CHM 101 2015

question : Which of these pairs of metal has variable valencies?

weight : 2

answer : Iron and copper

option : Zinc and caesium

option : Iron and strontium

option : Barium and scandium

question : J.J. Thomson's model of the atom fell into disrepute and was replaced by one of the followings

weight : 2

option : Dalton's theory

answer : Rutherford Nuclear model

option : Bohr model

option : Balmer series model

question : Phosphorous burns in oxygen according to the equation

 $P_4 + 5O_2 \rightarrow P_4O$. How many litres of oxygen will be required at s.t.p. for complete oxidation of 12.4g of phosphorous? (P = 31, 0 = 16 and molar volume of a gas at s.t.p. = 22.4 litres)

weight : 2

option : 5.20 litre

answer : 11.20 litre

option : 2.24 litre

option : 20.20 litre

question: Which of these statements is not true when the cubes are added into the hot tea in a glass cup?

option : Tea is surrounding the ice cubes

option : The system is the ice cubes.

option : Heat is transferred from the tea to the ice cubes and the ice melts.

answer : Heat is only transferred from the ice cubes to the tea and the ice melts.

question : The following thermodynamic properties: temperature, enthalpy, entropy and energy changes are called

weight : 2 option : non-state functions answer : state functions option : adiabatic functions option : repulsive forces

question : Ionization energy

weight : 2

answer : increases across the period but decreases down the group of the periodic table option : decreases across the period but increases down the group of the periodic table option : increases both across the period and down the group of the periodic table option : none of the above

question : Planck was able to obtain the correct curve for the spectrum of light emitted by a hot object by assuming that the

weight : 2

option : spectrum was continuous

answer : vibrational energies of the atomic resonators were quantized

option : atoms had only certain allowed orbits

option : light was mainly ultraviolet

 $\begin{array}{l} \mbox{question: For the cell
br /> Pt/H ₂ (g,1atm)/2H ⁺ (aq,1M)/Hg ⁺² (aq,1M)/Hg (l); Ecell = 0.851V; determine the standard reduction potential for the
 +2 </sup> +2 </sup> (aq)/Hg (l) electrode \\ \end{array}$

weight : 2

- answer : +0.851V
- option : -0.851V
- option : +1.702V
- option : -1.702V

question : The atomic number of magnesium is 12. Its nucleus must contain

weight : 2

- option : 6 protons and 6 neutrons
- option : 6 neutrons and 6 electrons
- option : ?
 12 neutrons an no proton
- answer: 12 protons and no electrons

question : A & harr; B + C, K = 2.0 x 10-50

weight : 2

option : Rate of forward reaction is greater

option : Rate of backward reaction is greater

- option : More of concentration of A
- answer : More of concentration of B

question : The equilibrium of an exothermic reaction can be shifted forward by

- option : Increasing temperature at constant pressure
- option : Warming up the apparatus
- answer : decreasing temperature at constant pressure

option : Decreasing pressure at constant temperature

question : Which of the followings is not one of the Dalton's law?

weight : 2

option : atoms are indestructible

answer : atoms of the same element have isotopes with different masses

option : atoms of different elements have different chemical and physical properties

option : all of these are examples of Dalton's law

question : Element X has a total of 19 electrons and can react with oxygen to form an oxide. Which of the following is NOT true about the oxide of the element?

weight : 2

answer : When exposed to air, it slowly changes to liquid

option : Its solution in water conducts electricity

option : Its solution in water on evaporation gives a white solid

option : Its oxide, when strongly heated, regenerates the element X

question : How many moles of hydrogen atoms are contained in 500mg of vitamin C (C₆ H₈ O₆)(C = 12.0, H= 1.0,O= 16.0)

weight : 2

- option : 2.01 x 10-2 moles
- answer : 2.27 x 10-2 moles
- option : 1.20 x 10-2 moles
- option : 3.07 x 10-2 moles

question : How much oxygen contains the same number of atoms as there are in 18.29g of chlorine? (Cl = 35.5, O = 16.0)

option : 8.14g answer : 8.24g option : 4.14g option : 2.24g

question : Which of these techniques is useful in studying solid crystalline structure?

weight : 2

option : X-ray flourescence answer : X-ray diffraction option : Atomic Absorption Spectrometry

option : UV/Visible Spectrometry

 $\begin{array}{l} \mbox{question: Consider the following exothermic reaction
 <math display="inline">\mbox{sub}>2\mbox{sub}>2\mbox{sub}>(g) + O\mbox{sub}>2\mbox{sub}>(g) \mbox{gub}>3\mbox{sub}>(g). \label{eq:guestion} \label{eq:guestion} \label{eq:guestion} \begin{array}{l} \mbox{gub}>2\mbox{sub}>(g) \mbox{sub}>2\mbox{sub}>(g) \mbox{sub}>0\mbox{sub}>(g). \label{eq:guestion} \label{eq:guestion} \label{eq:guestion} \label{eq:guestion} \mbox{gub}>0\mbox{sub}>0\mbox{sub}>0\mbox{sub}>0\mbox{sub}>C \mbox{ to } 500\mbox{sub}>0\mbox{sub}>C \mbox{ and no other change takes place, then:} \end{array}$

weight : 2

answer : the rate of reaction increases

option : ?
 concentration of SO₃ decreases

option : concentration of SO₃ increases

option : SO₂ gas becomes unreactive

question : A good drying agent should be

weight : 2

option : effervescent

answer : hydroscopic

option : efflorescent

option : deliquescent

question : Given the mean atomic mass of chlorine prepared in the laboratory to be 35.5 and assuming that chlorine contains the isotope of mass number 35 and 37. What is the percentage composition of the isotope of mass number 35 ?

weight: 2

option: 20

option: 25

option: 50

answer: 75

question : If 60cm³ of a gas is heated from 27⁰ C to 50⁰ C, what is the new volume of the gas at constant pressure?

weight : 2

option: 32.4dm³

option : 55.7cm³

answer: 111.1cm³

option: 64.6cm³

question : Electron affinity can be correctly represented by

weight : 2

answer : M(g) + e? M-(g)

option : M(g) + 2e ? M-(g)

option : M(g) + e ? 2M-(g)

option : M(g) + e ? M2-(g)

question : Transition elements have magnetic properties because

weight : 2

answer : the 3d electrons are electrical in nature

option : d orbitals loose electrons easily

option : the interaction between d and s osbitals is very weak

option : s orbitals have higher energy than d orbitals

question : The basic assumptions in the kinetic theory of gases that the collisions of the gaseous molecules are perfectly elastic implies that the

weight : 2

answer : forces of attraction and repulsion are in equilibrium

option : gaseous molecules can occupy any available space

option : gaseous molecules will continue their motion indefinitely

option : gases can be compressed

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question : The reaction r=c(dl-dv)<\!\!sup>4<\!\!/sup> is termed MacLeod's equation and is independent of <\!\!br /\!\!> constant c
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weight : 2

option : constant c

option : pressure

answer : temperature

option : entropy

question : The idea of matter waves as reasoned by de Broglie described a wave behaviour of an weight : 2

option : particle moving or not

answer : particle that is moving

option : charged particle that is moving

option : particle that is stationary

question : Which of these is not true of element of atomic number 23?

