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جامعة صنعاء

قائمة الاسئلة

امتحان نهاية الفصل الدراسي الثاني ـ للعام الجامعي 1446 هـ ـ كلية البترول والموارد الطبيعية :: هندسة مكامن 2 ـ (PNGE 342)ـ المستوى
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1) In reservoir engineering terms, the produced gas-oil ratio (GOR) at pressure above bubble point is equal to:
   1) - Rs
   2) + Rsi
   3) - Rp
   4) - OGR

2) The time to breakthrough tBT is:
   1) + a given time period after which a cone will break through
   2) - a given time period before which a cone will break through
   3) - a given time period for a cone to build up
   4) - all options above are correct

3) The following MBE: (F = N [Eo + m Eg + Ef,w] +We) assumes:
   1) - No gas injection
   2) - No water injection
   3) + No gas and water injection
   4) - No gas expansion

4) The uncertainty of water influx models are due to the following except:
   1) - Rare drilling into the aquifer zone to obtain aquifer properties
   2) - Uncertainty about the geometry of the aquifer
   3) + Uncertainty about the reservoir properties
   4) - Uncertainty about the areal continuity of the aquifer

5) A linear plot of the (F/Eo) vs (We/Eo) indicates that the field is producing under
   1) - Solution gas drive reservoir mechanism
   2) - Volumetric drive mechanism
   3) - Gas cap drive mechanism
   4) + Water drive reservoir mechanism

6) A "cone" will ultimately break into the well when:
   1) - the gravitational forces exceed the dynamic (viscous) forces at the wellbore
   2) + the dynamic (viscous) forces at the wellbore exceed gravitational forces
   3) - the dynamic (viscous) forces at the wellbore exceed capillary forces
   4) - No answer

7) The water influx model that represented unsteady state aquifer is
   1) - Pot model
   2) - Schilthuis model
   3) - Hurst model
   4) + The van Everdingen-Hurst model

8) Decline curve analysis may be applied in the early stage of production to the following:
   1) - Indifidal well
   2) - Reservors
   3) - Fields
   4) + None of above

9) If the reservoir has produced Np stock-tank barrels of oil, the remaining oil volume is given:
   1) + (N − Np) Bo
   2) - Np [Bo + (Rp − Rs) Bg]
   3) - (Np*Rp)
   4) - NpBo

10) It is assumed, when using decline curve analysis, that the factors causing change in the curve trend during

the forecast period include the following options except

    1) - Drilling infill and /or step out wells
    2) - Initiating secondary recovery and/or EOR(Enhanced Oil Recovery)
    3) - Pressure depletion
    4) + None of above

11) When water moves across bedding planes is called
    1) - Flooding
    2) - Fingerring
    3) - Breakthrough
    4) + Conning

12) The advantages of horizontal wells over vertical wells in terms of conning is the following except:
    1) - the horizontal well produce less water than vertical well under comparable conditions
    2) + the horizontal well produce more water than vertical well under comparable conditions
    3) - their larger capacity to produce oil at the same drawdown
    4) - longer breakthrough time at a given production rate

13) Coning increases with the following, except
    1) - Higher production rate
    2) - Closer completion interval to contacts
    3) + Higher horizontal permeability
    4) - Higer vertical permeability

14) Coning can be eliminated by the following, except
    1) + production with high rate
    2) - the development of better horizontal permeability
    3) - shut in the well and permit the contacts to restabilize.
    4) - shallower penetration of wells where there is a water zone.

15) Conning can be controlled by the following except
    1) - Reduction of production rate
    2) + Improvig vertical permeability
    3) - Dual completion
    4) - Horizontal wells

16) The MBE, can be used to, except:
    1) - Estimate initial hydrocarbon volumes in place
    2) + Predict field total flow rate
    3) - Predict future reservoir performance
    4) - Predict ultimate hydrocarbon recovery

17) The oil saturation must be adjusted to account for oil trapped in the invaded regions in following cases except:
    1) - Water Influx
    2) + Dissolved gas evolution
    3) - Gas cap expansion
    4) - Gas cap shirinkage

18) The reservoir should be operated to yield:
    1) - A minimum values for the depletion-drive index
    2) - A minimum values for the gas-cap-drive index
    3) - A maximum water drive index
    4) + All the above

19) Amount of expansion or fluid encroachment is proportional to the following except:
    1) - The acuifer size
    2) + The reservoir size

3)   -   The aquifer permeability

4)   -   The pressure drop from the aquifer into the reservoir

20) In MBE, the produced oil and gas is represented by:

     1)   -   N (Rsi-Rs)Bg

     2)   +   Np(Bo+(Rp-Rs)Bg)

     3)   -   NpRpBg

     4)   -   Np(Rp-Rs)Bg

21) The effect of the pressure changes at the oil/aquifer boundary can never be felt at the outer boundary, this aquifer is called

     1)   -   Finite aquifer system

     2)   +   Infinite aquifer system

     3)   -   Bounded aquifer system

     4)   -   None of above

22) The amount of oil lost due to the gas cap shrinkage depends on the:

     1)   -   Rate of gas-cap shrinkage

     2)   -   Vertical permeability

     3)   -   Area of the gas-oil contact

     4)   +   all above

23) m N Boi is

     1)   -   Pore Volume occupied by initial oil-in-place

     2)   +   Pore Volume Occupied by the Gas in the Gas Cap

     3)   -   Pore Volume Occupied by the Remaining Oil

     4)   -   None of above

24) A shrinking gas cap can be controlled by the following except

     1)   -   shutting in wells that are producing large quantities of gas-cap gas

     2)   -   re-injection of the produced gas back into the gas cap

     3)   +   flaring the producing gas

     4)   -   reservoir pressure maintenance

25) In MBE, the produced free gas is represented by

     1)   -   Np(Bo+(Rp-Rs)Bg)

     2)   -   N (Rsi-Rs)Bg

     3)   -   NpRpBg

     4)   +   Np(Rp-Rs)Bg

26) In MBE, the net expansion of the gas cap is represented by

     1)   -   Np [Bo + (Rp − Rs) Bg]

     2)   +   m Boi (Bg/Bgi − 1)

     3)   -   [Ginj Bginj +Winj Bw]

     4)   -   Np(Rp-Rs)Bg

27) The required data for MB calculation are the following except:

     1)   +   Reservoir Geometry

     2)   -   Fluid properties data (PVT)

     3)   -   Values of the average pressure of the reservoir

     4)   -   Accurate production data

28) A linear plot of the underground withdrawal F vs (Eo +mEg) indicates that the field is producing under:

     1)   -   Depletion drive mechanism

     2)   -   Water drive reservoir mechanism

     3)   -   Volumetric drive mechanism

     4)   +   Gas cap drive mechanism

29) Considering the following value of hyperbolic exponent, b = 0, indicate the type(s) of production decline

according to Arps is :
1) + Exponential
2) - Hyperbolic
3) - Harmonic
4) - No answer

30) [We −Wp Bw] refers to
1) - The maximum water influx
2) - The minimum water influx
3) + The net water influx that is retained in the reservoir
4) - The initial volume of water

31) If in the water influx model the assumptions are that the aquifer is large, its permeability is high, and its pressure never decline, the water influx model is :
1) - Pot model
2) + Schilthuis model
3) - Fetkovich
4) - Cartter-Tracy

32) The water encroachment gets ignored in the following cases except:
1) - The pore volume of the aquifer is not significantly larger than the pore volume of the reservoir
2) + The aquifer permeability is high enough
3) - The aquifer permeability is low
4) - The size of aquifer is less than 5 times of the hydrocarbon reservoir

33) At the critical production rate, the built up cone is:
1) - stable
2) - unstable
3) + stable but is at a position of incipient breakthrough
4) - unstable but is at a position of incipient breakthrough

34) Decline curves shapes vary with:
1) - reservoir type
2) - drive mechanism
3) - maturity of production
4) + All the above

35) Water influx analysis is important for the following except:
1) - Estimate oil water contact movement
2) + Estimate oil gas contact movement
3) - Estimate the net water influx that is retained in the reservoir
4) - Estimate water production

36) The active water drive refers to the water encroachment mechanism in which the rate of water influx equals the reservoir total production rate.
1) + TRUE.
2) - FALSE.

37) If the gas cap is shrinking, then the volume of the produced gas must be less than the gas-cap expansion.
1) - TRUE.
2) + FALSE.

38) The permeability ratio kh/kv is the most critical term in evaluating and solving the coning problem.
1) + TRUE.
2) - FALSE.

39) Fetkovich's model is based on the assumption that the productivity index concept will adequately describe water influx from a finite aquifer into a hydrocarbon reservoir.
1) + TRUE.

2) - FALSE.

40) The variable groups selection in MBE straight line solution depends on the mechanism of production under which the reservoir is producing.
   1) + TRUE.
   2) - FALSE.

41) In the horizontal wells , the chance for conning to occure is more than in the vertical well with the same flow rate
   1) - TRUE.
   2) + FALSE.

42) A high rate of increase in produced gas-oil ratio is an indicative of water influx
   1) - TRUE.
   2) + FALSE.

43) The boundary pressure is the average pressure at the oil-water or gas-water contact
   1) + TRUE.
   2) - FALSE.

44) Decline curve analysis assumes that future performance can be modeled with past history even with changing development strategy
   1) - TRUE.
   2) + FALSE.

45) The pressure drops contributing to influx are the cumulative pressure drops from the initial pressure.
   1) + TRUE.
   2) - FALSE.

46) MBE Can be used to calculate the remaing oil saturation
   1) + TRUE.
   2) - FALSE.

47) The gas coning can increase the efficiency of the depletion mechanism
   1) - TRUE.
   2) + FALSE.

48) Material balance is an indicative of water influx
   1) + TRUE.
   2) - FALSE.

49) The value of the initial oil in place determined from the volumetric method is referred to as the active initial oil in place.
   1) + TRUE.
   2) - FALSE.

50) The critical production rate is the rate above which the flowing pressure gradient at the well causes water (or gas) to cone into the well
   1) + TRUE.
   2) - FALSE.