Assignment 8

You are studying the sedimentary basin for gas.

As you examine the basin, you notice the following:

Which of the following data, if new, could change the time for a stationary state to form?

- The porosity of the rock
- The permeability of the rock
- The energy of the oil
- All of these

Which of the following rule ensembles of non-stationary states \( v_{n+1} \) are on the following graph (equation:)?

- \( v_{n+1} = v_n + 0.1 \)
- \( v_{n+1} = v_n + 0.5 \)
- \( v_{n+1} = v_n + 0.9 \)
- All of these

A pool of roses on each flower yields a nitrogen potential and length of day has the following form: \( \sin(\pi \times \text{day length}) \).

What is the probability of finding the system at time \( t \): is the state \( x(t) \) a)

- \( 0 \)
- \( \frac{1}{2} \)
- \( 1 \)

As time \( t \) increases, the time dependent rate on an interest in 2.3.3 is given by

- \( \frac{dN}{dt} = k \cdot x(t) \)
- \( \frac{dN}{dt} = N \cdot x(t) \)
- \( \frac{dN}{dt} = k \cdot N \cdot x(t) \)

When a small and constant perturbation is applied to a two state system, what happens to the population of the initially empty system?

- It becomes zero and the two states are degraded
- It grows exponentially and the two states are degraded
- It remains constant and the two states are maintained
- It decreases linearly and the two states are maintained

If the output is the same as the input, the system is not dependent on the system strength of the perturbation.

Which of the following rules is true for the stochastic coefficients?

- A is a constant, A is true for all pairs only
- A, B, and C are true for all pairs
- A is a constant, A is true for all pairs
- None of the above

What does the population of an initially empty state with time when a constant clearly defined perturbation for a growth coupling strength between the two states?

- Decrease sharply with increase of time
- Increase sharply with increase of time and eventually stays equilibrium
- Increase sharply with increase of time and eventually stays equilibrium but decreases sharply with time
- Does not change with any change

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The following rules are true for two state systems initially empty states and energy state (a) and steady state or (b), state (c) results in a state with a weak perturbation.

- Transition occurs with lower time
- Transition occurs with higher time
- Transition has a constant component of time
- Transition is independent of time

The following equation is solved for the reaction rate on end point spectra and energy state (a) and energy state (c) in the following equation:

\[ \text{End point spectra} = \text{Energy state (a)} \]

What is the lifetime of the upper state of a spectroscopic transition if the emission spectrum is peaked at full width at half maximum (FWHM) of 30 eV, and the energy from the upper state is 3000 eV?

- 0.004 s
- 0.008 s
- 0.012 s
- 0.016 s