

**Application of Electronegativity**

- Arrange in the order of increasing acidic nature ( $\text{NO}_2$ ,  $\text{K}_2\text{O}$ ,  $\text{ZnO}$ ) :-  
 (A)  $\text{NO}_2 < \text{ZnO} < \text{K}_2\text{O}$  (B)  $\text{K}_2\text{O} < \text{ZnO} < \text{NO}_2$  (C)  $\text{NO}_2 < \text{K}_2\text{O} < \text{ZnO}$  (D)  $\text{K}_2\text{O} < \text{NO}_2 < \text{ZnO}$
- The basic character of  $\text{MgO}$ ,  $\text{SrO}$ ,  $\text{K}_2\text{O}$  and  $\text{NiO}$  increases in the order :-  
 (A)  $\text{K}_2\text{O} < \text{SrO} < \text{MgO} < \text{NiO}$  (B)  $\text{NiO} < \text{MgO} < \text{SrO} < \text{K}_2\text{O}$   
 (C)  $\text{MgO} < \text{NiO} < \text{SrO} < \text{K}_2\text{O}$  (D)  $\text{K}_2\text{O} < \text{MgO} < \text{NiO} < \text{SrO}$
- The order in which the following oxides are arranged according to decreasing basic nature is :-  
 (A)  $\text{Na}_2\text{O} > \text{MgO} > \text{Al}_2\text{O}_3 > \text{SiO}_2$  (B)  $\text{SiO}_2 > \text{Al}_2\text{O}_3 > \text{MgO} > \text{Na}_2\text{O}$   
 (C)  $\text{Al}_2\text{O}_3 > \text{SiO}_2 > \text{MgO} > \text{Na}_2\text{O}$  (D)  $\text{SiO}_2 > \text{MgO} > \text{Na}_2\text{O} > \text{Al}_2\text{O}_3$
- The correct order of acidic strength is  
 (A)  $\text{Cl}_2\text{O}_7 > \text{SO}_3 > \text{P}_4\text{O}_{10}$  (B)  $\text{CO}_2 > \text{N}_2\text{O}_5 > \text{SO}_3$   
 (C)  $\text{Na}_2\text{O} > \text{MgO} > \text{Al}_2\text{O}_3$  (D)  $\text{K}_2\text{O} > \text{CaO} > \text{MgO}$
- Which of the following is an amphoteric oxide ?  
 (A)  $\text{MgO}$  (B)  $\text{Al}_2\text{O}_3$  (C)  $\text{SiO}_2$  (D)  $\text{P}_2\text{O}_5$
- Least basic oxide is :-  
 (A)  $\text{Fe}_2\text{O}_3$  (B)  $\text{FeO}$  (C)  $\text{BaO}$  (D)  $\text{Na}_2\text{O}$
- Identify the correct order of acidic strengths :-  
 (A)  $\text{CaO} < \text{CuO} < \text{H}_2\text{O} < \text{CO}_2$  (B)  $\text{H}_2\text{O} < \text{CuO} < \text{CaO} < \text{CO}_2$   
 (C)  $\text{CaO} < \text{H}_2\text{O} < \text{CuO} < \text{CO}_2$  (D)  $\text{H}_2\text{O} < \text{CO}_2 < \text{CaO} < \text{CuO}$
- Which of the following does not represent the correct order of the property indicated  
 (A)  $\text{Sc}^{3+} > \text{Cr}^{3+} > \text{Fe}^{3+} > \text{Mn}^{3+}$  ionic radii (B)  $\text{Sc}^{3+} < \text{Y}^{3+} < \text{La}^{3+}$  Ionic radii  
 (C)  $\text{FeO} < \text{CaO} > \text{MnO} > \text{CuO}$  Basic nature (D) All
- Which of the following is the most basic oxide?  
 (A)  $\text{SeO}_2$  (B)  $\text{Al}_2\text{O}_3$  (C)  $\text{Sb}_2\text{O}_3$  (D)  $\text{Bi}_2\text{O}_3$
- Calculate individual and average Oxidation number (if required) of the marked element  
 (1)  $\text{H}\underline{\text{N}}\text{O}_3$  (2)  $\underline{\text{O}}\text{sO}_4$  (3)  $\underline{\text{P}}\text{H}_3$  (4)  $\underline{\text{Cr}}\text{O}_4^{2-}$   
 (5)  $\underline{\text{Cr}}_2\text{O}_7^{2-}$  (6)  $\underline{\text{Cr}}\text{O}_2\text{Cl}_2$  (7)  $\text{Na}_2\text{H}\underline{\text{P}}\text{O}_4$  (8)  $\underline{\text{Fe}}\text{S}_2$   
 (9)  $\underline{\text{C}}_6\text{H}_{12}\text{O}_6$  (10)  $\underline{\text{Xe}}\text{O}_2\text{F}_2$  (11)  $\text{Li}\underline{\text{Al}}\text{H}_4$  (12)  $\text{Na}_3\underline{\text{Al}}\text{F}_6$   
 (13)  $\underline{\text{P}}_4$  (14)  $\underline{\text{O}}_3$  (15)  $\underline{\text{I}}(\text{IO}_3)_3$  (16)  $\underline{\text{Fe}}_3\text{O}_4$   
 (17)  $\text{Cs}\underline{\text{I}}_3$  (18)  $\text{K}\underline{\text{O}}_3$  (19)  $\underline{\text{O}}_2\text{F}_2$  (20)  $\text{H}_2\underline{\text{Si}}\text{F}_6$   
 (21)  $\underline{\text{P}}(\text{OH})_3$  (22)  $\underline{\text{P}}\text{OCl}_3$  (23)  $\underline{\text{Si}}(\text{OH})_4$  (24)  $\text{Mg}_2\underline{\text{C}}_3$   
 (25)  $\text{Ca}\underline{\text{C}}_2$  (26)  $\text{Be}_2\underline{\text{C}}$  (27)  $\text{Na}\underline{\text{B}}\text{H}_4$  (28)  $\underline{\text{Fe}}_{0.96}\text{O}$
- Calculate the O.N. of all atoms in following compounds  
 (1)  $\text{Fe}_3\text{O}_4$  (2)  $\text{FeO}$  (3)  $\text{Na}_2\text{S}_4\text{O}_6$  (4)  $\text{C}_2\text{H}_5\text{OH}$   
 (5)  $\text{FeSO}_4 \cdot (\text{NH}_4)_2\text{SO}_4 \cdot 6\text{H}_2\text{O}$  (6)  $\text{CO}_2$  (7)  $\text{FeS}_2$   
 (8)  $\text{PbS}$  (9)  $\text{CS}_2$  (10)  $\text{CrO}_5$  (11)  $(\text{N}_2\text{H}_5)_2\text{SO}_4$   
 (12)  $\text{N}_2\text{O}_5$  (13)  $\text{HCN}$  (14)  $\text{HNC}$  (15)  $\text{Ba}[\text{H}_2\text{PO}_2]_2$   
 (16)  $\text{OsO}_4$  (17)  $\text{H}_2\text{S}_2\text{O}_3$  (18)  $\text{CH}_3\text{SO}_3\text{H}_6$

