DPP
DAILY PRACTICE PROBLEMS

Class : XIth **Subject : CHEMISTRY**
Date : **DPP No. : 3**

Topic :- Classification of Elements & Periodicity in Properties

1. The correct order of decreasing second ionisation enthalpy of Ti (22), V (23), Cr (24) and Mn (25) is:
   a) V > $Mn > Cr > Ti$ b) Mn > $Cr > Ti > V$ c) Ti > $V > Cr > Mn$ d) Cr > $Mn > V > Ti$

2. The electrons used in bonding atoms:
   a) Belong to outermost shell
   b) Belong to penultimate shell
   c) Belong to outermost shell and sometimes penultimate shell
   d) Belong to penultimate shell and sometimes to outermost shell

3. The discovery of which of the following group of elements gave death blow to the Newland's law of octaves?
   a) Inert gases b) Alkaline earths c) Rare earths d) Actinides

4. Generally, the first ionisation energy increases along a period. But there are some exceptions. One which is not an exception is
   a) N and O b) Na and Mg c) Mg and Al d) Be and B

5. Which one of the following orders presents the correct sequence of the increasing basic nature of the given oxides?
   a) $Al_2O_3 < MgO < Na_2O < K_2O$ b) $MgO < K_2O < Al_2O_3 < Na_2O$
   c) $Na_2O < K_2O < MgO < Al_2O_3$ d) $K_2O < Na_2O < Al_2O_3 < MgO$

6. The basis of keeping the elements in the groups of The Periodic Table is
   a) Ionisation potential b) Electronegativity
   c) Electron affinity d) Number of valence electrons

7. I^{st} and II^{nd} IE of Mg are 7.646 and 15.035 eV respectively. The amount of energy needed to convert all the atoms of magnesium into Mg^{2+} ions present in 12 mg of magnesium vapours is [Given, 1eV = 96.5 kJ mol^{-1}]
   a) 1.5 b) 2.0 c) 1.1 d) 0.5

8. $K^+, Cl^-, Ca^{2+}, S^{2-}$ ions are isoelectronics. The decreasing order of their size is:
   a) $S^{2-} > Cl^- > K^+ > Ca^{2+}$
   b) $Ca^{2+} > K^+ > Cl^- > S^{2-}$
   c) $K^+ > Cl^- > Ca^{2+} > S^{2-}$
   d) $Cl^- > S^{2-} > Ca^{2+} > K^+$

9. The first four ionisation energy values of an element are 191, 578, 872 and 5962 kcal. The number of valence electrons in the element is
   a) 1 b) 2 c) 3 d) 4

10. Which are true statements among the following?
(1) PH_5 and $BiCl_5$ does not exist
(2) $p\,\pi - d\pi$ bonds are present in SO_2
(3) Electrons travel with speed of light
(4) SeF_4 and CH_4 has same shape
(5) I_3^+ has bent geometry
a) 1, 3 b) 1, 2, 5 c) 1, 3, 5 d) 1, 2, 4

11. Correct increasing order of first ionisation potential is
a) Na $< Mg > Al < Si$ b) Na $< Mg < Al < Si$ c) Na $> Mg > Al > Si$ d) Na $< Mg < Al > Si$

12. Which pair represents isostructural species?
a) CH_3^- and CH_3^+ b) NH_4^+ and NH_3 c) SO_4^{2-} and BF_4^- d) NH_2^- and BeF_2

13. The first ionisation potential (eV) of Be and B respectively are
a) 8.29 eV, 8.29 eV b) 8.29 eV, 9.32 eV c) 9.32 eV, 9.32 eV d) 9.32 eV, 8.29 eV

14. The correct order according to size is
a) $O > O^- > O^{2-}$ b) $O^- > O^{2-} > O$ c) $O^{2-} > O^- > O$ d) $O > O^{2-} > O^-$

15. The correct order of electron affinity is
a) B $< C < O > N$ b) B $> C > N > O$ c) O $> C > B > N$ d) O $< C < B < N$

16. Which of the following is a false statement?
a) Fluorine is more electronegative than chlorine b) Nitrogen has greater IE_1 than oxygen
c) Lithium is amphoteric d) Chlorine is an oxidising agent

17. Solid NaCl is a bad conductor of electricity because:
a) In solid NaCl there are no ions
b) Solid NaCl is covalent
c) In solid NaCl there is no velocity of ions
d) In solid NaCl there are no electrons

18. Which of the following configuration is associated with biggest jump between 2nd and 3rd IE?
a) $1s^2, 2s^2 2p^2$ b) $1s^2, 2s^2 2p^6, 3s^1$ c) $1s^2, 2s^2 2p^6, 3s^2$ d) $1s^2, 2s^2 2p^1$

19. Consider the ions K^+, S^{2-}, Cl^- and Ca^{2+}. The radii of these ionic species follow the order
a) $Ca^{2+} > K^+ > Cl^- > S^{2-}$ b) $Cl^- > S^{2-} > K^+ > Ca^{2+}$
c) $Ca^{2+} > Cl^- > K > S^{2-}$ d) $S^{2-} > Cl^- > K^+ > Ca^{2+}$

20. The correct order of ionisation energy for comparing carbon, nitrogen and oxygen is
a) C < N > O b) C > N < O c) C > N > O d) C < N < O