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1 La (lanthanum) having atomic number 57 is a member of d-block elements as the last valence electron enters d orbital.

2 Mendeleev's periodic table consists of sixty three elements arranged in increasing order of their atomic mass. The table consists of eight groups and six periods.

3 No name has yet been adopted for element 117, which is therefore called ununseptium, from the Latin roots un for one and sept for seven, under a convention for neutral temporary names proposed by the International Union of Pure and Applied Chemistry (IUPAC)

4 The atomic weight of X and Y are 10 and 26. By Dobereiner's Triad rule.

$Ay = Ax + Az2 \Leftrightarrow 26 = 10 + Az2 \Rightarrow Az = 52 - 10 \Rightarrow Az = 42$

5 Electronic configuration will be 5s14d4

If the element is in the d block, then the number of the group can be determined by the formula: [number of electrons in (n-1) d subshell] + (number of electrons in (n) s subshell).

So 4+1 =5 i.e. 5^{th} group

6 The electronic configuration of cobalt (Co) is $1s^2, 2s^2, 2p^6, 3s^2 3p^6, 4s^2, 3d^7$. Cobalt lies in the group 9, The maximum number of electron is 6. Cobalt has 3 unpaired electrons. The magnetic moment of the compound is,

$\mu = n(n + 2)$

$\mu = 3(3 + 2)$

$\mu = 15BM$

7 (A)-S ;(B)-R ;(C)-P ;(D)-Q

8 (a) → Element is carbon → p-block→ Valence electron = 4

(b) → Element is aluminium → p-block→ III period element→ Valence electron = 3

(c) → Element is chromium → d-block→ Valence electron = 6

→ Group number 6 in the long form of periodic table

(d) → Element is sodium → S-block → III period

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- The shell in which the last electron enters tells us about the block to which the element belongs and the value of principal quantum number tells us about the period and for s-block elements the group number is equal to the number of the valence electrons and for p-block elements the group number =10+ number of electrons in the valence shell.

  S-block

- The elements belonging to the groups 1 and 2 belong to s- block elements and ave the general electronic configuration as ns^{1-2}.

  p-block

- the elements belonging to the groups 13 and 18 belong to p-block elements and have the general electronic configuration as ns^2np^{1-6}

  d-block

- If the element is in the d block, then the number of the group can be determined by the formula: [number of electrons in (n-1) d subshell] + (number of electrons in (n) s subshell).

10 According to Aufbau Principle, the electrons enter in the orbitals according to the increasing energy of the orbitals.

this is followed by n + l rule where n is the principal quantum nos. and l the azimuthal quantum number.

seventeenth group of periodic table has halogen family. on moving from the third period, the element which is present in Group -17 and Period = 3 will be Bromine.

The electronic configuration of Bromine (z = 17),

$1s^2 2s^2 2p^6 3s^2 3p^5$

$\therefore$ the last electron entered in ' $3p^{'}$ orbital, where n = 3 and for p-orbital $\rightarrow \ell = 1$

$\therefore$ n + ℓ value = 3 + 1

$\therefore$ (n + l) = 4