SRI LTD is considering investing in a project Rs.2, 00,000.

YEAR	PROFIT AFTER DEPRECIATION BUT BEFORE TAX	P.V Factor @ 10%
1	1,00,000	0.909
2	1,00,000	0.826
3	80,000	0.751
4	80,000	0.683
5	40,000	0.621

Depreciation may be taken as 20% on original cost and tax at 50% of net income. Calculate

1. Pay-back period.
2. Discounted Pay-back period.
3. Rate of return on original investment.
4. Rate of return on average investment.
5. NPV Method (Discounted cash flow method)
6. Excess present valve index (Profitability Index).
7. Internal Rate of Return.

Traditional pay back period :-

Net Profit

Payback Period.

Year	Annual Cash Inflow	Tax 50%	After tax. Profit after tax	Add Depreciation	Annual Cash Inflow	Cumulative Cash Inflow
1	1,00,000	50,000	50,000	40000	90,000	90,000
2	1,00,000	50,000	50,000.	40000	90,000	1,80,000
3	80,000	40,000	40,000.	40,000	80,000	2,60,000
4	80,000	40,000	40,000	40,000	80,000	3,40,000
5.	40,000	20,000.	20,000 .	40,000.	60,000.	4,00,000.

2 yrs

3,00,000 - 2,60,000 = 40,000

2,60,000 - 1,80,000

Time Required - $\frac{\text{Required Amt}}{\text{Different Amount}} \times$ Month.

$= \frac{20,000}{80,000} \times 12$ = 3 Months.

= 2 years 3 Months

Payback Period = 2 years 3 months.

2) Calculation of Discounted Payback Period.

Year	Cash Inflow	PV factor @ 10%	Present value	Cumulative cash Inflow.
1	90,000	0.909	81,810	81,810.
2	90,000	0.826	74,340	1,56,150.
3	80,000	0.751	60,080	2,16,230.
4	80,000	0.683	54,640.	2,70,870.
5	60,000.	0.621.	37,260	3,08,130.

Time Required = $\frac{\text{Required Amount}}{\text{Different Amount}} \times$ Month.

$2,00,000 - 156,150 = 43,850$

$2,16,830 - 156,150 = 60,080$

$= \frac{43,850}{60,080} \times 12$

= 8.7 months.

Payback Period = 2 years 9 months.

3) Calculation of Rate of return on original Investment

Accounting Rate of Return = $\frac{\text{Average Profit}}{\text{Original Investment}} \times 100$

$= \frac{3,08,130}{2} \times \frac{100}{2,00,000}$

$= \frac{81,626}{2,00,000} \times 100$

Accounting Rate of Return = 31%

4) Accounting Rate of Return = $\frac{\text{Average Profit}}{\text{Average Investment}} \times 100$

$= \frac{60,000}{1,00,000} \times 100$

Accounting Rate of Return = 60%

5) Net Present Value :-

Net Present Value = Present Value of Cash Inflow − Present Value of Cash outflow

$= 3,08,130 - 2,00,000$

Net Present Value = Rs. 1,08,130.

6) Calculation of Profitability Index :-

Excess present value Index = $\frac{\text{present Value of Cash Inflow}}{\text{Present Value of cash outflow}} \times 100$

$= \frac{3,08,130}{2,00,000} \times 100.$

$= 154\%$

Profitability Index = 154%

7) Calculation of Internal Rate of Return :-

Internal Rate of Return = $\frac{\text{Initial Investment}}{\text{Annual cash Inflow}}$

$= \frac{2,00,000}{3,08,130.}$

$= 0.64$

$= \frac{2,00,000}{80,000} = 2.5.$

2.5

5 year

2.5320 ⟶ 28 %

So **IRR : 28 %.**

1) calculation of payback Period :-

Year	Annual cashflow	Tax 50%	Net Profit after tax	Add Depreciation	Annual cash Inflow	Cumulative cash Inflow
1	1,00,000	50,000	50,000	40,000	90,000	90,000
2	1,00,000	50,000	50,000	40,000	90,000	1,80,000
3	80,000	40,000	40,000	40,000	80,000	2,60,000.
4	80,000	40,000	40,000	40,000	80,000.	3,40,000
5	40,000.	20,000.	20,000.	40,000	60,000	4,00,000

$$\text{Time Required} = \frac{\text{Required Amount}}{\text{Different Amount}} \times 12.$$

$$= \frac{20,000}{80,000} \times 12.$$

$$= 3 \text{ month.}$$

payback Period = 2 years 3 months.

2) calculation of Discounted Payback Period :-

Year	Cash Inflow	PV factor @ 10%	present Value	Cumulative cash Inf
1	90,000	0.909	81,810	81,810.
2	90,000	0.826	74,340	1,56,150.
3	80,000	0.751	60,080	2,16,230.
4	80000	0.683	54,640.	2,70,870.
5	60,000.	0.621	37,260.	3,08,130.

2,00,000 − 1,56,150

Time Required = $\frac{\text{Required Amount}}{\text{Different Amount}} \times \text{month}$.

$= \frac{43,850}{60,080} \times 12$

$= 8.4$ months.

Payback Period = 2 years 9 months.

3) Calculation of Rate of return on original investment :-

Accounting Rate of Return = $\frac{\text{Average Profit}}{\text{Original Investment}} \times 100$

$= \frac{40,000}{2,00,000} \times 100 =$

$= 20\%$

Accounting Rate of Return = 20%.

4) Calculation of Rate of return on average Investment

Accounting Rate of return = $\frac{\text{Average Profit}}{\text{Average Investment}} \times 100$.

$= \frac{40,000}{1,00,000} \times 100.$

$= 40\%$

Accounting Rate of return = 40%.

5) Calculation of Net Present Value :-

Net present value = Present value of cash inflow − Present value of cash outflow

$= 3,08,130 - 2,00,000.$

$= Rs. 1,08,130.$

Net present value = Rs. 1,08,130.

6) Calculation of Profitability Index :-

$$\text{Profitability Index} = \frac{\text{Present value of cash Inflow}}{\text{Present value of cash outflow}} \times 100$$

$$= \frac{3,08,130}{2,00,000} \times 100$$

$$= 154\%$$

Profitability Index = 154 %

7) Calculation of Internal Rate of Return :-

$$\text{Internal Rate of Return} = \frac{\text{Initial Investment}}{\text{Annual Cash Inflow}}$$

$$= \frac{2,00,000}{80,000}$$

$$= 2.5$$

The PV factor is to be located in the present value annuity.

Table in the column of 5 years.

The value 2.5320 (nearest to 2.5) is found in the row of 28 %.

Hence IRR is 28 %.

Payback Period = 2 years 3 Months

Discounted payback Period = 2 years 9 Months.

Rate of return on original Investment = 20 %.

Rate of return on Average Investment = 40 %.

Net Present value = Rs. 1,08,130

Profitability Index = 154 %.

IRR = 28 %.