ACT- All Goa Chemistry Quiz - Std.XI - December – 2016

Date: 17/12/16 Max. Marks : 50 Duration : 90 Minutes Time : 12.00 noon to 1.30 p.m.

General Instructions:

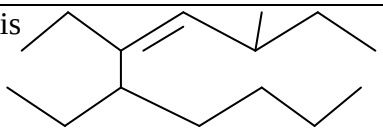
1) All questions are compulsory**.**

2) Mark your ***responses on the separate answer sheet*** provided to you only with a pencil.

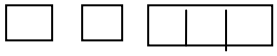
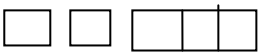
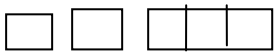
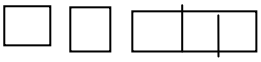
3) ***No negative marking***. Correct answer will get **one mark**.

4) If ***more than one option*** is marked then the student will ***get zero mark*** and will be disqualified.

Q. No.	***Use of calculator and rough sheet is allowed***
1	In an exothermic reaction , heat is evolved and the system loses heat to the surrounding. For such a system_____ a)Δq_p will be negative b)ΔU will be negative c)Δq_p will be positive d) ΔH will be positive
2	In an Isothermic expansion of an ideal gas against Vacuum, the work involved is_____ a)Zero b)Maximum c) Minimum d) None of the above
3	The average molecular Kinetic energy of a gas depends on _____ a)Pressure b)Volume c)Temperature d)Number of moles
4	When the temperature is increased ,surface tension of water_____ a) Increases b)decreases c)remains constant d)shows irregular behaviour
5	A gas can be liquefied_____ a)above its critical temperature b)at its critical temperature c)below its critical temperature d)at any temperature
6	For an ideal gas , number of moles per liter in term of its pressure P, Gas constant R and Temperature T is_____ a) pT/R b) pRt c) p/RT d) RT/p
7	The percentage composition of carbon in urea, **$CO(NH_2)_2$** is_____ (Atomic mass : C = 12, O =16, N = 14 and H = 1) a) 40% b) 20% c) 50% d) 80%
8	The sum of the masses of reactants and products is equal in any physical or chemical reaction. This is in accordance with_____ a) Law of Multiple Proportion b)Law of definite Proportion c)Law of Conservation of Mass d)Law of Reciprocal proportion
9	The Number of Significant figures in 0.000101 is _____ a)3 b)2 c)4 d)5
10	Which of the following molecules is electron deficient? a) BCl_3 b) PCl_3 c) PCl_5 d) NH_3
11	The electronic configuration of a metal `M' is $1s^2 2s^2 2p^6 3s^2 3p^1$, the formula of its oxide will be _____. a) MO b) M_2O c) M_2O_3 d) MO_2
12	O_2 molecule is_____. a) Diamagnetic b)Paramagnetic c)Ferromagnetic d)None of these

13	In which of the following, the angle between the two covalent bonds is largest _____. a) H_2O b) NH_3 c) CO_2 d) CH_4
14	A molecule is square planar with no lone pair what type of hybridization is associated with it? a) sp^3d b) sp^3d^2 c) dsp^3 d) dsp^2
15	How many electrons are there in Li_2 ? a) 4 b) 6 c) 5 d) 3
16	According to fajan's rule, covalent bond is favoured by _____. a) Small cation and large anion b) Small cation and small anion c) Large cation and large anion d) Large cation and small anion
17	$2p_x$,$2p_y$ and $2p_z$ orbitals differs in there a) Energy b) Orientation c) Shape d) Size
18	Alkyl group is ortho and para directing because of a) Steric effect b) hyperconjugation effect c) electromeric effect d) all the three
19	Inductive effect involves a) delocalisation of σ electron b) displacement of σ electron c) delocalisation of л electron d) displacement of л electron
20	Correct IUPAC name of compound is  a) 5,6 – Diethyl -8-methyldec-6-ene b) 6 – Butyl-5-ethyl-3-methyloct-4-ene c) 5,6 – Diethyl -3-methyldec-4-ene d) 2,4,5- Triethylnon-3-ene
21	The central C-atom of a carbanion possesses_____. a) Sextet of electrons b) Duplet of electrons c) Octet of electrons d) None of these
22	Which of the following is a cylic compound? a) Anthracene b) Pyrole c) Phenol d) Neopentene
23	Which of the following compounds will exihibit geometrical isomerism? a) 1-Phenyl-2-butene b) 3-Phenyl-1-butene c) 2-Phenyl-1-butene d) 1,1-Diphenyl-1-propene
24	The state of hybridization of C_2,C_3,C_5 and C_6 of the hydrocarbon $CH_2 = C(CH_3) - CH = CH - CH(CH_3) - C \equiv CH$ is in the following sequence ----------. a) sp, sp^2, sp^3, sp b) sp, sp^3, sp^2, sp^2 c) sp^2 , sp^2, sp^3, sp d) sp^3 , sp^2, sp^3, sp
25	Methoxy methane and ethanol are _____. a) Functional isomers b) Optical isomers c) Position isomers d) Chain isomers
26	Among the following compounds the one that is most reactive towards electrophilic nitration Is ----------. a) Benzoic acid b) Nitrobenzene c) Toluene d) Benzene

