

Question: 11

SM

12

A Company named Roby's cube decided to replace the existing Computer system of their organization. Original cost of old system was ₹ 25,000 and it was installed 5 years ago. Current market value of old system is ₹ 5,000. Depreciation of the old system was charged with life of 10 years with Estimated Salvage value as Nil. Depreciation of the new system will be charged with life over 5 years. Present cost of the new system is ₹ 50,000. Estimated Salvage value of the new system is ₹ 1,000. Estimated cost savings with new system is ₹ 5,000 per year. Increase in sales with new system is assumed at 10% per year based on original total sales of ₹ 10,00,00. Company follows straight line method of depreciation. Cost of capital of the company is 10% whereas tax rate is 30%.

(Page No. 17)

W.N. 1 Sale of old Machine

Sales consideration = 5000 - (I)
(-) B.V. of old machine =
[25000 - (25000 × 5)] 12500
Capital loss 7500
Tax savings @ 30% 2250 - (II)
Net consideration 7250
(i + ii)

W.N. 2 Incremental CFAT

Savings in cost = ₹ 5000

Increase in Revenue = ₹ 10000
(₹ 100000 × 10%)

Incremental CFBT ₹ 15000 — ①

(-) Incremental Dep. ₹ 7300

$\left[\left(\frac{50000 - 1000}{5} \right) - 2500 \right]$

Incremental PBT 7700

Tax @ 30% 2310 — ②

Incremental CFAT 12690 (i-ii)

Calculation of NPV

	YEAR	PVF (10%)	Amt	P.V.
<u>(A) Incremental C.O.</u>				
Cost of New Machine	0	1.000	50000	50000
Sale of old Machine (W.N-1)	0	1.000	(7250)	(7250)
				<u>42750</u>
<u>(B) Incremental CI</u>				
Incremental CFAT	1-5	3.791	12690	48108
Incremental P.V.	5	0.621	1000	621
				<u>48729</u>
NPV				<u>5079</u>

Question: 05

A company has an old machine having book value zero - which can be sold for ₹ 50,000. The company is thinking to choose one from following two alternatives:

- (i) To incur additional cost of ₹ 10,00,000 to upgrade the old existing machine.
- (ii) To replace old machine with a new machine costing ₹ 20,00,000 plus installation cost ₹ 50,000.

Both above proposals envisage useful life to be five years with salvage value to be nil.

The expected after tax profits for the above three alternatives are as under :

Year	Old existing Machine (₹)	Upgraded Machine (₹)	New Machine (₹)
1	5,00,000	5,50,000	6,00,000
2	5,40,000	5,90,000	6,40,000
3	5,80,000	6,10,000	6,90,000
4	6,20,000	6,50,000	7,40,000
5	6,60,000	7,00,000	8,00,000

The tax rate is 40 per cent.

The company follows straight line method of depreciation. Assume cost of capital to be 15 per cent.

P.V.F. of 15%, 5 = 0.870, 0.756, 0.658, 0.572 and 0.497. You are required to advise the company as to which alternative is to be adopted.

(Page No. 08)

Option 1 Upgraded Machine

Calculation of NPV

	1	2	3	4	5
Upgrade PAT	550000	590000	610000	650000	700000
(+) Dep	200000	200000	200000	200000	200000
CFAT	750000	790000	810000	850000	900000
(-) CFAT (old)	500000	540000	580000	620000	660000
Incremental CFAT	250000	250000	230000	230000	240000
(x) PVF	0.870	0.756	0.658	0.572	0.497

$$PVC I = 808680$$

$$(-) PVC O = \frac{1000000}{NPV = \underline{\underline{(191320)}}$$

NEW Machine

	1	2	3	4	5
New Machine					
PAT	600000	640000	690000	740000	800000
(+) Dep $\left(\frac{205000}{5}\right)$	410000	410000	410000	410000	410000
CFAI	1010000	1050000	1100000	1150000	1210000
(-) CFAI of old	500000	540000	580000	620000	660000
Incremental CFAI	510000	510000	520000	530000	550000
(x) PVf	0.870	0.756	0.658	0.572	0.497

$$PVCI = 1747930$$

$$(-) PV(0) \quad \frac{2020000}{(272070)} \\ (2050000 - 30000) \\ NPV$$

Since NPV is Negative in both option, hence old machine without upgradation is better

Sale of old Machine

Sale Consideration = 50000

(-) B.V. $\frac{0}{50000}$

Cap. Gain $\frac{50000}{50000}$

Tax @ 40% $\frac{20000}{50000}$

30000

TYK 24

Question: 07

Company X is forced to choose between two machines A and B. The two machines are designed differently but have identical capacity and do exactly the same job. Machine A costs ₹1,50,000 and will last for 3 years. It costs ₹40,000 per year to run. Machine B is an 'economy' model costing only ₹1,00,000, but will last only for 2 years, and costs ₹60,000 per year to run. These are real cash flows. The costs are forecasted in rupees of constant purchasing power. Ignore tax. Opportunity cost of capital is 10 per cent. Which machine company X should buy?

(Page No. 12)

Calculation of EAPVCO

Machine A

$$PVCO = 150000 + (40000 \times 2.487) \\ = 249480$$

$$EAPVCO = \frac{PVCO}{PVAf} = \frac{249480}{2.487} = 100314$$

EPVCO lower Accept

Machine B

$$PVCO = 100000 + (60000 \times 1.735)$$

$$EAPVCO = \frac{204100}{1.735} = 117637$$