UNIT – 6

CAPITAL AND CAPITAL BUDGETING

Capital: The order to start and run a business i.e., to produce and sell the goods or services, money has to be invested. The money invested in the business in order to yield an income is know as capital.

Need of Capital:

1. Purchasing Fixed Assets
2. Purchase of Raw Materials
3. To meet day-to-day expenditure
4. To promote a business
5. To conduct business operations smoothly
6. To wind up business

Function of Financing:

1) Investment Decision:

a) Capital Budgeting: Capital budgeting is long-term investment decision. It is most crucial financial decision of firm. It relates to the selection of an asset or investment proposal or course of action whose benefits are likely to be available in future over the lifetime of the project.

Ex: purchase of new Fixed Assets or Replacement of old assets

b) Working Capital Management: This short-term investment decision, working capital is required for the day-to-day business activities of the enterprise. The important components of working capital are inventories, receivables, and cash balances, which keep on circulating in enterprises.

2) Financing Decision: Which is concerned with the financing-mix or capital structure or leverage. The capital structure decides the blending of the owned and borrowed funds in the total. Financial requirement it also implies determination of the sources, timing and procedure to obtain funds which an enterprises needs for its long-term and short-term operation.

3) Dividend Policy Decision: The third major decision of finance manager is relating to dividend policy. The firm has two alternatives with regard to management of profits of a firm. Either they can be distributed to the

shareholders in the form of dividends or they can be retained in the business or even distributed some portion and retain the remaining the course of action to be followed is a significant element in the dividend decision.

Classification Working Capital:

1) On the basis of concepts: on the basis of concept it is again classified into Gross Working capital and Net Working Capital.

a) Gross Working Capital: In the broader sense the term working capital refers to the gross working capital refers to the gross working capital. The notion of the gross working capital refers to the capital invested in the total current assets of the enterprises.

b) Net Working Capital: In a narrow sense the term working capital refers to the net working capital. Net working capital represents to excess of current assets and current liabilities.

2) On the basis of time: On the basis of time it is again classified in to Permanent working capital and Temporary working capital.

a) Permanent or Fixed Working Capital: This is always a minimum level of current asset which is continuously required by the enterprises to carry out its normal business operations and this minimum is known as fixed working capital.

Ex: Every firm has to maintain a minimum level of raw material work-in-process, finished goods and cash balance to the business operations smoothly and profitability.

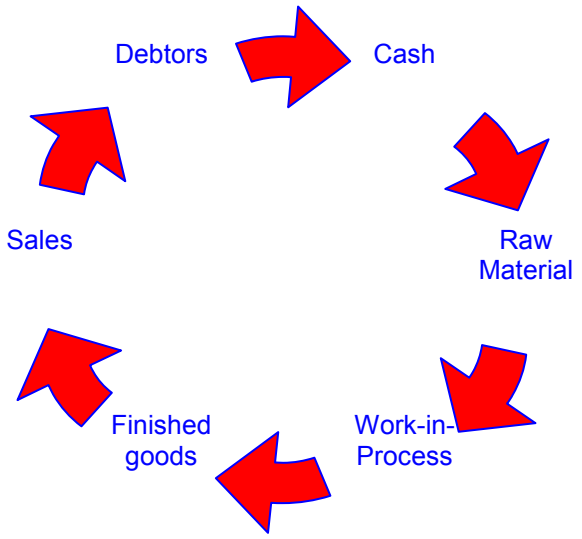
b) Temporary or Variable Working Capital: This working capital, which is required to meet the seasonal demands and some special exigencies.

Ex: Launching of extensive marketing campaigns and conducting research activities

Working Capital Cycle: The main objective of any business organization is to maximize the wealth of shareholders. Earning steady amount of profit requires successful sales activity. For a success of the sales activity, a firm has to invest enough funds in the current assets. The operating cycle of a manufacturing organization consists of following events.

