

Name:  
Roll No:



## UNIVERSITY OF PETROLEUM AND ENERGY STUDIES

End Sem Examination, June-2021

Programme Name: M.Sc. (Petroleum Geosciences)

Course Name: Unconventional Resources

Course Code: PEGS7012

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 CBM and Tight gas?	2.5+2.5	CO1
Q2	Define API and SARA?	2.5+2.5	CO2
Q3	Define Heavy oil and GOR?	05	CO3
Q4	Define Porosity and Permeability?	05	CO4
Q5	Explain fracturing fluids?	05	CO5
Q6	Define Well Stimulation?	05	CO5

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

Q 7	Discuss Unconventional energy resources and classify their types in detail? How it differs from conventional energy resources?	10	CO1
Q 8	Explain the Petroleum system with neat and clean diagram and also discuss the migration process.	10	CO2

Q 9	Discuss the challenges associated with the production and development of Shale gas.	10	CO3
Q 10	Define Horizontal drilling and ERD wells? Explain the Acidizing and hydraulic fracturing and also discuss about the perforation fluids.  <b>OR</b>  Summarize different considerations needed while planning a directional well? Explain Kick off point, Inclination angle and AHD with diagram?	10	CO4
Q11	Explain the EOR techniques used in oil and gas industry.  <b>OR</b>  Comment on the economics of unconventional resources in context of Indian Scenario?	10	CO5
<b>SECTION-C (20 Marks)</b> <b>All the questions are compulsory</b>			
Q 12	Explain natural gas hydrates and their structures in detail with diagram? Also discuss the application of natural gas hydrates and discuss various techniques used for methane gas recovery.  <b>OR</b>  Discuss the development and challenges associated with CBM and Tight gas? Why CBM is a valuable commodity or assets? Comment on reserves of CBM in India and globally?	20	CO3

**All The Best !!**