

Unit 5 - Week 3: Potential Energy Functions and Intermolecular Forces

Course outline

How does an NPTEL online course work?

Week 0: Prerequisite

Week 1: Introduction of Phase Equilibria

Week 2: Estimation of Thermodynamic Properties

Week 3: Potential Energy Functions and Intermolecular Forces

● Lec 1: Intermolecular Forces and Non-Ideal Behaviour

● Lec 2: Intermolecular Forces- Potential Energy Functions

○ Quiz : Assessment 3

● Lecture Notes: Week 3

● Weekly feedback form for week 3

● Solution: Assignment 3

Week 4: Molecular Theory of Corresponding States

Week 5: Intermolecular Interactions and E.o.S

Week 6: Gaseous Mixtures and Fugacity

Week 7: Liquid Mixtures and Fugacity

Week 8: Models for Activity Coefficients using Excess Gibbs Energy

Week 9: Vapour - Liquid Equilibria of Multicomponent Non-Ideal Systems

Week 10: Liquid - Liquid Equilibria of Multicomponent Non-Ideal Systems

Week 11: Vapour - Liquid - Liquid Equilibria of Multicomponent Non-Ideal Systems

Week 12: Solid - Liquid Equilibria of Non-Ideal Systems

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Assessment 3

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

Due on 2020-02-19, 23:59 IST.

1) Nature of London's dispersion forces is?

4 points

- Repulsive
 Attractive
 Both repulsive and attractive
 None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Attractive

2) For salts which can dissociate into ions, comparatively which of the energy given below is of larger magnitude and long range?

4 points

- Electrostatic coulomb energy
 Thermal energy
 Coulomb and thermal energies are of same magnitude and range
 None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Electrostatic coulomb energy

3) For salts which can dissociate into ions, comparatively which of the energy given below is of short range?

4 points

- Electrostatic coulomb energy
 Thermal energy
 Coulomb and thermal energies are of same range
 None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Thermal energy

4) Dipole moment points from?

4 points

- Does not have direction
 +ve charge to -ve charge
 -ve charge to +ve charge
 None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
-ve charge to +ve charge

5) For a symmetry molecule C_6H_6 , what is the dipole moment in Debye?

4 points

- 0.42
 0.8
 1.8
 0

No, the answer is incorrect.
Score: 0

Accepted Answers:
0

6) Due to the dipole-dipole interactions, the average intermolecular potential is?

4 points

- $\propto \frac{1}{r}$
 $\propto \frac{1}{r^2}$
 $\propto \frac{1}{r^6}$
 $\propto \frac{1}{r^8}$

No, the answer is incorrect.
Score: 0

Accepted Answers:
 $\propto \frac{1}{r^6}$

7) How easily the electrons of a molecule can be displaced by electric field may be represented by its?

4 points

- Induction
 Attraction
 Repulsion
 Polarizability

No, the answer is incorrect.
Score: 0

Accepted Answers:
Polarizability

8) It is easier to melt or vaporize a nonpolar substance than an ionic substance because in non-polar substance?

4 points

- Attractive forces decline sharply as separation distance increases
 Attractive forces does not decline sharply as separation distance increases
 Attractive forces are independent of separation distance
 None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Attractive forces decline sharply as separation distance increases

9) Which of the following potential function is also known as soft-sphere potential?

4 points

- Sutherland potential
 Square well potential
 Lennard Jones potential
 None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Lennard Jones potential

10) Exp-6 potential reduces to Sutherland potential when $\gamma \rightarrow ?$

4 points

- Zero
 Infinity
 Moderate value
 None of the above

No, the answer is incorrect.
Score: 0

Accepted Answers:
Infinity