27	For I^- ,Cl^- and Br^- the increasing order of nucleophilicity would be ----------. a) $Cl^- < Br^- < I^-$ b) $I^- < Cl^- < Br^-$ c) $Br^- < Cl^- < I^-$ d) $I^- < Br^- < Cl^-$
28	Which of the following species contains three bond pairs and one lone pair around the central atom ? a) H_2O b) BF_3 c) PCl_5 d) PCl_3
29	XeF_2 is isostructural with ----------. a) $SbCl_3$ b) ICl_2^- c) $BaCl_2$ d) TeF_2
30	Which of the following molecules has the maximum dipole moment? a) CO_2 b) CH_4 c) NH_3 d) NF_3
31	Which of the following elements shown as pairs with their atomic numbers,belong to the same period? a) Z = 19 and Z = 35 b) Z = 10 and Z = 17 c) Z = 19 and Z = 38 d) Z = 11and Z = 21
32	Identify which is the most non-metallic element among the following? a) $1s^2 2s^2 2p^6 3s^1$ b) $1s^2 2s^2 2p^5$ c) $1s^2 2s^2 2p^6 3s^2$ d) $1s^2 2s^2 2p^3$
33	Among the following metals, which one of them will have the highest second ionisation enthalpy? a) Zn b) Fe c) Cr d) Mn
34	Which of the following is arranged in the order of increasing metallic character? a) P < Si < Na < Be < Mg b) Be < Mg < P < Na < Si c) Si < Be >Mg < Na < P d) P < Si < Be < Mg < Na
35	K^+ and Cl^- ions are isoelectronic.Which of the statements is not correct? a) Both K^+ and Cl^- ions contain 18 electrons. b) Both K^+ and Cl^- ions have same configuration. c) K^+ ion is bigger than Cl^- ion in size. d) Cl^- ion is bigger than K^+ ion in size.
36	The decreasing order for the electronegative property of C,N,Si and P follows the order----------. a) P < Si < C < N b) Si < P < N < C c) Si < P < C < N d) P < Si < N < C
37	What is the maximum number of orbitals that can be identified with the following quantum numbers? n = 3, l = 1, m = 0 a) 1 b) 2 c) 3 d) 4
38	The total number of atomic orbitals in fourth energy level of an atom is ----------. a) 8 b) 16 c) 32 d) 4
39	The mass of an electron is 9.1 $x10^{-31}$kg Planck's constant is 6.626 $x10^{-34}$Js. The uncertainty involved in the measurement of velocity within a distance of 0.1A is ----------. a) 5.79 $x10^5 ms^{-1}$ b) 5.79 $x10^8 ms^{-1}$ c) 5.79 x107ms^{-1} d) 5.79 $x10^6 ms^{-1}$

40	The number of s- electrons in Fe is equal to the number of electrons in which one of the following? a) p- electrons in Ne atom b) p- electrons in Cl atom c) d- electrons in Ni atom d) d- electrons in Cu^{2+} ion
41	The number of electrons, protons and neutrons in an ion are 18,16 and 16 respectively. The correct symbol for the ion is ----------. a) S b) O^{2-} c) S^{2-} d) O^{-}
42	As we move away from the nucleus, the energy of the orbit ----------. a) decreases b) increases c) remains unchanged d) none of these
43	The orbital diagram in which Aufbau principle and Hund's rule are violated is ----------. a)  b)  c)  d) 
44	How much water is needed to dilute 10ml of 10N hdrochloric acid to make it exactly 0.1N? a) 990ml b) 1000ml c) 1010ml d) 100ml
45	The number of atoms in 0.1mol of a triatomic gas is ----------. a) 6.026×10^{22} b) 1.806×10^{23} c) 3.600×10^{23} d) 1.800×10^{22}
46	An element, X has the following isotopic composition: ^{200}X :90% , ^{199}X :8% , ^{202}X :2% The average atomic mass of the naturally occuring element X is closest to ----------. a) 200amu b) 202amu c) 199amu d) 201amu
47	Given that bond energies of H – H and Cl – Cl are 430kJmol^{-1} and 240kJmol^{-1} respectively. Also ΔH_f for HCl is -90kJmol^{-1}. Bond energy of HCl is ----------. a) 290kJmol^{-1} b) 380kJmol^{-1} c) 245kJmol^{-1} d) 425kJmol^{-1}
48	Which one of the following reactions has ΔS^0 greater than zero? a) $CaO_{(s)} + CO_{2\,(g)} \rightarrow CaNO_{3\,(s)}$ b) $NaCl_{(aq)} \rightarrow NaCl_{(s)}$ c) $NaNO_{3\,(s)} \rightarrow Na^{+}_{(aq)} + NO_3^{-}{}_{(aq)}$ d) $N_{2\,(g)} + 3H_{2\,(g)} \rightarrow 2NH_{3\,(g)}$
49	Free energy change for a reversible process is ----------. a) greater than zero b) less than zero c) equal to zero d) unpredictable
50	What is the density of N_2 gas at 500K and 5atm pressure? (R = 0.0821L atmK^{-1} mol^{-1}) a) 1.40gml^{-1} b) 2.81gml^{-1} c) 3.41gml^{-1} d) 0.29gml^{-1}

Answers shall be available on ACT website www.actgoa.weebly.com on 20/12/2016. The list of prize winners shall be displayed by the first week of January 2017.

Please note

There was an error in question number 22. Question should be read as

22	Which of the following is an acylic compound? a) Anthracene b) Pyrole c) Phenol d) Neopentene