Capital Budgeting

Q.1 The directors of a company are considering the following three investment projects:

Particulars	Project P (₹)	Project Q (₹)	Project R (₹)
Cost	80,000	1,00,000	1,30,000
Cash Flows (before tax & depreciation)			
Year 1	20,000	60,000	1,00,000
Year 2	30,000	60,000	90,000
Year 3	40,000	60,000	80,000
Year 4	70,000	60,000	30,000
Year 5	70,000	60,000	20,000
	2,30,000	3,00,000	3,20,000
Estimated life	5 Years	5 Years	5 Years
Estimated salvage value	₹10,000	₹20,000	₹30,000
Income Tax rate	50%	50%	50%

Depreciation on straight line basis.

You are required to:

1) Calculate the payback period of each project.
2) Which projects would be selected if the company specified that payback must be completed within three years?
3) Which project would be selected if they are mutually exclusive, i.e. only one of them can be undertaken?

Q.2 A Project costs ₹ 50,000 and has scrap value of ₹ 10,000. Its stream of income before depreciation and taxes during first year through five years is ₹ 10,000, ₹ 12,000, ₹ 14,000, ₹ 16,000 and ₹ 20,000. Assume a 50% tax rate and depreciation on straight line basis. Calculate accounting rate of return for the project.

Q.3 Calculate the present value for project X which initially costs ₹ 2,500 and generates year-end cash flows of ₹ 900, ₹ 800, ₹ 700, ₹ 600 and ₹ 500 in one through five years.
Assume the required rate of return to be 10%.

Year	Discounting Factor at 10%
1	0.909
2	0.826
3	0.751
4	0.683
5	0.620

Q.4 Jolly Co. has an investment opportunity of ₹ 40,000 with the following expected net cash flow (i.e., after tax and before depreciation):

Year	Net Cash Flow (₹)	Present Value Factor at 10%
1	7,000	0.909
2	7,000	0.826
3	7,000	0.731
4	7,000	0.653
5	7,000	0.621
6	8,000	0.564
7	10,000	0.513
8	15,000	0.467
9	10,000	0.424
10	4,000	0.386

Using 10% as the cost of capital (rate of discount) determine the (1) net present value, and (2) profitability index.

Q.5 New India Ltd. has to choose which of three mutually exclusive projects to undertake. Particulars of the projects are:

Particulars	Project A (₹)	Project B (₹)	Project C (₹)
Initial outlay	1,50,000	1,20,000	1,00,000
Cash inflow :			
Year 1	30,000	50,000	40,000
Year 2	35,000	50,000	40,000
Year 3	40,000	60,000	40,000
Year 4	50,000	50,000	40,000
Year 5	20,000	30,000	40,000
Year 6	-	-	40,000

The company's cost of capital is 12.5%. Which project, If any, should be undertaken?
The present value of Re. 1 considering a discount factor of 12.5%, works out as follows:

Year	1	2	3	4	5	6
P. V.	0.889	0.790	0.702	0.628	0.559	0.497

Q.6 A Company proposes to buy any one of the two machines whose information is as follows:

	Machine X (₹)	Machine Y (₹)
Cost	90,000	90,000
Life	3 years	3 years
Profit after Tax		
Year 1	40,000	20,000
2	50,000	70,000
3	40,000	50,000

The Company follows SLM of depreciation. Suggest which machine should be bought on the basis of: a) Pay-Back Period b) Average Rate of Return

Q.7 Determine the a) Pay-Back Period
b) Average Rate of Return

From the following information of a proposed project.

Estimated Life is 5 years.
Estimated Scrap Value is ₹ 2,000.

	₹
Cost	52,000
Annual Profits after Tax and Depreciation:	
Year 1	3,000
2	5,000
3	7,000
4	9,000
5	11,000
	35,000

Q.8 A Company has an investment opportunity costing ₹ 40,000 with the following expected net cash flow after tax but before depreciation:

Year	1	2	3	4	5
Net Cash Flow (₹)	7,000	7,000	7,000	7,000	7,000
P/V Factor	0.909	0.826	0.751	0.683	0.621
Year	**6**	**7**	**8**	**9**	**10**
Net Cash Flow (₹)	8,000	10,000	15,000	10,000	4,000
P/V Factor	0.564	0.513	0.467	0.424	0.386

Using 10% as the cost of capital, determine the following:

a) Payback period
b) Net Present Value at 10% discount factor.
c) Profitability Index at 10% discount factor.

Q.9 Compute : a) Pay-Back Period, b) Pay-Back Profitability.
c) Average Rate of Return from the following information :

Cost of Project : ₹ 50,000
Life : 5 years
Tax rate : 55%

Depreciation to be charged by SLM.

Year	1	2	3	4	5
Earnings before Depreciation and Tax	10,000	11,000	14,000	15,000	25,000

Q.10 No project is acceptable unless it yields 10% cash inflows. Certain projects with cash outflows are given below:

Year	Outflows ₹	Inflows ₹
0	1,50,000	
1	30,000	20,000
2		30,000
3		60,000
4		80,000
5		30,000
(Being the salvage value at the end of the five years)		40,000

The following are the present value factors at 10%.

Years	1	2	3	4	5
P.V. factors @ 10%	0.909	0.826	0.751	0.683	0.621

Calculate the net present value. Comment whether the project is acceptable or not.

Q. 11 A Firm whose cost of capital is 10% is considering two mutually exclusive projects X and Y, the details of which are:

	P/V Factor	Project X (₹)	Project Y (₹)
Investment		70,000	70,000
Cash Inflow :			
1st year	0.909	10,000	50,000
2nd year	0.826	20,000	40,000
3rd year	0.751	30,000	20,000
4th year	0.683	45,000	10,000
5th year	0.621	60,000	10,000
		1,65,000	**1,30,000**

Compute the net Present Value at 10%, Profitability Index for the two projects.