Assignment 9
The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

1) Which of the following statement(s) are incorrect regarding spinodal decomposition?
   - Stronger bonding or attraction among the same species than among the dissimilar species.
   - It occurs throughout the bulk of the medium.
   - It occurs in the presence of an activation barrier.
   - The phase separation at lower temperatures is driven by the domination of entropic forces.
   
   A: the answer is incorrect.
   Score: 0
   Accepted Answers:
   -chrome://extensions/
   
2) The entropy $S$ of a system of $N$ spins, which may align either in the upward or in the downward direction, is given by $S = -k_B \sum_j \left( p_j \ln p_j + (1-p_j) \ln (1-p_j) \right)$
   
   The probability of alignment in the upward direction is $p_j$. The value of $p_j$ at which the entropy is maximum is:
   
   A: $0.5$
   B: $0.4$
   C: $0.6$
   D: $0.8$
   
   A: the answer is incorrect.
   Score: 0
   Accepted Answers:
   -chrome://extensions/
   
3) Consider an infinite 1-D ferromagnetic chain with Hamiltonian $H = -J \sum (S_i S_{i+1})$, the first excited state of this chain is Degenerate.
   
   A: True
   B: False
   
   A: the answer is incorrect.
   Score: 0
   Accepted Answers:
   -chrome://extensions/
   
4) In case of one-dimensional Ising model, destruction to ferromagnetic phase transition does not take place due to
   - Insufficient number of neighbors
   - High coupling constant
   - Positive coupling constant
   - Sufficient number of neighbors
   
   A: the answer is incorrect.
   Score: 0
   Accepted Answers:
   -chrome://extensions/
   
5) In case of 1D non-periodic Ising model, the canonical partition function in the absence of field is valid for any large value of $N$.
   
   A: True
   B: False
   C: $\cosh (\beta J)$
   D: $\sinh (\beta J)$
   E: $\frac{1}{2} \cosh (2\beta J)$
   
   A: the answer is incorrect.
   Score: 0
   Accepted Answers:
   -chrome://extensions/
   
6) In the absence of magnetic field, the positive value of interaction energy favors ferromagnetic configuration.
   
   A: True
   B: False
   
   A: the answer is incorrect.
   Score: 0
   Accepted Answers:
   -chrome://extensions/
   
7) If $p$ be the momentum of the particle mass ‘m’ at temperature $T$, then the value of $\frac{p}{m}$ is
   
   A: $\sqrt{\frac{8\pi}{m^2}}$
   B: $\sqrt{\frac{8\pi}{m^2}}$
   C: $\sqrt{\frac{8\pi}{m^2}}$
   D: $\sqrt{\frac{8\pi}{m^2}}$
   
   A: the answer is incorrect.
   Score: 0
   Accepted Answers:
   -chrome://extensions/
   
8) Consider an infinite 1-D ferromagnetic chain with Hamiltonian $H = -J \sum (S_i S_{i+1})$, is an example of gapped system.
   
   A: False
   B: True
   
   A: the answer is incorrect.
   Score: 0
   Accepted Answers:
   -chrome://extensions/