Name: **Enrolment No:**	UPES

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, December 2021

Course: Petroleum Geology **Semester: I**

Programme: M. Sc Petroleum Geoscience Course code: **PEGS7004**

Time: 03 hrs. **Max. Marks: 100**

Instructions:

SECTION A [5X4=20 marks]

S. No.		Marks	CO
Q 1	List different elements of petroleum system	**4**	CO1
Q 2	Name the natural forces responsible for hydrocarbon migration.	**4**	CO2
Q 3	Explain about the characteristics of depositional systems in continental environment.	**4**	CO2
Q 4	Distinguish between hydrocarbon resource and reserves	**4**	CO2, 3,4
Q 5	Explain the difference between porosity and permeability of petroleum reservoir	**4**	CO2
	SECTION B [10x4=40 marks]		
Q 6	Describe about the stratigraphic petroleum trap mechanism.	**10**	CO2
Q 7	(a) Explain the role of capillary action in petroleum migration from source rock to reservoir rock (b) Illustrate the processes of primary migration with a neat figure.	**2+8=10**	CO3
Q8	Draw a process work flow diagram illustrating the geological and geochemical techniques of petroleum exploration. Elaborate each step.	**10**	C04
Q9	Categorize the Indian sedimentary basins with reference to their petroleum exploration and production status.	**10**	CO5
	OR		
	Describe any petroliferous sedimentary basin of India with respect to geological setting and petroleum system.	**10**	CO5
	SECTION-C [20X2=40 marks]		
Q 10	(a) Distinguish between kerogen and bitumen. (b) Describe how the organic matter quality and quantity can control the hydrocarbon generation mechanism in source rocks. (c) Explain different types of kerogen and its significance for oil/gas generation.	**5+5+10=20**	CO5
	OR		

Q10	(a) Evaluate the source rock potential, kerogen type and maturity of a shale rock with 4 wt % of TOC releases 0.25mgHC/g Rock free gases, 0.3mgHC/g Rock HC gases and 1.45 mg CO_2/g Rock CO_2 gases at 447ºC, 467ºC and 560ºC temperature respectively. (b) Illustrate the Van Krevelen diagram to plot the kerogen type.	**10+10=20**	CO5
Q11	(a) Define sedimentary basins. (b) Discuss the sedimentary basin formation processes with refence to plate tectonic mechanism.	**5+15=20**	CO6