Course outline

MATLAB_SCRIPTS

LAMMPS_SCRIPTS

Installation_Procedure

Introduction to sttistical

Statistical mechanics-1

Ouiz: Assignment 6

Week 6 Feedback :

Materials Modelling

Week 6 Lecture materials

Foundations of Computational

mechanics-3

course work?

MATLAB

Week 1

Week 2

Week 3

Week 4

Week 5

Week 6

Week 7

Week 8

Week 9

Week 10

Week 11

Week 12

Additional Documents

Download videos

Text Transcripts

Mentor

2 points

2 points

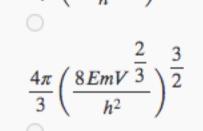
0 points

Unit 11 - Week 6

How does an NPTEL online

NPTEL » Foundations of Computational Materials Modelling

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment. Due on 2020-03-11, 2	23:59 IST.
can provide a connection between macroscopic and microscopic behaviour of matter.	2 points
O Quantum mechanics	
O Statistical Mechanics	
Classical mechanics	
O All the above	
No, the answer is incorrect. Score: 0	
Accepted Answers: Statistical Mechanics	
2) $6h^2$	2 points
What is the total number of ways a quantum system somprising of a particle in a box, can achieve an energy (E^*) be $\frac{6h^2}{8mL^2}$?	
O1	
○2 ○3	
03 04	
No, the answer is incorrect.	
Score: 0 Accepted Answers:	
3	
3) Whenever we are dealing with the problems in quantum mechanics which of the following equations is generally solved?	2 points
$_{\odot}$	
F = ma	
$E = mc^2$	
$H\Psi=E\Psi$ All of the above	
No, the answer is incorrect.	
Score: 0	
Accepted Answers: $H\Psi=E\Psi$	
4) For an isolated system, every microstate is equally probable.	2 points
○ True	•
○ False	
No, the answer is incorrect.	
Score: 0 Accepted Answers:	
True	
5) In classical thermodynamics, which of the following is/are necessary to derive the thermodynamic properties of a system?	2 points
Energy of all particles	
Momenta of all particles	
Positions of all particles	
All of the above	
No, the answer is incorrect. Score: 0	
Accepted Answers: Momenta of all particles	
Positions of all particles	
There are many number of ways the particles inside a system can distribute themselves, so that a of the system can be achieved. Each of those ways is called	2 points
microstate and microstate	
microstate and macrostate	
macrostate and macrostate	
O macrostate and microstate	
No, the answer is incorrect. Score: 0	
Accepted Answers: macrostate and microstate	
7) For a single particle in a system, the number of possible states less than a given energy E , is	2 points
$\frac{3\pi}{4} \left(\frac{EmV^{\frac{2}{3}}}{h^2} \right)^{\frac{3}{2}}$	
$4 \setminus h^2$	



$$\frac{\pi}{6} \left(\frac{8EmV^{\frac{2}{3}}}{h^2} \right)^{\frac{3}{2}}$$

O None of the above

Accepted Answers: $\frac{\pi}{6} \left(\frac{8EmV^{\frac{2}{3}}}{h^2} \right)^{\frac{3}{2}}$

$$\frac{h}{6}\left(\frac{\partial E_{m}}{h^2}\right)^2$$
8) For a single particle quantum system, the number of microstates it can have when its energy is around a specific value E^* is very small.

○ True

False

No, the answer is incorrect.

Accepted Answers: False

9) Classical treatment of Statistical Mechanics refers to

using Newton's laws to treat atomistic nature of matter a more modern way of treating solids associating statistics and mechanics

an old way of treating the mechanics of the system

No, the answer is incorrect. Score: 0

Accepted Answers: using Newton's laws to treat atomistic nature of matter

10) When the following expression is evaluated,

 $\bar{\mathcal{A}} = \lim_{t_{obs} \to \infty} \frac{1}{t_{obs}} \int_0^{t_{obs}} \mathcal{A}(P(\tau), q(\tau)) d\tau$

 $\boldsymbol{\mathcal{A}}_{}$ is a function of time

A is a constant A cannot be evaluated

 ${\cal A}$ is a function of position and momenta of all particles No, the answer is incorrect. Score: 0

Accepted Answers: A is a constant