I. Conversion of cash into raw materials,
II. Conversion of raw materials into work-in-process
III. Conversion of work-in-process into finished goods
IV. Conversion finished goods into debtors and bill receivables through sale
V. Conversion of debtors and bill receivables into cash

The cycle repeats itself repeatedly. The operating cycle converting sales into cash is shown below.



Since none above processes is taking place instantaneously, therefore a firm needs working capital. Hence, working capital is requiring running the day-to-day business activities of an organization.

Importance of Working Capital:

Solvency of the business: Adequate working capital helps in maintaining solvency of the business by providing uninterrupted flow of production

Good will: Sufficient working capital enables a business concern to make prompt payments and hence helps in creating and maintaining goodwill.

Easy loans: A concern having adequate working capital, high solvency and good credit standing can arrange loans from banks and others on easy and favorable terms.

Cash discounts: Adequate working capital also enables a concern to avail cash discounts on the purchases and hence it reduces costs.

Regular supply of raw materials: Sufficient working capital ensures regular supply of raw materials and continuous production.

Regular payments of salaries wages and other day to day commitments: A company which has ample working capital can make regular payment of salaries, wages and other day to day commitments which raises the moral of its employees, increases their efficiency, reduces wastage and costs and enhances production and profits.

Ability to face crisis: Adequate working capital enables a concern to face business crisis in emergencies.

Quick and regular return on investment: Every investor wants quick and regular returns on his investment. Sufficiency of working capital enables a concern to pay quick and regular dividends to its investors, as there may not be much pressure to plough back profits.

Factors affecting working capital: The working capital requirements of industries vary from one unit to another and from one type of unit to another type.

1) Length period of manufacture: A factory using simple short period process of production require a small amount of working capital where as a factory which needs a long period of manufacture will need large amount of working capital.

2) Turnover inventories: Turnover is the ratio of annual gross scale to the average inventories. If the inventories are small and their turn-over is quick, the unit will require a small amount of capital.

3) Terms of purchases and sales: The amount of working capital varies directly with the use of credit

Ex: Purchase on credit require less working capital

Sales on cash require less working capital

Size of business: The working capital requirements of a concern are directly influenced by the size of its business which may be measured in terms of scale of operations. Greater the size of a business unit, generally, larger will be the requirements of working capital. Smaller the size of business unit requires smaller amount of working capital

Seasonal variations: Industries producing seasonal goods such as coolers, umbrellas, raincoats, fans etc., require large amount of working during the off-season, during the season the goods are sold and less amount of working capital is required.

Business cycle: At the peak of the business cycle, the turnover is quick, the products are sold quickly as they are produced and hence smaller amount of working capital is necessary.

Banking facilities: Which organization having more banking facilities such a organization required less working capital else required more working capital.

Nature of business: Working capital also depends upon the nature of business there are certain businesses that require large amount of fixed capital than the working capital.

Ex: Railway, state transport required less working capital, where as trading companies need more amount of working capital than the fixed capital.

Components of Working Capital: from the accounting point of view, working capital is the difference between current assets and current liabilities. (working capital = Current assets – Current liabilities)

Current Assets: Current assets are expected to be realized in cash or consumed during business operations.

Ex: current assets are cash in hand, cash at bank, stock debtors, expenses paid in advance (Prepaid expenses), incomes yet to be received, short-term investments, bills receivable and so on.

Current Liabilities: Current liabilities are those which are payable in the near future say less than an year.

Ex: Creditors, bills payable, bank overdraft, and outstanding expenses or accrued expenses.

Method of Source of Finance:

The following are the common methods of finance:

1. Long – term source of finance
2. Short – term source of finance

Long – term finance: Long-term finance refers to that finance available for a long period say three years and above. The long-term methods outlined below are used to purchase fixed assets such as land and buildings, plant and so on.

