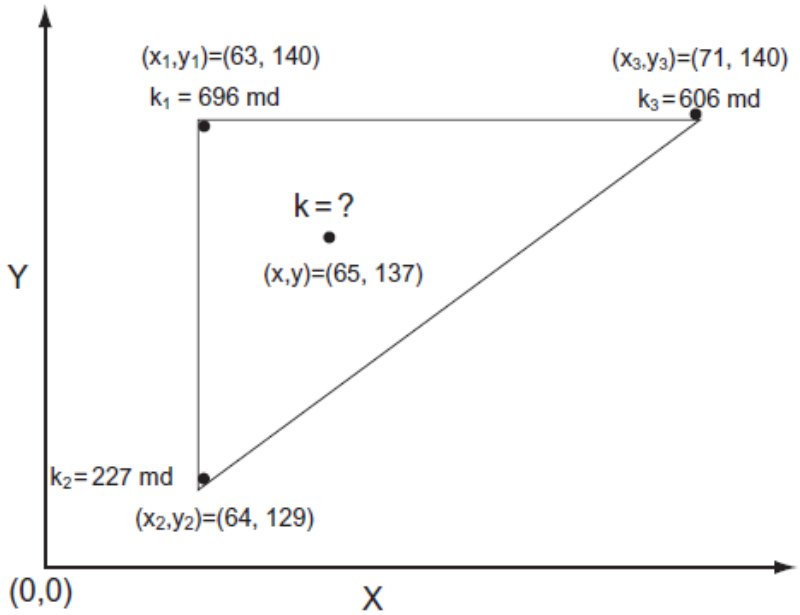
Name: **Enrolment No:**	

UNIVERSITY OF PETROLEUM AND ENERGY STUDIES
End Semester Examination, May 2023

Program Name: B. Tech APE GAS **Semester: VI**
Course Name : Enhanced Oil Recovery **Time: 3 hr**
Course Code : CHGS3014P **Max. Marks: 100**
Nos. of page(s) : 02
Instructions: Answer the questions in sequence.

SECTION A
(Attempt all 5 questions and each carries 4 marks) (5 X 4=20Marks)

S. No.		Marks	CO
Q1.	List the reservoir lithology and rock properties that affect flood ability.	**4M**	**CO1**
Q2.	Sketch crestal and basal injection patterns and discuss.	**4M**	**CO2**
Q3.	Articulate the favorable and adverse factors for steam injection?	**4M**	**CO3**
Q4.	Define plait point, MMP, MME and Capillary Number.	**4M**	**CO3**
Q5.	Illustrate the Resistance factor and Residual Resistance factor.	**4M**	**CO4**
	SECTION B **(Attempt all 4 questions and each carries 10 marks) (4 X 10 = 40Marks)**		
Q6.	Derive fractional flow equation for two immiscible fluids oil and water through a tilted linear porous media.	**10M**	**CO1**
Q7.	Estimate the permeability by the Delaunay triangulation method. 	**10M**	**CO2**
Q8.	Describe briefly In-situ Combustion laboratory experiments conducted using oxidation cells.	**10M**	**CO3**
Q9.	Describe the micellar solution behavior regarding its mobility in the porous medium.	**10M**	**CO4**

	SECTION C (Attempt all 2 questions and each carries 20 marks) (2X 20 = 40Marks)		
Q10.	a) Design a First Contact Miscible Process for an oil reservoir. The composition of reservoir oil is n-decane. Reservoir Presssure=2000 psia Reservoir Temperature=150oF Fracture Pressure =4000 psia Only consider methane and propane as injection fluid. b) Explain the reduced sweep due to viscosity and density difference?	**20M**	**CO3**
Q11.	a) Discuss the principles that govern polymer flooding. b) Explain the displacement mechanisms in alkaline flooding.	**(10+10) 20M**	**CO4**