

## XI Chemistry Worksheet

Time: 30 min

Ch#2 : Structure of Atom-03

Full Marks: 20

### Instructions:

1. All questions are compulsory.
2. Please give the explanation for the answer where applicable.

Q1 - The uncertainty in momentum of an electron is  $1.0 \times 10^{-5} \text{ Kg ms}^{-1}$ . What is the uncertainty in its position?

(2 Marks)

Q2 - Find the de Broglie wavelength in Å of a particle with mass 1g and velocity 100m/s.

(2 Marks)

Q3 - Find wavelength of photon having energy  $3.03 \times 10^{-19} \text{ J}$ .

(2 Marks)

Q4 - What will be the uncertainty in velocity of an electron (mass of electron =  $9.1 \times 10^{-28} \text{ g}$ ) moving with a velocity of  $3.0 \times 10^4 \text{ ms}^{-1}$  accurate up to 0.011%?

Q5 - Write the electronic configuration of following atoms/ions -

$\text{F}^-$ , Cr,  $\text{Mg}^{2+}$ ,  $\text{O}^-$ , Ca

(Atomic number of F = 9, Cr = 24, Mg = 12, O = 8, Ca = 20)

(5 Marks)

Q6 - Which of the following species are isoelectronic?

$\text{Na}^+$ ,  $\text{O}^{2-}$ ,  $\text{F}^-$ ,  $\text{Ca}^{2+}$ ,  $\text{K}^+$

(2 Marks)

Q7 - (i) Write values of n and l for 4f orbital.

(ii) Write all possible values of l and m for n = 2.

(2 Marks)

Q8 - Write one isobar of  $^{40}_{18}\text{Ar}$

(1 Mark)

Q9 - Which series of lines of the hydrogen spectrum lie in the visible region?

(1 Mark)

Q10 - What do you mean that energy of the electron is quantized?

(1 Mark)