1) Shares Capital: Normally in the case of a company, the capital is raised by issue of share, the capital so raised is called share capital, the liability of the shareholders is limited to the extend of his contribution to the share capital of the company.

a) Preference share capital: Preference share are those shares, which carry priority rights with respect to payment of dividend so long as the company is in existence and return of capital at the time of liquidation of company.

i) Cumulative preference share: The holders of cumulative preference shares enjoy the right to receive, when profits permit, the dividend missed in the years when the profits were nil or inadequate.

ii) Non-cumulative preference shares: The holders of these shares do no enjoy any right over the arrears of dividend. Hence the unpaid dividend in arrears cannot be claimed in future.

iii) Participating preference shares: The holder of these shares enjoys the dividend two times. They get their normal fixed rate of dividend as per their entitlement. They participate again along with the equity shareholders in distribution of profits.

iv) Redeemable preference shares: These shares are repaid at the end of a given period. The period of repayment is stipulated on each share.

iv) Non-redeemable preference shares: These shares continue as long as the company continues. There are repaid only at the en of the lifetime of the company.

b) Equity Share Capital: Equity or ordinary shareholders are the real owner of he company. They have voting rights in the meeting of the company, thus have control over the working of the company. Equity shareholders are paid dividend after making payment to preference shareholders. There is no limit of dividend in case of equity shares.

2) Debentures: A company may acquire long-term finance through public borrowing. The issue of debentures raises these loans. “A debentures is a document under the company’s seal which provides for the payment of a principal sum and interest there on at regular intervals, which is usually secured

by the fixed or floating charge on the company's property or undertaking and which acknowledges a loan to the company at fixed rate of debentures are printed or written on the back of the document.

i) Secured vs Unsecured debentures: Secured debenture also called as mortgage debentures. Secured debentures are those secured by some charge on the assets of the company. They are empowered to sell such assets for the recovery by the issuing company.

There is no security for these debentures. Normally, the companies having a good financial record issue unsecured debentures.

ii) Convertible vs Non-convertible: These debentures are converted into equity shares after the period mentioned in the terms and conditions of issue. In terms of cost, debentures are cheaper than the equity shares. Where the company is not sure of good profits to sustain the size of equity, it prefers to issue convertible debentures. These debentures continue as loan for the defined period. These are converted into equity shares on the specified date.

Non-convertible debentures will not converted into equity shares they continue as loan till the date of repayment

iii) Redeemable vs Non-redeemable: These debentures are repaid on a specified date

Non-redeemable debenture are repaid only at the en of the lifetime of the company.

3) Long – Term Loans: There are specialized financial institutions offering long-term loans, provided the business proposal is feasible. The promoters should be able to offer assets of the business as security to avail of this source.

4) Retain Profits: The retained profits are profits remaining after all the claims. They form a very significant source of finance. Retained profits form good source of working capital. Particularly in times of growth an expansion, retained profits can be advantageously utilized.

5) Public Deposits: Another way of raising finance by a company is to invite public deposits for some period at a certain rate of interest. Deposits are

accepted for meeting the short and medium term capital requirement of the company ranging from one year to three years and renewal of deposit allowed.

Short – Term Source: Short-term finance is that finance which is available for a period of less than one year. The following are the source of short-term fiancé:

1) Commercial Paper (CP): It is a new money market instrument introduced in India in recent times. CPs are issued usually in large denominations by the leading, nationally reputed, highly rated and credit worthy, large manufacturing and finance companies in the public and private sector. The proceeds of the issue of commercial paper are used to finance current transactions and seasonal and interim needs for funds. Reliance Industries is one of the early companies, which issued CP.

2) Bank Overdraft: Over drafts means an agreement with bank by which a current account holder is allowed to withdraw more than the balance in his credit up to a certain limit. The interest is charged on the overdrawn account.

3) Advance from Customers: It is customary to collect full or part of the order amount from the customers in advance. Such advance are useful to meet the working capital needs.