answer : It has 4 electronic shells

option : It is in group 3

option : It is a p – block element

option : It forms acidic oxide

question : For the reaction
 /> H₂O₂(aq) + 2Br⁻ (aq) + 2H⁺ (aq) Br₂ (aq) + 2H₂O(aq)
 The rate of the reaction may be written as
 br /> Rate = k[H⁺][H₂O₂][Br⁻]
 Determine the units of the rate constant

weight : 2

option : mol dm⁻³

option : moldm⁻³time⁻¹

option : mol⁻¹dm⁻³time⁻¹

answer : mol⁻²dm⁻⁶time⁻¹

weight : 2

option : 20.5

option : 21.0

answer: 21.5

option : 22.5

question : An electron can move from one orbital to another and in so doing can

weight : 2

option : excite ground state energy levels

option : absorb a quanta of energy

option : emit a quanta of energy

answer : all of the above

question : Which of the following statements is an exception in the assumptions of the kinetic theory of gases?

weight : 2

option : Gases are composed of many elastic particles

option : The particle are of negligible size

option : The particle are in constant random motion

answer : The particle are of negligible mass

question : How many grams of KClO3 are needed to produce 103 atoms oxygen? KClO₃ ? KCl + O₂ (K = 39.0, Cl = 35.5)

weight : 2

option: 3.70 x 10⁻¹⁷ g

option: 3.70 x 10⁻²⁰ g

answer: 6.79 x 10⁻²⁰ g

option : 2.70 x 10⁻¹⁷ g

question : How many quantum numbers are needed to describe the energy state of an electron in an atom?

- weight : 2
- option:1
- option: 2
- option : 3
- answer: 4

instruction : null

question : Which of the following substances is not a homogeneous mixture?

weight : 2 option : filtered sea water option : writing ink option : flood water answer : soft drink

question : An increase in temperature causes an increase in the pressure of a gas at a fixed volume due to an increase in the

weight : 2

option : number of molecules of the gas

option : density of the gas molecules

answer : number of collisions between the gas molecules and the wall of the container

option : number of collisions between the gas molecules

question : An element X forms the following compounds with chlorine; XCl₄ , XCl₃ , XCl₂ . This illustrate

weight : 2

answer : law of multiple proportions

option : law of chemical proportions

option : law of simple proportions

option : law of conservation of mass

question : 10. If 1.0dm3 of gas x diffuses through porous plug in 60 seconds, while the same volume of hydrogen diffuses in 15 seconds under the same conditions, calculate the relative molecular mass of X (H = 1.0)

weight : 2

option: 8.0

answer : 16.0

option : 4.0

option : 32.0

question : A sample of the gaseous compound, formed during bacterial fermentation of grain is found to consist of 27.29% carbon and 7271% oxygen. What is the empirical formula of the compounds? (C = 12.0, H = 1.0)

weight : 2

option : C₂ O₄

option : CO

answer : CO₂

option : None of the above

question : If atom X with six electrons in its outermost shell combines with atom Y with only one electron in its outermost shell to form an ionc compound, then

weight : 2

option : six atoms of X will combine with one of Y

option : two atoms of X will combine with six of Y

option : one atom of X will combine with two of Y

answer : two atoms of X will combine with one of Y

question : Two electrons in the 1s orbital must have different spin quantum numbers to satisfy

weight : 2

option : Hund's rule

option : the magnetic rule

answer : the Pauli Exclusion Principle

option : the Aufbau principle

question : What is the empirical formula of a cupric oxalate, if the compound contains 41.93% Cu, 15.85% C and 42.22% O by mass? (Cu = 63.55, C = 12.0, O = 16.0)

option : CuC₃ O₄

option : Cu (C₂ O₄)₂

answer : CuC₂ O₄

option : Cu₂ (C₂ O₄)₃

question : The main energy levels of an atom are indicated by the

weight : 2

option : orbital quantum numbers

option : magnetic quantum numbers

option : spin quantum numbers

answer : principal quantum numbers

question : From thermodynamic principles, the free energy of a reaction system is made up of two energy components

weight : 2

option : entropy and temperature

answer : enthalpy and entropy

option : enthalpy and temperature

option : entropy and Hemholtz free energy

question : If ΔE = h? is true for electromagnetic wave, then only one of the following statements can hold true.

weight : 2

option : the most energetic wave has the lowest wavenumber

option : the most energetic wave has the shortest wavelength

option : the most energetic wave has the longest frequency

answer : none of the above

question : The surface of a well-formed crystallinesolid reveals upon examination, flat planes that intersect at angles characteristics of the particular substance under investigation is prominent in

weight : 2

answer : crystalline solids

option : amorphous solids

option : interfacial angles

option : solids

question : 81. Calculate ΔH at 298.15K for the reaction $\langle br \rangle 2Na(s) + 2H \langle sub \rangle 2\langle sub \rangle O(i) 2NaOH(s) + H \langle sub \rangle 2\langle sub \rangle (g). \langle br \rangle \rangle$ If $H \langle sub \rangle 2\langle sub \rangle O(1) = -285.8kJmol-1$ and NaOH(s) = -426.8kJmol-1.

weight : 2

option : -291.9KJ

answer : -281.9KJ

option : -271.9KJ

option:+281.9KJ

 $\begin{array}{ll} \mbox{question: 90. J.J. Thomson is known for his <\!br/\!> <\!br/\!> I & "plum pudding" model of the atom <\!br/\!> <\!br/\!> II & Thin gold experiment <\!br/\!> <\!br/\!> III & Cathode ray experiment <\!br/\!> <\!br/\!> IV & Discovery of nucleus \\ \end{array}$

weight : 2

option : I and II are correct

option : II and III are correct

option : I and IV are correct

answer : I and III are correct

question : Stoichiometry involves the following except

weight : 2

answer : Basis of qualitative analysis

option : Calculation of yields option : efficiency of chemical reaction option : Stoichiometric equation

question : All the properties are variable across the period and down the group except

weight : 2

option : latent heat fusion

option : boiling point

answer : charges in the nucleus

option : number of shells

question : The amount of work needed to expand the surface of a liquid depends on the strength of the inward forces and is called

weight : 2

answer : liquid's surface tension

option : covalent crystal

option : mean free path

option : surface diffusion

question : For the reaction 2HI(g)H < sub > 2 < / sub > (g) + I < sub > 2 < / sub > (g),calculate the rate at which HI disappears if the rate of formation of I < sub > 2 < / sub > at aparticular time is $3.5 \ge 10 < sup > -5 < / sup > (mol dm < sup > -3 < / sup > s < sup > -1 < / sup >)$

weight : 2

answer : 7.0 x 10⁻⁵ mol dm⁻³ s⁻¹

option : 3.5 x 10⁻⁵ mol dm⁻³ s⁻¹

option : 14.0 x 10⁻⁵ mol dm⁻³ s⁻¹

answer : 1.75 x 10⁻⁵ mol dm⁻³ s⁻¹

question : Determine the number of moles of ammonia in 4.26g of ammonia (N = 14.0, H = 1.0)
weight : 2
option : 0.20mol
answer : 0.25mol

option: 1.20mol

option: 1.25mol

question : The total amount of energy in the universe is constant and is referred to as the

weight : 2

answer : First law of thermodynamic

option : Second law of thermodynamic

option : Third law of thermodynamic

option : A and C are correct.

