ability of the firm as a whole would be much greater than in case of a sole trader.
5. The affairs of firm can easily be kept secret.

Disadvantages. Following are the disadvantages or limitations of the partnership organisation:

1. Due to unlimited liability risk involved is more.
2. After the death or retirement of any one partner, the partnership organisation may come to an end.
3. It can raise much less capital in comparison to the joint stock company. It is, therefore, unsuitable for modern industries, because they require huge capital and a large number of managerial abilities.
4. Sometimes, due to some misunderstanding, friction may arise between the partners, which effect adversely on the efficiency and expansion of business.
5. All the partners are jointly and severally liable for the acts of the partner, who is placed incharge of management. Thus sometimes mistakes of one partner may cause a big loss to all the partners.

In conclusion, though partnership firm can reduce the limitations of sole trade organisation to some extent, yet it has more or less all the limitations of a sole-trade organisation and, therefore, suffers the same fate.

Types of Partners

Members of this type of organisation may be associated in different ways and their extent of involvement may be also different, although their interest is common. These members can be classified in the following ways :

(a) *General Partners.* All the partners who are in the partnership known as general partners.

(b) *Active Partners.* These are those partners who take active part in the management and help in the formulation of policies. These are also known as working or managing partners.

(c) *Sleeping and Silent Partners.* Partners, who just invest money and do not take any part in the management are known as sleeping or silent partners. Such members after contributing their share of capital, wake up only either to share the profits or to liquidate the business.

(d) *Nominal Partners.* Partners, who do not invest money and do not take part in the management, but they lend their reputed name for the company's reputation are known as nominal partners. The nominal partners may, however, associate themselves only after ascertaining the soundness of the business.

(e) *Secret Partners.* These partners take part in the management secretly but nowhere their names appear.

(*f*) *Minor Partners.* A person who has not attained the age of 18 years and associated with the business is known as a minor partner. Such partner can be allowed only with the consent of other members. His liability is limited to investment only (*i.e.* limited liability).

Formation of Partnership

Partnership can be formed either verbally or by written agreement but to avoid the possibility of misunderstanding and further troubles which can arise at a later stage, it is desirable to enter into a written agreement. This written agreement is known as "Partnership Deed".

3. Joint Stock Companies

Limited financial resources and heavy burden of risk involved in both of the previous forms of organisation has led to the formation of joint stock companies. These have limited liability.

In this system capital is contributed by a large number of persons. It is voluntary association of individuals for profit, having a capital divided into transferable shares of different values.

The capital is raised by selling shares of different values. Persons who purchase the shares are called shareholders. The managing body known as "Board of Directors" is elected by these shareholders. The board of directors is responsible for policy making, important financial and technical decisions and efficient working of an enterprise.

In this form of organisation liability of a shareholder is limited to the extent of the amount of shares held by him and he is free from the responsibility of the debts and claims on the company beyond the value of shares. Because of this advantage all sections of people are encouraged to contribute for the company. These shares are transferable.

There are two main types of joint stock companies :

(*a*) Private Limited Company.

(*b*) Public Limited Company.

(*a*) **Private Limited Company.** This type of company can be formed by two or more persons. The maximum number of membership is limited to 50. In this, transfer of shares is limited to members only and general public cannot be invited to subscribe the shares. Normally the members of such a company are friends and relatives.

A private limited company need not make the prospectus, accounts and other particulars open to the public. The members only are entitled to receive a copy of the balance sheet, and auditors' report. The government also does not interfere in the working of the company. In this system persons who want to take advantage of limited liability and at the same time to keep the business as private as possible, can subscribe.

(*b*) **Public Limited Company.** It is one whose membership is open to general public as its name indicates. The minimum number required to form such a company is seven, but there is no upper limit.

Such companies can advertise to offer its shares to general public through a prospectus. These public limited companies are subjected to greater control and supervision of the government. This control is necessary to protect the interest of the shareholders and the members of the public. Shares are transferable in part or full without requiring any prior approval. The affairs of the company are managed by an elected body, known as 'Board of Directors'. The number of members in the board of directors is limited to seven.

Liquidation. It becomes difficult to run the company if liability becomes much more than assets and when creditors press for payments of loan etc. At this time the company has to be dissolved or wind up. This is known as liquidation.

