

RACE # 05

INORGANIC CHEMISTRY

- Consider the ground state of Cr ( $Z = 24$ ). The numbers of electrons with the azimuthal quantum numbers  $l = 1$  and 2 respectively are  
 (A) 16 and 4 (B) 12 and 5 (C) 12 and 4 (D) 16 and 5
- The total number of electrons in Cr atom for which  $m = 0$   
 (A) 1 (B) 8 (C) 12 (D) 16
- How many maximum possible set(s) of quantum no. are possible for 6th electron of Fe  
 (A) 1 (B) 3 (C) 6 (D) 10
- The maximum no. of electron in phosphorous atom for which  $n + l + m = 3$  will be -  
 (A) 6 (B) 5 (C) 4 (D) 3
- Which of the following having maximum number of unpaired electron -  
 (A)  $\text{Na}^+$  (B)  $\text{N}^{3-}$  (C)  $\text{Fe}^{3+}$  (D)  $\text{Cr}^{3+}$

Match the column :

## 6. Column-I

(A)  $\text{Fe}^{+2}$ (B)  $\text{Mn}^{+4}$ (C)  $\text{Zn}^{+2}$ (D)  $\text{Na}^+$ 

## Column-II

(P) Possible set of quantum no. for last  $e^-$ 

$$n = 2, \ell = 1, m = 1, m_s = +\frac{1}{2}$$

(Q) Magnetic moment ( $\mu$ ) = zero.

(R) Spin multiplicity (SM) = 4

(S) Total no. of exchange pair in 3d-subshell = 10

(T) Paramagnetic

## Subjective

- H-atom have infinite shells, write total number of shells which does not contain f-subshell.
- Calculate  $Z_{\text{eff}}$  for last valence shell electron in fluorine (F).
- In multielectronic atom, maximum number of degenerated orbitals present in 3<sup>rd</sup> shell
- Calculate  $Z_{\text{eff}}$  for 3s electron in vanadium(23).

## FILL THE ANSWER HERE

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