

Roll No



**PRESIDENCY UNIVERSITY  
BENGALURU**

**SCHOOL OF ENGINEERING  
MID TERM EXAMINATION - OCT 2023**

**Semester :** Semester V - 2021

**Course Code :** PET2010

**Course Name :** Sem V - PET2010 - Introduction to Oil and Gas Reservoir Simulation

**Program :** B. TECH

**Date :** 31-OCT-2023

**Time :** 11:30AM -1:00PM

**Max Marks :** 50

**Weightage :** 25%

**Instructions:**

- (i) Read all questions carefully and answer accordingly.
- (ii) Question paper consists of 3 parts.
- (iii) Scientific and non-programmable calculator are permitted.
- (iv) Do not write any information on the question paper other than Roll Number.

**PART A**

**ANSWER ALL THE QUESTIONS**

**(5 X 2 = 10M)**

1. List the advantages of Thermal Simulator. (CO1) [Knowledge]
2. State the limitation of Chemical Simulator. (CO1) [Knowledge]
3. Define Minimum Miscibility Pressure. (CO1) [Knowledge]
4. Define dual porosity model for cbm reservoir. (CO1) [Knowledge]
5. List the parameters we select for regression to match the experimental saturation pressure of reservoir fluid. (CO1) [Knowledge]

**PART B**

**ANSWER ALL THE QUESTIONS**

**(2 X 10 = 20M)**

6. Simulation models in reservoir engineering to ensure an accurate representation of the past while optimizing future predictions for hydrocarbon recovery, considering the inherent uncertainties and complexities of subsurface reservoirs describe the role of historical data and history matching in reservoir simulation in more detail. (CO1) [Comprehension]

7. Upscaling techniques for reservoir simulation to bridge the gap between high-resolution geological models and practical simulation runs, allowing for more accurate and efficient predictions of fluid flow and recovery in complex subsurface reservoirs. Describe in detail the steps, and difficulties in upscaling.

(CO1) [Comprehension]

### PART C

ANSWER THE FOLLOWING QUESTION

(1 X 20 = 20M)

8. A green field means a new and undeveloped oil or gas field. In this context, reservoir simulation for a green field involves using computational models to predict the behavior of the reservoir and optimize production strategies before any drilling or production activities commence. Analytically describe the steps for reservoir simulation for a green field.

(CO1) [Application]