Liquidation may be compulsory or voluntary or under the supervision of court. If the resources do not permit the payment, then the assets of the company have to be sold and then the amount is paid to the creditors in proportion. If some amount is left after payments then it is distributed among the shareholders.

Amalgamation. An Amalgamation is a joining together of two business. It usually results in more efficient operation because of economics of large sales, administrative, and marketing etc.

Clearly both parties in a proposed amalgamation will have some existing assets and liabilities which could be set out in a balance sheet or statement of affairs at the date of amalgamation. The existing conditions may or may not be acceptable to the proposed partner. Usually some adjustments will be made to one or both of the balance sheets to take account of objections raised by the other party.

Raising Finance for Joint Stock Companies. Money is necessary to start and to keep the business running. It is also needed to meet expansion, replacement and alterations. The required capital is supplied by individuals, societies and associations. Funds can also be taken from banks, finance corporations etc., in the form of loan. Following are the sources from where money can be taken for an enterprise :

1. *Issue of Shares.* A portion of the money required for enterprise is collected in the form of shares.
2. *Issue of Debentures.* When company desires to raise the required finance through loans instead of sale of shares, then debentures are issued. In this way it is advantageous because debenture holder cannot claim for ownership and he is to be paid interest only. Debentures may be issued either for initial needs of enterprise or for development and extension.
3. Loan advances from banks, and other financial institutions, like L.I.C. and U.T.I.
4. State loans from Industrial Corporations, State Finance Corporation or through Industrial Development Corporation.

Advantages. Following are the advantages of the joint stock company over the previous two forms of business organisation :

1. The liability being limited, the shareholder bear no risk and, therefore, more and more persons are encouraged to invest capital. Thus more amount of capital can be collected to run modern industries.
2. Because of large number of investors, the risk of loss is divided. Therefore, even an average person can contribute capital without much hesitation.
3. In the joint stock companies the work is divided among different groups of persons ; hence better work can be done.
4. It can bear the high salaries of the good managing agents, chief manager and other managers etc. Thus administration is better.
5. Joint stock companies are not affected by the death or retirement of the shareholders.
6. It has great potentialities for expansion.

Disadvantages. Following are the main disadvantages of the joint stock company :

1. Lack of personal interest on the part of the salaried managers because there is no relation between effort and income for them and this leads to inefficiency and waste.
2. This form of organisation offers sufficient scope to the directors and other members of the management for their personal profits. Because they have intimate knowledge of the financial position of the company, therefore, they can purchase or sell the shares accordingly.
3. In this form of bussiness there are hundreds of investors from different parts of the country who invest their savings but very rarely come to atttend the general body meetings or

exercise any effective check. Such persons offer unlimited scope for cautious persons to secure control over companies and deceive the innocent share-holders.

4. It requires a large number of legal formalities to be observed.
5. It is difficult to preserve secrecy in these companies.

4. Co-operative Societies

With the study of individual ownership, partnership and joint stock companies we have seen that they neglect the interest of consumers and employees in the concern. This is the most democratic form of business organisation for the betterment of general public. These co-operative societies help to protect the interests of the consumers, small and independent producers, and of the workers while fighting against the monopolists and capitalists. Members supply the capital, manage the business and share all its profits and losses. These have been developed in agriculture to a large extent. In economic field, these do not have the idea of earning profits but to benefit the members.

Co-operative society is an association of individuals formed for the purpose of obtaining goods, specially the articles of daily use at rates lower than that of market. Thus, it is a means to level the inequality of wealth which had come into existence as a result of private individual form of ownership. The idea of co-operative society is to benefit the shareholders who are the consumers or producers.

Mr. N. Barow defined co-operative society, as "voluntary organisation" of persons with unrestricted membership and collectively owned fund, consisting of wage earners and small producers, united on a democratic basis for the establishment of enterprises under joint management for the purpose of improving their household or business economy.

The main object of co-operative society is to promote self help and mutual assistance among men of moderate means and incomes having needs and interests in common. Such men are industrial workers, small artisans, agriculturists and members of the middle class. In this system liability of shareholders is limited.

