

MDCAT Physics Chapter 5 Thermodynamics Online Test

| Sr | Questions | Answers Choice |
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| 1 | If the temperature difference between hot and cold body is greater the heat engine is: | A. Not efficient B. Less efficient C. More efficient D. None of above |
| 2 | A process in which no heat enters or leaves the system is called. | A. Adiabatic process B. Isothermal process C. Isochoric process D. None of these |
| 3 | The efficiency of a particle heat engine: | A. can be 100% B. Cannot be 100% C. Is always zero D. None of these |
| 4 | A certain engine converts 20% of available heat energy into work. Then its efficiency will be: | A. 20% B. 80% C. 50% D. None of these |
| 5 | Real gases strictly obey gas laws at: | A. High pressures and low temperatures B. Low pressures and high temperatures C. High pressures and & temperatures D. None of these |
| 6 | Only those processes are probable to take place for which entropy of the system: | A. Increases B. Remains constant C. Both A and B are correct D. None of above |
| 7 | The rate of change of momentum of a molecule is equal to: | A. Pressure B. Work C. Density D. Force |
| 8 | The value of universal gas constant R is: | A. 8.314 J/K mole K B. 8314 J/ mole K C. 8.314 J/ mole K D. None of these |
| 9 | The law of thermodynamics which discusses the condition under which heat energy is converted into an equivalent amount of work is: | A. 1st B. 2nd C. 3rd D. None of these |
| 10 | A process which is carried at constant temperature and Boyle's law can be applied is called: | A. Adiabatic process B. Isothermal process C. Isochoric process D. None of these |
| 11 | Petrol engine converts _____ of available heat energy into work. | A. 20% to 25% B. 25% to 30% C. 30% to 35% D. 35% to 40% |
| 12 | The temperature at which all the gases become liquid is called: | A. 273 K B. -273 K C. Absolute Zero D. Both (B) and (C) |
| 13 | When a gas is compressed: | A. Its internal energy decreases B. Its temperature decreases C. Its temperature increases D. None of these |
| 14 | Diesel engine converts _____ of available heat energy into work. | A. 20% to 25% B. 25% to 30% C. 30% to 35% D. 35% to 40% |
| | | A. Internal energy B. _____ |

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| 15 | As the working substance of a heat engine completes a cycle, there is no change in: | B. Pressure C. Volume D. All of these |
| 16 | When two objects come to common temperature, the body is said to be in: | A. Static equilibrium B. Dynamic equilibrium C. Thermal equilibrium D. None of these |
| 17 | In which process the change in internal energy of the system is zero: | A. Isochoric process B. Isobaric process C. Adiabatic process D. Isothermal process |
| 18 | Electromagnetic waves emitted by hot bodies are called: | A. Photoelectrons B. Alpha rays C. Thermal radiation D. None of these |
| 19 | The equation $PV^\gamma = \text{Constant}$ applies to: | A. Isothermal process B. Adiabatic process C. Isobaric process D. None of these |
| 20 | The pressure exerted on the walls of the vessel by gas molecules is defined as: | A. Force per unit volume B. Energy per unit area C. mass per unit volume D. None of these |
| 21 | No entropy change is associated with: | A. Isothermal B. Adiabatic process C. Isobaric process D. None of them |
| 22 | The nature of thermal radiation is similar to: | A. Ultraviolet rays B. Light rays C. Both of them D. None of them |
| 23 | Avogadro number is known as number of molecules in: | A. One kg of a substance B. Unit volume of a substance C. One mole of a substance D. None of these |
| 24 | While dealing with the processes in thermodynamics, the working substance is usually: | A. Oxygen gas B. Hydrogen gas C. Ideal gas D. None of these |
| 25 | A gas which strictly obeys the gas laws under all conditions of temperatures and pressure is called: | A. Ideal gas B. Inert gas C. Real gas D. None of these |
| 26 | Brownian motion confirms the truth of : | A. Wave theory of light B. Boyle's law C. Kinetic theory of gases D. Adiabatic process |
| 27 | When heat is added to the system, the entropy change is: | A. Positive B. Negative C. Zero D. None of these |
| 28 | According to Boyle's law, volume of a given mass of a gas is | A. Inversely proportional to mass at constant pressure B. Directly proportional to pressure at constant temperature C. Inversely proportional to pressure at constant temperature D. None of these |
| 29 | In the theory of dimensional analysis, heat may be properly represented by: | A. ML^2T^{-2} B. MT^{-2} C. $ML^{-1}T^{-1}$ D. None of these |
| 30 | Tick which of the following is not a state variable: | A. Heat energy B. Pressure C. Entropy D. Volume |
| 31 | Absolute zero is considered as that temperature at which: | A. All liquids become gases B. All gases become liquids C. Water freezes D. None of these |
| | | A. Four B. Five |

