DPP

DAILY PRACTICE PROBLEMS

CLASS : XIth **SUBJECT : CHEMISTRY**
DATE : **DPP No. : 8**

Topic :- STRUCTURE OF ATOM

1. An atom emits energy equal to 4×10^{-12}erg. To which part of electromagnetic spectrum it belongs?
   a) UV region b) Visible region c) IR region d) Microwave region

2. The valence shell electronic configuration of Cr^{2+} ion is
   a) $4s^0 3d^4$ b) $4s^2 3d^2$ c) $4s^2 3d^0$ d) $3p^6 4s^2$

3. The total number of electrons present in all the 's' orbitals, all the 'p' orbitals and all the 'd' orbitals of cesium ion are respectively
   a) 8, 26, 10 b) 10, 24, 20 c) 8, 22, 24 d) 12, 20, 22

4. In the above question, the velocity acquired by the electron will be;
   a) $\sqrt{V/m}$ b) $\sqrt{(eV/m)}$ c) $\sqrt{(2eV/m)}$ d) None of these

5. The ionization energy of the ground state hydrogen atom is 2.18×10^{-18} J. The energy of an electron in its second orbit would be
   a) -2.67×10^{-18} J b) -5.45×10^{-19} J c) -3.58×10^{-18} J d) -4.68×10^{-19} J

6. The velocity of electron in first orbit of H-atoms as compared to the velocity of light is
   a) $\frac{1}{10}$ th b) $\frac{1}{100}$ th c) $\frac{1}{1000}$ th d) Same

7. 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 bm

8. Bohr's model violates the rules of classical physics because it assumes that:
   a) All electrons have same charge
   b) The nucleus have same charge
   c) Electrons can revolve around the nucleus
   d) A charged particle can accelerate without emitting radiant energy

9. The stability of ferric ion is due to
   a) Half filled f-orbitals
   b) Half filled d-orbitals
   c) Completely filled f-orbitals
   d) Completely filled d-orbitals

10. The electron possesses wave properties was shown experimentally by:
   a) Bohr
   b) de Broglie
   c) Davission and germer
   d) Schrödinger

11. The nature of canal rays depends on:
   a) Nature of electrode
   b) Nature of discharging tube
   c) Nature of residual gas
   d) All of the above

12. Total number of valency electrons in phosphonium ion PH_4^+ is:
   a) 16
   b) 32
   c) 8
   d) 18

13. Neutron possesses:
   a) Positive charge
   b) No net charge
   c) Negative charge
   d) All are correct

14. Cathode-ray tube is used in:
   a) Compound microscope
   b) A radio receiver
   c) A television set
   d) A van de Graff generator

15. Non-directional orbital is
   a) $4p$
   b) $4d$
   c) $4f$
   d) $3s$

16. How many unpaired electrons are present in Ni^{2+} cation? (At. No. $= 28$)
   a) 0
   b) 2
   c) 4
   d) 6

17. The maximum sum of the number of neutrons and proton is an isotope of hydrogen is :
   a) 6
   b) 5
   c) 4
   d) 3

18. The magnitude of the spin angular momentum of an electron is given by
   a) $S = \sqrt{s(s+1)}\frac{h}{2\pi}$
   b) $S = s\frac{h}{2\pi}$
   c) $S = \frac{3}{2} \times \frac{h}{2\pi}$
   d) None of these

19. A $3d$-electron having $s = +1/2$ can have a magnetic quantum no:
   a) $+2$
   b) $+3$
   c) -3
   d) $+4$

20. The emission spectrum of hydrogen is found to satisfy the expression for the energy change, ΔE (in joules), such that $\Delta E = 2.18 \times 10^{-18}\left[\frac{1}{n_1^2} - \frac{1}{n_2^2}\right]$ J, where, $n_1 = 1,2,3, \ldots$ and $n_2 = 2,3,4,\ldots$ The spectral lines correspond to Paschen series are

a) $n_1 = 1$ and $n_2 = 2,3,4$
b) $n_1 = 1$ and $n_2 = 3,4,5$
c) $n_1 = 3$ and $n_2 = 4,5,6$
d) $n_1 = 2$ and $n_2 = 3,4,5$