To start a co-operative society an application is submitted to the registrar of co-operative societies. The officials of this department will attend the first general body meeting in which bye-laws are framed to govern the society and the directors are elected by the shareholders. Then if the authorities are satisfied about its soundness, a licence will be issued by the registrar and thus the company is formed. Board of Directors meet at least once in every three months.

The Indian Government to protect the interests of small consumers, is encouraging the co-operative movement and provides loans through financial corporations, banks etc. The accounts of the enterprise are audited by state government. It can be formed by minimum of 10 members and should be registered with the registrar of co-operatives. The government of India has tried to introduce co-operative societies in many fields since long but it has not met with much success. Although co-operative movement is very conducive for Indian economy but has failed to achieve the objectives.

Main objectives. Main objectives of the co-operative societies are following :

1. It is a voluntary organisation. A member can continue his membership as long as he desires, and can by giving a notice, withdraw his capital and cease to be a member.
2. There is no limit to its membership. Face value of one share is generally kept as Rs. 10. Thus small value of share makes it possible to enroll a large number of persons because even a poor man can afford this much amount.
3. Its management is based on democratic basis of equality. Therefore, every member can cast only one vote, whatsoever the number of shares he has.
4. Its object is to serve the members and to earn profit.

Types :

The various types of co-operative societies in our country are :

(*a*) Producers' or Manufacturers' co-operative society.
(*b*) Consumers' co-operative society.
(*c*) Housing co-operative society.
(*d*) Co-operative farming.
(*e*) Co-operative credit society.

Consumers' and housing co-operative societies are gaining popularity in our country.

(*a*) **Producers' Co-operative Society.** This is the form of association in which persons combine together to form a society for the purpose of manufacturing goods. Although it is a democratic management of industrial production, this is useful where neither large capital is necessary nor much technical and expert knowledge of management is needed. In India, this is applied to agricultural and cottage industries. This has largely succeeded in countries like Denmark, United State of America, Sweden, Israel etc. In India some of the Sugar mills, Rice mills and Ginning mills are running under this formation.

(*b*) **Consumers' Co-operative Society.** This type has got some popularity. Its object is to eliminate the middleman's profit by directly purchasing things from manufacturers and distributing among the members and non-members at reasonable prices. This can be of retail or wholesale type.

These are also named as "co-operatives". Super Bazars in all the important cities have been established so as to make available the things at cheaper rates. These have achieved good success in the very beginning but latter on it is found that due to mismanagement, corruption and lack of experience some of them are not functioning satisfactorily.

(*c*) **Housing Co-operative Societies.** These societies are formed for the purpose of getting plots or houses for the needy persons. For such purpose government provides great facilities.

(*d*) **Co-operative Farming.** This type is not popular in India. The object is to enlarge the size of agriculture land by forming the co-operative group of cultivators. It will thus make possible the use of modern implements, science and technology in agriculture which in turn increase the yield.

(*e*) **Co-operative Credit Society.** Its object is to finance the poor cultivators by advancing loans for the development of land and purchase of machinery etc.

Advantages. Following are the advantages of co-operative oraganisations :

1. It sells the products cheaper ; as money required to spend on advertisement and publicity is not needed.
2. Expenses for book keeping, auditing and management task are kept minimum, as members provide honorary service for such tasks.
3. It offers to its employees better wages and reasonable conditions of service.
4. There is no question of profiteering, hoarding and black marketing type of evils as the aim is to serve the community.
5. Middleman's profit is eliminated as purchasing is directly made from manufacturer.
6. It suits well to Indian cultivators in improving the problems of mechanised farming, warehousing and credit etc.

7. Profits are shared equally and, the balance goes for social causes and development of locality such as medical aid, education, playgrounds and children gardens etc.
8. It tries to equalise money distribution.
9. It benefits general public.
10. It promotes a sense of co-operation among the members.
11. It is possible to take large amount of capital in the form of loans (say upto 8 times the subscribed capital) from the government.

Limitations. It has its own limitations, some of them are listed below :

1. As its members come mostly from the working class and middle class, its capacity to raise capital is limited. Therefore, it is suitable for small and medium sized undertakings only.
2. Due to limited financial resources services of highly qualified persons cannot be utilized.
3. Although it trades for the benefit of members only but at the same time it is not possible to refuse to trade with non members.
4. Mostly inefficient management and sometimes found that management is inexperienced and corrupt.
5. Members usually try to make undue advantage.
6. It requires better and strict supervision.
7. There are chances of excess officialization.

