HW - Chapter 7 - Capital Budgeting- Q2

Net Present Value (NPV) of Projects

Year	Cash Inflows of Project A	Cash Inflows of Project B	Present Value Factor @ 10%	PV of Project A	PV of Project B
1	50,000	1,40,000	0.909	45,450	1,27,260
2	60,000	1,90,000	0.826	49,560	1,56,940
3	40,000	1,00,000	0.751	30,040	75,100
			PV of Inflows	1,25,050	3,59,300
			(-) PV of outflows	(1,00,000)	(3,00,000)
			NPV	25,050	59,300

Internal Rate of Returns (IRR) of projects

Since by discounting cash flows at 10%, we are getting values very far from PV of outflows, hence, let us discount cash flows using 20% and 25% discounting rate.

Project A

Year	Cash Inflows	DF @ 20%	PV	DF @ 25%	PV
1	50,000	0.833	41,650	0.800	40,000
2	60,000	0.694	41,640	0.640	38,400
3	40,000	0.579	23,160	0.512	20,480
PV of Inflows			1,06,450		98,880

The internal rate of return is, thus, more than 20% but less than 25%. The exact rate can be obtained by interpolation:

IRR of project A = 20 + 6,450 ÷ 7,570 x 5 = 24.26% per annum

Project B

Year	Cash Inflows	DF @ 20%	PV	DF @ 25%	PV
1	1,40,000	0.833	1,16,620	0.800	1,12,000
2	1,90,000	0.694	1,31,860	0.640	1,21,600
3	1,00,000	0.579	57,900	0.512	51,200
PV of Inflows			3,06,380		284,800

IRR of project B = 20 + 7,570 ÷ 21580 x 5 = 21.48% per annum

	Project A	Project B
NPV @ 10%	Rs. 25,050	Rs. 59,300
IRR	24.26%	21.48%

Thus, there is a contradiction in ranking by two methods.