4) Bank Loans: When a bank makes an advance in lump sum against some security it called loan. The bank loan is usually provided for one year. But now-a-days term loans are also provided for 3 to 7 years. The term loans may be either medium term or long-term loans.

5) Trade Credit: This is a short-term credit facility extended by the creditors to the debtors. Normally, it is common for the traders to buy the materials and other supplies from the suppliers on credit basis. After selling the stocks, the traders pay the cash and buy fresh stocks again on credit. Sometimes, the suppliers may insist on the buyer to sing a bill (bill of exchange). This bill is called bills payable.

6) Internal Funds: The firm itself by way of secret reserves, depreciation provisions, taxation provisions, retained profits, generates internal funds and so on and these can be utilized to meet the urgencies.

Factors consider for estimating of working capital requirements

Adequate working capital is required to run the business to avoid the shortage of working capital at once an estimate of working capital requirement should be made in advance.

The following factors have to be taken into consideration while making an estimate of working capital requirements.

- ✓ The level of production (in units)
- ✓ The length of time for which raw materials to remain in stores
- ✓ The time taken for conversion of raw material into finished goods
- ✓ The length of time taken to convert finished goods into sales
- ✓ The average period of credit allowed to customers
- ✓ The amount of cash required to pay day to day expenses of the business and make advances
- ✓ The average credit period expected to be allowed by suppliers
- ✓ Time-lag in the payment of wages and other expenses
- ✓ The prices of factors of production

Problems:

1) Prepare an estimate of working capital requirements from the following information of a trading concern:

a) Projected annual sales 1,00,000 units
b) Selling price Rs.8 per unit
c) Percentage of net profit on sales 25%
d) Average credit period allowed to customers 8 weeks
e) Average credit period allowed by suppliers 4 weeks
f) Average stock holding in terms of sales requirements 12 weeks
g) Allow 10% for contingencies

Solution:

Current Assets:		Rs.	Rs.
Debtors	$\frac{6,00,000 \times 8}{52}$	92,308	
Stock	$\frac{6,00,000 \times 12}{52}$	1,38,462	2,30,770
LESS : Current Liabilities:			
Creditors	$\frac{6,00,000 \times 4}{52}$		46,154
Net working capital			1,84,616
ADD: 10% for contingencies			18,462
Working capital required			2,03,078

Working Notes:

Sale	=	1, 00,000 x 8
	=	8, 00,000
Profit 25% x 8,00,000	=	2,00,000
Cost of sales	=	6, 00,000

2) A proforma cost sheet of a company provides the following particulars:

Elements of Cost:

Material	40% of sales
Direct Labour	20% of sales
Over heads	20& of sales

The following further particulars are available:

a) It is proposed to maintain a level of activity of 2,00,000 units
b) Selling price is Rs.12/- per unit
c) Raw materials are expected to remain in stores for an average period for an average period of one month
d) Materials will be in process, on a average half a month
e) Finished goods are required to be in stock for an average period of one month
f) Credit allowed to debtors is two months
g) Credit allowed by suppliers is one month

You may assume that sales and production follow a consistent pattern

You are required to prepare a statement of working capital requirements

Solution :

Material	40% x 12 = 4.80
Labour	20% x 12 = 2.40
Over heads	20% x 12 = 2.40
Total Cost	= 9.60

Current Assets:

Stock of Raw Material	=	$\frac{2,00,000 \times 4.8 \times 1}{12}$		80,000
Work in Process				
Raw Material	=	$\frac{2,00,000 \times 4.8 \times 0.5}{12}$	40,000	
Labour	=	$\frac{2,00,000 \times 2.4 \times 0.5}{12}$	20,000	
Overheads	=	$\frac{2,00,000 \times 2.4 \times 0.5}{12}$	20,000	80,000