question : 50cm3 of hydrogen are sparked with 20cm3 of oxygen at 1000C and 1 atmosphere. The total volume of the residual gases is

weight : 2 answer : 50 cm3 option : 70cm3 option : 30cm3 option : 40cm3

question : The atomic numbers of two elements X and Y are 12 and 9 respectively. The bond in the compound formed between the atoms of these two elements is

weight : 2 answer : ionic option : covalent option : neutral option : coordinate

question : The component of atom that contributes least to its mass is the

weight : 2

option : nucleus

option : neutron

answer : electron

option : proton

question : Which of these describes the spin on the last electron in Nitrogen with atomic number seven?

weight : 2

answer: +1/2

option : -1/2

option : 1/2

option : 1

question : Any spontaneous change that occurs in the universe must be $\langle br \rangle \rangle$ accompanied by an increase in the entropy of the universe is termed $\langle br \rangle \rangle \langle br \rangle \rangle \langle br \rangle \rangle$ First law of thermodynamic $\langle br \rangle \rangle \langle br \rangle \rangle$ Second law of thermodynamic $\langle br \rangle \rangle \langle br \rangle \rangle$ Third law of thermodynamic $\langle br \rangle \rangle \langle br \rangle \rangle \langle br \rangle \rangle$ Law of conservation of entropy.

weight : 2

option : First law of thermodynamic

answer : Second law of thermodynamic

option : Third law of thermodynamic

option : Law of conservation of entropy.

question : The French scientist Lous de Broglie believed

answer : electrons could have a dual wave-particle nature option : light waves did not have a dual wave-particle nature option : the natures of light and quantized electron orbits were not similar option : Bohr's model of the hydrogen atom was completely correct

question : If a crystal is cleaved or even crushed into a powder, each resulting particle will possess

weight : 2 option : faces option : interfacial faces option : angles answer : interfacial angles

question : Which of the following atoms has the smallest radius?

weight : 2

option : O

option : F

answer : Ne

option : N

question : Which of the following is a measure of the average kinetic energy of substance?

weight : 2

option : volume

option : mass

option : pressure

answer : temperature

question : Which one of the following elements possesses complete filling of electrons in the dorbital?

weight : 2

option : Cu

option : Ti

answer : Zn

option : Co

 $\label{eq:compound} \begin{array}{l} \mbox{question}: \mbox{An element } X \mbox{ forms the following compound with chlorine}; \mbox{XCl} < \mbox{sub} > \mbox{4} < \mbox{sub} > \mbox{, } X \mbox{Cl} < \mbox{sub} > \mbox{3} < \mbox{/sub} > \mbox{, } X \mbox{Cl} < \mbox{sub} > \mbox{3} < \mbox{/sub} > \mbox{, } X \mbox{Cl} < \mbox{sub} > \mbox{3} < \mbox{/sub} > \mbox{, } X \mbox{Cl} < \mbox{sub} > \mbox{3} < \mbox{/sub} > \mbox{, } X \mbox{Cl} < \mbox{sub} > \mbox{3} < \mbox{/sub} > \mbox{, } X \mbox{Cl} < \mbox{sub} > \mbox{1} < \mbox{sub} > \mbox{3} < \mbox{/sub} > \mbox{, } X \mbox{Cl} < \mbox{sub} > \mbox{1} < \mbox{sub} > \mbox{sub}$

weight : 2

answer : law of multiple proportion

option : law of conservation of mass

option : law of simple proportion

option : law of chemical propotion

question : How many moles of sulphur molecules are contained in 80.3g of sulphur if the molecular formula is S < sub > 8 < /sub > ? (S = 32.06)

weight : 2

option: 0.08 mole

option : 0.16 mole

answer : 0.313 mole

option : 0.260 g

instruction : null

question : Amphoteric elements are the elements which weight : 2

answer : have similar physical properties with metals but similar chemical properties with nonmetals

option : possess acidic properties only

option : possess neither acidic nor basic properties

option : possess basic properties

question : 18. Sodium and Potassium belong to the same group of the periodic table. This is because

weight : 2

option : both are metals

option : both are soft and lighter than water

option : both form cations by loosing electrons

answer : both have identical electronic configuration

question : Metals are electropositive because

weight : 2

option : they form positively charged ions

option : they are electron acceptors

option : they form negatively charged ions

answer : they form positively charged ions by losing electrons

question : Given that 2R (g) & arr; 2P(g) + Q(g)?H = -x kJ Which of the $\langle br \rangle$ following conditions has no effect on the equilibrium position?

weight : 2

option : Reducing the pressure

option : Increasing the temperature

option : adding more of Q

answer : Adding a catalyst

question : The critical temperature of ethane is

weight : 2

option : -82.1^o C

option : 288.9^o C

option : 374.1^o C

answer : 32.2^o C

question : An ion with 5 protons, 6 neutrons and a charge of 3+ has an atomic number of

weight : 2

answer : 5

option : 6

option:8

option: 11

question : The stability of ionc solids is generally due to the

weight : 2

option : negative electron affinity of the most atom

answer : crystal lattice forces

option : electron pair sharing

option : positive ionisation potentials

question : An element Z contained 90% 16Z and 10% 18Z, its relative atomic mass is weight : 2 option : 16.0 answer : 16.2 option : 17.0 option : 17.8

question : If a volume of a given mass of gas at 298K and a pressure of 205.2 x 103 Nm-2 is 2.12dm3. What is the volume of the gas at s.t.p?

weight : 2

option: 39.3dm³

option : 22.4dm³

option : 4.93dm³

answer : 3.93dm³

question : Which of these is correct of the units for a third order rate constants?

weight : 2

option : s⁻¹

answer : mol⁻² s⁻¹

option : mol⁻² s⁻²

option : mol⁻¹ s⁻¹

question : The study of the rates and factors affecting rates of chemical reactions, and the determination of the mechanism by which reactions occur is known as

weight : 2

option : chemical reactivity

option : rate laws

answer : chemical kinetics

option : reaction mechanism

question : Calculate the mass of HgO needed to produce 0.12 mole of mercury upon complete decomposition? (Hg = 200.59, O = 16.0)

option : 11g answer : 22g option : 26g option : 32g

question : A line spectrum is provided when an electron moves from one energy level

weight : 2

option : to a higher energy level

answer : to a lower energy level

option : into the nucleus

option : to another position in the same sub level

 $\begin{array}{l} \mbox{question: Complete and balance the equation below, hence determine the values of $x,y,z? < br/> $P₄ + $xO₂ + $yH₂ O $? $zH₃ $PO₄ < br/> $x,y,z? $ \\ \end{tabular} \label{eq:sub} \begin{array}{l} \mbox{sub} > 4 < sub>2 < sub>3 \\ \end{tabular} \label{eq:sub} \label{e$

weight : 2

option : x,y, z = 5,3,4 answer : x,y,z = 5,6,4 option : x,y,z = 2,6,3 option : x,y,z = 5,6,2

question : Which of these compounds is not a molecular crystal?

