

HW - Chapter 7 - Capital Budgeting- Q5

(i) Calculation of Pay-back Period

Cash Outlay of the Project	= Rs. 80,00,000
Total Cash Inflow for the first five years	= Rs. 70,00,000
Balance of cash outlay left to be paid back in the 6 th year	= Rs. 10,00,000
Cash inflow for 6 th year	= Rs. 16,00,000
Payback Period = 5 years + $10/16 \times 12$	= 5 years 7.5 months

(ii) Calculation of Net Present Value (NPV) @10% discount rate:

Year	Net Cash Inflow	DF @ 10%	Present Value
1	14,00,000	0.909	12,72,600
2	14,00,000	0.826	11,56,400
3	14,00,000	0.751	10,51,400
4	14,00,000	0.683	9,56,200
5	14,00,000	0.621	8,69,400
6	16,00,000	0.564	9,02,400
7	20,00,000	0.513	10,26,000
8	30,00,000	0.467	14,01,000
9	20,00,000	0.424	8,48,000
10	8,00,000	0.386	3,08,800
Present Value of Cash Inflows			97,92,200
(-) Present Value of Cash Outflows			(80,00,000)
NPV			17,92,200

(iii) Calculation of Profitability Index @ 10% discount rate:

Profitability Index =
 Present Value of Cash inflows ÷ Present Value of Cash Outflows
 = Rs.97,92,200 ÷ Rs. 80,00,000 = 1.224

(iv) Calculation of Internal Rate of Return:

Net present value @ 10% interest rate factor has already been calculated in (ii) above, now we use 15%.

Year	Net Cash Inflow	DF @ 15%	Present Value
1	14,00,000	0.870	12,18,000
2	14,00,000	0.756	10,58,400
3	14,00,000	0.658	9,21,200
4	14,00,000	0.572	8,00,800
5	14,00,000	0.497	6,95,800
6	16,00,000	0.432	6,91,200
7	20,00,000	0.376	7,52,000
8	30,00,000	0.327	9,81,000
9	20,00,000	0.284	5,68,000
10	8,00,000	0.247	1,97,600
			78,84,000

$IRR = 10 + 17,92,200 \div 1908200 \times 5 = 14.7\%$