5. Joint Hindu Family Firms

Ancestral property inherited by a Hindu from his great grandfather to grandfather, and by grandfather to father, and by father to him. Therefore after the death of a Hindu, his business is jointly owned by the living male issues. Such firm is known as Joint Hindu Family Firm. The female members or their relatives do not have any claim in the firm.

Advantages :

(*i*) These are not dissolved on the death of a member.
(*ii*) It has no binding of company's Act 1956.

Draw backs :

(*i*) Continuity of the firm depends upon the continuity of the joint family itself.
(*ii*) Resources are limited compared to joint stock company.
(*iii*) Since the management of this type of firm is in the hands of eldest male member, there is generally lack of management skill or adequate business knowledge.
(*iv*) Business is looked after by the active member(s), but the profit is shared by all. This affects his interest and efforts for the growth and efficient running of the firm.

Joint Hindu Family Firm V/s Partnership Firms

(*i*) This is a creation of Hindu law, hence there is no contract. Partnership firm is formed under the contract.
(*ii*) This is a continuous firm and do not dissolve on the death of a member, but ceases if the joint family breaks down. Whereas partnership firm gets dissolved in the event of death of a partner.
(*iii*) This does not have female as members, whereas partnership firm can have female partners.

STATE OWNERSHIP (PUBLIC SECTOR ORGANISATIONS)

Such ownership is only serious competitor to the joint stock companies. This form is most suitable for the establishment and development of modern industries, because of facilities like power, transport, credit, insurance etc. are easily available to them.

Lawn mower and shovers	Rs. 1500
Interest	Rs. 180
Gasoline	Rs. 500
	Rs. 2180

His net annual earnings are as follows :

Income	Rs.9600
Expenses	Rs. 2180
Net Income	Rs. 7420

While in the first case his earning was Rs. 5760. Thus, by borrowing money, he earned Rs. 7420 - 5760 = Rs. 1660, extra.

The productivity of capital explains why there is a constant interchange of money in business activity. In order to increase our productivity and thereby our standard of living, there has to be a constant flow of capital into business enterprise. Interest and profit are, therefore, essential factors in making an adequate supply of capital available so that the economy of this country can expand and provide jobs. Unless interest and profit rates are adequate, the necessary capital will not be available from public.

KINDS OF INTERESTS

Interest is of two kinds :

(*i*) Simple Interest and (*ii*) Compound Interest.

1. Simple Interest.

Simple interest is directly proportional to time and the total interest is payable at the end of the specified period usually one year. For example, if Rs. 2000 are borrowed for 2 years at 9% interest rate, the interest earned will be

$$\text{Rs. } (2000 \times 0.09 \times 2) = \text{Rs. } 360$$

The interest I is found by the formula,

$$I = P \times n \times i$$

where I = Simple interest amount, P = Principle amount.
i = Rate of Interest and n = No. of years in the period

If one wishes to know the entire amount, due *i.e.*, (principal + interest),

$$\therefore \quad S = P + I = P\,(1 + ni)$$

Interest computed in this way is known as simple interest and the factor $(1 + ni)$ is called the interest factor.

Ordinary Simple Interest. Usually the unit of time for the interest period is taken as one year and the resulting interest rate is the rate per year. When it is required to compute the interest due for a fraction of one year, it is often the practice to consider 360 days in a year. Thus, 50 days are equal to $\frac{50}{360}$ of one year. Interest calculated on this basis is called "Ordinary simple interest".

Exact Simple Interest. If the interest is calculated on the basis of 365 days in a year, the result is called "Exact simple interest."

2. Compound Interest.

When the interest due at the end of the period becomes a part of the principal and itself earns interest along with the principal, it is called "Compound interest". Depending upon the length of the interest period, quarterly or so, the formula for compound interest is

$$S = P(1+i)^n$$

where S = compound amount.

Here the factor $(1+i)^n$ is called compound amount factor or CAF.

