

Answer key of ACT-All Goa Chemistry QUIZ-STD-XI-December-2015

Date:-16-12-2015

Max Marks: 50

Duration 90 Minutes

Time: 12.00 to 1.30p.m

General Instructions:-

1. All questions are compulsory
2. Mark your responses on **separate answer sheet** provided to you with **pencil**
3. **No Negative marking** correct answer will get one mark
4. If **more than one option** are marked then students will get **Zero mark** and will be disqualified.

QNO	<i>Use of calculator and rough sheet is allowed</i>
1.	<p>A solution is prepared by adding 2 g of a substance A to 18 g of water. Mass percent of solute A will be_____</p> <p>a) 10% b) 20% c) 25% d) 15%</p> $\text{Mass percentage of A} = \frac{\text{Mass of A}}{\text{Mass of solution}} \times 100 = \frac{2\text{g}}{2\text{g of A} + 18\text{g of water}} \times 100 = 10\%$
2.	<p>Molarity of NaOH in a solution prepared by dissolving 4g of NaOH in enough water to form 250 ml of solution is_____</p> <p>a) 0.45 M b) 0.4M c) 1.4M d) 4.1M</p> $\text{Molarity} = \frac{\text{No. of moles of solute}}{\text{Volume of solution in liters}} = \frac{\text{Mass of NaOH} / \text{Molar mass of NaOH}}{0.250} = \frac{4 / 40}{0.250} = 0.4 \text{ M}$
3.	<p>A mole is a collection of _____ particles.</p> <p>a) 6.022×10^{23} b) 2.022×10^{23} c) 2.066×10^{23} d) 6.022</p> <p>Ans a) 1 mole = 6.022×10^{23} particles</p>
4.	<p>According to Dalton's atomic theory chemical reactions involve_____</p> <p>a) Construction of atoms b) Reorganisation of atoms c) Destruction of atoms d) Reorganisation of nuclei</p> <p>According to Dalton's atomic theory chemical reactions involve reorganization of atoms.</p>
5.	<p>15g of a substance A combines with 20g of a substance B to give 35 g of product C. The law followed in this reaction is_____</p> <p>a) Law of multiple proportions b) Law of definite proportions c) Law of conservation of mass d) Law of reciprocal proportions</p> <p>According to the law of conservation of mass, matter can not be created or destroyed, it always remain conserved.</p>

Answer key of ACT-All Goa Chemistry QUIZ-STD-XI-December-2015

6.	<p>Dalton's atomic theory did not propose which of the following?</p> <p>a) Matter consists of indivisible atoms b) Atoms of different elements have the same mass c) Atoms of a given element have identical properties d) Atoms cannot be created or destroyed</p> <p><i>Dalton's theory does not propose that atoms of different elements differ in mass.</i></p>
7.	<p>The atomic mass of an element is usually fractional because _____</p> <p>a) Elements contain impurities b) Elements are mixture of allotropes c) Elements are mixture of isotopes d) Elements are mixture of isobars</p> <p><i>The atomic mass is the average of atomic masses of all the isotopes of an element.</i></p>
8.	<p>Substances whose two or more components completely mix with each other to make a uniform composition are called _____</p> <p>a) Heterogeneous mixtures b) Homogenous mixtures c) Ionic compounds d) Elements</p> <p><i>Homogenous mixtures are those whose components completely mix with each other to make a uniform composition.</i></p>
9.	<p>_____ pair of species has the same number of electrons.</p> <p>a) Fe, Mn^+ b) Te, Se c) Ar, K^+ d) Mn, Tc</p> <p>Argon has at. no.18. i.e no. of electrons = 18 and in the same way $K^+ = 19 - 1 = 18$</p>
10.	<p>_____ statement is true about the electron.</p> <p>a) It is negatively charged and is lighter than a proton. b) It is negatively charged and has same mass as a proton. c) It is positively charged and has no mass d) None of the above</p> <p><i>An electron is negatively charged and has much smaller mass than that of a proton</i></p>
11.	<p>The shape of the p_x orbital is _____</p> <p>a) Spherical b) Octahedral c) Dumb-bell d) Double Dumb-bell</p> <p><i>All p orbitals are dumb-bell in shape</i></p>
12.	<p>_____ orbital can hold only two electrons.</p> <p>a) 2p b) 3s c) 4d d) 5f</p>
13.	<p>Which of the subshells below do not exist due to the constraints upon the azimuthal quantum</p>

