

**NEET CHEMISTRY**

*Topic: Atomic Structure*

- Q.1**  $1s^2 2s^2 2p^5 3s^2$  shown configuraton of :
- (1)  $Al^{+3}$  in ground state
  - (2) Ne in excited state
  - (3)  $Mg^{+1}$  in excited state
  - (4) None of these
- Q.2** Which of the following transition neither shows absorption nor emission of energy in case of Hydrogen atom :
- (1)  $3p_x \rightarrow 3s$
  - (2)  $3d_{xy} \rightarrow 3d_{yz}$
  - (3)  $3s \rightarrow 3d_{xy}$
  - (4) All the above
- Q.3** The energy required to excite an electron of H-atom from first orbit to second orbit is :
- (1) of its ionisation energy
  - (2) of its ionisation energy
  - (3) of its ionisation energy
  - (4) None
- Q.4** The radiation of low frequency will be emitted in which transition of hydrogen atom :
- (1)  $n = 1$  to  $n = 4$
  - (2)  $n = 2$  to  $n = 5$
  - (3)  $n = 3$  to  $n = 1$
  - (4)  $n = 5$  to  $n = 2$
- Q.5** The ionisation potential of a singly ionised helium ion is equivalent to :
- (1) Kinetic Energy of first orbit

- (2) Energy of Last orbit
- (3) Average energy in orbits
- (4) Maximum energy in orbits

**Q.6** A single electron orbits a stationary nucleus ( $z = 5$ ). The energy required to excite the electron from the third to the fourth Bohr orbit will be :

- (1) 4.5 eV                      (2) 8.53 eV
- (3) 25 eV                      (4) 16.53 eV

**Q.7** The ionisation energy for the H-atom is 13.6 eV, then the required energy in eV to excite it from the ground state to next higher state will be : (in eV)

- (1) 3.4                          (2) 10.2
- (3) 12.1                      (4) 1.5

**Q.8** The ration of energies of hydrogen atom for first and second excited state is :

- (1) 4/1                          (2) 1/4
- (3) 4/9                          (4) 9/4

**Q.9** No. of wave in fourth orbit :

- (1) 4                              (2) 5
- (3) 0                              (4) 1

**Q.10** ( $n + 1$ ) is the principal quantum number of the energy state for an atom. What are the number of elliptical orbits associated with it :

- (1) ( $n - 1$ )                      (2) ( $n + 1$ )
- (3) ( $n - 2$ )                      (4)  $n$

**Q.11** Which of the following electron magnetic radiation passeses highest amount of energy :

- (1) X-rays                      (2) Gamma ray
- (3) Radio waves                (4) Cosmic rays

**Q.12** The uncetrainity in position of an electron & helium atom are same. If the uncertainty in momentum for the electron is  $32 \times 10^5$  , then the uncertainty in momentum of helium atom will be -

- (1)  $32 \times 10^5$                       (2)  $16 \times 10^5$

(3)  $8 \times 10^5$  (4) None

**Q.13** In an electronic transition atom cannot emit :

- (1) Visible light      (2)  $\gamma$ -rays  
(3) Infra red light      (4) Ultra violet light

**Q.14** If  $n = 3$ , then which value of ' $\ell$ ' is correct :

- (1) 0                      (2) 1  
(3) 2                      (4) All of them

**Q.15** The total spin resulting from a  $d^7$  configuration is -

- (1)              (2) 2      (3) 1      (4)

**Q.16** The atomic weight of an element is double its atomic number. If there are three electrons in 2p sub-shell, the element is -

- (1) C      (2) N      (3) O      (4) Ca

**Q.17** No. of all subshells of  $n + \ell = 7$  is -

- (1) 4      (2) 5      (3) 6      (4) 7

**Q.18** Sum of the paired electrons presents in the orbit with  $\ell = 2$  in all the species  $Fe^{2+}$ ,  $Co^{2+}$  and  $Ni^{2+}$  are -

- (1) 9      (2) 12      (3) 6      (4) 15

**Q.19** How many electrons in an atom with  $z = 104$  can have  $(n + \ell) = 8$  -

- (1) 18      (2) 16      (3) 3      (4) 6

**Q.20** The  $e/m$  ratio is maximum for :

- (1)  $D^+$       (2)  $He^+$       (3)  $H^+$       (4)  $He^{2+}$

**Q.21** Which of the following pair is correct :

- |     | n | $\ell$ | m  | s    |
|-----|---|--------|----|------|
| (1) | 3 | 3      | -3 | +1/2 |
| (2) | 3 | 2      | -1 | -1/2 |

(3) 2      2      0       $-1/2$

(4) 3      2       $-3$        $+1/2$

**Q.22** When orbit is away from nucleus, its energy :

(1) Decreases      (2) Unchanged

(3) Increases      (4) None of these

**Q.23** When electron revolves in fixed circular orbit :

(1) It absorbs energy

(2) It's kinetic energy increases

(3) It emits radiation

(4) Its energy is fixed

**Q.24** In a particular shell, the increasing order of subshell energy is represented by :

(1) Decreasing value of  $n$

(2) Increasing value of  $\ell$

(3) Increasing value of  $m$

(4) None of them

**Q.25** Which species does not contain neutron :

(1) H      (2)  $\text{Li}^{+2}$       (3) C      (4) O

**Q.26**  ${}_{18}\text{Ar}^{40}$ ,  ${}_{19}\text{K}^{40}$ ,  ${}_{20}\text{Ca}^{40}$  are :

(1) Isotopes      (2) Isobars

(3) Isotones      (4) Isodiaphers

**Q.27** Elements which have same mass number are called -

(1) Isomers      (2) Isotopes

(3) Isobars      (4) Isotone

**Q.28** Boron have two isotopes having atomic weight 10.01 (I) and 11.01 (II) respectively. The weight of natural boron is 10.81 then % availability of I and II isotopes will be :