Finished Goods

Raw Material	=	$\frac{2,00,000 \times 4.8 \times 1}{12}$	80,000	
Labour	=	$\frac{2,00,000 \times 2.4 \times 1}{12}$	40,000	
Overheads	=	$\frac{2,00,000 \times 2.4 \times 1}{12}$	40,000	1,60,000
Debtors	=	$\frac{2,00,000 \times 9.6 \times 2}{12}$		3,20,0000
				6,40,000

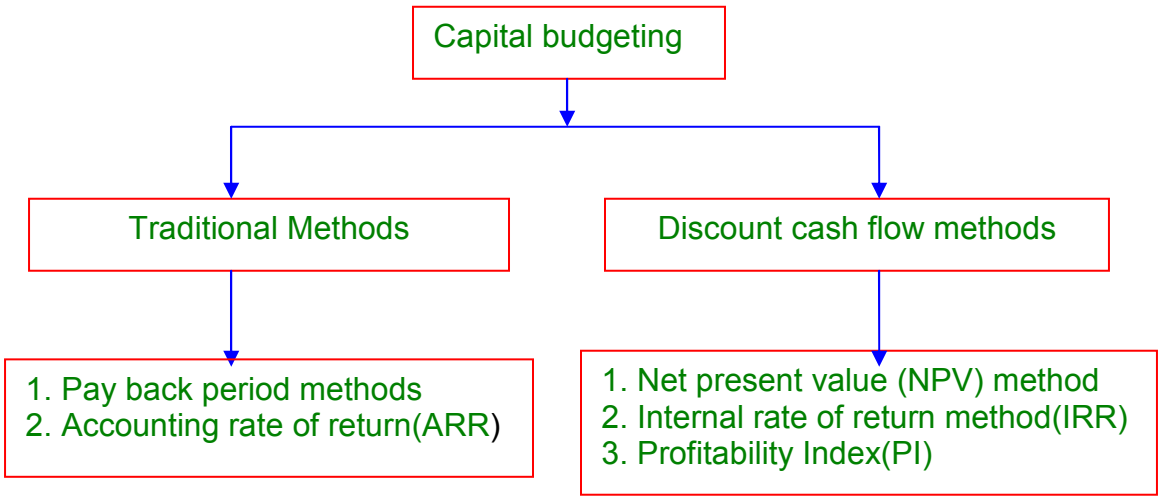
LESS: Current Liabilities

Creditors	=	$\frac{2,00,000 \times 4.8 \times 1}{12}$	80,000

Net working capital required (CA - CL) = 5,60,000

Methods of Capital Budgeting:

Method of capital budgeting are broadly classified into two categories. There are further categorized into few types are shown below.



Traditional Method:

1) Payback Period: Pay back period represent the number of years required to recover the original investment. It also called as payoff period.

When project generates constant annual cash flows:

$$Pay\ back\ \ period = \frac{Original\ \ Cost\ \ of\ \ the\ \ project}{Annual\ \ cash\ \inf lows}$$

When project does generate constant annual cash flows

$$Pay\ back\ \ period = Lower\ \ year + \frac{Original\ \ Cost\ \ of\ \ the\ \ project - AACI\ \ for\ \ lower\ \ year}{AACI\ \ for\ \ higher\ \ year - AACI\ \ for\ \ lower\ \ year}$$

Note: Annual cash inflows is consider after tax and depreciation only

2) Accounting Rate of Return (ARR): The Average Rate of Return method of evaluating proposed capital expenditure it is also known as the accounting rate of Return method. It is based upon accounting information rather than cash flows.

This method based on accounting profit, takes into account the earnings expected from investment over the entire lifetime of asset.

$$ARR = \frac{Average\ Annual\ Earning}{Average\ Investment} \times 100$$

$$\text{Average Annual Earning} = \frac{Total\ Annual\ Earnings\ After\ Tax\ and\ Depreciation}{Expected\ Life\ of\ Asset}$$

If there Scrap Value:

$$Average\ Investment = \frac{Net\ Investment}{2}$$

If there is Scrap and Additional Capital:

$$\text{Average Investment} = \frac{Net\ Investment - Scrap\ Value}{2} + Scrap\ Value + Additional\ Capital$$

Note : Project with highest ARR is preferred.

