

Question FBQ1 : From the first law of thermodynamic; <math xmlns="http://www.w3.org/1998/Math/MathML" ><mo>Δ</mo></math>U=q +W. The sign of W is positive when heat absorbed leads to increase in _____.

Answer: internal energy

Question FBQ2 : For an adiabatic change, the heat absorbed or given off; is

Answer: Equal to zero

Question FBQ3 : When molecules of gas collide with each other, the change in momentum is

Answer: Equal to zero

Question (FBQs) 3 : What is the kinetic energy of an ideal gas occupying a volume of 32.4dm³ at stp (p=101325Pa)

Answer: 4924.40Nm

Question FBQ4 : What is the kinetic energy of an ideal gas occupying a volume of 32.4dm³ at stp (p=101325Pa)

Answer: 4924.40Nm

Question FBQ5 : The marcroscopic property of gases which the kinetic theory explains include the following except

Answer: Pressure

Question FBQ6 : When the pressure of a gas is lowered; its density is _____

Answer: Increased

Question FBQ7 : The relationship between pressure and volume gas is given by ___ law

Answer: Boyle’s

Question FBQ8 : 90cm3 gas syringe contain 70cm³ of gas was compressed to 45cm³. If the atmospheric pressure is 1 atm, calculate the pressure of the gas in the syringe after compression

Answer: 1.56 atm

Question FBQ9 : The average kinetic energy of a gas is a measure of the _____ of that gas

Answer: Absolute temperature

Question FBQ10 : Within the liquid system, the more energetic particles/molecules are found_____

Answer: On the surface liquid/particles

Question FBQ11 : At the normal boiling point of a liquid, the prevailing vapour pressure of the liquid is _____ the ambient atmospheric pressure

Answer: Equal to

Question FBQ13 : The Raoults law can be used to estimate_____ of liquid in a mixture

Answer: No of moles

Question FBQ14 : System with negative deviations have vapour pressure that are _____expected Raoult’s vapour pressure

Answer: Equal to

Question FBQ15 : Thermodynamic property which depends on the quality of matter in the system is known as

Answer: extensive

Question FBQ16 : Ice is a good example of a _____ phase system

Answer: 2

Question FBQ17 : There are _____ types of material equilibrium

Answer: Two

Question FBQ18 : The transport of matter between phases of system without conversion of one species to another is known as

Answer: Phase equilibrium

Question FBQ19 : In a phase diagram, the crossing of any two-phase curre is called a

Answer: Transition

Question FBQ20 : In a isochoric process, the work done is equal to

Answer: 0

Question FBQ21 : There are _____ equilibrium on the phase diagram of water

Answer: Three

Question FBQ22 : The change from solid to vapour is known as

Answer: Sublimation

Question FBQ23 : On phase diagram, the region where three phases co-exist in equilibrium is called ___ point

Answer: Triple

Question FBQ24 : The temperature and pressure beyond which gases can no longer be compressed is known as

Answer: Critical point

Question FBQ25 : The phase diagram of carbon (iv) is known to display a triple point which is above_____

Answer: Atmospheric pressure

Question FBQ26 : At which pressure is it likely to have liquid carbon (iv) oxide

Answer: 5.11 atm

Question FBQ27 : The phase diagram of water display a triple point which is ___ atmospheric pressure

Answer: Below

Question FBQ28 : The phase diagram of carbon (iv) oxide shows _____ phases

Answer: Three

Question FBQ29 : An isoberic process occurs at _____

Answer: Constant pressure

Question FBQ30 : When the vapour pressure and the prevailing atmospheric pressure are equal, the associated temperature is the _____ of that liquid

Answer: Boiling point

Question FBQ31 : Thermodynamics is the study of heat change accompanying

Answer: Chemical and physical reactions

Question FBQ32 : An entropy is a thermodynamic process which is carried out at constant

Answer: internal energy

Question FBQ33 : ……..equilibrium
is attained when rate of
sublimation of solid equals the rate of deposition of its vapour phase

Answer: Solid vapour

Question FBQ34 : Thermodynamic system is usually separated from the surroundings by the _____

Answer: Boundary

Question FBQ35 : When the volume of a thermodynamic system expands work is generated against it’s

Answer: Surroundings

Question MCQ1 : The equation Cp = Cv + R is heat capacity at constant pressure from equation it means, that

Answer: Cp is always greater than Cv by an amount equal to the gas constant

Question MCQ2 : The 4 basic equilibrium properties that can be explained by the kinetic theory of gas are

Answer: Temperature, pressure
speed of gas molecule and collision number

Question MCQ3 : The findings of Gay-Lusaac /Jaeques Charles on the relationship between the volume of gas and its temperature is that there exist a

Answer: Linear relationship between volume and temperature

Question MCQ4 : The total pressure of a mixture of gases is equal to the sum of the partial pressures of the gases in the mixture. This assertion is presumed based on the fact that

