

Name:

Enrolment No:



UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Term Examination – December 2022

Program: B.Tech APE (Gas)
Course: Pipeline Engineering Economics
Code: CHGS 3015
Max Marks :100

Semester: VII
Time: 03 hrs.

SECTION A (4x5=20)

S. No.	Short Notes	Marks	CO
1	What are roles of Engineers in business?	4	CO1
2	List components of direct costs.	4	CO3
3	Explain the term 'Payback Period'.	4	CO2
4	Evaluate 'Two part tariff structure' for gas.	4	CO4
5	What are the functions of Ledger?	4	CO1

SECTION B (10x4=40)

7	Evaluate the terms 'Annuity & Perpetuity'	10	CO1
8	Examine factors affecting investment & production cost.	10	CO3
9	As a business manager at natural gas processing plant which factors will be considered for business plan?	10	CO2
10	Compare methods of depreciation.	10	CO1

SECTION-C (20x2=40)

11	<p>i) A natural gas pipeline, 650 km long, is constructed of DN 800 pipe and has a required operating pressure of 9 MPa . Compare the cost of using X-60 and X-70 steel pipe. The material costs of the two grades of pipe are as follows:</p> <table border="1"><thead><tr><th>Pipe Grade</th><th>Material Cost \$/Tonne</th></tr></thead><tbody><tr><td>X60</td><td>800</td></tr><tr><td>X70</td><td>900</td></tr></tbody></table>	Pipe Grade	Material Cost \$/Tonne	X60	800	X70	900	10	CO4
Pipe Grade	Material Cost \$/Tonne								
X60	800								
X70	900								
12	<p>ii) Discuss government policy on petroleum product pricing</p> <p>Instead of flaring the associated natural gas separated along with crude oil, it was decided to recover the lost heat by using the waste-heat recovery system (W.H.R.S.). For pilot test runs, four designs were offered each has a lifetime of 5 years. The data associated with each design is as follows:</p>	10	CO4						
		20	CO3						

	Design A	Design B	Design C	Design D
Capital Investment	10,000	16,000	20,000	26,000
No: of Years	5	5	5	5
Average Depreciation	2000	3200	4000	5200
Average Operational Cost	100	100	100	100
Revenue \$/year	4100	6000	6900	8850

The minimum annual rate of return desired by the management is 12%. Which design is recommended?