

<b>Name:</b>	
<b>Enrolment No:</b>	

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**End Semester Examination, December 2018**

**Course: Economics and Risk Management in Exploration**

**Semester: III**

**Programme: M.Tech Petroleum Engineering**

**Course Code: PEGS 8001**

**Time: 03 hrs.**

**Max. Marks: 100**

**Instructions:**

**SECTION A**

**All Questions Compulsory**

S. No.		Marks	CO
Q 1	Explain with a simple model the overall Flow of Funds for an investment opportunity in case of development of an oil field Project.	[4]	CO1
Q.2	Write short notes on NCF and Gross Revenue	[4]	CO2
Q.3	Define Pay Back Period and illustrate the disadvantages of Pay back Period in the forward looking business.	[4]	CO4
Q.4	If \$200 million is spread evenly over 5 years on a straight line basis, how will you calculate the annual amounts of depreciation?	[4]	CO3
Q.5	Define Risk register and Risk matrices	[4]	CO5

**SECTION B**

**Question No.6 has an internal choice, all other questions are compulsory**

Q.6	(a) Define Sensitivity analysis and how do you perform sensitivity analysis?  (b) Define stage – gate process  <p style="text-align: center;">OR,</p> Describe Supply chain risks and human capital risk and their the impacts in hydrocarbon industry and also indicate the ways to mitigate them.	[6+4]	CO5
		[5+5]	
Q.7	Suppose a Co. is considering investing in an oil & gas project which involves an initial outlay of \$500 million in the first year and a regular annual operating cost of \$15 million over a period of four years after the first year. The Co. anticipates that annual income generated by the project will be \$50 million in each of those four years. The asset may be depreciated evenly as \$25 million over the period of those	[5+ 5]	CO2

	<p>four years.</p> <p>(a) How will you derive net cash flow for this investment?</p> <p>(b) What will be the annual profit projection?</p>		
Q.8	<p>(a) Explain Units of Production depreciation method .</p> <p>(b) An Oil company installs a crude oil processing plant costing \$25 million with an estimated capacity to produce 75 million barrels of crude oil during its entire life. Production during first year of operation is 5 million barrels and expected residual/salvage value is \$2 million. Calculate the Units of Production depreciation.</p>	[2+8]	CO3
Q.9	<p>Suppose you have an opportunity to drill a well on a prospect which if successful , is expected to lead to a development with an estimated NPV of \$100 million. Suppose the well costs \$5million and the estimated probability of success is 10%. Draw a decision tree and take a decision whether to go for drilling or not.</p>	[10]	CO4
<p><b>SECTION- C</b></p> <p><b><u>Question No.10 has an internal choice, other question in this section is compulsory</u></b></p>			
Q.10	<p>(a) Determine the net present value for a Project that cost \$104,000 &amp; would yield after – tax cash flow of \$ 15,000 the first year, \$16,000 the second year, \$21000 the third year, \$24,000 the forth year, \$25,000 the Fifth year, &amp; \$30,000 the Sixth year. Find out whether the project is profitable or not if your firm’s cost of capital is 12.00 %</p> <p>(b) An investment of \$200,000 in the oil and gas project is expected the following cash inflows in six years.</p> <p style="margin-left: 40px;"><b>Year 1</b> : \$70,000</p> <p style="margin-left: 40px;"><b>Year 2</b> : \$60,000</p> <p style="margin-left: 40px;"><b>Year 3</b> : \$55,000</p> <p style="margin-left: 40px;"><b>Year 4</b> : \$40,000</p> <p style="margin-left: 40px;"><b>Year 5</b> : \$30,000</p> <p style="margin-left: 40px;"><b>Year 6</b> : \$25,000</p> <p>Compute the Pay Back Period of the investment. Should the investment be made if a company wants to recover the initial investment in 3 years or less?</p> <p style="text-align: center;"><b>OR,</b></p> <p>An oil and gas project uses the IRR to evaluate investment opportunities and need to make a decision regarding the viability of a project, the details of which is given</p>	[10+10]	CO4

	<p>below considering the initial investment as \$10,000 and the cost of capital or the discount rate as 12%</p> <table border="1"> <thead> <tr> <th>Year</th> <th>Cash Flows</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>\$4,000</td> </tr> <tr> <td>2</td> <td>\$6,000</td> </tr> <tr> <td>3</td> <td>\$8,000</td> </tr> <tr> <td>4</td> <td>\$7,000</td> </tr> <tr> <td>5</td> <td>\$4,000</td> </tr> </tbody> </table>	Year	Cash Flows	1	\$4,000	2	\$6,000	3	\$8,000	4	\$7,000	5	\$4,000	<b>[20]</b>	
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Q.11	<p>(a) Describe the various legal systems that have been developed to address the rights and obligations of host government and of private investors.</p> <p>(b) Describe the various measures that are adopted by governments and oil companies to evaluate a fiscal system.</p>	<b>[10+10]</b>	<b>CO6</b>												

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