### Miscellaneous questions

12. Which are correct match :-

(a)  $O < C < S < Se$  — Atomic size

(b)  $Na < Al < Mg < Si$  — 1<sup>st</sup> I.P

(c)  $MgO < SrO < Cs_2O < K_2O$  — Basic character

(A) a, b

(B) b, c

(C) a, c

(D) a, b, c

13. For the processes  $K^+(g) \xrightarrow{I} K(g) \xrightarrow{II} K(s)$  :-

(A) Energy is released in (I) and absorbed in (II)

(B) Energy is absorbed in (I) and released in (II)

(C) Energy is absorbed in both the processes

(D) Energy is released in both the processes

14. Which of the following option is/are correct :-

(A)  $IE_1$  of Be  $>$   $IE_1$  of  $Be^-$

(B)  $IE_1$  of  $Be^- > IE_1$  of Be

(C)  $|IE_1 \text{ of } Be^-| = |IEA \text{ of } Be|$

(D)  $IE_1$  of Be  $>$   $IE_1$  of B

15. Match the column :

#### Column-I

#### Column-II

(A) F

(P) highest ionization energy

(B) Cl

(Q) highest electronegativity

(C) Br

(R) highest electron affinity

(D) I

(S) highest size

(T) atom in which penultimate shell is full filled

### SUBJECTIVES

16. From among the elements, choose the following: Cl, Br, F, Al, C, Li, Cs & Xe.

(i) The element with highest electron gain enthalpy

(ii) The element with lowest ionisation potential.

(iii) The element whose oxide is amphoteric.

(iv) The element which has smallest radii.

(v) The element whose atom has 8 electrons in the outermost shell.

17. Which oxide is more basic, MgO or BaO? Why?

18. Based on location in P.T., which of the following would you expect to be acidic & which basic.

(a) CsOH

(b) IOH

(c)  $Sr(OH)_2$

(d)  $Se(OH)_2$

(e) FrOH

(f) BrOH

19. Compare the following giving reasons

Acidic nature of oxides : CaO, CO,  $CO_2$ ,  $N_2O_5$ ,  $SO_3$

# Answers

## RACE # 10

1. (B) 2. (B) 3. (A) 4. (A) 5. (B) 6. (A) 7. (A) 8. (A) 9. (D)
- 10\* 1. (+5) 2. (+8) 3. (-3) 4. (+6) 5. (+6) 6. (+6) 7. (+5) 8. (+2) 9. (0)
10. (+6) 11. (+3) 12. (+3) 13. (0) 14. (0) 15. (+5) 16. (8/3) 17. (-1/3)
18. (-1/3) 19. (+1) 20. (+4) 21. (+3) 22. (+5) 23. (+4) 24. (-4/3) 25. (-1) 26. (-4)
27. (+3) 28. (2.08)
- 11\*. 1. (8/3, -2) 2. (+2, -2) 3. (+1, 2.5, -2) 4. (-2, +1, -2, +1)
5. (+2, +6, -2, -3, +1, +6, -2, +1, -2) 6. (+4, -2) 7. (+2, -1)
8. (+2, -2) 9. (+4, -2) 10. (+6, -1, -2) 11. (-2, +1, +6, -2)
12. (+5, -2) 13. (+1, +2, -3) 14. (+1, -3, +2) 15. (+2, +1, +1, -2)
16. (+8, -2) 17. (+1, -2, +6, -2) 18. (-2, +1, +4, -2, +1)
12. (A) 13. (D) 14. (ACD) 15. (A-P, Q,T) ; (B R, T); (C- T); (D - S)
16. (i) Cl (ii) Cs (iii) Al (iv) F (v) Xe 17. BaO
18. (a) Basic (b) Acidic (c) Basic (d) Acidic (e) Basic (f) Acidic
19.  $\text{CaO} < \text{CO} < \text{CO}_2 < \text{N}_2\text{O}_5 < \text{SO}_3$