Mock- Atomic Molecular Physics -

1) The best system of coordinates to be used for an atom while solving schrodinger equation is
A).**SphericalPolar Coordinates**

B).Cylindrical Polar Coordinates

C).Cartesian Coordinates

D).Rectangular Coordinates

2) The Solution of Schrodinger Equation for atom for R-part is obtainedby using
A).Legendre's Function

B).**AssociatedLaguerre's Polynomials**

C).Bessel's function

D).Frobenius equation

3). No two electrons can occupy exactly same energy levels in an atom is actually a statement of
A).Heisenberg's Uncertainty Principle

B).**Pauli's exclusion principle**

C).Hund's rule of Maximum multiplicity

D).Aufbau's Principle

4). Who can be called as father of modern atomic physics for reviving an almost dead 2000 year old theory
A).Rutherford

B).JJ Thomson

C).**JohnDalton**

D).Heisenberg

5). The angular momentum of a hydrogen atom is
A).Quantized in magnitude

B).Quantized in direction

C).**Quantizedin magnitude as well as direction**

D).Is not quantized

6).For every value of L(azimuthal quantum number) there are how many value of m (magnetic quantum number)
A).n

B).2L+1

C).L^2

D).2n^2

7). The Solution of Schrodinger Equation for atom for θ-part is obtained by using
A).**AssociatedLegendre's Function**

B).Associated Laguerre's Polynomials

C).Bessel's function

D).Frobenius equation

8). The energy equation that comes out of R Part of Schrodinger equation for hydrogen atom is
A**).E_n= (-me^4)/(32π^2 ∈_0^2 n^2 h^2)**

B).E_n= (-me^4)/(8π^2 ∈_0^2 n^2 h^2)

C).E_n= (-me^4)/(32∈_0^2 n^2 h^2)

D).E_n= (-me^4)/(16π^2 ∈_0^2 n^2 h^2)

9). For any value of principal quantum number n, the azimuthal quantum number L ranges between
A).0 to n

B).**0 to n-1**

C).1 to n

D).-n to +n

10). The concept of spin in the year 1925 was introduced by
A).Stern and Gerlach

B).Einstein and Lorentz

C).Pauli and Heisenberg

D**).Uhlenbeck&Goudsmith**

11). The solution of ∅-part of the schrodinger equation for hydrogen atom is
A**).∅=Ae^imϕ**

B).∅=Ae^i2πϕ

C).∅=Ae^mϕ

D).∅=Ae^i2πmϕ

12). For every value of principal quantum number n, there are how many values of azimuthal quantum number L?
A).L

B**).n**

C).2L+1

D).2n^2

13). If azimuthal quantum number L=2, it represents which orbital
A).f

B).d

C).p

D).s

14). Which operator is made use of in the Schrodinger's time independent equation
A).Jacobian

B).Hamiltonian

C).Laplacian

D).**Both (b) and (c)**

15). While solving time independent schrodinger equation for a hydrogen atom (which is a two body problem), to simplify things, we assume
A).Electron to be infinitely heavy

B).**Nucleus to be infinitely heavy**

C).Nucleus to be of zero mass

D).Both Electron and Nucleus to be infinitely heavy