

## Worksheet: Kinetic Theory

Karnataka State Board · Class 11 · Physics · 5 questions · 12 marks

Name: \_\_\_\_\_

Date: \_\_\_\_\_

Score: \_\_\_\_\_ / 12

**Q1.** Find  $C_v$  and  $C_p$  for argon (monatomic) ( $R = 8.314$ ). [2 marks]

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**Q2.** What are the degrees of freedom of a diatomic gas at room temperature? [2 marks]

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**Q3.** Find the rms speed of oxygen ( $M = 32$  g/mol) at  $27^\circ\text{C}$  ( $R = 8.314$ ). [3 marks]

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**Q4.** Find the rms speed of hydrogen ( $M = 2$  g/mol) at  $27^\circ\text{C}$ . [2 marks]

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**Q5.** Calculate the mean free path of air at STP ( $d = 3.5 \times 10^{-10}$  m,  $T = 273$  K,  $P = 1.013 \times 10^5$  Pa). [3 marks]

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