Answer key of ACT-All Goa Chemistry QUIZ-STD-XI-December-2015

	<p>number?</p> <p>a) 2d</p> <p>b) 2s</p> <p>c) 2p</p> <p>d) 4d</p> <p>The principal quantum no. $n=2$ can not have $l = 2$</p>
14	<p>Quantum mechanics is based on a fundamental equation which is called _____</p> <p>a) Newton's law</p> <p>b) Schrodinger equation</p> <p>c) Equation of state</p> <p>d) Boyle's law</p>
15	<p>An orbital is identified by _____ quantum number/s.</p> <p>a) 1</p> <p>b) 2</p> <p>c) 3</p> <p>d) 4</p> <p>An orbital is identified by 3 quantum numbers i.e Principal quantum number, azimuthal quantum number and magnetic quantum number</p>
16	<p>Which one of the following represents an acceptable possible set of quantum numbers (in the order n, l, m_l and m_s for an electron in an atom?</p> <p>a) 2, 1, -1, 1/2</p> <p>b) 2, 1, 0, 0</p> <p>c) 2, 1, 2, 1/2</p> <p>d) 2, 0, 1, -1/2</p> <p>For $n=2$, l has only two possible values 0 and 1 and possible values of m are 0 and -1, 0 and +1</p>
17	<p>Law of Triads is applicable to _____ set of elements.</p> <p>a) Lithium, Beryllium, Boron</p> <p>b) Fluorine, Iodine, Bromine</p> <p>c) Chlorine, Bromine, Iodine</p> <p>d) Sodium, Potassium, Rubidium</p> <p><i>Law of Triads is applicable to Chlorine, Bromine, and Iodine</i></p>
18	<p>Horizontal rows in the periodic table are called _____</p> <p>a) Periods</p> <p>b) Groups</p> <p>c) Table</p> <p>d) Cell</p>
19	<p>The elements beyond atomic number ($Z = 92$) are known as _____</p> <p>a) trans fermium elements</p> <p>b) Transuranium elements</p> <p>c) carbon family</p> <p>d) oxygen family</p>
20	<p>_____ pairs have both the members from the same group of periodic table.</p> <p>a) Mg, Be</p> <p>b) Mg, Na</p> <p>c) Mg, Cu</p> <p>d) Mg, Cl</p>

Answer key of ACT-All Goa Chemistry QUIZ-STD-XI-December-2015

	<i>General outermost electronic configuration for both Mg and Be is ns^2. These are alkaline earth metals</i>
21	<p>_____ block of the periodic table contains the man made elements.</p> <p>a) s block b) p block c) d block d) f block</p> <p><i>In the f-block of the periodic table, most of the elements are man made, radioactive elements. They are prepared only in nanogram quantities by nuclear reactions.</i></p>
22	<p>Na^+ is smaller than Na atom because _____</p> <p>a) Nucleus in each case contains different nucleons b) Sodium atom has one electron lesser than sodium ion c) The effective nuclear charge is greater in case of sodium ion d) Na^+ is more stable than in Na atom</p> <p><i>The total number of electrons is 10 in case of Na^+ and 11 in case of Na, while the number of proton is same i.e. 11 in both case</i></p>
23	<p>Among the following molecules octet rule is not obeyed by _____</p> <p>a) PCl_3 b) CO_2 c) OF_2 d) ClF_3</p> <p><i>The central atom of ClF_3 has more than eight electrons in its valence shell and forms super octet molecule.</i></p>
24	<p>The number of dots in the Lewis symbol represents _____</p> <p>a) The number of valence electrons present in the atom b) Atomic mass of the element c) Atomic number of the element d) The electronic configuration of the atom</p>
25	<p>_____ has the maximum bond angle.</p> <p>a) CH_4 b) H_2O c) NH_3 d) CO_2</p> <p><i>Maximum bond angle 180° is possible for sp hybridization</i></p>
26	<p>The hybridized orbitals have _____</p> <p>a) Equivalent energies and identical shapes b) Equivalent energies and different shapes c) Different energies and identical shapes d) Different energies and different shapes</p>
27	<p>The percentage of s character in sp^3 hybridized orbital is _____</p> <p>a) 25% b) 30% c) 50% d) 35%</p> <p><i>The sp^3 hybridized orbital has 25% s- character and 75 % p- character</i></p>
28	<p>Repulsive forces arise between _____</p>

