

ARJUNA NEET BATCH



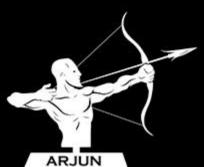
Atomic Structure
DPP-09



- 1. Orientation of orbitals is given by
 - (A) Magnetic quantum number (M)
 - (B) Spin quantum number (ms)
 - (C) Azimuthal quantum number (!)
 - (D) Principal quantum number (n)

$$m = \frac{p_x}{p_z}$$
 $\frac{p_z}{p_z}$

- (2) l = subshells
- (3) me = orbitals (preffered mentation)
- (4) ms spin of clechron (+1, , -1)



Azimuthal quantum



- 2. For n = 4, which one of the following values of *l* is not possible?
 - (A) 1
 - (B) 2
 - (C) 3

For every value of n, I can have values ranging from o to n-1

$$n=2$$
,

$$n = 3, \qquad l = 0, 1, 2$$

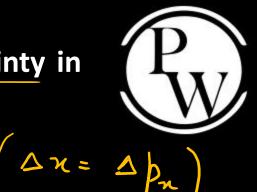
$$m = 4, \qquad l = 0, 1, 2, 3$$



Dn

DR

3. If uncertainty in position and momentum are equal, then uncertainty in



(A)
$$\sqrt{\frac{h}{\pi}}$$
 ×

velocity is:

(B)
$$\frac{1}{2m}\sqrt{\frac{h}{\pi}}$$

(C)
$$\frac{h}{2\pi}$$

(D)
$$\frac{1}{m}\sqrt{\frac{h}{\pi}}$$

Acc. to uncertainty principle
$$\Delta x \cdot \Delta p_n \ge \frac{h}{4\pi}$$

$$\Delta p_n \cdot \Delta p_n \geq \frac{h}{4\pi}$$

$$(m.\Delta V_n)^2 > \underline{h}$$



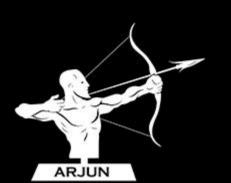


- (A) Directly proportional to the momentum of the particle
- (B) Directly proportional to the velocity of the particle
- (c) Inversely proportional to the momentum of the particle
 - (D) Inversely proportional to Planck's constant

$$1 = \frac{h}{mv}$$

$$\lambda = \frac{h}{2}$$

$$\left(mv = \rho \right)$$





5. The wavelength associated with an electron moving with velocity

$$\int \lambda = 7.21 \times 10^{-14} m$$

h = planck's constant $h = 6.626 \times 10^{-34}$ Js $(1\overline{J} = kg m^2 s^{-2})$ velouity = m/s mais afe = 9.1×1031 Kg





6. Probability density is given by:

- (A) ψ wavefunction no physical significance.
- (B) $[\psi]^2 \rightarrow \text{Probability density} \rightarrow \text{gives the probability of finding an election at a point within an atom (C) de-Broglie wavelength (1)$
 - (D) Ĥ -> Hamiltonian operator



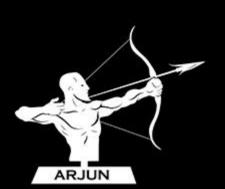


Me

7. The possible values of magnetic quantum number for p-orbital are:

(A) 0 (B)
$$-1$$
, 0, +1 (C) -2 , -1 , 0, +1, +2, +3

for p orbital, l= 1
for every value of l, possible values of m, are -l to +l including zero.



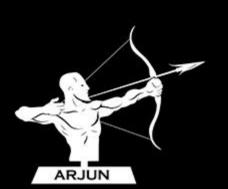


8. The notation of orbital with n=5 and l=3 is :

$$(D)$$
 3d

notation of orbital =
$$n(subshell)$$

= $5f$
Ans



(n+l), smaller energy, 9. In multi-electron atom 4s-orbital is lower in energy than: A) 3d-orbital (B) 3p-orbital (C) 2s-orbital (B) 2p-orbital 13 < 28 < 2p < 38 < 3p < 48 < 3d < 4p n= 4, 1=0 -> n+1 = 4+0 = 4/ n+l value greater (A) 3d -> n=3, l=2 -> n+1 = 3+2=5 higher energy than (B) 3b -> n=3, l= 1 -> n+1 = 3+1 = 4 $\rightarrow n=2, \ \ =0 \ \rightarrow n+1 = 2+0=2$ (D) 2) -> n=2 , l=1 , n+l = 2+1 = 3 4 (n+1) value is same, orketal having lower (n'value will have lower energy:, 3p < 48



10. Shape of an orbital is given by

- (A) Principal quantum number (n) -> Shell no.

 (B) Sin quantum number (ms) -> spin of electron

 (C) Azimuthal quantum number (the subshell and its shape.

 (D) Magnetic quantum number (ms) -> mentation of orbitals.







Thank You