

ملاحظة : الرجاء تسليم ورقة الامتحان مع كراسة الاجابة

Question 1: (10 Points).

A company takes a loan of 200 \$MM from a bank to invest in developing newly discovered field. The company must pay back the loan in 4 equal payments in 4 years, (i.e. one at the end of each year). The interest rate is 5% compounded yearly, what is the value of the yearly payment? And how much profit did the bank make from this loan.

Question 2: (10 points).

During the treatment of associated natural gas it was decided to install a knockout drum in the feedline of the plant. This vessel can be purchased and installed for \$40,000, and will last for 10 years. An old vessel is available and can be used but needs to be repaired. However, the repairing has to be done every 3 years. If it is assumed that the two vessels (the new and the old ones) have equal capitalized costs and zero salvage value, how much does the maintenance department have to spend repairing the old knockout drum? Assume interest is 10%.

Question 3: (15 Points).

An oil reservoir was discovered in late 1981, and the decision to develop the reservoir followed immediately. The reservoir was put on production in 1984 while the development drilling was still in progress. (Development equipment salvage values (V_s) is assumed to be 2% of the new equipment value) and its service life is assumed to be 10 years. Given the data in the table below, Calculate the yearly and the cumulative Net Cash Flow for NOC and FOC at the end of 1990 assuming:

A. Tax-Royalty Agreement, with	
65% Tax Rate	Variable OPEX $C_v = 1.5$ \$/bbl
15% Royalty	Posted oil price = 30 \$/bbl
<i>Assume straight line depreciation</i>	Selling price = 35 \$/bbl

Date	Avg. daily production Rate (10 ³ STB)	Exploration Costs (\$MM)	Development costs (\$MM)	Fixed Operating Costs (C _f) \$MM
1980	0	3		3
1981	0	6		3
1982	0		20	3
1983	0		25	3
1984	20		15	4
1985	27		9	4
1986	30			4
1987	65			4
1988	77			4

Question 4: (15 Points).

An oil reservoir on production for more than 7 years. The following information the following information is available for the year 2009:

Oil production during 2009	17,329,712 STB
Cumulative production to end 2009	181,233,752 STB
Fixed operating costs	11,500,000 \$MM
Variable operating costs	1.63 \$/STB
Average oil selling price	65 \$/STB
Second party share	12 %
Total development expenses	420 \$MM

Assume an EPSA agreement and that the "A" factor for this year = 0.60 and the following step function is given for the production factor "B":

Q (MSTB/D)	< 20	20 – 30	30 – 60	60 – 85	> 85
"B"	1	0.80	0.5	0.30	0.2

- Calculate the yearly net profits for the 1st and the 2nd parties during 2009
- Calculate the yearly net profits of the 1st and the 2nd parties in % of oil produced.