Assignment 7

Due on: 2020-11-06, 22:08:18

1. In some of water potential ($\psi$) configuration integral can be written as
   \[ \psi = \int \ldots \right \] 
   \[ \int \ldots \right \] 
   \[ \int \ldots \right \] 
   \[ \int \ldots \right \] 
   The answer is (c).
   
2. For the ideal gas the second virial coefficient is 0
   - True
   - False
   The answer is (a).
   
3. In case of van der Waals gas, second virial coefficient is
   \[ \psi = \int \ldots \right \] 
   \[ \int \ldots \right \] 
   \[ \int \ldots \right \] 
   The answer is (b).
   
4. Hertz's theory does not work
   - In liquid state
   - In critical phase
   - Both the cases
   - Neither of the above
   The answer is (c).
   
5. Fine Boedoeck's integral of Moyer (X) in case of van der Waals gas is
   \[ \int \ldots \right \] 
   \[ \int \ldots \right \] 
   \[ \int \ldots \right \] 
   The answer is (c).
   
6. The second virial coefficient for hard sphere system, when density is defined to
   \[ \alpha = \ldots \right \] 
   \[ \alpha = \ldots \right \] 
   \[ \alpha = \ldots \right \] 
   The answer is (c).
   
7. Are the first order phase transitions, which of the following is (are) true?
   - The free energy is a continuous function of the temperature
   - The free energy is a continuous function of the temperature, but its derivatives are discontinuous
   - The first derivatives of the free energy with respect to temperature is continuous
   The answer is (b).
   
8. The equiprobable value of any uncorrelated internal parameter in a system is calulated with the thermal energy and pressure in a system that minimizes the free energy.
   The answer is (c).
   
9. The free energy functional $\mathcal{A}(c)$ has the following form:
   \[ \mathcal{A}(c) = \int \ldots \right \] 
   \[ \int \ldots \right \] 
   \[ \int \ldots \right \] 
   The answer is (b).