weight : 2

option : CO₂ (dry ice)

option : ?
 H₂ O (ice)

answer : CaCO₃ (limestone)

option : I₂ (solid)

question : In which of the following reactions will a decrease in pressure and an increase in temperature shift the equilibrium to the right?

weight: 2

weight: 2

option : x,y,z = 2,1,3 option : xy = 2,2,6 answer : x,y,z = 2,3,6 option : x,y,z, = 2,3,5

question : Which symbols represent atoms that are isotopes?

weight : 2

- option: 14C and 14N
- answer: 160 and 180
- option: 131I and 131 I
- option: 222Rn and 322R

question : Which of the following halides has the highest entropy?

option : HBr answer : Hf option : HI option : HCl

question : Atoms of element X (outermost electron of 2) combines with atoms of Y (outermost electrons of 7). Which of these statement is FALSE ? The compoud formed

weight : 2

answer : has formula XY option : is likely to be ionic option : contains X²⁻ ions option : containedsY⁻ ions

question : CalculateCalculate the percentage composition of each of the element in nitrogen $\langle br / \rangle$ trifcuoridetrifluoride NF $\langle sub \rangle 3 \langle sub \rangle$ (N = 14.0, F – 18.9)

weight: 2

answer : 19.7% N, 80.3% F

option : 20.3% N, 79.7% F

option : 11.9% N, 88.1% F

option : 29.1% N, 70.9% F

 $\label{eq:guestion:For the cell Pt/H < sub>2 < /sub> (g,1atm)/2H + (aq,1M)/Hg < sup>+2 < /sup> (aq,1M)/Hg(l), write down the spontaneous cell reaction$

weight : 2

 $answer: H < sub > 2 < /sub > (g) + Hg < sup > + 2 < /sup > (g) \quad 2H < sup > + < /sup > (g) + Hg(l)$

option: 2H < sup > + </sup > (aq) + Hg(l) H < sub > 2 </sub > (g) + Hg < sup > + 2 </sup > (aq)

option : H < sup > + </sup > (aq) + Hg(1) 1/2H < sub > 2 </sub > (g) + Hg < sup > + 2 </sup > (aq)

option : 1/2H < sub > 2 < /sub > (g) + Hg < sup > +2 < /sup > (aq) H < sup > + < /sup > (aq) + Hg(l)

question : 147. The necessary conditions for spontaneity for a redox reaction are weight : 22

option : E^o cell < 0 and ΔG^o > 0

option : E^o cell < 0 and ΔG^o < 0

option : E < sup > o < /sup > cell > 0 and ΔG < sup > o < /sup > 0

answer : E^o cell > 0 and ΔG^o < 0

question : How many sub-orbitals are there in the f orbital of an atom?

option: 12

option : 9

answer: 7

option : 5

question : An element X has two isotopes 20X and 22X present in the ratio 1: 3. The relative atomic mass of X would be

weight : 2

option : 20.5

option : 21.0

answer : 21.5

option : 22.5

question : Which of the following statements is an exception in the assumptions of the kinetic theory of gases?

weight : 2

option : Gases are composed of many elastic particles

option : The particles are of negligible size

option : The particles are in constant random motion

answer : The particles are of negligible mass

question : If X (g) + B (g) & rarr; 2 C (g) took place in 0.5 litre container, the no of moles of each material present at equilibrium are X - 1.0 mole B- 2.0 moles and C - 3.0 moles the value of Kc is

weight : 2 answer : 4.5 option : 6 option : 9

option: 18

question : From the list of atoms below, which one has the largest 1st ionization potential? $<\!\!br/\!\!>$ Li, B, N and Al

weight : 2 option : Li option : Al answer : N

option : B

 $\label{eq:constraint} \begin{array}{l} \mbox{question: How many moles of C₂H₂ are needed to produce 22g of CO₂ when C₂H₂ is burned? (C = 12.0, H = 1.0) \end{array}$

weight : 2

- option : 0.35 moles
- answer : 0.25 moles
- option : 1.25 moles

option: 1.35 moles

question : What is the name given to the energy change accompany the addition of an electron to a gaseous atom?

weight : 2 option : Ionization energy answer : Electron affinity option : Ionization potential option : Electronegativity

question : The theory that electrons are situated in particular energy levels at specific distances away from the nucleus is by

weight : 2

option : John Dalton

answer : Niels Bohr

option : Ernest Rurtherford

option : R. A. Milikan

instruction : null

question : ΔG at equilibrium is

weight : 2

option : Positive

option : negative

answer : 0

option : none of the options

question : 16. A mixture whose composition differs from point to point or from one property to another is termed

weight : 2

option : homogeneous mixture

answer : heterogeneous mixture

option : composite mixture

option : colloidal mixture

question : Which of the following term indicated the number of bonds that can be formed by an atom?

weight : 2

answer : oxidation number

option : valence

option : atomic number

option : electronegativity

question : If the temperature at which the solid is formed is approached slowly so as to allow the array of particles to become well ordered, then this will give rise to the formation of

weight : 2

- option : amorphous solid
- option : crystalline solid

answer : particles

option : flat planes

question : At a constant pressure of 101 kPa, an ideal gas expands isothermally from 2.55 dm3 to 13.45dm3, calculate the corresponding work for this process.

weight : 2

answer : 1100.9J

option : 1100.9Nm

option : 1000.9J

option: 1000.9Nm

question : Screening effect is a factor of

weight : 2

option : decreasing number of shells down the group option : equal number of shell across the period option : increase number of shell across the period answer : increase number of shell down the group

question : The discovery of the neutrons could be attributed to weight : 2 option : Albert Einstein answer : Ernest Rutherford option : Peter Curie

option : J.J. Thomson

question : How many atoms are there in a 20.0g sample of silver? Ag = 108g/mole. weight : 2

weight · 2

option : 3.11 x 10²³ atoms

option: 4.21 x 10²³ atoms

option: 2.21 x 10²³ atoms

answer: 1.11 x 10²³ atoms

question : How many electrons are in the L-shell of ³¹ P?

weight : 2

option : 2

option : 5

answer: 8

option: 18

question : Elements combine in fixed mass ratios to form compounds. This must mean that elements

weight : 2

option : are made up of continuous matter without subunits

answer : are composed of discrete units called atoms

option : have unambiguous atomic number

option : are always chemically active

question : An equilibrium reaction with maximum yield of product will have

weight : 2

option : & Delta; H - T& Delta; S is zero

option : ΔS is zero

answer : Equilibrium constant K very large

option : Free energy change is zero

question : Cathode rays cause an object placed behind a perforated anode to cast a shadow on the screen. This observation shows that the rays

weight : 2

answer : are positively charged

option : are negatively charged

option : have mass

option : travel in straight lines

question : The enthalpy change for melting 1 mole of a solid substance at 1 pressure is called the standard molar enthalpy of

weight : 2

option : combustion

option : freezing

answer : fusion

option : vaporization

question : A boundary that does not permit the flow of heat is called

weight : 2

- answer : adiabatic wall
- option : adiabatic
- option : closed system

option : isolated system

question : V, Cr, Mo and Cu $<\!\!br\,/\!\!><\!\!br\,/\!\!>$ Which of the following atoms above has the largest radius?

