RAMA UNIVERSITY

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FACULTY OF COMMERCE AND MANAGEMENT

COURSE: B.COM V SEM.

SUBJECT: INTRODUCTION TO FINANCIAL MANAGEMENT

SUBJECT CODE: BCH 505

LECTURE: 17

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LECTURE-17

b) Computation of Profitability Index

Present value of cash inflow	5, 18,400	5, 23,200
Present value of cash outflow	4, 00,000	4,00,000
Profitability index	1.3	1.31

Since net present value and profitability index of Machine B is higher. Machine B is therefore recommended.

Illustration9. One of the two machines A and B is to be purchased. Form the following information find out which of the two will be more profitable? The average rate of tax may be taken at 50%.

	Machine A (Rs.)	**Machine B (Rs.)**
Cost of machine	50000	80000
Machine Life	4 years	6 years
Earnings Before Tax		
1st year	10000	8000
2nd year	15000	14000
3rd year	20000	25000
4th year	15000	30000
5th year		18000
6th year		13000

Solution:

Machine A

year	**EBT**	**Tax@ 50%**	**EAT**	**Cash flows**	**Cumulative cash flows**
1	10000	5000	5000	17500	17500
2	15000	7500	7500	20000	37500
3	20000	10000	10000	22500	60000
4	15000	7500	7500	20000	80000

Pay back period:

Investment = 50000

Recovery up to 2nd year is 37,500

Balance 12500 in 3rd year = 12500/22500 = 0.55 years i.e. 2.55 years

Average rate of returns:

(on original investment basis)

Average earnings/net investment x 100

30000 x 4 / 50000 x 100 = 15%

Machine B

year	EBT	Tax@ 50%	EAT	Cash flows	Cumulative cash flows
1	8000	4000	4000	17333	17333
2	14000	7000	7000	20333	37666
3	25000	12500	12500	25833	63499
4	30000	15000	15000	28333	91832
5	18000	9000	9000	22333	141165
6	13000	6500	6500	19833	133498

Pay back period
Investment = Rs. 80,000
Cumulative Cash Flows shows that the recovery up to 3rd year = 63499
therefore for the balance of Rs. 16501 will be recovered in 4th year. i.e.
16501/28333 = 0.58 year
therefore payback period is 3.58 years

Average rate of return (based on original investment)
Average Profits/net investment x 100
54000/6 x 100
11.25%

Machine A is profitable in both the cases
Note: - It has been assumed that Earnings Before tax in the problem is after considering depreciation on straight line basis.

Illustration 10. No Project is acceptable unless the yield is 10%. Cash inflows of a certain project along with cash outflows are given below:

Year	Outflow (Rs.)	Inflow(Rs.)
0	150000	-
1	30000	20000
2	-	30000
3	-	60000
4	-	80000
5	-	70000

Calculate net present value
Solution:

Calculation of Net Present Value

Year	PVIF	Outflows		Inflows	
		Amount (rs.)	Present Value (Rs.)	Amount (Rs.)	Present Value(Rs.)
0	1.000	150000	150000		
1	0.909	30000	27270	20000	18180
2	0.826			30000	24780
3	0.751			60000	45060
4	0.683			80000	54640

5	0.621			70000	43470
			177270		186130

Net present value = Present value of Inflows - Present value of Inflows
Rs.186130 – Rs.
177270 =Rs 8860

Problem1: 1 A Company whose cost of capital is 12% is considering two Machines A and B. The following data are available:-

	Machine A (Rs.)	**Machine B (Rs.)**
Cost of machine	1,40,000	1,40,000
Cash inflows		
1st year	20,000	1,00,000
2nd year	40,000	80,000
3rd year	60,000	40,000
4th year	1,00,000	20,000
5th year	1,10,000	20,000
	3,30,000	2,60,000

Recommended in which machine company should invest by using the following methods
a. Pay back method
b. Net present value
c. Profitability index

Problem2: X ltd is considering the purchase of a new machine. Two alternatives are available having a cost price Rs. 200000 each. The following inflows are expected during the five years life of both the machines are 5 years.

Year	Machine A	Machine B
1	15,000	5,000
2	20,000	15,000
3	25,000	20,000
4	15,000	30,000
5	10,000	20,000

The company is expecting 10 % returns on its capital.
The net present value of Rs. 1 @ 10 % are given as follows
1st year 0.909
2nd year 0.826
3rd year 0.751
4th year 0.683
5th year 0.620
You are required to appraise the proposals on the basis of
1. Pay back period method

Average rate of return method
Net present value method

Problem 4. Consider the following proposal investment with the indicated cash inflows

Investment	**Initial outlay**	**Year end cash Inflows**		
		Year1	**Year2**	**Year3**
A	200	200	Nil	Nil
B	200	100	100	100
C	200	20	100	300
D	200	200	20	20
E	200	140	60	100
F	200	160	160	80

Rank the investment using net present value (NPV) using a discount rate of 10% and state your views.

Problem 5. After considering a survey that cost Rs. 300000 X Ltd., decided to undertake a project putting a new product in the market. The company's cut off rate is 12%. It was estimated that the project would have a life of 5 years. The project would cost Rs 60, 00,000 in p& M in addition to working capital of Rs. 15, 00,000. The machine has no scrap value at the end of 5 years. After providing depreciation on straight line basis, profits after tax were estimated as follows:

Year	**Amount (Rs.)**
1	600000
2	1000000
3	2600000
4	1000000
5	800000

The present value factors @ 12% per annum are given below

1st year	0.8729
2nd year	0.7972
3rd year	0.7118
4th year	0.6355
5th year	0.5674

Ascertain the net present value of the project.