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NPTEL

reviewer4@nptel.iitm.ac.in ▼

Courses » Molecules in Motion

Announcements **Course** Ask a Question Progress Mentor FAQ

Unit 1 - How to access the portal

Course outline

How to access the portal

- How to access the home page?
- How to access the course page?
- How to access the MCQ, MSQ and Programming assignments?
- Quiz : Assignment 0

Week 1 :

Week 2 :

Week 3 :

Week 4 :

Week 5

Week 6

Week 7

Week 8

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Assignment 0

The due date for submitting this assignment has passed.

As per our records you have not submitted this assignment. **Due on 2018-08-07, 23:59 IST.**

1) Average kinetic energy of molecules is **1 point**

- (a) Directly proportional to square root of temperature
- (b) Directly proportional to absolute temperature
- (c) Independent of absolute temperature
- (d) Inversely proportional to absolute temperature

No, the answer is incorrect.

Score: 0

Accepted Answers:

(b) Directly proportional to absolute temperature

2) A sample of an ideal gas occupies a volume V at a pressure P and absolute temperature T , **1 point** the molecular mass of the molecules is M . the expression for the density of gas is (R = Universal Gas Constant)

- (a) MRT
- (b) P/KT
- (c) P/KTV
- (d) PM/RT

No, the answer is incorrect.

Score: 0

Accepted Answers:

(d) PM/RT

3) A wall is hit elastically and normally by n balls per second, all the balls have the same mass m and are moving with the same velocity v . the force exerted by the balls on the wall is **1 point**

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(d) $12\sqrt{2}mnv^2$ **No, the answer is incorrect.****Score: 0****Accepted Answers:***(c) $2\sqrt{2}mnv^2$*

4) The velocity which is possessed by maximum no. of molecules is called

1 point

a) Average velocity.



b) Root mean square velocity.



c) Most probable velocity.



d) Escape velocity.

No, the answer is incorrect.**Score: 0****Accepted Answers:***c) Most probable velocity.*

5) At what temperature, the r.m.s. speed of the molecules of a gas is half its value at NTP?

1 point

a) 0 K



b) 273 K



c) 150 K



d) 68.25 K

No, the answer is incorrect.**Score: 0****Accepted Answers:***d) 68.25 K*6) If at same temperature and pressure, the densities for two diatomic gases are respectively d_1 and d_2 , then the ratio of velocities of sound in these will be**1 point**a) $\sqrt{d_2}/d_1$ b) $\sqrt{d_1}/d_2$ c) d_1d_2 d) $\sqrt{d_1d_2}$ **No, the answer is incorrect.****Score: 0****Accepted Answers:***a) $\sqrt{d_2}/d_1$*

7) According to kinetic theory of gasses at absolute zero temperature

1 point

(a) Water freezes



(b) Molecular motion is maximum



(c) Molecules motion stops



(d) Molecular motion is infinite

No, the answer is incorrect.

Score: 0

Accepted Answers:

(c) Molecules motion stops

8) For Boyle's law to hold good, the gas should be

1 point

- a) Ideal and of constant mass and temperature
- b) Real and of constant mass and temperature
- c) Ideal and at constant temperature but variable mass
- d) Real and at constant temperature but variable mass

No, the answer is incorrect.

Score: 0

Accepted Answers:

a) Ideal and of constant mass and temperature

9) The temperature, at which r. m. s velocity of helium molecules is equal to the r.m.s. velocity of hydrogen molecules at NTP (293.15 K, 1 atm) is

1 point

- a) 100K
- b) 500K
- c) 346K
- d) 546K

No, the answer is incorrect.

Score: 0

Accepted Answers:

d) 546K

10) In the equation $PV = \frac{1}{3}mnv^2$ v^2 represents

1 point

- a) Average velocity of molecules.
- b) Root mean square velocity of molecules.
- c) Most probable velocity of molecules.
- d) Final velocity of molecules.

No, the answer is incorrect.

Score: 0

Accepted Answers:

b) Root mean square velocity of molecules.

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