

## ECAT Pre General Science Physics Chapter 11 Heat & Thermodynamics

Sr	Questions	Answers Choice
1	10 c.c. each of oxygen and hydrogen are kept in separate flasks. Then which of the following relations is correct?	A. Each have same number of molecules B. Don't have same number of molecules C. Can't be predicted D. None
2	The relationship between Boltzmann constant $k$ with $R$ and $N_A$ is given as:	A. $k = R/N_A$ B. $k = R/N_A$ C. $k = NR/N_A$ D. None of these
3	The product of the pressure and volume of an ideal gas is	A. A constant B. Approximately equal to the universal gas constant C. Directly proportional to its temperature D. Inversely proportional to its temperature
4	The efficiency of petrol engine is usually not more than 25% to 30% because of	A. friction B. heat losses C. both of them D. none of them
5	The heat required to raise the temperature of one mole of the gas through 1 K at constant volume is called	A. heat capacity B. specific heat capacity C. molar specific heat D. molar specific heat at constant volume
6	For the working of a heat engine, there must be	A. a source of heat at high temperature B. a sink at low temperature C. both of them D. none of them
7	A real gas can be approximated to an ideal gas at	A. Low density B. High pressure C. High density D. Low temperature
8	Two metal rods A and B have their initial lengths in the ratio 2 : 3 and coefficients of linear expansion in the ratio 4 : 3. When they are heated through same temperature difference the ratio of their linear expansion is	A. 1 : 2 B. 2 : 3 C. 3 : 4 D. 8 : 9
9	The absolute temperature of the triple point of water is	A. $100^\circ\text{C}$ B. $4^\circ\text{C}$ C. 373 K D. 273.16 K
10	Heat travels through vacuum by	A. Conduction B. Convection C. Radiation D. Both A and B
11	Triple point of water is	A. $273.16^\circ\text{F}$ B. 372.16K C. $273.16^\circ\text{F}$ D. 273.16
12	R.M.S velocity of a particle is $V$ at pressure $P$ . If pressure increases by two times, then R.M.S velocity becomes	A. 2V B. 3V C. 0.5V D. V

13	We can express the work in term of	<p>A. directly measurable variables</p> <p>B. indirectly measurable variables</p> <p>C. either of them</p> <p>D. both of them</p>
14	The second law of thermodynamics is concerned with the circumstances in which	<p>A. heat can be converted into work</p> <p>B. direction of flow of heat</p> <p>C. none of them</p> <p>D. both of them</p>
15	Heat required to raise the temperature of one mole of a gas through 1 K at constant pressure is called	<p>A. heat capacity</p> <p>B. specific heat capacity</p> <p>C. specific heat at constant volume</p> <p>D. specific heat at constant pressure</p>
16	Hydrogen and helium of same volume V at same temperature T and same pressure P are mixed to have same volume V. The resulting pressure of the mixtures will be	<p>A. R/2</p> <p>B. P</p> <p>C. 2P</p> <p>D. Depending on the relative mass of the gases</p>
17	The rate of change of momentum of a molecule is equal to:	<p>A. Pressure</p> <p>B. Work</p> <p>C. Density</p> <p>D. Force</p>
18	Tick the correct pair when M denotes the molecular mass and other symbols carry usual meanings:	<p>A. <math>N = nN_{\text{A}}</math>, <math>m = MN_{\text{A}}</math></p> <p>B. <math>n = N/N_{\text{A}}</math>, <math>M = mN_{\text{A}}</math></p> <p>C. <math>M = N_{\text{A}}/N</math>, <math>N_{\text{A}} = m/n</math></p> <p>D. <math>N = nN_{\text{A}}</math>, <math>M = mN_{\text{A}}</math></p>
19	Energy gas behaves like an ideal gas at	<p>A. High temperature and low pressure</p> <p>B. Low temperature and high pressure</p> <p>C. Both A and B</p> <p>D. None</p>
20	The internal energy of an ideal gas system is generally the	<p>A. translational K.E of molecules</p> <p>B. vibrational K.E of molecules</p> <p>C. rotational K.E of molecules</p> <p>D. all of them</p>