- weight : 2
- option : V
- option : Cr
- answer : Mo
- option : Cu

question : The shape of the S orbital is

weight : 2

- option : Circular
- option : Planar
- option : Tetrahedral
- answer : Spherical

question : Which of the following processes is suitable for investigating whether or not a liquid is pure water?

option : Testing it with cobalt (II) chloride paper option : Testing it with litmus paper answer : Testing it with anhydrous copper II tetraroxosulphate VI option : Determining its boiling point.

question : The following factors affect the ionization energies of chemical elements EXCEPT

weight : 2

option : nuclear pull

option : atomic radius

option : ionic size

answer : electron affinity

weight : 2

option : decreasing the pressure on the reaction mixture.

option : using a larger closed vessel

option : increasing the temperature

answer : removing some D

question : Determine the empirical and molecular formulas of a compound with a molecular weight of 30 that contains 93.3% N and 67% H? (N = 140, H = 1.0)

weight : 2

option : N₂ H₂ , N₆ H₆

option : NH₂ , N₂ H₄

answer : NH, N₂ H₂

option : NH₂ , N₃ H₆

question : Who devised the means of assigning atomic number to elements? weight : 2 option : Chadwick option : Geiger and Marsden option : Bohr answer : Moseley

question : What type of bond(s) hold graphite together

weight : 2

option : network of electrovalent bonds

answer : network of covalent bonds

option : network of dative bonds

option : network of internuclear forces

question : Which of the following terms define electronegative elements?

weight : 2

option : electron donor

answer : electron acceptor

option : positively charged ion

option : none of the above

question : What are the elements which occur between the alkaline earth metals and the boron family in the periods 4 to 6 of the periodic table?
 transition metals ?

weight : 2

answer : transition metals

option : representative elements

option : S block elements

option : all of the above

question : For a change in pressure to affect a chemical system at equilibrium, which of the statement is not correct

weight : 2

option : Both the reactant and the product must be gaseous

option : Product or Reactant must be gaseous

answer : ?
 The total number of gaseous molecules on both sides must be different

option : None of the above

question : Bohr's model of the atom works best in explaining

weight : 2

option : the spectra of the first ten elements

answer : only the spectrum of hydrogen

option : only the spectra of atoms with electrons in an s orbital

option : the entire visible spectra of atoms

question : Which of the following statement is not correct? Group IV elements

weight : 2

option : has high electron affinity

option : are electronegative

option : are good oxidizing agent

answer : are diatomic

question : Elements P , Q, R, S have 6,11,15 and 17 electrons respectively, therefore weight : 2

option : P will form an electrovalent bond with R

option : Q will form a covalent bond with S

option : R will form an electrovalent bond with S

answer : Q will form an electrovalent bond with S

question : In equilibrium reaction, K = 1x10 < sup > -3 < /sup > means

weight : 2

option : the concentration of reaction and that of the product are almost equal

answer : reaction goes very little to product

option : rate of reaction is very slow

option : reaction proceeds with virtually no reactant left

question : Balance the following equation and determine the values of x, y, z?
 xNa₃PO₄(aq) + yCaBr₂? Ca₃(PO₄)₂(aq) + zNaBr

weight : 2

option : x, y, z = 1, 2, 6

answer : x, y, z, = 2, 3, 6

option : x,y,z, = 2,4,6

option : x,y,z, = 3,3,6

question : Mass spectrometer separate isotopes of different elements based on their

weight : 2

option : mass

option : electric charge

answer : mass divided by electric charge

option : none of the above

question : Element in the same group in the periodic table have the same

weight : 2

option : Number of valence electronic

option : Number of sheets option : Atomic Numbe answer : electronic configuration instruction : null

question : Compared to the charge and mass of a proton, an electron has

weight : 2

answer : The same charge and a smaller mass

option : The same charge and the same mass

option : An opposite charge and a smaller mass

option : An opposite charge and the same mass

question : . In which of the following reaction would you expect the product to be more stable at higher pressure ?

option : N ₂ (g) + O _{2<th>> (g) →</th><th>2 NO (g)</th>}	> (g) →	2 NO (g)
option : N ₂ O ₄ (g)	→ 2 NO (g)
answer: 2 SO ₂ (g) + O _{2<td>sub> (g) →</td><td>2SO₃</td>}	sub> (g) →	2SO ₃
option : PCL ₅ (g) →	PCl ₃	(g) + Cl ₂

question : How many principal electronic shells has an atom whose electronic configuration is
 /> 1s² 2s² 3s² ?

weight : 2

answer: 3

option:4

option : 6

option: 12

question : 25. A beryllium atom has 4 protons, 5 neutrons and 4 electrons. What is the mass number of this atom?

weight : 2

option : 4

- option : 5
- option:8
- answer:9

question : In the period table, the past arrangement was based on

weight : 2

- answer : Atomic masses
- option : Mass number
- option : Atomic number
- option : Valence electron

question : Calculate the number of moles of KMnO4 that are present in 15.8g of KMnO4? (K = 39.0, Mn = 54.9, O = 16.0)

weight : 2

answer: 0.10 mole

option : 0.02 mole

option: 0.20mole

option : 0.05 mole

question : A mixture of H₂ (g) and O₂ (g) at room temperature will not react together to form any product. But at 700oC these gases react instantly to form product why?

weight : 2

option : at 700^o C the gaseous molecules are highly energetic

option : at 700^o C the intra molecular forces are overcome

answer : at 700^o C the molecular collisions overcome the activation energy option : none of the above

question : An electron in the ground state of the Bohr atom has a radius of 0.053 nm. What is the first excited state?

weight : 2 option : 0.053 nm answer : 0.106 nm option : 0.159 nm option : 0.212 nm

 $\begin{array}{l} \mbox{question: How many moles of C₂ H₂ are needed to produce 44g of CO₂ when C₂ H₂ is burned (C = 12.01, H = 1.01) \end{array}$

weight : 2

option: 0.30 moles

option: 0.25 moles

answer : 0.50 moles

option : 0.75moles

question : Which of the following statements is FALSE about isotopes of the same element?

weight : 2

option : They have the same no of electron in their outer most shell

answer : They have different atomic masses

option : They have the same atomicno and the same no of electrons

option : They have the same no of atoms but different no of electrons

question : Calculate the number of moles of carbon atoms in 1.64 grams of tetracycline
 (C₂₂ H₂₄ N₂ O₈) (C = 12.01, H = 1.01 N = 14.0, O = 16.0)

weight : 2

answer: 4.89 x 10²² atoms

option : 8.49 x 10²³ atoms

option : 9.48 x 10²² toms

option : 8.94 x 10²² atoms

question : What is the empirical formula of a compound that contains 1.327grams of sulphur and 1.987 grams of oxygen?

weight : 2

option : SO₂

option : S₂ O₃

answer : SO₃

option : S₃ O₄

question : The standard cell potential for the following reaction is +1.105V.

