

TOPIC: HEAT

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| <p>Q.1. Find the amount of work done to increase the temperature of one mole of an ideal gas by 30°C, if it is expanding under the condition $v \propto T^{2/3}$</p> <p>(a) 166.2 J (b) 136.2J
 (c) 126.2J (d) None of these</p> <p>Q.2. 3 mole of H_2 is mixed with 1 mole of Ne. The specific heat at constant pressure is</p> <p>(a) $\frac{9}{4} R$ (b) $\frac{13}{4} R$
 (c) $\frac{9}{2} R$ (d) $\frac{13}{2} R$</p> <p>Q.3. A bimetallic strip is formed out of two identical strips one of Cu and the other of brass. The coefficients of linear expansion of the two metals are α_c and α_B. If on heating the temperature of the strip goes up by ΔT and the strip bends to form an arc of radius R, then R is</p> <p>(a) proportional to ΔT
 (b) inversely proportional to ΔT
 (c) proportional to $\alpha_B - \alpha_c$
 (d) inversely proportional to $\alpha_B - \alpha_c$</p> <p>Q.4. A and B are two gases, $\frac{T_A}{M_A} = \frac{4T_B}{M_B}$, where T is the temperature and M is the molecular mass. If C_A and C_B are the rms speed, the $\frac{C_A}{C_B}$, will be</p> <p>(a) 2 (b) 4 (c) 0.5 (d) 0.25</p> <p>Q.5. The saturated vapour pressure on a planet is 760 mm of Hg. Its vapour density is</p> <p>(a) 0.8 kg/m^3 (b) 0.58 kg/m^3
 (c) 1.2 kg/m^3 (d) none of these</p> | <p>Q.6. One mole of Argon is heated using $PV^{3/2} = \text{constant}$. The amount of heat obtained by the process when the temperature changes by $\Delta T = -26 \text{ K}$ is</p> <p>(a) 27 J (b) 54 J
 (c) 108 J (d) 216 J</p> <p>Q.7. A gram mole of a gas at 127°C expands isothermally until its volume is doubled. The amount of work done is</p> <p>(a) 238 cal (b) 548 cal
 (c) 548 J (d) 238 J</p> <p>Q.8. A gas mixture consist of 2 moles of oxygen and 4 moles of Ar at temperature T. Neglecting all vibrational modes, the total internal energy of the system is</p> <p>(a) 4RT (b) 15RT
 (c) 9Rt (d) 11 RT</p> <p>Q.9. A monoatomic gas is supplied Q amount of heat keeping the pressure constant. The work done by the gas is</p> <p>(a) $\frac{2}{5} Q$ (b) $\frac{3}{5} Q$
 (c) $\frac{Q}{5}$ (d) $\frac{2}{3} Q$</p> <p>Q.10. The room temperature is $t + 20^{\circ}\text{C}$ when outside temperature is -20°C and room temperature is $+10^{\circ}\text{C}$ when outside temperature is -40°C, the temperature of radiator heating the room is</p> <p>(a) 80°C (b) 60°C
 (c) 100°C (d) None of these</p> |
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ANSWER KEY

- 1.-(a) 2.-(b) 3.-(b, d) 4.-(a)
 5.-(b) 6.-(c) 7.-(b) 8.-(d)
 9.-(a) 10.-(b)

