

Name:  
Roll No:



## UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Sem Examination, May-2021

Programme Name: B. Tech, Geoinformatics  
Course Name: Drilling & Production Engineering  
Course Code: PEAU2002

Semester: VI  
Time: 03 hrs  
Max. Marks: 100

**Instructions:**

- All questions are compulsory.
- However, internal choice has been provided. You have to attempt only one of the alternatives in all such questions.
- Write the answers on an A4 sheet with your name and roll number mentioned on each page. Write clearly, scan and upload properly.

**SECTION A (5x6=30 Marks)**  
All Questions are compulsory

S. No.		Marks	CO
Q1	Define BOP and their types?	05	CO1
Q2	Distinguish between MWD & LWD?	2.5+2.5	CO2
Q3	Differentiate between primary cementing and squeeze cementing?	05	CO3
Q4	Define retrievable packers and selection criteria for the production tubing?	05	CO4
Q5	Discuss types of mist extractors?	05	CO5
Q6	Define Oil metering?	05	CO6

**SECTION B (50 Marks)**  
All the questions are compulsory

Q 7	Explain in detail about the procedure of killing a well using following methods: a) Driller's Method b) Wait and Weight Method  <b>OR</b>  Differentiate between primary, secondary and tertiary well control methods?	10	CO1
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Q 8	a) Summarize different considerations needed while planning a directional well? b) Explain Kick off point and horizontal drilling and ERD well?	5+5	CO2
Q 9	Define well stimulation? Explain the Acidizing and hydraulic fracturing and also discuss about the perforation fluids.	10	CO3
Q 10	Define Artificial methods and their classification? Discuss sucker rod pump method with their diagram and mechanism <b>OR</b> Explain Christmas tree components with neat clean diagram and Explain types of well completions with diagram and their advantages & disadvantages?	10	CO4
Q11	Discuss oil and gas value chain. Also discuss about the transportation and marketing strategy of oil and gas?	10	CO6

**SECTION-C (20 Marks)**  
**All the questions are compulsory**

Q 12	<p>Calculate the minimum required size of a standard oil/gas separator for the following conditions. Consider both vertical and horizontal separators.</p> <p>a) Assuming a 20-in. 71/2-ft vertical separator b) 16-in. 5-ft horizontal separator</p> <p><math>z = 0.8427</math> <math>p_g = 3.38 \text{ lbm/ft}^3</math></p> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Gas flow rate:</td> <td>5.0 MMscfd</td> </tr> <tr> <td>Gas-specific gravity:</td> <td>0.7</td> </tr> <tr> <td>Condensate flow rate:</td> <td>20 bbl/MMscf</td> </tr> <tr> <td>Condensate gravity:</td> <td>60 °API</td> </tr> <tr> <td>Operating pressure:</td> <td>800 psia</td> </tr> <tr> <td>Operating temperature:</td> <td>80 °F</td> </tr> </table>	Gas flow rate:	5.0 MMscfd	Gas-specific gravity:	0.7	Condensate flow rate:	20 bbl/MMscf	Condensate gravity:	60 °API	Operating pressure:	800 psia	Operating temperature:	80 °F	20	CO5
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Separator type	K
Vertical separators	0.06–0.35
Horizontal separators	0.40–0.50

Settling Volumes of Standard Vertical High-Pressure Separators (230–2,000 psi working pressure) $V_L$ (bbl)			
Size (D x H)	Oil/Gas separators	Oil/Gas/Water separators	
20-in. x 7 1/2-ft	0.65	1.15	
Settling Volumes of Standard Horizontal High-Pressure Separators (230–2,000 psi working pressure) $V_L$ (bbl)			
Size (D x L)	1/2 Full	1/3 Full	1/4 Full
16-in.x 5-ft	0.61	0.35	0.24

**OR**

Explain the various types of Separators with neat and clean diagram in details. Also discuss the 3 phase separators mechanism?

**20**

**CO5**

**All The Best !!**