If interest is paid more than once in a year say semi-annually, quarterly or monthly etc. the formula for compound amount factor is

$$CAF = \left(1 + \frac{i}{m}\right)^n$$

where i = interest rate per year

n = no. of years in the period

m = no. of periods per year.

Example 1. *Calculate the compound amount when Rs. 2000 are lent at 9% interest rate for 3 years, being compounded semi-annually.*

Solution. No. of periods per year = 2

$$S = P\left(1 + \frac{i}{m}\right)^n = 2000\left(1 + \frac{0.09}{2}\right)^{3\times 2} = 2000\,(1.045)^6 = \text{Rs. } 2660 \text{ only.}$$

PRESENT WORTH

People wish to determine the value at the present time of a sum of money which will be available at some time in the future. For example, suppose a person purchased a Rs. 100 saving bond. The bond states that 10 years from the date of purchase, the government would pay the holder of the bond Rs. 100. How much would the bond be worth, at the time of receipt. Naturally, it would be worth just what was paid in it, say Rs. 30. Thus Rs. 30 could said to be "present value" of Rs. 100 which was to be received 10 years later.

Compound Amount Factor (CAF) is used to determine the future value of present capital. For example, the future value of present capital of Rs. 2450. The same thing expressed in the reverse way, it means that the present value of Rs. 2450 at 7% interest 3 years back is Rs. 2000. Therefore, the formula in Present Worth Factor (PWF) is written as

$$PWF = \frac{1}{(1+i)^n}$$

$$P = S\left[\frac{1}{(1+i)^n - 1}\right]$$

Here, S = Future capital and P = Present worth.

PWF can be expressed in the form of hyphens like (PWF-7% -3). The value of PWF can be seen from the standard interest table.

Example 2. *Determine the present value of Rs. 5000 due after 5 years at 9% compound interest rate.*

Solution

$$P = \frac{S}{(1+i)^n} = \frac{5000}{(1+0.09)^5} = \frac{5000}{(1.09)^5} = \textbf{3249.66 Ans.}$$

The above explained CAF and PWF refer to amounts payable in one single payments (SP), it should, therefore, be called as CAF (SP) and PWF (SP) standing for $(1+i)^n$, $\frac{1}{(1+i)^n}$ respectively. In most of the cases payments are made in series of periodical "equal payments". These are called "Annuities".

ANNUITIES

An annutity is a series of equal payments occurring at equal periods of time. It may also be said as "Equal payment or uniform payment series". In certain business dealings, equal payments are made at the end of equal periods of time and all such accumulated payments are allowed to earn compound interest. Periods of time may be of any length, say a year and month etc. but periods should be of equal length. Interest is expressed in yearly terms but the actual interest is paid at the end of each equal period. Hire purchase payments, instalment buying, L.I.C. premium payments etc. are made by this method.

Features. These have the following common features :

(*i*) These involve series of payments.
(*ii*) All payments are of equal amount.
(*iii*) Payments occur at equal time intervals.
(*iv*) All payments are made at the end of periods.
(*v*) Compound interest is earned on all accumulated payments.

Kinds of Annuities

1. Capital Recovery Annuity,
2. Present Worth Annuity,
3. Sinking Fund Annuity,
4. Compound Annuity.

1. Capital Recovery Annutity

This is applied in case of debt payments where this initial debt or capital is recovered in uniform or equal periodical payments. It is commonly seen in deferred payments, instalment purchase etc., in all such cases the seller recovers his capital along with accumulated compensating interest not in open single lump sum payment but in "Periodical equal payments". The desired formula for this is :

$$D = P\left[\frac{i(1+i)^n}{(1+i)^n - 1}\right]$$

where D = Equal payment amount, P = Initial capital
i = Compound interest rate and n = No. of interest periods.

and $\frac{i(1+i)^n}{(1+i)^n - 1}$ is called CRF (EP)

where CRF (EP) is known as Capital Recovery Factor (Equal Payments).

The values of CRF (EP), can be seen from standard interest tables. These can be expressed through hyphens as [CRF (Ep)-8%-7] where 8% means interest rate is 8% per year and the money is borrowed in 7 years.

For example, a person took a loan of Rs. 10,000 from a bank for 5 years at 15% compound interest. The person wants to pay-off the amount in 5 equal annual instalments. Determine the amount of each equal payment.