Discounted Cash Flow Method: This method is improved methods over the traditional technique. Discounted cash flows are the future ash inflows reduced to their present value based on a discounting factor. The process of reducing the future cash inflows to their present value based on a discounting factor or cut-off returns is call discounting.

1) Net Present Method (NPV): Net present value refers to the excess of present value of future cash inflows over and above the cost of original investment. It is takes into consideration the time value of money.

NPV = Present Value of Cash inflows – Initial Investment

$$\text{Pr}esent\ Value\ Factor = \frac{CF_1}{(1+K)} + \frac{CF_2}{(1+k)^2} + \ldots\ldots\ldots \frac{CFn}{(1+k)^n}$$

Note: Which project gives highest value that project is accepted else rejected

2) Internal Rate of Return (IRR): This IRR for an investment proposal is that discount rate which equates the present value of cash inflows with the present value of cash outflows of an investment. In other wards IRR is rate at which sum

of discounted cash inflows equal the sum of discounted cash outflows. It can be also be defined as the rate which NPV equates to zero

$$IRR = L + \frac{P_1 - Q}{P_1 - P_2} \times D$$

L = Lower discount rate

P_1 = Present value of earning at lower rate

P_2 = Present value of earning at higher rate

Q = Annual Investment

D = Difference in rate of returns

Note: The project with greater or higher IRR is accepted.

3) Profitability Index (PI): Profitability Index is the ratio of present value of cash inflows to the present value of cash outflows. It is also called benefit cost ratio.

$$\text{Pr}\,ofitability\ \ Index\ \ = \frac{\text{Pr}\,esent\ \ value\ \ of\ \ \ cash\ \ \text{inf}\,lows}{\text{Pr}\,esent\ \ value\ \ of\ \ \ cash\ \ outflows}$$

Note: When PI is greater than one, the proposal is accepted otherwise rejected.

Problems:

1) The proposals in respect of the following two projects are to be examined using a) Pay-back method b) Accounting rate of return method

Initial investment of both projects = Rs.20,000

Estimated cash flows after tax are as follows.

Year	Proposal -1	Proposal - 2
1	12,500	11,750
2	12,500	12,250
3	12,500	12,500
4	12,500	13,500

Solution:

Proposal – 1:

Pay-back period:

Since this proposal is generating constant annual cash inflows, pay-back period is given by

$$Pay\ back\ \ period = \frac{Original\ \ Cost\ \ of\ \ the\ \ project}{Annual\ \ cash\ \inf lows}$$

$$Pay\ \ back\ \ \ period = \frac{20{,}000}{12{,}500} = 1.6\ \ years$$

ARR Method:

$$ARR = \frac{Average\ \ Annual\ \ Earning}{Average\ \ Investment} \times 100$$

$$\text{Average Annual Earning} = \frac{50{,}000}{4} = 12{,}500$$

$$\text{Average Investment} = \frac{20{,}000 - 0}{2} + 0 + 0 = 10{,}000$$

$$ARR = \frac{12{,}500}{10{,}000} \times 100 = 125\%$$

Proposal – 2:

Pay-back period:

Since this proposal has unequal cash inflows, pay-back period is given by

$$Pay\ back\ period = Lower\ year + \frac{Original\ Cost\ of\ the\ project - AACI\ for\ lower\ year}{AACI\ for\ higher\ year - AACI\ for\ lower\ year}$$

Year	Proposal - 2	AACI	
1	11,750	11,750	AACI for Lower Year
2	12,250	24,000	AACI for Higher Year
3	12,500	36,500	
4	13,500	50,000	

Initial investment is lies between 2 year and 3 year

$$Pay\ back\ period = 1 + \frac{20{,}000 - 11{,}750}{24{,}000 - 11{,}750} = 1.67\ years$$

