PARUL UNIVERSITY
FACULTY OF ENGINEERING & TECHNOLOGY
B.Tech. Summer2021-22 Examination

Semester: 8   **Date: 30-03-2022**
Subject Code: 203120483   **Time: 10:30am To 1:00pm**
Subject Name: **RESERVOIR MODELLING AND SIMULATION**   **Total Marks: 60**

Instructions:
1. All questions are compulsory.
2. Figures to the right indicate full marks.
3. Make suitable assumptions wherever necessary.
4. Start new question on new page.

Q.1 **Objective Type Questions** - (Fill in the blanks, one word answer, MCQ-not more than Five in case   **(15)**
of MCQ) (All are compulsory) (Each of one mark)

1. _____ form usually referred to as the table look-up method, makes the data transparent to the subroutine that needs it.

2. Numerical models provide _____ solutions to exact problems.

3._____ models have been designed explicitly to simulate multiphase flow in fractured systems where the oil mainly flows in fractures but is stored mainly in the rock matrix.

4. Ability or capability of the fluids to flow is called _____.

(A) Porosity   (B) Permeability

(C) Saturation   (D) Wettability

5. Which one is correct Output data of Reservoir Simulation?

(A) Economic parameters   (B) Geological model

(C) Seismic interpretation   (D) Production data

6. Define Reservoir Modelling?

7. What are the input and output of the Simulation?

8. Define Oil formation volume factor (Bo)?

9. Write down the assumptions of the Darcy law?

10. What do you mean by Drainage?

11. Define Capillary pressure?

12. Define Relative permeability?

13. What are the benefit of reservoir simulation?

14. Write down the name of two approaches that are commonly used in obtaining an analytical equation?

15. Write down the name of three different level that is important in a prediction study?

Q.2 Answer the following questions. (Attempt any three) **(15)**

A) Explain theAutomatic history matching?

B) Explain the History matching with the feedback control logic diagram?

C)Explain the Two-phase (oil-gas) equations?

D) Explain the steps of the Reservoir Simulation?

Q.3 A) Explain the rock properties and fluid properties for Data collection? **(07)**

B) Explain the Simultaneous Solution (SS) method with a flow diagram? **(08)**

OR

B) Explain rectangular flow geometry andcurvilinear flow geometry both witha diagram? **(08)**

Q.4 A) Explain the Chemical and Polymer Flooding Simulators? **(07)**

OR

A) Explain the Water Coning Simulator? **(07)**

B) Explain the Black Oil Modelin detail? **(08)**