



Roll no.

राष्ट्रीय प्रौद्योगिकी संस्थान, हमीरपुर

National Institute of Technology, Hamirpur

B. Tech. (Chemical Engineering) - 7th Semester

End Semester Examination (16th December 2020)

CH - 453 Reservoir Engineering

Duration: 2 Hours

Max. Marks: 50

Note

- *This question paper consists of seven questions and one page.*
- *Attempt all questions and submit the answer sheet within 15 minutes after the examination time.*
- *Wherever necessary, make assumption, draw neat diagram and label properly to explain your understanding.*

- Q1. Define and explain different types of trap encountered in petroleum geology with neat diagram. **(6 marks)**
- Q2. Explain volumetric depletion reservoirs and water drive reservoirs mechanism with graphical representation for gas material balance recovery factor. **(10 marks)**
- Q3. Determine fractional oil recovery, during depletion down to bubble point pressure, for reservoir whose PVT parameters are $P_i = 4000$ psi, $B_{oi} = 1.2417$ rb/stb, $P_b = 3330$ psi, $B_{ob} = 1.2511$ rb/stb, $S_{wc} = 0.2$, $c_w = 3 \times 10^{-6}$ psi⁻¹, $c_f = 8.6 \times 10^{-6}$ psi⁻¹ **(4 marks)**
- Q4. Derive the equation for radial steady state flow well simulation considering the role of skin factor and different ways to enhance well stimulation. **(10 Marks)**
- Q5. Explain the three most common forms of well testing with diagram **(6 marks)**
- Q6. Define and explain the role of interfacial tension, capillary number, wettability alteration and displacement efficiency towards enhanced oil recovery with diagram **(10 marks)**
- Q7. Define primary, secondary and tertiary oil recover in detail and draw the diagram for classification of tertiary oil recovery schemes. **(4 marks)**

-----**End of Question Paper**-----