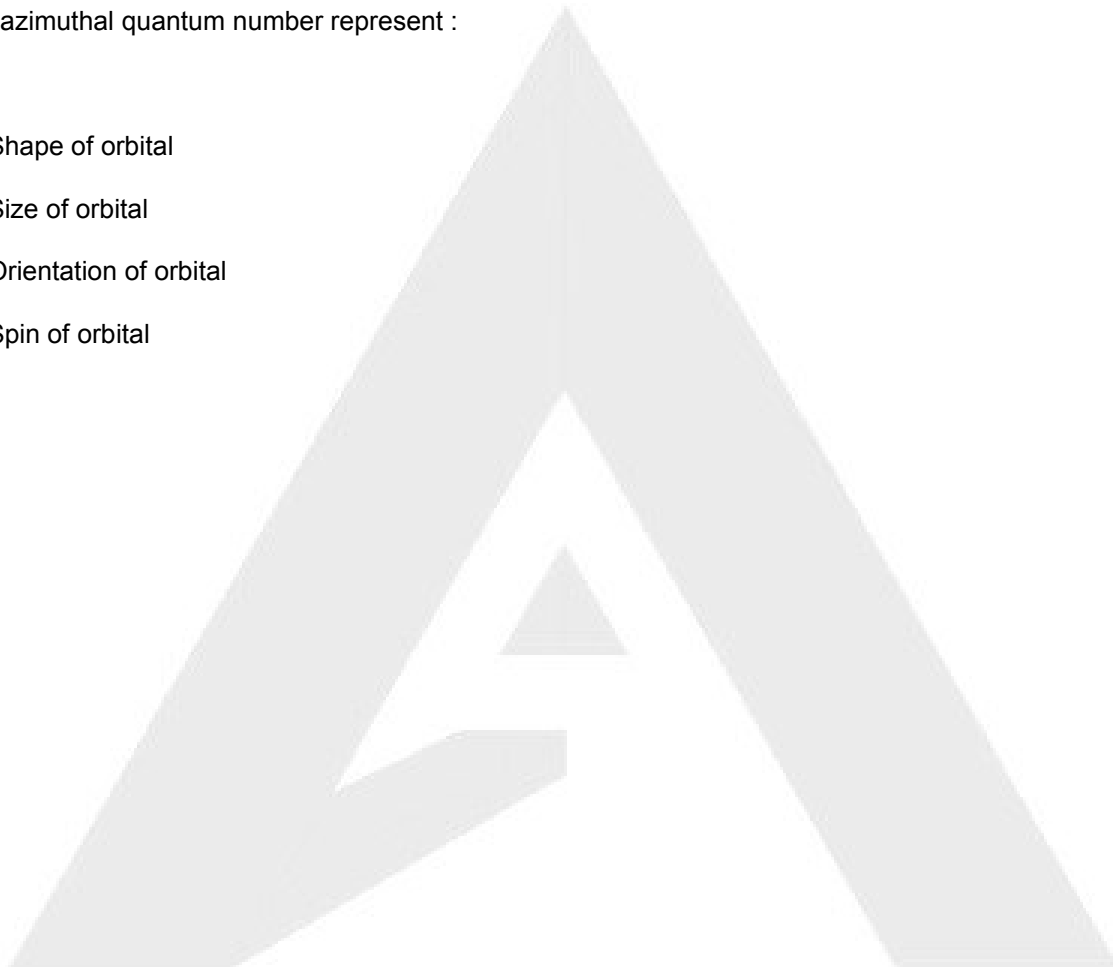
- (1) 20 and 80            (2) 10 and 90  
(3) 15 and 75            (4) 30 and 70

**Q.29** Energy required to remove an  $e^-$  from M shell of H-atom is 1.51 eV, then energy of 1st excited state will be -

- (1)  $-1.51$  eV            (2)  $+ 1.51$  eV  
(3)  $-3.4$  eV            (4)  $- 13.6$  eV

**Q.30** The azimuthal quantum number represent :

- (1) Shape of orbital  
(2) Size of orbital  
(3) Orientation of orbital  
(4) Spin of orbital



## ANSWER KEY

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<b>Que.</b>	1	2	3	4	5	6	7	8	9	10
<b>Ans.</b>	3	4	1	4	1	4	2	4	1	4
<b>Que.</b>	11	12	13	14	15	16	17	18	19	20
<b>Ans.</b>	3	1	2	4	4	2	1	2	2	3
<b>Que.</b>	21	22	23	24	25	26	27	28	29	30
<b>Ans.</b>	2	3	4	2	1	2	3	1	3	1