ARR Method:

$$ARR = \frac{Average\ Annual\ Earning}{Average\ Investment} \times 100$$

Average Annual Earning = $\frac{50{,}000}{4} = 12{,}500$

Average Investment = $\frac{20{,}000 - 0}{2} + 0 + 0$ = 10,000

$$ARR = \frac{12{,}500}{10{,}000} \times 100 = 125\%$$

2) Consider the case of the company with following two investment alternatives each costing Rs.9 lakhs. The details of the cash inflows are as follows

Years	Rs. In lakhs	
	Project -1	Project - 2
1	3	6
2	5	4
3	6	3

The cost of capital is 10% per year. Which project will you choose under NPV and PI method?

Solution:

Project – 1:

NPV:

PV factor = $\frac{R}{(1+R)^n} = \frac{1}{(1+0.1)^1} = 0.909$ for first year like that for remaining years

Year (1)	Cash Inflows (2)	PV factor (3)	Present value of cash inflows (4 = 2x3)
1	300000	0.909	2,72,700
2	500000	0.825	4,13,000
3	600000	0.751	4,50,000
Present value of cash inflows			11,36,300
Present value of cash outflows			9,00,000
NPV			2,36,300

PI:

$$\text{Profitability Index} = \frac{\text{Present value of cash inflows}}{\text{Present value of cash outflows}}$$

$$\text{Profitability Index} = \frac{11,36,300}{9,00,000} = 1.26$$

Project – 2:

NPV:

Year (1)	Cash Inflows (2)	PV factor (3)	Present value of cash inflows (4 = 2x3)
1	600000	0.909	5,45,400
2	400000	0.825	3,30,400
3	300000	0.751	2,25,300
Present value of cash inflows			11,01,100
Present value of cash outflows			9,00,000
NPV			2,01,100

PI:

$$\text{Profitability Index} = \frac{\text{Present value of cash inflows}}{\text{Present value of cash outflows}}$$

$$\text{Profitability Index} = \frac{11,01,100}{9,00,000} = 1.22$$

	NPV	PI
Project – 1	2,36,300	1.26
Project – 2	2,01,100	1.22

According to NPV and PI shows highest value for project – 1 so project -1 is accepted.

3) A firm has an investment opportunity involving Rs.50,000. The cost of capital is 10%. From the details given below find out the internal rate of returns and see whether the project is acceptable.

Year	Cash inflows
1	5,000
2	10,000
3	15,000
4	25,000
5	30,000

Solution:

$$IRR = L + \frac{P_1 - Q}{P_1 - P_2} \times D$$

Year	Cash Inflows	PV @ 15%	Present value of cash inflows	PV @ 20%	Present value of cash inflows
1	5000	0.870	4,350	0.833	4,165
2	10000	0.756	7,560	0.694	6,940
3	15000	0.658	9,870	0.579	8,685
4	25000	0.572	14,300	0.482	12,050
5	30000	0.497	14,910	0.402	12,060
Total			50,990		43,900

The present value of cash inflows at 15% is Rs.50,990 which is more than initial investment of Rs.50,000 and at 20% Rs.43,900 which is less than the required one. Hence, the actual IRR lies in between 15% and 20% and can be computed by way of interpolation as follows.

$$IRR = L + \frac{P_1 - Q}{P_1 - P_2} \times D$$

L = Lower discount rate - 15%

P_1 = Present value of earning at lower rate - Rs.50,990

P_2 = Present value of earning at higher rate - Rs.43,900

Q = Annual Investment - Rs.50,000

D = Difference in rate of returns -5(20%-15%)

$$IRR = 15 + \frac{50{,}990 - 50{,}000}{50{,}990 - 43{,}900} \times 5$$

$$IRR = 15 + \frac{990}{7090} \times D$$

IRR = 15.7%

As the internal rate of return (IRR) is above the cost of capital (10%), the project is acceptable.