DELHI PUBLIC SCHOOL,JAMMU

Assignment for Half yearly (SESSION -2017-2018)

CLASS XI SUBJECT- CHEMISTRY

Q1 State the no. of significant figures in the following no.

1)62.4 2)0.50

Q2 Define law of multiple proportion

Q3 Write Schrodinger wave equation.

Q4 Write general electronic configuration of d block elements.

Q5 Define Charles law.

Q6 Give reasons:

1) ethyne molecule is linear

2) water molecule has bent structure whereas CO_2 IS Linear.

Q7 In a H atom, the energy of an atom in 1st Bohrs orbit is 13.2×10^5 $Jmol^{-1}$. What is energy required for its excitation to Bohrs second orbit?

Q8 Calculate frequency, wave no. and energy associated with photon of radiations having wavelength 6000°.

Q9 Explain why electron gain enthalpy of fluorine is less negative than that of chlorine.

Q10 How much Cu is obtained from 100g of $CuSO_4$?

Q11 An organic compound has following %age composition ,C=48%,H=8%,N=28%. Calculate the empirical formula of the compound.

Q12 The mass of electron is 9.1×10^{-31} kg .if its K.E is 3.0×10^{-25}J,calculate its wavelength.

Q13 Predict the shapes of the following molecules using the VSEPR model

$BeCl_2$,$SiCl_4$,AsF_5,H_2S

Q14The formation of F^- from F is exothermic whereas that of O^{2-} From O is endothermic. Explain.

Q15 The electron gain enthalpy of chlorine is -349 KJ mol^{-1}.how much energy in KJ is released when 1 gm of chlorine is converted completely to Cl^- ions in gaseous state?

Q16 Water meniscus in a glass tube is concave while that of mercury is convex.why?

Q17 The reaction of cyanamide NH_2CN with oxygen was affected in a bomb calorimeter and ΔU was found to be -742.7 KJ mol^{-1} of cyanamide at 298 K. Calculate the enthalpy change for the reaction at 298K.

Q18 Calculate the entropy change for the following reversible process:1 mole of liquid water at 1 atm at 100° evaporates to 1 mole water vapours (ΔH_{vap} for water = 2257 Jg^{-1}).

Q19 Calculate and compare the energies of two radiations one with wavelength 800pm and the other with wavelength 400pm.

Q20 Among the elements of the third period , pick out the element.

1) with the highest 1^{st} ionization enthalpy

2) with the largest atomic radius

3) that is the most reactive non metal

Q21 If the uncertainty in the position of a moving electron is equal to its debroglie wavelength then its velocity will be completely uncertain. Explain.

Q22 A swimmer coming out from a pool covered with a film of water weighing about 18g. how much heat must be supplied to evaporate this water at 298K? Calculate the internal energy of vaporization at 100°C.ΔH_{vap} for water at 373K = 40.66KJ MOL^{-1}.

Q23 1) Define Heisenberg uncertainty principle and its significance.

2) A golf ball has a mass of 40g and a speed of 45m/s . if the speed can be measured within an accuracy of 2%,calculate the uncertainty in its position.

Q24(1) Draw M.O diagram of N_2^+,N_2^-,N_2^{2-} ION and compare their relative stabilities.

2) Write the resonating structure for SO_3, NO_3^-.

Q25 For a reaction ; 2A +B→2D

ΔH =-10.5 KJ and $\Delta S°$ = -44.1 JK^{-1}

Calculate ΔU for the reaction and predict whether the reaction is spontaneous or not.

Topics:

1 Some basic concept of chemistry

2 Structure of atom

3 Classification of elements and periodicity in properties

4 Chemical bonding and molecular structure

5 States of matter

6 Thermodynamics