

# DPP

DAILY PRACTICE PROBLEMS

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

SUBJECT : CHEMISTRY  
DPP No. : 9

## Topic :- STRUCTURE OF ATOM

- The maximum number of  $3d$ -electrons having spin quantum number  $s = +1/2$  are:  
a) 10                      b) 14                      c) 5                      d) None of these
- The ratio of nucleons in  $O^{16}$  and  $O^{18}$  is:  
a) 8/9                      b) 4/5                      c) 9/8                      d) 1
- A particle moving with a velocity  $10^6$  m/s will have de-Broglie wavelength nearly [Given,  $m = 6.62 \times 10^{-27}$  kg,  $h = 6.62 \times 10^{-34}$  J - s]  
a)  $10^{-9}$  m                      b)  $10^{-13}$  m                      c)  $10^{-19}$  m                      d) 1 Å
- Which is not permissible subshell?  
a)  $2d$                       b)  $4f$                       c)  $6p$                       d)  $3s$
- In Bohr's series of lines of hydrogen spectrum, the third line from the red end corresponds to which one of the following inner-orbit jumps of the electron for Bohr orbit in an atom of hydrogen?  
a)  $3 \rightarrow 2$                       b)  $5 \rightarrow 2$                       c)  $4 \rightarrow 1$                       d)  $2 \rightarrow 5$
- If the electron in the hydrogen atom is excited to  $n = 5$ , the number of different frequencies of radiations which may be emitted is:  
a) 4                      b) 5                      c) 8                      d) 10
- The uncertainty principle and the concept of wave nature of matter was proposed by ... and ... respectively  
a) Heisenberg, de Broglie  
b) de Broglie, Heisenberg  
c) Heisenberg, Planck  
d) Planck, Heisenberg
- Quantum theory was postulated by:  
a) Rutherford                      b) Maxwell                      c) Max Planck                      d) Becquerel

9. If the nitrogen atom had electronic configuration  $1s^7$ , it would have energy lower than that of the normal ground state configuration  $1s^2 2s^2 2p^3$ , because the electrons would be closer to the nucleus. Yet  $1s^7$  is not observed because it violates :
- Heisenberg's uncertainty principle
  - Hund's rule
  - Pauli's exclusion principle
  - Bohr's postulate of stationary orbits
10. The number of  $p$ -electrons in bromine atom is
- 12
  - 15
  - 7
  - 17
11. Potassium ion is isoelectronic with the atom of:
- Ar
  - He
  - Fe
  - Mg
12. An electron that has quantum number  $n = 3$  and  $m = 2$ :
- Must have spin value  $+1/2$
  - Must have  $l = 1$
  - Must have  $l = 0, 1$  or  $2$
  - Must have  $l = 2$
13. Cr has electronic configuration as
- $3s^2 3p^6 3d^4 4s^1$
  - $3s^2 3p^6 3d^5 4s^1$
  - $3s^2 3p^6 3d^6$
  - None of these
14. The number of vacant orbitals of element with atomic number 14 is:
- 2
  - 4
  - 8
  - 6
15. Energy of H-atom in the ground state is  $-13.6$  eV, hence energy in the second excited state is
- $-6.8$  eV
  - $-3.4$  eV
  - $-1.51$  eV
  - $-4.53$  eV
16. As electron moves away from the nucleus, its KE:
- Decreases
  - Increases
  - Remains constant
  - None of these
17. A hydrogen atom in its ground state absorbs a photon. The maximum energy of such a photon is:
- $1.5$  eV
  - $3.4$  eV
  - $10.2$  eV
  - $13.6$  eV
18. Wave nature of electrons was demonstrated by
- Schrodinger
  - De-Broglie
  - Davisson and Garmer
  - Heisenberg
19. The principal quantum number of H-atom orbital, if the electron energy is  $-3.4$  eV, will be
- 1
  - 2
  - 3
  - Zero

20. No two electrons can have the same values of .... quantum numbers.

a) One

b) Two

c) Three

d) Four

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