

MCQ

1.	Work done by a system is taken to be
	(a) Positive
	(b) Negative
	(c) Zero
	(d) varies according to situation
2.	Work is a
	(a) point function
	(b) path function
	(c) depends on the state
	(d) none of the mentioned
3.	Thermodynamic properties are
	(a) point function
	(b) path function
	(c) depends on the state
	(d) none of the mentioned
4.	Constant pressure process is also known as
	(a) Isothermal process
	(b) Adiabatic process
	(c) Isobaric process
	(d) Reversible process
5.	Constant temperature process is also known as
	(a) Isothermal process
	(b) Adiabatic process
	(c) Isobaric process
	(d) Reversible process
6.	Constant heat process is also known as
	(a) Isothermal process
	(b) Adiabatic process
	(c) Isobaric process
	(d) Reversible process
7.	Which of the following represents the energy in storage?
	(a) Work
	(b) Heat
	(c) Internal energy
	(d) None of above
8.	Which of the following can be considered as the definition of energy?
	(a) $Q = \Delta E + W$
	(b) $Q - W = \Delta E$
	(c) first law of thermodynamics
	(d) all of the mentioned
9.	Which of the following is true?
	(a) heat always from a high temperature body to a low temperature body
	(b) heat always from a low temperature body to a high temperature body
	(c) heat can flow from both low to high and high to low temperature body
	(d) none of the mentioned

10.	According to Clausius statement	
	(a)	It is impossible to construct a device that can transfer heat from a hotter body to a cooler body without any effect
	(b)	It is possible to construct a device that can transfer heat from a cooler body to a hotter body without any effect
	(c)	it is impossible to construct a device that can transfer heat from a cooler body to a hotter body without any effect
	(d)	None of above
11.	A reversible cycle has following processes.	
	(a)	4 adiabatic processes
	(b)	2 isothermal and 2 adiabatic processes
	(c)	4 isothermal processes
	(d)	4 isobaric processes
12.	The correct sequence of the processes taking place in a Carnot cycle is	
	(a)	adiabatic -> adiabatic -> isothermal -> isothermal
	(b)	isothermal -> adiabatic -> isothermal -> adiabatic
	(c)	adiabatic -> isothermal -> adiabatic -> isothermal
	(d)	isothermal -> isothermal -> adiabatic -> adiabatic
13.	The efficiency of all reversible heat engines operating between the same heat reservoirs is	
	(a)	Same
	(b)	independent of the nature of working substance
	(c)	independent of the amount of working substance
	(d)	All above
14.	The absolute thermodynamic temperature scale is also known as	
	(a)	Celsius scale
	(b)	Clausius Scale
	(c)	Fahrenheit scale
	(d)	Kelvin scale
15.	When the heat transferred isothermally between the given ____ decreases, the temperature ____	
	(a)	adiabatics, decreases
	(b)	isotherms, decreases
	(c)	adiabatics, increases
	(d)	isotherms, increases
16.	Which law is stated here, "It is impossible to reduce any system to the absolute zero of temperature in a finite number of operations?"	
	(a)	First law of thermodynamics
	(b)	Second law of thermodynamics
	(c)	Third law of thermodynamics
	(d)	Zeroth law of thermodynamics
17.	The Kelvin temperature is numerically equal to the ____ and may be measured by means of a ____	
	(a)	gas temperature, liquid thermometer
	(b)	ideal gas temperature, gas thermometer
	(c)	ideal gas temperature, liquid thermometer
	(d)	ideal gas temperature, water thermometer

18.	According to the Clausius' theorem, the cyclic integral of ___ for a reversible cycle is zero.
	(a) $dH/dT$
	(b) $dQ/dT$
	(c) $dW/dT$
	(d) $dE/dT$
19.	The cyclic integral of entropy is___
	(a) Unity
	(b) Infinite
	(c) Cannot measure
	(d) Zero
20.	If the cyclic integral of $dQ/T$ is zero then the cycle is
	(a) irreversible but not possible
	(b) reversible
	(c) irreversible but possible
	(d) irreversible
21.	Integral of $dQ/T$ of a reversible path is given by
	(a) $S_i - S_f$
	(b) $S_f - S_i$
	(c) $S_i < S_f$
	(d) $S_f > S_i$
22.	When two equilibrium states are infinitesimally near,
	(a) $dQ/T=dS$
	(b) $dQ/T>dS$
	(c) $dQ/T<dS$
	(d) $dQ/T=0$
23.	During phase transitions like vaporization, melting and sublimation
	(a) pressure remains constant
	(b) Temperature remains constant
	(c) Volume remains constant
	(d) All above
24.	What is the definition of thermodynamics?
	(a) The energy available to do work.
	(b) The study of the relationship between heat, work, and energy.
	(c) The amount of heat it takes to move an engine.
	(d) The movement of heat.
25.	What is latent heat?
	(a) Heat that doesn't move from high temperature to low temperature, also known as "lazy heat."
	(b) The heat required to move an object from its "latent" position.
	(c) The heat required to convert the state of matter of a substance without changing its temperature.
	(d) Heat that does not move unless acted upon by an outside source.
26.	Which statement is true about the First Law of Thermodynamics?
	(a) It states that energy cannot be created.
	(b) It states that energy cannot be destroyed.
	(c) It is another name for the Law of Conservation of Energy.
	(d) All choices are correct.

27.	Which of the following requirement is satisfied by a phase change of the first order?
	(a) there are changes of volume and entropy
	(b) the first-order derivative of the Gibbs function changes discontinuously
	(c) A and B
	(d) None of these
28.	The Clausius-Clapeyron equation is given by
	(a) $dP/dT = l / T(v_f+v_i)$
	(b) $dP/dT = l / T(v_f-v_i)$
	(c) $dT/dT = l / T(v_f+v_i)$
	(d) $dT/dT = l / T(v_f+v_i)$
29.	The entropy of an isolated system always ___ and reaches ___ when equilibrium is reached.
	(a) remains constant, maximum
	(b) decreases, minimum
	(c) increases, maximum
	(d) None of these
30.	Which of the following statement is true?
	(a) a system is in equilibrium state if, when it is disturbed, it comes back to its original state
	(b) if there is a spontaneous change in the state, the system is not in equilibrium
	(c) during a spontaneous change, the entropy of system increases
	(d) All of these
31.	For total stability,
	(a) $C_v > 0$
	(b) $(\partial p / \partial V) < 0$ , at constant temperature
	(c) $(\partial p / \partial V) < 0$ , at constant entropy
	(d) All of these
32.	For an isolated system,
	(a) $dS < 0$
	(b) $dS > 0$
	(c) $dS = 0$
	(d) $dS = \text{infinity}$
33.	The changes in properties like T, p and v
	(a) depend on the path taken
	(b) depends on the property to be evaluated
	(c) are independent of path
	(d) Cant say
34.	When does an equation of state reduces to the ideal gas equation?
	(a) when the pressure approaches zero and the temperature approaches infinity
	(b) when the Volume approaches zero and the temperature approaches infinity
	(c) when the Energy approaches zero and the temperature approaches infinity
	(d) when the pressure approaches zero and the temperature approaches zero