

Unit 11 - week 9

Course outline

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Lecture 41 : Immiscible flow (contd.)

Lecture 42 : Immiscible flow (contd.)

Lecture 43 : Immiscible flow (contd.)

Lecture 44 : Immiscible flow (contd.)

Lecture 45 : Immiscible flow (contd.)

Quiz : Assignment 9

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Assignment 9

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

Due on 2019-10-02, 23:59 IST.

- 1) Buckley-Leverett theory 1 point
- is primarily based on a mass balance of wetting phase over a differential element.
 - utilizes inverse lever-arm rule to obtain saturations
 - considers discrete changes in fluid velocity at pore level
 - none of the above.
- a
 b
 c
 d
- No, the answer is incorrect.
Score: 0
Accepted Answers:
a
- 2) Fractional flow of wetting phase is defined as 1 point
- the ratio of the flow rate of wetting phase to the total flow rate
 - the ratio of the viscosity of wetting phase to the viscosity of non-wetting phase
 - the ratio of relative permeability of wetting phase to the overall permeability
 - none of the above
- a
 b
 c
 d
- No, the answer is incorrect.
Score: 0
Accepted Answers:
a
- 3) Given the expression for relative permeability as follows,
 $k_{ro} = 0.8 (1 - S_{wD})^2$, $k_{rw} = 0.2 S_{wD}^2$ and $S_{wD} = \frac{S_w - S_{wi}}{1 - S_{or} - S_{wi}}$
 Calculate the functional flow of water (1 cP) displacing oil of viscosity 20 cP, at water saturation of 0.4
 Given S_{wi} and S_{or} as 0.3 and 0.3 respectively.
-
- No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 0.355,0.36 1 point
- 4) For the system, given in Q (3), calculate the fractional flow of water at water saturation of 0.6 1 point
-
- No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 0.97,0.98 1 point
- 5) For the system, given in Q (3), calculate f'_w at water saturation of 0.5. 1 point
-
- No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 2.78 1 point
- 6) For the system, described in Q (3) above, what would be the average upstream water saturation, when the injected front reaches the outlet? 1 point
-
- No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 0.5,0.55 1 point
- 7) For the system, described in Q (3) above, what is the volume of oil produced (in unit of pore volume), when the injected front reaches the outlet 1 point
-
- No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 0.2,0.25 1 point
- 8) For the system, described in Q (3) above, what is the water saturation of the front, when the injected fluid reaches the outlet? 1 point
-
- No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 0.44,0.48 1 point
- 9) When the water saturation at the outlet becomes 0.6 for the system described in Q (3) above, what would be the average water saturation of the core. 1 point
-
- No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 0.6,0.65 1 point
- 10) When the water saturation at the outlet becomes 0.6 for the system described in Q (3) above, what would be the total volume of oil (in unit of pore volume) produced till that time. 1 point
-
- No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Range) 0.3,0.4 1 point
- 11) After the water injection starts in Q (3) above as per Buckley leveret theorem, what is the water saturation at the inlet. 1 point
-
- No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 0.7 1 point
- 12) What is the total volume of oil produced (in unit of pore volume) for the system in Q (3) above after infinite volume of water injection? 1 point
-
- No, the answer is incorrect.
Score: 0
Accepted Answers:
(Type: Numeric) 0.7 1 point
- 13) Formation volume factor of a phase is defined as 1 point
- volume occupied by a fixed mass of oil including dissolved gas under reservoir condition to the volume occupied by the same mass of oil under stock tank condition.
 - volume occupied by a fixed mass of oil under stock tank condition to the volume occupied by the same mass under reservoir condition
 - volume occupied by the dissolved gas under reservoir condition to the volume of same gas under stock tank condition.
 - none of the above.
- a
 b
 c
 d
- No, the answer is incorrect.
Score: 0
Accepted Answers:
a
- 14) Solution gas oil ratio is defined as 1 point
- volume occupied by the dissolved gas under reservoir condition to the volume of same gas under stock tank condition
 - Volume occupied by dissolved gas to the volume of oil both under stock tank condition.
 - volume occupied by dissolved gas to the volume of oil both under reservoir condition
 - none of the above
- a
 b
 c
 d
- No, the answer is incorrect.
Score: 0
Accepted Answers:
b
- 15) The phase equilibria is handled in Black oil model through 1 point
- Activity coefficient
 - Fugacity coefficient
 - Formation volume factor and solution gas oil ratio
 - None of the above
- a
 b
 c
 d
- No, the answer is incorrect.
Score: 0
Accepted Answers:
c