DPP
DAILY PRACTICE PROBLEMS

Class : XIth
Date :

Solutions

Subject : CHEMISTRY
DPP No. : 1

Topic :- Classification of Elements & Periodicity in Properties

2 **(d)**
Ionisation potential increases along the period.

3 **(a)**
$Sc^{3+} > Cr^{3+} > Fe^{3+} > Mn^{3+}$, the correct order is $Cr^{3+} > Mn^{3+} > Fe^{3+} > Sc^{3+}$

4 **(a)**
1. $1s^2,2s^2,2p^5 = 2, 7$

(∵ It has capacity to accept electron therefore, it is electronegative.)

(b) $1s^2,2s^2,2p^4,3s^1 = 2, 6, 1$
(configuration not correct ($2p^4$))
(c) $1s^2,2s^2,2p^6,3s^1,3p^5 = 2, 8, 6$

(configuration not correct $3s^1$)

(d) $1s^2,2s^2,2p^6,3s^2,3p^5 = 2, 8, 7$
(∵ It has capacity to accept electron therefore, it is electronegative)
Smaller the size, greater will be electronegativity. Since, element in choice (a) is smaller in size, it will be more electronegative than (d). In choice (a) the atomic number of element is 9, which is of fluorine and it is the most electronegative element of the Periodic Table.

5 **(d)**
IIIA group contains both metals and non-metals

6 **(b)**
Only P has d-orbitals.

7 **(c)**
The general electronic configuration of d-block element is $(n-1)d^{1-10},ns^{1-2}$. They show variable oxidation state because d-electrons also take part in bond formation. They have degenerated orbitals. s and p-block elements in general do not show variable oxidation states.

9 **(a)**
BeF_3^- involves sp^2-hybridization.

10 **(d)**
The electron affinities of some of the elements of second period (ie, N, O, F, etc) are

however, lower than the corresponding element (ie, P, S, Cl, etc) of the third period. This is due to the reason that the elements of second period have the smallest atomic size amongst the elements in their respective groups. As a result, there are considerable electron-electron repulsion within the atom itself and hence, the additional electron is not accepted with the same ease as is the case with the remaining elements in the same group

11 **(d)**

E°_{op} order is Mg $> Fe > Cu$; more is E°_{op}, more is electropositive character.

14 **(a)**

Non-metals are characteristically electronegative.

15 **(a)**

The relative extent to which the various orbitals penetrate the electron clouds of other orbitals is $s > p > d > f$. Electron will experience the greatest effective nuclear charge when in s-orbital, then a p-orbital and so on. Ionisation energy increases with an increase in penetration power and thus, the order of screening effect is $s > p > d > f$.

16 **(a)**

Carbon in H_2CO_3 has sp^2-hybridization and also polar. BF_3 has sp^2 but non-polar. SiF_4 has sp^3-hybridization. $HClO_2$ has sp^3-hybridization.

17 **(c)**

$O^-(g) + e^- \rightarrow O^{2-}(g)$, $\Delta H^{\circ} = 844$ kJmol^{-1}

This process is unfavorable in the gas phase because the resulting increase in electron-electron repulsion overweighs the stability gained by achieving the noble gas configuration.

19 **(c)**

The fifth period from nubidium (37) to xenon (54). The last electron enters in 5s, 4d or 5p-orbitals. Therefore, the fifth period has (2+10+6)18 elements.

20 **(d)**

Cs is more electropositive .

ANSWER-KEY										
Q.	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**
A.	**C**	**D**	**A**	**A**	**D**	**B**	**C**	**A**	**A**	**D**
Q.	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**
A.	**D**	**A**	**A**	**A**	**A**	**A**	**C**	**A**	**C**	**D**