1. **Stand Alone Project Analysis**

Derive the annual nominal after-tax net cash flow (ANATNCF) for a new business opportunity described by the data below. The data includes past set-up costs as well as the future revenues and costs for the new business. The company has no income or costs associated with any other activities. Therefore, this is a stand-alone project.

Production, real costs and real prices#

			Future end years						
Items		Past	1	2	3	4	5	6	7
Production	K Units/yr				2	8	10	20	
Price	G&S/Unit		20	20	20	20	20	20	
Past costs	$K	30							
Capital costs	G&SK		120	50					
Operating costs	G&SK				20	20	20	20	
Decomm costs	G&SK								50

In this table, K means thousand = 10^3. "G&S" means Goods and Services. Blank entries are zeros. "Decomm" means decommissioning costs.

Escalation

The rate of escalation on all capital costs (Capex), operating costs (Opex) and decommissioning costs (Decomex) is 2% per year. That means, for instance, that the nominal price and costs for Time = 1 are 2% greater than the costs as shown in the table. The nominal price and costs for Time = 2 and later are calculated is a similar way.

Income Tax

The tax rate is 40% of taxable income. Past (set-up) costs are immediately deductible with no depreciation. Capex is deductible with depreciation on a straight-line basis at a rate of 20% per year. Depreciation starts as the costs are incurred (spent). Opex is immediately deductible. Decomex is immediately deductible.

1.1. Calculate the annual nominal after tax net cash flow (ANATNCF).
1.2 Calculate the nominal NPVs of the ANATNCF Assume a range of nominal discount rates, namely 0%, 5%, 10%, 15%, 20%, 25%.
1.3 How many nominal internal rates of return (IRRs) of the ANATNCF are there? Why?
1.4 What are the nominal internal rates of return (IRRs) of the ANATNCF?

End of Question