ST. LAWRENCE HIGH SCHOOL

A JESUIT CHRISTIAN MINORITY INSTITUTION

FOR GOD AND COUNTRY

WORKSHEET-29(CLASS-11)

TOPIC- STRUCTURE OF ATOM

SUBTOPIC-BASIC CONCEPT

SUBJECT – CHEMISTRY
DURATION – 30 mins

F.M. - 15
DATE -03.08.20

1.1 **A gas absorbs photon of 355 nm and emits at two wavelengths. If one of the emission is at 680 nm, the other is at-**

a) 1035 nm b) 325 nm c) 743 nm d) 518 nm

1.**2 The frequency of light emitted for the transition n=4 to n=2 of He+ is equal to the transition in h atom corresponding to which of the following?**

(a) n=3 to n=1 **(b)** n=2 to n=1 **(c)**n=3 to n=2 **(d)** n=4 to n=3

1.3 **Which of the following nuclear reactions will generate an isotope?**

(a) Neutron particle emission(b) Positron emission(c) alpha particle emission(d) Beta particle emission

1.4 **Emission of H-atom in the ground state is (-) 13.6 eV, hence energy in the second excited state is-**

(a) -6.8 eV (b) -3.4 eV (c) -1.51 eV(d) -4.53 eV

1.5**The de-Broglie wavelength of a tennis ball of mass 60g moving with a velocity of 10m/s is approximately-**

(a)10^{-33} m (b) 10^{-31} m(c) 10^{-16} m(d) 10^{-25} m

1.6 **A dipositive ion Z^{++} has $2e^{-}$in the K shell, 8 electrons in the L shell and $8e^{-}$ in the M shell. Atomic number of Z is-**

(a) 19 (b) 20 (c) 16(d) 15

1.7 **The number of unpaired electrons in a chromic ion Fe^{+3} (atomic number 26) is-**

(a) 3 (b) 4 (c) 5(d) 6

1.8 **Uncertainty in position of a particle of 25g in space is 10-5 m. Hence, uncertainty in velocity in m/s is-**

a) $2.1x10^{-28}$b) $2.1x10^{-34}$c) $0.5x10^{-34}$d) $5.0x10^{-24}$

1.9 **The ion that is isoelectronic with NO is-**

a) CN^{-} b) O^{2+} c) O^{2-} d) N^{-}_{2}

1.10 **Consider the ground state of Cr atom. The numbers of electrons with the azimuthal quantum numbers, l=1 and 2 are, respectively-**

(a) 12 and 4 (b) 12 and 5 (c) 16 and 4 (d) 16 and 5

1.11 **The correct set of four quantum numbers for the valence electrons of rubidium atom-**

(a) 5,0,0,+1/2b) 5,1,0,+1/2c) 5,1,1,+1/2d) 5,0,1,+1/2

1.12 **The exchange of particles considered responsible for keeping the nucleons together are-**

(a) Meson b) electron c) positron d) neutron

1.13 **Ionisation energy of He+ is 19.6×10^{-18} $Jatom^{-1}$. The energy of the first stationary state (n=1) of Li^{+2} is-**

(a) 4.41×10^{-16} $Jatom^{-1}$b) -4.41×10^{-17} $Jatom^{-1}$c) -2.2×10^{-15} $Jatom^{-1}$d) 8.812×10^{-17} $Jatom^{-1}$

1.14 **The electronic configuration of Hg is:**

a) $1s^2\ 2s^2p^6\ 3s^2p^6d^{10}\ 4s^2p^6d^{10}f^{14}\ 5s^2p^6d^{10}\ 6s^2$b) $1s^2\ 2s^2p^6\ 3s^2p^6d^{10}\ 4s^2p^6d^{10}f^{14}\ 5s^2p^6d^{10}\ 7s^2$

c) $1s^2\ 2s^2p^6\ 3s^2p^6d^{10}\ 4s^2p^6d^{10}f^{14}\ 5s^2p^6d^{10}\ 8s^2$d) $1s^2\ 2s^2p^6\ 3s^2p^6d^{10}\ 4s^2p^6d^{10}f^{14}\ 5s^2p^6d^9\ 6s^3$

1.15 **Find the number of unpaired electrons present in Zn^{2+}:**

(a) 6 b) 4 c) 0d) 3

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