Name: **Enrolment No:**	UPES UNIVERSITY WITH A PURPOSE

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2019

Course: Economics and Risk Management in Exploration **Semester: III**
Program: M.Tech. PE **Time 03 hrs.**
Course Code: PEGS 8001 **Max. Marks: 100**

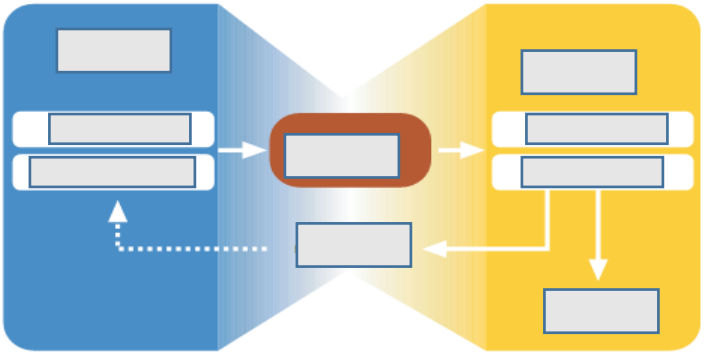
Instructions:

SECTION A
Total Marks : 20

S. No.		Marks	CO
Q 1	Write short Notes on: (i) EMV (ii) TVM (iii) Residual Risk (iv) Profitability Index	**(2.5×4 = 10)**	**CO4**
Q.2	**State whether True or False. <u>If false, give the correct answer.</u>** (a) NPV is the concept and uses the technique of TVM (b) Royalty is only payable once there is a positive taxable income. (c) Annual net cash flow is NCF – Royalty - Capex - Opex - Taxes. (d) A dollar that you have today has less value than the promise or expectation that you will receive from that dollar in the future. (e) Gross Revenue = Annual Production × Volume of production	**[2×5 = 10]**	**CO4**

SECTION B
Total Marks : 40

Q.3	Explain sensitivity analysis with example.	**[10]**	**CO5**
Q.4	Describe supply chain risks and Human capital risks in E & P industry. Also explain how should these risks be mitigated. **OR,**	**[5×2 = 10]**	**CO5**

	Describe Fiscal risks and Cost Risks in E & P industry. Also explain how should these risks be mitigated.		
Q.5	Explain the figure below that is depicting a simple model of investment. 	**[10]**	**CO1**
Q.6	Suppose a company invests in a business which involves an initial outlay (CAPEX) of $100,000 million in the first year and a regular annual running operating cost (OPEX) of $500 million over a period of 5 years after the first year. The company anticipates that the annual income generated by the business will be of $200,000 million in each of those 5 years. Calculate NCF and Profit for the investment.	**[10]**	**CO2**

SECTION- C
Total Marks : 40

Q.7	(a) Given the cash flows of the four projects, A, B, C, and D, and using the Payback Period decision model, which projects do you accept and which projects do you reject with a three year cut-off period for recapturing the initial cash outflow?	**(10×2 = 20)**	**CO4**

Projects	E	F	G	H
Cost	$40,000	$250,000	$75,000	$100,000
Cash Flow Year One	$10,000	$40,000	$20,000	$30,000
Cash Flow Year Two	$10,000	$120,000	$35,000	$30,000
Cash Flow Year Three	$10,000	$200,000	$40,000	$30,000
Cash Flow Year Four	$10,000	$200,000	$40,000	$20,000
Cash Flow Year Five	$10,000	$200,000	$35,000	$10,000
Cash Flow Year Six	$10,000	$200,000	$20,000	$0

(b) ABC Industry has three potential projects all with an initial cost of $2,000,000. The capital budget for the year will only allow ABC industry to accept one of the three projects. Given the discount rates and the future cash flows of each project, which project should they accept based on NPV?

Cash Flows	***Project M***	***Project N***	***Project O***
Year one	$500,000	$600,000	$1,000,000
Year two	$500,000	$600,000	$800,000
Year three	$500,000	$600,000	$600,000
Year four	$500,000	$600,000	$400,000
Year five	$500,000	$600,000	$200,000
Discount Rate	6%	9%	15%

Q.8

(a) If Company A purchases a machine for $100,000 with an estimated salvage value of $20,000 and a useful life of 5 years, calculate the annual depreciation value for the machine using Straight line depreciation method.

[10×2 = 20]

(b) M/s XYZ company purchased machinery for ₹500,000 on 1st January. It has an estimated useful life of 15 years and an estimated residual value of ₹15,000. The firm sells the asset at the residual value at the end of the 10th year. The machine has an expected production of 20,000 units during its useful life, the production pattern is as follows:

Year	Production
1-3	2000 units per year
4 -7	1500 units per year
8 -10	1000 units per year
11 -15	500 units per year

Calculate the amount of depreciation using the Units of Production Method.

CO3

OR,

	(a) A company bought an equipment at a price of Rs.450,000 which has an economic life of 5 years and a salvage value of Rs.50,000. Assume the rate of interest as 20%. Compute the depreciation using Declining Balance method. (b) Define straight line, Declining and Unit of Production depreciation methods (c) Explain the practicality of straight line and Declining depreciation method.	**[10+5 +5=20]**	