Answer key of ACT-All Goa Chemistry QUIZ-STD-XI-December-2015

	<ul style="list-style-type: none"> a) nucleus of one atom and its own electron b) nucleus of one atom and electron of other atom c) electrons of two atoms d) neutrons of two atoms
29	<p>A pi-bond is formed by the overlap of _____</p> <ul style="list-style-type: none"> a) s-s orbitals b) s-p orbitals c) p-p orbitals in end to end fashion d) p-p orbitals in sidewise manner
30	<p>The relationship between $P_c, V_c,$ and T_c is _____</p> <ul style="list-style-type: none"> a) $P_c V_c = R T_c$ b) $P_c V_c = 3 R T_c$ c) $P_c V_c = 3/5 R T_c$ d) $P_c V_c = 3/8 R T_c$
31	<p>Gas deviates from ideal gas nature because molecules _____</p> <ul style="list-style-type: none"> a) are colourless b) attract each other c) contain covalent bond a) shows Brownian movement
32	<p>During boiling of a liquid ,bubbles are formed because _____</p> <ul style="list-style-type: none"> a) the vapour pressure inside the bubbles is equal to the atmospheric pressure b) the vapour pressure inside the bubbles is slightly greater than the atmospheric pressure c) the vapour pressure inside the bubbles is slightly less than the atmospheric pressure d) the dissolved gas ge entrapped which is being expell
33	<p>Equation of Boyle's Law is _____</p> <ul style="list-style-type: none"> a) $dP/P = - dV/V$ b) $dP/P = + dV/V$ c) $d^2P/P = - dV/V$ d) $d^2P/P = + dV/V$
34	<p>According to kinetic theory of gases, in an ideal gas , between two successive collisions a gas molecule travels _____</p> <ul style="list-style-type: none"> a) in a circular path b) in a wave path c) in a straight path d) none of the above
35	<p>In the phenomenon of surface tension _____</p> <ul style="list-style-type: none"> a) surface molecules experience a net upward force b) bulk molecules experience a net downward force c) bulk molecules do not experience any force d) none
36	<p>Use of hot air balloons is an application of _____</p> <ul style="list-style-type: none"> a) Charles' law b) Gay Lussac's law c) Avogadro's law d) Boyle's law
37	<p>Choose the one which is not a characteristic property of gases:</p>