 Zn(s)/Zn⁺² (1.0M)//Cu⁺² (1.0M)/Cu(s)
 Calculate E^o Cu⁺² /Cu, given that E^o Zn⁺² /ZnE^o Cu⁺² /Cu = -0.763V

option : -0.342V

answer : +0.342V

option : +0.763V

option : +1.868V

question : X-rays of wavelength 154pm strike a crystal and are observed to be reflected at an angle of 25.20. Assuming that n = 1, calculate the spacing between the planes of atoms that are responsible for this reflection.

weight : 2

option: 178 pm

option: 179 pm

option: 180 pm

answer: 181 pm

question : When 2.0 mol H₂ and 1.0 mol O₂ at 1000C and 1 atm react to produce 2.0 mol of gaseous water, a total of 588 kJ are evolved. Calculate ΔH for this process. $\langle br \rangle \langle br \rangle \langle br \rangle$ Δ

weight: 2

option : 2.94 kJ mol-1

option : 29.40 kJ mol-1

option : 294 kJ mol-1

answer : -294 kJ mol-1

question : The volume of a gas unlike that of a solid or a liquid may be decreased greatly by increasing the pressure upon the gas. This property is known as

weight : 2

option : Expansion

option : Compressibility

answer : Diffusion

option : Freezing

question : The colours of light given off when a sample is heated corresponds to

weight : 2

answer : the energy difference between the ground state and excited state of an element

option : the amount of energy added to the sample

option : the heat of the element

option : none of the above

question : CH4(g) can be liquefied and solidified, the phase changes being endothermic. What will happen to the covalent bonds within the CH4 molecules during the phase changes?

option : covalent bonds within CH₄ molecules will dissociate and associate option : covalent bonds within CH₄ molecules will stretch and weaker answer : covalent bonds within CH₄ molecules will remain intact option : covalent bonds within CH₄ molecules will contact and become stronger

question : The nucleus of the isotope tritium contains

weight : 2

option : 2-n,0-p

option : 1-n,1-p

answer: 2-n,1-p

option : 2-n,1-e,& 1-p

question : 128. Oxygen exists in three different isotopic forms ¹⁶ ₈ O, ¹⁷ ₈ O and ¹⁸ ₈ O. if the atomic mass of oxygen is 16 and the relative abundances of ¹⁶₈ O & ¹⁷ ₈ O are 99.76 & 0.04 respectively, what is the relative abundance of ¹⁸ ₈ O?

weight : 2

option : 0.06

option : 0.08

option : 0.10

answer : 0.20

question : The mass number of an atom is

weight : 2

option : the number of electrons in the atom

option : the number of protons in the nucleus of the atom

option : the sum of numbers of electrons and protons in the atom

answer : the sum of numbers of protons and neutrons in the nucleus of the atom

question : The ion X- and Y- are isoelectronic, each containing a total of 10 electrons. How many protons are in the nuclei of the neutral atoms of X and Y respectively ?
 ?

weight : 2 option : 10 & 10 answer : 9 & 9 option : 11 & 9 option : 9 & 11

question : What are the possible oxidation numbers for an element if its atomic number is 17?

weight : 2

- answer : -1 and 7
- option : -1 and 6
- option : -3 and 5
- option : -2 and 6

question : Which of the following ions has the smallest radius?

weight : 2

option : Li⁺

option : Be2⁺

answer : B3⁺

option : Na⁺

question : The two main parts of an atom are its

weight : 2

answer : nucleus and electron energy levels

option : nucleus and protons

option : oxidation number and valence

option : protons and neutrons

question : If the boundary does not permit the flow of heat, any process occurring in the system is said to be adiabatic and it is called

weight : 2 option : definite state option : definite wall option : universe answer : adiabatic wall

question : Element X has a total of 19 electrons and can react with O < sub > 2 < /sub > to form an oxide. Which of the following statements is NOT true of the oxide of element X?

weight : 2

answer : When exposed to air, it slowly changes to liquid

option : Its solution in water conduct electricity.

option : Its solution in water on evaporation gives a white solid

option : Its oxide, when slowly heated regenerates the element

question : How many electrons can occupy the s- orbital at each energy level?

weight : 2

answer : two, if they have opposite signs

option : two, if they have the same spin

option : one

option : no more than eight

question : At room temperature a mixture of H₂(g) and O₂(g) will never react together to form any product because

option : at room temperature, the intra molecular forces are too weak answer : at room temperature, the molecular collisions cannot overcome the activation energy option : at room temperature, the inter molecular forces of attraction are still too strong option : none of the above

question : The enthalpy change for melting 1 mole of a solid substance at 1 bar pressure is called standard molar enthalpy of

weight : 2 answer : fussion option : fission option : combustion option : neutralization

question : If 800 calories of heat energy are added to a system in energy state E1 and the system does 550 calories of work on the surrounding. What is the energy change of the system?

weight : 2

option : 1350 cal.

option : -1350 cal.

answer : 350 cal.

option : -350 cal.

instruction : null

question : Which of these techniques is not commonly used to determine the surface tension of a liquid?

weight : 2

answer : titrimetric method

option : capillary rise method

option : drop-weight method

option : torsion balance method

question : 8. According to atomic theory, electrons are usually found

weight : 2

option : in the atomic nucleus

option : outside the nucleus, yet very near it because they are attracted to the protons

answer : outside the nucleus and often far from it – most of an atom's volume is it's electron cloud

option : either in the nucleus or around it – electrons are readily found anywhere in an atom.

question : Calculate the percentage composition of each element in CrO3? (Cr = 52.0, O = 16.0)

weight : 2

answer : 52%Cr, 48%O

option : 48%Cr, 52%O

option : 42%Cr, 58% O

option : 58%Cr, 42%O

question : Which element's ionic radius is smaller than it's atomic radius

weight : 2

option : neon

option : nitrogen

answer : sodium

option : sulphur

 $\begin{array}{ll} \mbox{question}: Calculate the mass of oxygen gas, O2 required for the combustion of 702g of octane from the reaction <math display="inline"><\!br/\!> <\!\!br/\!> 2C<\!\!sub>8<\!\!/sub>H<\!\!sub>18<\!\!/sub>+25O<\!\!sub>2<\!\!/sub> ?16CO<\!\!sub>2<\!\!/sub>+18H<\!\!sub>2<\!\!/sub>O \\ \end{array}$

option : 2.16 x 10³ g answer : 2.46 x 10³ g option : 346 x 10³ g option : 2.10 x 10³ g

question : 38. When ?-particles are used to bombard gold foil, most of the ?-particles pass through undeflected. This result indicates that most of the volume of a gold atom consists of

weight : 2 answer : deutrons option : neutrons option : protons option : unoccupied space

question : The Rutherford model of the atom was successful in explaining

weight : 2

answer : the scattering of alpha particles from the gold foil

option : the unique spectral lines for each element

option : the stability of atoms

option : the periodicity of the chemical elements

question : In the Rutherford model of the atom nearly all the volume occupied by matter consists of