Solution

$$D = P\left[\frac{i(1+i)^n}{(1+i)^n - 1}\right] = 10{,}000\left[\frac{0.15\,(1.15)^5}{(1.15)^5 - 1}\right]$$

$$= \frac{10{,}000 \times 0.317}{1.01135} = \textbf{Rs. 2983 Ans.}$$

2. Present Worth Annuity

This is applied in cases of L.I.C. premiums and all other retirement plans. These are usually known as premium annuities, income annuities and other future provisions. The desired formula is

$$PW = D\left[\frac{(1+i)^n - 1}{i\,(1+i)^n}\right]$$

where PW = Present worth of entire annuity
D = Periodical payment amount

and $\dfrac{(1+i)^n - 1}{i\,(1+i)^n}$ = PWF (EP) called present worth factor equal payments.

This can be expressed in the form of hyphens as [PWF (eP) 5%-6] means interest rate is 5% on 6 years. The value of PWF-(eP) at different interest rates corresponding to different periods are found in standard interest tables. For example, a person wants that his daughter should get a fixed amount of Rs. 500 at the end of every year for the coming 7 years, so that they may put today itself in the bank total present worth capital which earning a 7% interest, compounded annuity.

Here

$$PW = D\left[\frac{(1+i)^n - 1}{i\,(1+i)^n}\right] = 500\left[\frac{(1+0.07)^7 - 1}{0.07\,(1+0.07)^7}\right]$$

$$= 500\left[\frac{(1.07)^7 - 1}{0.07\,(1.07)^7}\right] = 500\left[\frac{1.606 - 1}{0.07 \times 1.606}\right]$$

$$= \frac{500 \times 0.606}{0.07 \times 1.606} = \textbf{Rs. 2695.25. Ans.}$$

3. Sinking Fund Annuity

This is applied when a definite sum requires to be collected at a future date by setting aside at equal intervals of time equal amounts; so that these equal period payments while earning compound interest total up to the desired amount at the desired future date. Suppose a manufacturing concern wants to open a depreciation reserve fund for machinery replacement by setting apart equal depreciation amounts in the sinking fund.

The desired formula is :

$$D = S\left[\frac{i}{(1+i)^n}\right]$$

where D = Periodical equal payment amount and S = Desired future total

$$\frac{i}{(1+i)^n - 1} = \text{Sinking fund factor or SFF (EP)}$$

Example 3. *A manufacturing concern desires at the end of 5 years a sinking fund of Rs. 30,000. What equal amount should it deposit every year and, earning 10% interest.*

Solution. Here,

$$D = S\left[\frac{i}{(1+i)^n - 1}\right]$$

$$= 30{,}000\left[\frac{0.10}{(1+0.1)^5 - 1}\right] = \frac{3000}{(1-10)^5 - 1} = \textbf{Rs. 4914. Ans.}$$

4. Compound Amount Annuity

In this a person deposits equal amounts at the end of a number of periods and each amount is allowed to earn compound interest per period. This is used in savings deposit schemes and commulative time deposit schemes.

The desired formula is : $$CA = D\left[\frac{(1+i)^n - 1}{i}\right]$$

where CA = compound amount and

D = periodical payment amounts

and $\frac{(1+i)^n - 1}{i}$ = CAE (eP) called compound amount factor equal payment.

Example 4. *Calculate the total compound amount for a 5 years annuity paying Rs. 500 at every year end, earning interest rate of 9% per year.*

$$CA = D\left[\frac{(1+i)^n - 1}{i}\right] = 500\left[\frac{(1+0.09)^5 - 1}{0.09}\right]$$

$$= \frac{500 \times 0.539}{0.09} = \textbf{Rs.2994.45 Ans.}$$

PROFIT

The profit of a firm equals the total sale proceeds minus the cost of production. It is the residual part of the total sale proceeds left over after paying off all the items of expenditure in the cost of production including rent on land, wages for labour, interest on borrowed capital, salaries of management and organisation etc. But, out of this profit, later on certain adjustment is to be made. We have to subtract not only actual cost but also certain imputed cost in order to obtain "gross profit". Owner's capital and owner's labour is to be paid although they have not been actually paid. These cost should be added to the actual costs. In addition, certain tax obligations might have arisen during that year. These can be paid next year also, but to arrive at a correct figure of gross profits we should add those tax payments on the cost side. The value of the existing stock is also obtained and this should also be deducted to obtain the true value of "Gross Profits".

