

CLASS : XI<sup>th</sup>  
DATE :

SUBJECT : CHEMISTRY  
DPP No. : 5

**Topic :- STRUCTURE OF ATOM**

- The total number of protons present in all the elements upto 'Zn' in the periodic table is:  
a) 300                      b) 350                      c) 465                      d) 450
- Time period of a wave is  $5 \times 10^{-3}$ s, what is the frequency?  
a)  $5 \times 10^{-3}\text{s}^{-1}$               b)  $2 \times 10^2\text{s}^{-1}$               c)  $23 \times 10^3\text{s}^{-1}$               d)  $5 \times 10^2\text{s}^{-1}$
- The increasing order (lowest first) of the value of  $\frac{e}{m}$  for electron (e), proton (p),neutron (n) and alpha particle ( $\alpha$ ) will be  
a)  $n,\alpha,p,e$                       b)  $e,p,n,\alpha$                       c)  $n,p,e,\alpha$                       d)  $n,p,\alpha,e$
- Orbitals processing the same energy are called:  
a) Hybrid orbitals              b) Valency orbitals              c) *d*-orbitals                      d) Degenerate orbitals
- Which set has the same number of unpaired electrons in their ground state?  
a) N,P,V                      b) Na,P,Cl                      c)  $\text{Na}^+,\text{Mg}^{2+},\text{Al}$                       d)  $\text{Cl}^-,\text{Fe}^{3+},\text{Cr}^{3+}$
- Wavelength of a photon is  $2.0 \times 10^{-11}\text{m}$ ,  $h = 6.6 \times 10^{-34}$  Js. The momentum of photon is:  
a)  $3.3 \times 10^{-23} \text{ kg m s}^{-1}$   
b)  $3.3 \times 10^{22} \text{ kg m s}^{-1}$   
c)  $1.452 \times 10^{-44} \text{ kg m s}^{-1}$   
d)  $6.89 \times 10^{43} \text{ kg m s}^{-1}$
- The atomic number of an element is 35 and its mass is 81. The number of electrons in its outermost shell is  
a) 3                      b) 5                      c) 7                      d) 9
- According to Dalton's atomic theory, the smallest particle which is capable of independent existence is:  
a) Element                      b) Atom                      c) Molecule                      d) Ion

9. The possibility of finding an electron in an orbital was conceived by:  
 a) Rutherford                      b) Bohr                      c) Heisenberg                      d) Schrödinger
10. Which statement is/are correct?  
 a) Volume of proton is approximately  $(4/3 \pi r^3) = 1.5 \times 10^{-38} \text{ cm}^3$   
 b) The radius electron is  $42.8 \times 10^{-13} \text{ cm}$   
 c) The density of nucleus is  $10^{14} \text{ g/cm}^3$   
 d) All of the above
11. X-rays cannot penetrate through a sheet of:  
 a) Wood                      b) Paper                      c) Aluminium                      d) Lead
12. How many electrons can fit into the orbitals that comprise the 3rd quantum shell?  
 a) 2                      b) 8                      c) 18                      d) 32
13. The total values of magnetic quantum number of an electron when the value of  $n = 2$  is:  
 a) 9                      b) 6                      c) 4                      d) 2
14. Which transition in the hydrogen atomic spectrum will have the same wavelength as the transition,  $n=4$  to  $n=2$  of  $\text{He}^+$  spectrum?  
 a)  $n = 4$  to  $n = 3$                       b)  $n = 3$  to  $n = 2$                       c)  $n = 4$  to  $n = 2$                       d)  $n = 2$  to  $n = 1$
15. According to  $(n + l)$  rule after completing ' $np'$ ' level the electron enters to:  
 a)  $(n - 1)d$                       b)  $(n + 1)s$                       c)  $nd$                       d)  $(n + 1)p$
16. If the series limit of wavelength of the Lyman series for the hydrogen atom is  $912 \text{ \AA}$ , then the series limit of wavelength for the Balmer series of the hydrogen atom is:  
 a)  $912 \text{ \AA}$                       b)  $912 \times 2 \text{ \AA}$                       c)  $912 \times 4 \text{ \AA}$                       d)  $912/2 \text{ \AA}$
17. The best metal to be used for photoemission is:  
 a) Potassium                      b) Sodium                      c) Cesium                      d) Lithium
18. The correct Schrödinger's wave equation of an electron with  $E$  as total energy and  $V$  as potential energy is:  
 a)  $\frac{\partial^2 \Psi}{\partial x^2} + \frac{\partial^2 \Psi}{\partial y^2} + \frac{\partial^2 \Psi}{\partial z^2} + \frac{8\pi^2}{mh^2} (E - V) \Psi = 0$   
 b)  $\frac{\partial^2 \Psi}{\partial x^2} + \frac{\partial^2 \Psi}{\partial y^2} + \frac{\partial^2 \Psi}{\partial z^2} + \frac{8\pi m}{h^2} (E - V) \Psi = 0$   
 c)  $\frac{\partial^2 \Psi}{\partial x^2} + \frac{\partial^2 \Psi}{\partial y^2} + \frac{\partial^2 \Psi}{\partial z^2} + \frac{8\pi^2 m}{h^2} (E - V) \Psi = 0$

$$d) \frac{\partial^2 \Psi}{\partial x^2} + \frac{\partial^2 \Psi}{\partial y^2} + \frac{\partial^2 \Psi}{\partial z^2} + \frac{8\pi m^2}{h} (E - V) \Psi = 0$$

19. Electronic configuration of tritium is :

- a)  $1s^1$                       b)  $1s^2, 2s^2$                       c)  $1s^1, 2s^1$                       d) None of these

20. The ratio of  $e/m$ , i.e., specific charge for a cathode ray:

- a) Has the smallest value when the discharge tube is filled with  $H_2$   
b) Is constant  
c) Varies with the atomic number of gas in the discharge tube  
d) Varies with the atomic number of an element forming the cathode

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