Answer key of ACT-All Goa Chemistry QUIZ-STD-XI-December-2015

	<p>a) The gases mix evenly and uniformly without any mechanical aid</p> <p>b) Gases are compressible</p> <p>c) Gases have maximum thermal energy</p> <p>d) Gases are rigid</p>
38	<p>For the equilibrium reaction, the value of Gibbs free energy change is _____</p> <p>a) >0</p> <p>b) <0</p> <p>c) =0</p> <p>d) none</p>
39	<p>An open system _____</p> <p>a) can neither lose nor gain energy</p> <p>b) can lose nor gain energy</p> <p>c) can lose nor gain matter</p> <p>d) can lose or gain both matter or energy</p>
40	<p>In general, for exothermic reaction to be spontaneous _____</p> <p>a) temperature should be high</p> <p>b) temperature should be zero</p> <p>c) temperature should be low</p> <p>d) temperature has no effect</p>
41	<p>In the reactions, where enthalpy value determination is difficult by experiments, the enthalpy value can be calculated by _____</p> <p>a) kirchoff's equation</p> <p>b) Hess law</p> <p>c) Henry's law</p> <p>d) van't Hoff law</p>
42	<p>IUPAC name of the compound $\text{CH}_3\text{-CO-CH}_2\text{-CH}_2\text{-OH}$ is _____.</p> <p>a) 3-oxobutanol</p> <p>b) 1-Hydroxybutan-3-one</p> <p>c) 4-Hydroxybutan-2-one</p> <p>d) 2-oxobutan-4-ol</p>
43	<p>The displacement of electrons in a multiple bond in the presence of attacking reagent is called _____.</p> <p>a) inductive effect</p> <p>b) electromeric effect</p> <p>c) resonance</p> <p>d) hyper conjugation</p>
44	<p>The overlapping of orbital in benzene is of the type _____.</p> <p>a) $sp^2\text{-}sp^2$</p> <p>b) $sp^3\text{-}sp^3$</p> <p>c) sp-sp</p> <p>d) sp-p</p>
45	<p>Which of the following formulae represents isobutyl alcohol?</p> <p>a) $\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{-OH}$</p> <p>b) $\text{CH}_3\text{-CH-CH}_2\text{-OH}$</p> <p style="text-align: center;"> </p> <p style="text-align: center;">CH₃</p> <p>c) $\text{CH}_3\text{-CH}_2\text{-CH-OH}$</p>

Answer key of ACT-All Goa Chemistry QUIZ-STD-XI-December-2015

	<p>d) $\text{CH}_3\text{-CH-CH}_2\text{-CH}_3$</p> <p style="text-align: center;"> OH</p>
46	<p>The longest chain in the following compound consists of _____</p> <p style="text-align: center;">$\text{CH}_3\text{-CH}_2\text{-CH}_2\text{-CH}_2\text{-CH-CH}_2\text{-CH}_2\text{-CH}_3$</p> <p style="text-align: center;"> COOH</p> <p>a) 8 carbon atoms b) 9 carbon atoms c) 6 carbon atoms d) 5 carbon atoms</p> <p>The longest chain must contain carbon atom of carboxyl group.</p>
47	<p>The IUPAC name of $\text{CH}_2\text{=CHCHOH-CH}_2\text{CHO}$ is</p> <p>a) 3-Hydroxy-pent-4-ene-1-al b) 3-Hydroxy-2-pental c) 2-Hydroxy-3-pental d) 3-Hydroxy-2-pental</p>
48	<p>_____ type of isomerism is exhibited by the compounds whose structures are shown below?</p> <p style="text-align: center;">$\text{CH}_3\text{-O-CH}_2\text{-CH}_2\text{-CH}_3$ and $\text{CH}_3\text{-CH}_2\text{-O-CH}_2\text{-CH}_3$</p> <p>a) Tautomerism b) Position isomerism c) Metamerism d) Geometric isomerism</p> <p>In this type of isomerism the isomers differ in structure due to difference in the distribution of carbon atoms about the functional group.</p>
49	<p>When there is breaking of bonds in such a way that the shared pair of electrons remains with one of the fragments it is termed as _____</p> <p>a) Geometrical isomerism b) Heterolytic cleavage c) Homolytic cleavage d) Metamerism</p> <p>As after cleavage one of the atom has sextet electronic configuration and the positive charge whereas the other atom has atleast one lone pair and the negative charge . Hence it is a Heterolytic Cleavage</p>
50	<p>A reagent that brings an electron pair is known as _____</p> <p>a) Nucleophile b) Electrophile c) Inductivity d) Conjugation</p>