To obtain "Net Profits", we are required to make still certain adjustments. From the gross profit, deduct depreciation charges and the cost of new investment during that period. The final position is called as "Net Profits". It can be summarised in the following ways :

1. Residue = Actual Receipts during a period—Actual payments made during that period.
2. Gross Profit = Residue-Imputed charges of owner's labour and capital—Tax obligations—Value of balance stock.
3. Net Profit = Gross Profit—Value of capital equipment added during the period—Depreciation charges.

Theories of Profits

Various theories of profit have been put forth by different economists to explain the profits. The important among these are :

1. Risk and Uncertainty theory
2. Dynamic Approach to the profit theory
3. Residual theory of Profits.

1. Risk and Uncertainty theory. This theory was introduced by Howley and according to him net profit is the residual income of the owner after making payments for all factors of production and is the reward for the risk taken by him. It concludes that profits are due to the risk taken by the owner. The owner has to bear the risk of losing capital, there are certain risks which can not be insured. They are known as uninsurable risks. We cannot predict when fashion will change or when new invention will come or when will war outbreak etc. There are unforeseeable changes and hence in value risks which cannot be insured payments made for these uninsurable risks are called 'profits'.

2. **Dynamic theory of profits.** Mr. J.B. Clark introduced this theory. According to Clark, the pure profit in a dynamic society is the residual income of the owner after making all payments including rent, wages interest and salary of management. Such pure profit in the form of residual earning result only in a dynamic society wher the changes in population, stock of capital, tastes or fashion, production techniques, managment principles etc. occur dynamically. In a static society since there are no such changes, no pure profit may result. Thus pure profit is a sign of progress. Thus to increase profit an owner may produce a new commodity, popularise it and earn large profit and soon competition sets in, the profit decline. Thus in maintaining pure profits high continuous progress is essential.

3. **Rent theory of profits.** This theory was introduced by Walker, who considered profit as a form of rent. He says that owner earns profit in the same way as land earns rent.

Marshall has criticized this theory for the following reasons :

(*a*) Where as rent on land is in the form of surplus earnings, profit is not.

(*b*) Land may produce zero or positive rent but never negative rent whereas net profit may be positive, zero or negative.

QUESTIONS

1. Explain the various elements which exist in the actual rate of interests.
2. Why does an actual rate of interest differ from person to person and place to place and industry to industry ?
3. Name the various theories of interest and explain any two of them.
4. Discuss and explain the neo-classical theory of interest.
5. Define : (*i*) Gross profit (*ii*) Net profit (*iii*) Pure profit (*iv*) Pure interest (*v*) Gross interest.
6. Write short notes on : (*i*) Rent and quasi-rent (*ii*) Dynamic theory of profits (*iii*) Rent theory of profits.
7. If Rs. 1000 loan earns Rs. 45 interest in six months. What is the ordinary simple interest rate?
8. How long will it take Rs. 10 to double if interest at rate of 5% compounded semi-annuity?
9. What interest rate compounded quarterly will have to be earned in order to Rs. 500 to amount to Rs. 1200 in 10 years ?
10. Find the present value of Rs. 900 due in 5 years if interest is at the rate of 9% compounded semi-annually. A large concern has made two offers to the owner of a small company for the purchase of his business. Offer *A* is Rs. 100,000 in cash. Offer *B* is Rs. 10,000 in cash, Rs. 50,000 at the end of the one year and Rs. 100,000 at the end of 3 years. If money is worth 6%, which is better offer from the view point of the owner or the small company.
11. How much will have to be deposited at the end of each year for 12 years in order to amount Rs. 12,000, if interest is earned at the rate of 15%.
12. A loan company advertises that they borrow Rs. 5,000 and repay in monthly instalments of Rs. 280 each. What rate of interest is the loan company receiving as its money ?
13. A sum of money is accumulated by depositing Rs. 1,200 annually, in monthly instalments for 10 years. Interest is paid at the annual rate of 6%. What amount will be accumulated at the end of the 10 years period ?