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| 32 | Number of spark plugs needed in diesel engine is: | A. Five B. Six C. Seven D. None of these |
| 33 | Truth of kinetic energy theory is confirmed by: | A. Diffusion of gases B. Brownian motion C. Both A and B D. None of these |
| 34 | The motion of molecules in gases is: | A. Orderly B. Random C. Circular D. All of these |
| 35 | At constant temperature, if the density of the gas is increased, its pressure will: | A. Decrease B. Increase C. Remain unchanged D. None of these |
| 36 | The nature of thermal radiation is smaller to: | A. Ultraviolet rays B. Light rays C. Both of them D. None of these |
| 37 | In an ideal gas, the molecules have: | A. Kinetic energy only B. Potential energy only C. Both KE and PE D. None of these |
| 38 | Carnot cycle is: | A. Reversible B. Irreversible C. Sometimes A, Sometimes B D. None of these |
| 39 | The only significant motion possessed by the mono-atomic gas molecules is: | A. Translatory B. Rotatory C. Vibratory D. None of these |
| 40 | Hotness and coldness of an object is represented in terms of: | A. Heat B. Temperature C. Chemical D. None of these |
| 41 | The relationship between Boltzmann constant K with R and N_A is given as: | A. $k = R/N_{\text{sub}}A$ B. $k = R/N_{\text{sub}}A$ C. $k = NR/N_{\text{sub}}A$ D. None of these |
| 42 | If temperature of the sink is decreased, efficiency of a Carnot engine. | A. Remains constant B. Decreases C. Increases D. None of these |
| 43 | No of spark plugs needed in diesel engine is: | A. Four B. Five C. Six D. None of these |
| 44 | The efficiency of a practical heat engine: | A. Can be 100% B. Can not be 100% C. Is always Zero D. None of these |
| 45 | Thermal radiations are a type of: | A. Mechanical waves B. Electromagnetic waves C. Alpha rays D. Electrons |
| 46 | Change in momentum per second is: | A. Product force and time B. Product of pressure and area C. Ratio of pressure and area D. None of these |
| 47 | If a molecule with momentum mv strikes a wall and rebound then the change in momentum will be: | A. $-2mv$ B. Zero C. $2mv$ D. mv |
| 48 | Pressure may be defined as _____ per second per unit area: | A. Change in force B. Change in momentum C. Change in energy D. Work done |
| 49 | At constant temperature, if the volume of a given mass of a gas is doubled, then the density of gas becomes: | A. Double B. Remains constant C. Half D. None of these |

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| 50 | For a gas obeying Boyle's law, if the pressure is doubled the volume becomes: | A. One half B. Double C. Four times D. None of these |
| 51 | If P is the pressure and V is the volume, Then PV will represent: | A. Power B. Work C. Force D. None of these |
| 52 | First law of thermodynamics is merely a statement of law of conversation of: | A. Energy B. Angular momentum C. Change D. Linear momentum |
| 53 | Steam engine is: | A. An optical system B. A thermal system C. A thermodynamic system D. None of these |
| 54 | The ratio of output work per cycle to input energy per cycle is called: | A. Entropy B. Internal energy C. Efficiency D. None of these |
| 55 | Which of the following does not have the same units: | A. Work B. Heat C. Kinetic energy D. Power |
| 56 | What will be efficiency of carnot engine when it is operated between the temperatures 47°C and 127 °C: | A. Reversible B. Irreversible C. Sometimes A and B D. None of these |
| 57 | In thermodynamics, the change in internal energy depends upon: | A. The path taken between initial and final states B. The initial state only C. The final state only D. Initial and final states |
| 58 | The ideal gas obey gas law at: | A. Low tempratures and high pressures B. High temperatures and low pressures C. All temperatures and pressures D. None of these |
| 59 | The number of molecules in one mole of gas is equal to: | A. Avogadro number N_{A} B. Gas constant R C. Boltzmann constant k D. None of these |
| 60 | If C_V denotes molar specific heat at constant volume and ΔT is the change in temperature, then $C_V \Delta T$ gives: | A. Volume B. Pressure C. Energy D. Entropy |
| 61 | Most motorbikes have _____ cylinder/s engine but cars usually have _____ cylinders on the same crankshaft. | A. Four , Six B. One , four C. two , five D. None of these |
| 62 | The equation $W = \Delta U$ represents: | A. Thermal process B. adiabatic process C. Isobaric process D. None of these |
| 63 | In which process, the change in internal energy of the system of zero: | A. Isochoric process B. isobaric process C. Adiabatic process D. Isothermal process |
| 64 | One degree of thermodynamics scale of temperature is called: | A. Celsius B. Fahrenheit C. Kelvin D. Radian |
| 65 | Carnot engine is _____ heat engine. | A. A reversible B. An irreversible C. An ideal D. Both A and C |
| 66 | The temperature scale approved in SI units is: | A. Calslus scale B. Kelvin scale C. Fehrenhelt scale D. None of these |