

DPP

DAILY PRACTICE PROBLEMS

CLASS : XIth
DATE :

SUBJECT : CHEMISTRY
DPP No. : 7

Topic :- STRUCTURE OF ATOM

- Energy of photon of visible light is
a) 1 eV b) 1 MeV c) 1 eV d) 1 keV
- Which of the following statements is incorrect?
a) Extra stability of half filled and completely filled orbitals among *s* and *p* block elements is reflected in trends of IE across a period
b) Extra stability of half-filled and completely filled orbitals among *s* and *p* block elements is reflected in EA trends across a period
c) Aufbau principle is incorrect for cases where energy difference between *ns* and $(n - 1)d$ sub-shell is larger
d) Extra stability to half filled sub-shell is due to higher exchange energies
- The photoelectric effect occurs only when the incident light has more frequency than a certain minimum:
a) Frequency b) Wavelength c) Speed d) Charge
- If the energy difference between the ground state of an atom and its excited state is 4.4×10^{-4} J, the wavelength of photon required to produce the transition
a) 2.26×10^{-12} m b) 1.13×10^{-12} m c) 4.52×10^{-16} m d) 4.52×10^{-12} m
- For which of the following, the radius will be same as for hydrogen atom having $n = 1$?
a) $\text{He}^+, n = 2$ b) $\text{Li}^{2+}, n = 2$ c) $\text{Be}^{3+}, n = 2$ d) $\text{Li}^{2+}, n = 3$
- The volume of a proton is approximately;
a) 1.5×10^{-30} cm³ b) 1.5×10^{-38} cm³ c) 1.5×10^{-34} cm³ d) None of these
- Normally, the time taken in the transition is :
a) Zero b) 1 sec c) 10^{-5} sec d) 10^{-8} sec
- When the value of azimuthal quantum number is 3, magnetic quantum number can have values:
a) +1, -1 b) +3, +2, +1, 0, -1, c) +2, +1, 0, -1, -2 d) +1, 0, -1

9. Positive rays or canal rays are:
- Electromagnetic waves
 - A steam of positively charged gaseous ions
 - A steam of electrons
 - Neutrons
10. X-rays do not show the phenomenon of :
- Diffraction
 - Polarisation
 - Deflection by electric field
 - Interference
11. For an electron, if the uncertainty in velocity is Δv , the uncertainty in its position (Δx) is given by:
- $\frac{h}{2} \pi m \Delta v$
 - $\frac{2\pi}{hm\Delta v}$
 - $\frac{h}{4\pi m \Delta v}$
 - $\frac{2\pi m}{h\Delta v}$
12. If the shortest wavelength of H-atom in Lyman series is x , the longest wavelength in Balmer series of He^+ is
- $\frac{36x}{5}$
 - $\frac{5x}{9}$
 - $\frac{x}{4}$
 - $\frac{9x}{5}$
13. Rydberg is :
- Also called Rydberg constant and is a universal constant
 - Unit of wavelength and one Rydberg equal to $1.097 \times 10^{-7} \text{m}^{-1}$
 - Unit of wave number and one Rydberg equal to $1.097 \times 10^7 \text{m}^{-1}$
 - Unit of energy and one Rydberg equal to 13.6 eV
14. Which is not deflected by magnetic field:
- Neutron
 - Positron
 - Proton
 - Electron
15. The quantum numbers $+\frac{1}{2}$ and $-\frac{1}{2}$ for an electron represent
- Rotation of electron in clockwise and anticlockwise direction respectively
 - Rotation of electron in anticlockwise and clockwise direction respectively
 - Magnetic moment of electron pointing up and down respectively
 - Two quantum mechanical spin states which have no classical analogue
16. Increase in the frequency of the incident radiations increases the:
- Rate of emission of photo-electrons
 - Work function
 - Kinetic energy of photo-electrons
 - Threshold frequency

17. What is the frequency of photon whose momentum is $1.1 \times 10^{-23} \text{ kg ms}^{-2}$?
- a) $5 \times 10^{16} \text{ Hz}$ b) $5 \times 10^{17} \text{ Hz}$ c) $0.5 \times 10^{18} \text{ Hz}$ d) $5 \times 10^{18} \text{ Hz}$
18. A quanta will have more energy, if :
- a) The wavelength is larger
b) The frequency is higher
c) The amplitude is higher
d) The velocity is lower
19. I_2 molecule dissociates into atoms after absorbing light of 4500 \AA . If one quantum of energy is absorbed by each molecule, the KE of iodine atoms will be (BE of $\text{I}_2 = 240 \text{ kJ/mol}$)
- a) $240 \times 10^{-19} \text{ J}$ b) $0.216 \times 10^{-19} \text{ J}$ c) $2.16 \times 10^{-19} \text{ J}$ d) $2.40 \times 10^{-19} \text{ J}$
20. The rest mass of a photon of wavelength λ is:
- a) Zero b) hc/λ c) $h/c\lambda$ d) h/λ

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