PRERNA EDUCATION
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Chapter 2 Structure Of Atom

Assignment 3

Class 11

PRERNA EDUCATION

DPP
DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : CHEMISTRY**
DATE : **DPP No. : 3**

Topic :- STRUCTURE OF ATOM

1. The energy of an electron in first Bohr orbit of H-atom is -13.6 eV. The possible energy value of electron in the excited state of Li^{2+} is
   a) -122.4 eV b) 30.6 eV c) -30.6 eV d) 13.6 eV

2. When the azimuthal quantum number has the value of 2, the number of orbitals possible are
   a) 7 b) 5 c) 3 d) 0

3. Compared to the lightest atom the heaviest atom weighs:
   a) 200 times b) 238 times c) 92 times d) 16 times

4. If the following particles travel with equal speed, then for which particle the wavelength will be longest?
   a) Proton b) Neutron c) α-particle d) β-particle

5. The orbital cylindrically symmetrical about x-axis is:
   a) p_z b) p_y c) p_x d) d_{xz}

6. The orbital with maximum number of possible orientations is:
   a) s b) p c) d d) f

7. Einstein's photoelectric equation states that $E_k = hv - W$
   Here, E_k refers to
   a) Kinetic energy of all ejected electrons b) Mean kinetic energy of emitted electrons

c) Minimum kinetic energy of emitted electrons d) Maximum kinetic energy of emitted electrons

8. The orbital closest to the nucleus is:

a) $7s$ b) $3d$ c) $6p$ d) $4s$

9. Isoelectronic pair among the following is

a) Ca and K b) Ar and Ca^{2+} c) K and Ca^{2+} d) Ar and K

10. We can say that the energy of a photon of frequency v is given by $E = hv$, where h is Planck's constant. The momentum of a photon is $p = h/\lambda$, where λ is the wavelength of photon. Then we may conclude that velocity of light I equal to:

a) $(E/p)^{1/2}$ b) E/p c) Ep d) $(E/p)^2$

11. Uncertainty in position of a particle of 25 g in space is 10^{-5}m. Hence, uncertainty in velocity (ms^{-1}) is (Planck's constant $h = 6.6 \times 10^{-34}$Js)

a) 2.1×10^{-28} b) 2.1×10^{-34} c) 0.5×10^{-34} d) 5.0×10^{-24}

12. The mass of a neutron is of the order of:

a) 10^{-23} kg b) 10^{-24} kg c) 10^{-26} kg d) 10^{-27} kg

13. The de Broglie wavelength of a 66 kg man sking down Kufri Hill in Shimla at 1×10^3m sec^{-1} is:

a) 1×10^{-36}m b) 1×10^{-37}m c) 1×10^{-38}m d) 1×10^{-39}m

14. The Z −component of angular momentum of an electron in an atomic orbital is governed by the

a) Magnetic quantum number b) Azimuthal quantum number

c) Spin quantum number d) Principal quantum number

15. An electron with values 4, 2, -2 and $+1/2$ for the set of four quantum numbers n, l, $m_l$and s respectively, belongs to

a) $4s$-orbital b) $4p$-orbital c) $4d$-orbital d) $4f$-orbital

16. Consider the following statements :

1.Electron density in xy plane in $3d_{x^2-y^2}$ orbital is zero

2.Electron density in xy plane in $3d_{z^2}$ orbital is zero

3.$2s$ orbital has only one spherical node

4.For $2p_z$ orbital yz is the nodal plane

The correct statements are

a) 2 and 3 b) 1,2,3,4 c) Only 2 d) 1 and 3

17. The maximum probability of finding electron in the d_{xy} orbital is:

a) Along the x-axis

b) Along the y-axis

c) At an angle of 45° from the x-and y-axes

d) At an angle of 90° from the x-and y-axes

18. Two electron in an atm of an element cannot have:

a) The same principle quantum number

b) The same azimuthal quantum number

c) The same magnetic quantum number

d) An identical set of quantum numbers

19. The energy of electromagnetic radiation depends on:

a) Amplitude and wavelength

b) Wavelength

c) Amplitude

d) Temperature of medium through which it passes

20. Correct electronic configuration of Cu^{2+} is:

a) $[Ar]3d^8, 4s^1$ b) $[Ar]3d^{10}, 4s^2 4p^1$ c) $[Ar]3d^{10}, 4s^1$ d) $[Ar]3d^9$