weight : 2

option : electrons

option : protons

option : neutrons

answer : a vacuum

question : Define the term molecularity

weight : 2

option : the total number of molecules taking part in a reaction

option : the total number of molecules produced during a reaction process

answer : the total number of molecules taking part in an elementary reaction step

option : the total number of molecules produced in an elementary reaction

question : Which of these is not true of surface tension of liquids

weight : 2

option : Increasing the temperature decreases the effectiveness of the intermolecular attractive forces

option : surface tension decreases as the temperature increases

answer : surface tension increases as the temperature increases

option : surface tension depends on the strength of the inward forces

question : Fe²⁺ and Fe³⁺ are different types of

weight : 2

option : Isotopes

option : Elements

answer : Ions

option : Atoms

question : Considering the general trend of properties in the periodic table, across the period, nuclear pull

weight : 2

option : decreases

answer : increases

option : is zero

option : remain constant

question : A proton has approximately the same mass as

weight : 2

answer : a neutron

option : an ?-particle

option : a ?-particle

option : an electron

question : What percent of atoms of magnesium have a mass of exactly 24 amu

weight : 2

answer: 100%

option : 70%

option : 30%

option : 0%

```
question : Consider the equilibrium reaction \langle br \rangle \langle br \rangle \langle br \rangle \langle sub \rangle 2 \langle sub \rangle (g) +
O<sub>2</sub> (g)&harr;
                                  2 NO(g) <br /> <br /> Determine K for the Production
N<sub>2</sub>
                         (O 16, N 14)
weight : 2
answer : 2.2
                       10<sup>22</sup>
                Х
option : ? < br /> 1.0 x
                                10<sup>?15 <br /> </sup>
option : 1.0
                       10<sup>30</sup>
                Х
option : 1.5
                       10<sup>?30</sup>
                Х
```

question : The normal boiling point of a liquid is defined as

weight : 2

option : the temperature at which its vapour pressure equals the atmospheric pressure.

option : the temperature at which bubbles begin to form.

answer : the temperature at which the vapour pressure equals 1 atmosphere

option : the temperature at which the rate of condensation of vapour equals the rate

question : Which of the relationship is true? weight : 2 option : K_p = K_c RTΔn option : K_c = K_p RTΔn answer : K_p = K_c mRT option : K_p = K_c mRT

question : Which of the fertilizers contains the highest percentage of Nitrogen: Urea N₂H₄CO, ammonium nitrate NH₄ NO₃ ? and ammonium sulphate (NH₄)2SO₄ ?
 (N = 14.0, H = 1.0, C = 13.0, O = 16.0)

weight : 2

answer : Urea

option : ammonium nitrate

option : ammonium sulphate

option : All have the same percentage of N

question : Which of the following statements is an exception in the assumptions of the kinetic theory of gases?

weight : 2

option : The particles are in constant random motion.

answer : The particles are of negligible mass.

option : The particles collide with each other.

option : The particles are of negligible size.

question : Which of these facts is not true of the element with atomic number 16? weight : 2 option : It is a non metal. option : The oxide is basic. option : the atomic shells are three in number. answer : It is in period four.

question : Which of the atomic model explains the orbitals of electrons as waves?

weight : 2

option : the Bohr model

answer : the quantum model

option : Rutherford's model

option : Planck's theory

question : An imbalance in the number of protons and elecrons in an atom leads to the formation of

weight : 2

option : Cathode rays

option : Allotropes

option : Ions

answer : Excited species

question : In the equilibrium reaction, $\langle br \rangle \langle br \rangle \langle br \rangle N \langle sub \rangle 2 \langle sub \rangle (g) + O \langle sub \rangle 2 \langle sub \rangle (g) ? 2NO(g) ? Positive. <math>\langle br \rangle \langle br \rangle \langle br \rangle \rangle$ which of these factors here has no effect on the position of equilibrium?

weight : 2

answer : increase in volume

option : increase in temperature

option : increase in concentration of

option : decrease in temperature

question : The simplest formula of vitamin C is found by analysis to be C₃ H₄ O₃ . From another experiment, the molar mass is found to be about 180 g/mole. What is the molecular formula of vitamin C?

option : C₆ H₆ O₆

option : C₃ H₄ O₄

option : C₆ H₈ O₄

answer : C₆ H₈ O₆

question : The elements of the lanthanide and actinide series are referred to as

weight : 2

option : main transition elements

answer : inner transition elements

option : p block elements

option : alkaline metals

question : The nuclear charge of atoms in the periodic elements is termed as

weight : 2

answer : proton

option : electron

option : magnetic impulse

option : actinide series

question : Flourine reacts more than chlorine because

weight : 2

option : less number of electrons in the atom.

option : less number electronic shell.

option : being the first member in the group.

answer : Less screening effect.

question : Determine the empirical and molecular formula of a compound with a molecular weight of 70 that contains 856% carbon and 14.4% hydrogen?

weight : 2

answer : CH₂, C₅H₁₀

option : CH, C₂H₄

option : C₃H₄ , C₃H₈

option : C₂H₄, C₄H₈

question : Elements P, Q, R and S have 6,11,15 and 17 elecrons respectively. Therefore

weight : 2

option : P will form an electrovalent bond with R

option : Q will form an covalent bond with S

option : R will form an electrovalent bond with S

answer : Q will form an electrovalent bond with S

question : Gibbs free energy may be represented by the equation

weight : 2

answer : ΔG^o = ΔH^o + TΔS^o

option : ΔG^o = Δ?(ΔHo - TΔSo)

option : ΔG^o = ΔH^oP - ΔH^oR

answer : ΔG^o = ΔH^o - TΔS^o

question : What is the formula of Sodium gallate if gallium (Ga) shows an oxidation number of +3?

weight : 2

answer : NaGaO₂ option : Na2Ga(OH)₂ option : NaGa(OH)₃ option : NaGaO

instruction : null

question : Which of the following can change the value of the equilibrium constant for a reaction?

weight : 2

option : Changing the concentration of the reactants

option : Adding a catalyst

answer : Changing the solvent

option : Removing the products as they are formed

question : In writing equilibrium constant expression, which of the following quantities can be used to represent the amount of reactants and products?

weight : 2

option : (a) Concentration

option : (b) Partial pressures

option : (c) Mole fractions

answer: (d) (a) and (b) only

question : The equilibrium expression, k = [Ag+] [Cl-] describe the reaction

- option : (a) AgCl Ag+ + Cl-
- option : (b) Ag++Cl-AgCl
- option : (c) Ag + Cl Ag + Cl

answer: (d) Ag + Cl Ag + + Cl-

question : Cu(OH)2(s) + 2H+(aq) ↔ Cu2+(aq) + 2H2O (l)What is the effect of addition $\langle br \rangle > of$ sodium hydroxide solution on the above equilibrium?

weight : 2

answer : Equilibrium shifts to the right.

option : a. Equilibrium shifts to the right.
 Equilibrium is not affected

option : More Cu (OH)2 reacts.

option : Equilibrium shifts to the left.

