

<b>Name:</b>	
<b>Enrolment No:</b>	

**UNIVERSITY OF PETROLEUM AND ENERGY STUDIES**  
**End Semester Examination, December 2018**

<b>Programme : B.TECH APE UP</b>	<b>Semester : V</b>
<b>Course Name : Unconventional Hydrocarbon Exploitation</b>	<b>Time : 03 hrs.</b>
<b>Course Code : CEEG 323</b>	<b>Max. Marks: 100</b>
<b>Nos of Page(s) : 01</b>	
<b>Instructions: All questions are Compulsory</b>	

**SECTION A**

S. No.		Marks	CO
Q 1	Differentiate between silty shale and sandy shale?	04	CO3
Q 2	Explain how Porosity changes in CBM and compare with Shale?	04	CO2
Q 3	Express formula of Poisson's ratio and state how hardness is important?	04	CO1
Q 4	Give inhibition process of hydrate formation?	04	CO4
Q 5	Explain the environmental impacts involved in shale gas development	04	CO3

**SECTION B**

Q 6	Explain in brief different types of proppant and their function in hydraulic fracturing?	08	CO2
Q 7	Explain the following terms: Heavy and extra heavy oil, Natural bitumen, Shale Oil, and Tar Sand?	08	CO3
Q 8	Draw a schematic diagram of CBM reservoir and show heterogeneity? How heterogeneity varies in CBM compared to Shale Gas?	08	CO2
Q 9	Discuss in detail the scope, status, challenges and application of renewable energy in India?	08	CO5
Q 10	Propose list of suggestions on how developing countries need to reduce GHG Emissions?	08	CO2

**SECTION-C**

Q 11	Why Biomass is considered as a "green" technology? How biomass can provide consistency in the supply of the required energy through biogas, biodiesel, and by directly burning the biomass"? Write various methods of manufacturing biofuels.	5+8+7	CO5
Q 12	List the major and minor industrial sectors responsible for carbon emission. Give the details of operations involved in it? Explain the following in brief, for these industrial activities 1) Sources of emission 2) Various ways of carbon management	10+10	CO2