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JEE MAIN KINETIC THEORY — KINETIC INTERPRETATION OF TEMPERATURE — PYQS

Max. Marks: 20 **Questions:** 5

Section A (MCQ) — 5 questions

Q.1 If 2 mole of an ideal monoatomic gas at temperature T, is mixed with 6 mole of another ideal monoatomic gas at temperature 2T then the temperature of mixture is :

[JEE Main 2026 (Online) 6th April Evening Shift]

(1) $\frac{5}{2}T$ (2) $\frac{5}{4}T$ (3) $\frac{7}{2}T$ (4) $\frac{7}{4}T$

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Q.2 Given below are two statements: one is labelled as **Assertion (A)** and the other is labelled as **Reason (R)**.

Assertion (A): If the average kinetic energy of H_2 and O_2 molecules, kept in two different sized containers are same, then their temperatures will be same.

Reason (R): The r.m.s. speed of H_2 and O_2 molecules are same at same temperature.

Choose the correct answer from the options given below : [JEE Main 2026 (Online) 4th April Evening Shift]

(1) Both (A) and (R) are true and (R) is the correct explanation of (A)

(2) Both (A) and (R) are true but (R) is NOT the correct explanation of (A)

(3) (A) is true but (R) is false

(4) (A) is false but (R) is true

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Q.3 The helium and argon are put in the flask at the same room temperature (300 K). The ratio of average kinetic energies (per molecule) of helium and argon is:

(Given: Molar mass of helium = 4 g/mol, Molar mass of argon = 40 g/mol)

[JEE Main 2025 (Online) 7th April Evening Shift]

(1) $1:\sqrt{10}$ (2) 10:1

(3) 1:10 (4) 1:1

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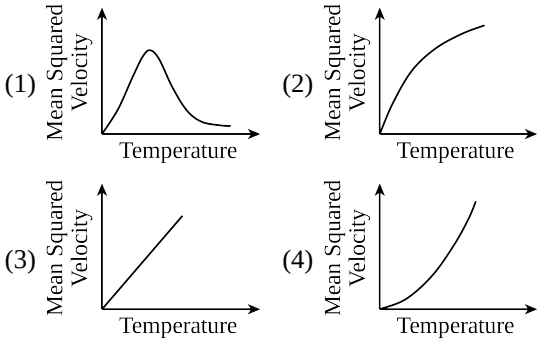
Q.4 For a particular ideal gas which of the following graphs represents the variation of mean squared velocity of the gas molecules with temperature?

[JEE Main 2025 (Online) 28th January Morning Shift]



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Q.5 The kinetic energy of translation of the molecules in 50 g of CO_2 gas at 17°C is :

[JEE Main 2025 (Online) 28th January Evening Shift]

(1) 4205.5 J (2) 3582.7 J (3) 3986.3 J (4) 4102.8 J

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ANSWER KEY

Ques.	1	2	3	4	5						
Ans.	4	3	4	3	4						