question : Identify the reducing agent in the following reaction $\langle br \rangle > 2$ Al (s) + 3 Cu2+ aq → 2Al2+ aq + 3Cu aq

weight : 2

option : Cu2+ ion

answer : Cu atom

option : Al atom

option : Al3+

question : Reducing agent X react with oxidizing agent Y, The true statement is

weight : 2

option : X is reduced

option : a. X is reduced
 Y is oxidized

option : X gain electron

answer : Y gain electron

question : Arrange the compound in the increasing order of oxidation state of manganese
 I KMnO4
 II MnCl2
 III MnO2

option : II > I > III answer : I < III < II option : III > II> I option : No answer

question : Given that 2R (g) & harr; 2P(g) + Q(g) ?H = -x kJ Which of the $\langle br / \rangle$ following conditions has no effect on the equilibrium position?

weight : 2

option : Reducing the pressure

option : a. Reducing the pressure
 Increasing the temperature

answer : adding more of Q

option : Adding a catalyst

question : If reducing potential of Na+ + e is - 2.71, the oxidizing potential will be

weight : 2

- option : a. 10 (-.271)
- option : b. 1-(- 2.71)
- option : c. +2.71
- answer : d. -0.51

question : For the reaction $\langle br \rangle > 6H2O + 4 NO2(g)$ & harr; 4 NH3 g + 7O2 g

- weight : 2
- option : a. Kp = Kc/RT
- option : b. Kp = KcRT
- answer : c. Kp = Kc(RT)2
- option : d. Kc = KpRT2

weight : 2

option : [R] [M]/[P] [Q]

answer : [P]x [Q]y/[R]t [M]f

option : [P] [Q]/[R] [Q]

option : [R]t [M]f/[P]x [Q]y

```
question : 14. Given the reaction <br /> PCl5 (g) & harr; PCl3 (g) +Cl2(g) The S I unit of Kp is weight : 2
```

option : Pa

option : Pa-

option : Atm

answer : Atm-1

question : 2N2O(g) + N2H4(g) ↔ 3N2(g) + 2H2O(g) Kp/Kc is

weight : 2

option : R

option: 1/RT

option : (1)

answer : (RT)2

question : Consider the reaction NH4HS(s) & harr; NH3(g) + H2S(g) If the equilibrium pressure is 6 atm, what is Kp for the reaction ?

weight : 2

option : 3 atm-2

option: 6 atm

answer : 9 atm-2

option : 24 atm2

question : If X (g) + B (g) & harr; 2 C (g) took place in 0.5 litre container, the no of moles of each material present at equilibrium are X - 1.0 mole B- 2.0 moles and C - 3.0 moles the value of Kc is

- weight : 2
- option: 4.5
- answer:9
- option : 6
- option: 18
- question : ?G at equilibrium is
- weight : 2
- option : Positive
- option : negative
- option : 0
- answer : none of the options

question : Elements P, Q, R, S have 6,11,15 and 17 electrons respectively, therefore

- weight : 2
- option : P will form an electrovalent bond with R
- option : Q will form a covalent bond with S
- answer : R will form an electrovalent bond with S
- option : Q will form an electrovalent bond with S

question : An element X forms the following compound with chlorine;XCl4, XCl3, XCl2. This illustrates the

weight : 2

option : law of multiple proportion

option : law of chemical propotion

option : law of simple proportion

answer : law of conservation of mass

question : Which of the following statements is an exception in the assumptions of the kinetic theory of gases ?

weight : 2

option : Gases are composed of many elastic particles

answer : The particle are of negligible size

option : The particle are in constant random motion

option : The particle are of negligible mass

question : Given the mean atomic mass of chlorine prepared in the laboratory to be 35.5 and assuming that chlorine contains the isotope of mass number 35 and 37. What is the percentage composition of the isotope of mass number 35 ?

weight : 2

option: 20

answer : 25

option : 50

option:75

question : Element X has a total of 19 electrons and can react with O2 to form an oxide. Which of the following statements is NOT true of the oxide of element X?

weight : 2

option : When exposed to air, it slowly changes to liquid

option : Its solution in water conduct electricity.

answer : Its solution in water on evaporation gives a white solid

option : Its oxide, when slowly heated regenerates the element X

question : Sodium and potassium belong to the same group of the Periodic Table. This is because

weight : 2

answer : both are metals

option : both forms cations by losing electrons.

option : both have identical electronic configuration

option : non of the option

question : An element X has two isotopes 20 10 X and 22 10 X present in the ratio 1: 3. The relative $\langle br \rangle$ atomic mass of X would be

weight : 2

answer : 20.5

option : 21.0

option : 21.5

option : 22.5

question : Cathode rays cause an object placed behind a perforated anode to cast a shadow on the end of the tube. The observation shows that the rays

weight : 2

option : are positive charged

option : are negatively charged

answer : have masses

option : d.travel in straight line

question : The basic assumptions in the kinetic theory of gases that the collisions of the gaseous
 molecules are perfectly elastic implied that the

option : the force of attraction and repulsion are in equilibrium. option : gaseous molecules can occupy any available space answer : gaseous molecules will continue their motion indefinitely option : gases can be compressed

question : Which quantum number divides shells in to orbital?

weight : 2

answer : Principal

option : Azimuthal

option : Magnetic

option : Spin

question : The experiment that showed that atoms have tiny positively charged nucleus was first carried out by a.Moseley b.Rutherford c.Milikan d. Dalton

weight : 2

answer : a. Moseley

option : b.Rutherford

option : c.Milikan

option : d. Dalton

question : The atom of an element X is represented as YZX .The basic chemical properties of X depend on the value of

weight : 2

answer : a.Y

option : b.Z

option : c.Y-Z

option : d. Z-Y

question : How many electrons are in the L - shell of 3115P

weight: 2

option : a.2

answer : b.5

option : c.8

option : d 18

question : Which experiment led to the measurement of the charge on an electron?

weight : 2

answer : a.Scattering ? –particles

option : b.Discharging- tube experiment

option : c.Oil- experiment

option : d. Mass spectrometric experiment

instruction : null

question : Phosphorous burns in oxygen according to the equation $\langle br \rangle \langle br \rangle P \langle sub \rangle 4 \langle sub \rangle + 50 \langle sub \rangle 2 \langle sub \rangle \& rarr; P \langle sub \rangle 4 \langle sub \rangle 0 \langle sub \rangle 10 \langle sub \rangle$. How many litres of oxygen will be required at s.t.p. for complete oxidation of 12.4g of phosphorous? (P = 31, 0 = 16 and molar volume of a gas at s.t.p. = 22.4 litres)

weight : 2

option : 5.20 litre

- answer: 11.20 litre
- option : 2.24 litre

option : 20.20 litre

instruction : null

question : If 1.0dm3 of gas x diffuses through porous plug in 60 seconds, while the same volume of hydrogen diffuses in 15 seconds under the same conditions, calculate the relative molecular mass of X (H = 1.0)

weight : 2 option : 8.0 answer : 16.0 option : 4.0 option : 32.0 instruction : null

question : Under high pressure, real gases do not obey gas laws because their molecules

- option : have become more energetic
- option : have become less energetic
- option : have become smaller in size
- answer : start repelling each other