Roll No.												

PRESIDENCY UNIVERSITY

BENGALURU

End - Term Examinations – December 2025

Date: 12-12-2025 **Time:** 01:00pm– 04:00pm

School: SOE	**Program:** B. Tech-PET	
Course Code: PET2032	**Course Name:** Petroleum Economics	
Semester: V	**Max Marks**: 100	**Weightage**: 50%

CO - Levels	**CO1**	**CO2**	**CO3**	**CO4**	**CO5**	**CO6**
Marks	**8**	**20**	**8**	**20**	**22**	**22**

Instructions:

(i) Read all questions carefully and answer accordingly.

(ii) Do not write anything on the question paper other than roll number.

Part A

Answer ALL the Questions. Each question carries 2 marks. **10Q x 2M=20M**

1.	Define salvage value with a suitable example.	**2 Marks**	**L1**	**CO1**
2.	Define NPV and DCFR.	**2 Marks**	**L1**	**CO1**
3.	Identify working capital and fixed capital investment.	**2 Marks**	**L1**	**CO1**
4.	Define the different types of compound interest.	**2 Marks**	**L1**	**CO1**
5.	Define depreciation in petroleum economics.	**2 Marks**	**L1**	**CO3**
6.	List two advantages of using the Straight-Line depreciation method in petroleum projects.	**2 Marks**	**L1**	**CO3**
7.	List the OPEC+ countries.	**2 Marks**	**L1**	**CO3**
8.	State what annual rate of return indicates in evaluating a petroleum project.	**2 Marks**	**L1**	**CO3**
9.	Define CAPEX and OPEX.	**2 Marks**	**L1**	**CO5**
10.	Identify why demand forecasting is important in downstream operations.	**2 Marks**	**L1**	**CO6**

Part B

Answer the Questions. **Total Marks 80M**

11.	**a.**	The capital cost of an oil field separator is $12,000, with a lifetime of 20 years. If money can be invested at 7% (annual interest rate), Calculate **i.** The annual depreciation costs **ii.** The annual capital recovery **iii.** Capital recovery factor **iv.** Sinking fund factor	**10 Marks**	**L3**	**CO2**
	b.	Distinguish the types of interests (simple, effective, nominal) and describe their role in oil and gas project evaluations.	**10 Marks**	**L2**	**CO2**
		Or			
12.	**a.**	Describe the concept of effective interest rate, and justify in simple terms why it is considered more important than the nominal interest rate in evaluating long-term oil and gas investments.	**10 Marks**	**L2**	**CO2**
	b.	Apply the concept of compound interest to calculate the accumulated sum after 1 year for a principal of $4,000 compounded daily at a nominal interest rate of 15%, repeat the calculation for continuous compounding. Further, calculate the compounding and continuous interest.	**10 Marks**	**L3**	**CO2**

13.	**a.**	Examine how global oil market disruptions such as pandemic or war could influence decisions about depreciation or depletion policies in petroleum companies.	**10 Marks**	**L4**	**CO4**
	b.	Examine how India's status as a major oil importer makes understanding depreciation and depletion of domestic petroleum assets important for long-term planning.	**10 Marks**	**L4**	**CO4**
		Or			
14.	**a.**	Analyze the effect of choosing Straight-Line versus Sum-of-the-Digits depreciation on the valuation of a refinery unit.	**10 Marks**	**L4**	**CO4**
	b.	Examine the Straight-Line and Declining Balance methods of depreciation and how they are applied to petroleum drilling equipment.	**10 Marks**	**L4**	**CO4**

15.	**a.**	Apply the concept of Return on Investment (ROI) to explain how an operator should compare two competing offshore	**10 Marks**	**L3**	**CO5**

		development proposals. Describe how differences in capital intensity, operating costs, and production profiles influence the final investment choice.			
	b.	Use the various techniques of economic analysis (ROI, PP, DCFRR, NPV, PVI) to propose how a company should evaluate a pipeline debottlenecking project, show how applying multiple indicators leads to a more reliable final investment decision.	**10 Marks**	**L3**	**CO5**
Or					
16.	**a.**	Use the idea of the Payout Period (PP) to illustrate how project managers in an E&P company prioritize drilling programs during periods of low oil prices. Interpret how PP helps in managing cash flow risks for short-cycle projects.	**10 Marks**	**L3**	**CO5**
	b.	Apply the Discounted Cash-Flow Rate of Return (DCFR) concept to assess the long-term profitability of installing a new gas dehydration unit. Discuss how factors such as energy costs, plant efficiency, and expected decline in throughput influence the DCFRR outcome.	**10 Marks**	**L3**	**CO5**

17.	**a.**	Compare global gas consumption trends during periods of geopolitical stability and instability, and infer the resulting long-term effects on economies reliant on imported gas	**10 Marks**	**L4**	**CO6**
	b.	Examine the role of inventory management in minimizing supply risks by categorizing the types of inventory decisions critical for stable operations in downstream facilities.	**10 Marks**	**L4**	**CO6**
Or					
18.	**a.**	Analyze how geopolitical instability in gas-exporting regions shapes global consumption trends and infer its long-term impact on import-dependent economies.	**10 Marks**	**L4**	**CO6**
	b.	Identify the commercial risks in downstream retail operations arising from fluctuating crude prices and relate these risks to margin management strategies.	**10 Marks**	**L4**	**CO6**