Answer: The gases do not react chemically with each other

Question MCQ5 : The ideal gas equation and the parameters in it are these

Answer: PV=nRT P= pressure, V= volume, n=no of moles, R= gas constant, T= absolute temperature

Question MCQ6 : A given gas mixture consist of n mole of nitrogen nN2 and n mole of Oxygen nO₂. The total pressure of the mixture is P_T. The equations for the partial pressure of nitrogen and oxygen in the mixture respectively are

Answer: (nN₂/ nN₂ + nO₂)P_T; (nO₂/ nN₂ + nO₂)P_T

Question MCQ7 : Equation of state is a dynamic model

Answer: that relates two or more state functions

Question MCQ8 : For cases when the intermolecular forces among the particles of a gas is not negligible, the ideal gas equation can be modified for such cases, as shown below

Answer: PV=(P+a/V²) (V-b) = RT(for 1 mole)

Question MCQ9 : The difference between evaporation and boiling is that

Answer: Evaporation is a surface process while boiling involves

Question MCQ10 : Evaporation process, when equilibrium is reached the forward reaction converts liquid to vapour and the reverse reaction involves the reconversion of vapour to liquid. The forward reaction is endothermic because

Answer: Heat is needed to convert liquid to vapour

Question MCQ11 : Boiling of liquid occurs when the prevailing vapour pressure of the liquid is

Answer: Equal to the ambient atmospheric pressure

Question MCQ12 : In an ideal mixture of liquids, the partial pressure of each component in the mixture is equal to the vapour pressure of the pure component

Answer: Multiplied by its mole fraction in the mixture

Question MCQ13 : The Raoult’s law states that the pressure of fugacity or a single phase mixture is equal to the

Answer: Mole weighed sum of the component pressure

Question MCQ14 : Raoult’s law is most applicable to non- electrolytes and non-polar molecules because

Answer: Their molecules have weak intermolecular attraction

Question MCQ15 : Deviation from Raoult’s law is positive when vapour pressure is

Answer: Higher than expected Rault’s vapour pressure

Question MCQ16 : Negative deviation from Raoult’s law is to the fact that

Answer: Stronger intermolecular attraction exists between constituents of the mixture than exists in the pure components

Question MCQ17 : The significance of the positive and negative deviations from Raoults law is they can be used for determination of the

Answer: The thermodynamic activity of coefficients of the constituents of the mixtures

Question MCQ18 : Solid vapour equilibrium is attained

Answer: when rate of sublimation of solid equals the rate of deposition of its vapour phase

Question MCQ19 : In a typical phase diagram of water, the critical point defines the

Answer: Temperature and pressure beyond which gases can no longer be compressed

Question MCQ20 : On the phase diagram of carbon (iv) oxide, the triple point is found to be above atmospheric pressure (5.11atm). This implies that

Answer: It is not possible to have liquid Carbon (iv) oxide at pressure less than (5.11atm)

Question MCQ21 : The mathematical expression of the phases rule is F= C-P=2, where F is the degree of freedom. F represents the

Answer: Environmental conditions which can be varied without changing the number of phases in the system

Question MCQ22 : Chemical thermodynamics study the heat change accompaining chemical reactions. The major objectives of chemical thermodynamics is to establish conditions needed for

Answer: Predicting the feasibility of chemical reactions, phase change and solution formation

Question MCQ23 : A system does not allow exchange of matter, heat or work with the surrounding. It means

Answer: The mass and total energy of the system will remain constant over time

Question MCQ24 : A state function refers to the property of a system

Answer: Which depends only on the intial and final states of the system

Question MCQ25 : An isochoric process, is a process that is carried out at constant value

Answer: The work done is zero since change in volume is zero

Question MCQ26 : An adiabatic process is a system which is thermally insulated from its environment and its boundary is a thermal insulator. This implies

Answer: Energy is neither added or subtracted from the system

Question MCQ27 : A cyclic process is a sequence of processes that leaves the system in the same state in which it started. This implies that

Answer: The total internal energy change in cyclic process is zero

Question MCQ28 : The first law of thermodynamics is somrtimes called the law of conservation of energy because

Answer: it accounts for the input and output energies when a system does work

Question MCQ29 : The three significant parameters in the first law of thermodynamics are

Answer: Work, heat and internal energy

Question MCQ30 : An ideal gas undergoing isothermal expansion is characterized by a constancy of temperature. Hence the internal energy is

Answer: Equal to zero

Question MCQ31 : The collision of the molecules of gas is elastic, this implies, the collision

Answer: does not involve loss of energy

Question MCQ32 : Energy and volume are examples of _____ property

Answer: extensive

Question MCQ33 : The slowest step in any chemical reaction is

Answer: Rate limiting step

Question MCQ34 : Molecularity of a reaction

Answer: As numerically equal to the sum of stoichiometric coefficients of reactants in elementary reaction

Question MCQ35 : The effect of temperature on the rate of a chemical reaction, it accepted that reaction rate doubles foe every _____ rise in temperature

Answer: 10⁰C