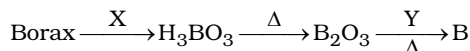


Date Planned : __ / __ / __	Daily Tutorial Sheet-7	Expected Duration : 30 Min
Actual Date of Attempt : __ / __ / __	Level-2	Exact Duration : _____

86. Borax is converted into crystalline boron by the following steps :



X and Y are respectively :

- (A) HCl, Mg      (B) HCl, C      (C) C, Al      (D) HCl, Al

- \*87.  $\text{B}_2\text{H}_6$  on reaction with methanol does not form :

- (A)  $\text{H}_3\text{BO}_3$       (B)  $\text{B}(\text{CH}_3)_3$       (C)  $\text{B}(\text{OMe})_3$       (D)  $\text{BH}_2(\text{CH}_3)_2$

- \*88. Which of the following is a true statement ?

- (A) Boranes are easily hydrolysed      (B)  $\text{LiAlH}_4$  reduces  $\text{BCl}_3$  to borane  
(C)  $\text{BH}_3$  is Lewis acid      (D) All the B – O distances in borax are equal

89. Which of the following is sparingly soluble in cold water and fairly soluble in hot water ?

- (A)  $\text{Pb}(\text{NO}_3)_2$       (B)  $\text{PbCl}_2$       (C)  $\text{PbSO}_4$       (D)  $\text{PbCrO}_4$

- 90 Match the column :

Column I		Column II	
(A)	$\text{Borax} \xrightarrow{\Delta}$	(p)	$\text{B}_3\text{N}_3\text{H}_6$
(B)	$\text{B}_2\text{H}_6 + \text{H}_2\text{O} \longrightarrow$	(q)	$\text{B}_2\text{H}_6$
(C)	$\text{B}_2\text{H}_6 + \text{NH}_3 \xrightarrow[\text{excess}]{\Delta}$	(r)	$\text{H}_3\text{BO}_3$
(D)	$\text{BCl}_3 + \text{LiAlH}_4 \longrightarrow$	(s)	$\text{NaBO}_2 + \text{B}_2\text{O}_3$

91. Match the column :

Column I		Column II	
(A)	Inorganic benzene	(p)	$\text{Na}_2\text{B}_4\text{O}_7 \cdot 10\text{H}_2\text{O}$
(B)	Jeweller's borax	(q)	$\text{B}_2\text{H}_6$
(C)	Borax	(r)	$\text{Na}_2\text{B}_4\text{O}_7 \cdot 5\text{H}_2\text{O}$
(D)	Diborane	(s)	Mordant
		(t)	$\text{B}_3\text{N}_3\text{H}_6$

### Paragraph for Questions 2 & 3

Read the following structural aspects of borax and answer the questions given at the end. "Borax is actually made of two tetrahedral and two triangular units joined together and should be written as" :  $\text{Na}_2[\text{B}_4\text{O}_5(\text{OH})_4] \cdot 8\text{H}_2\text{O}$

92. Consider following statements about borax :

- I. Each boron atom has four B – O bonds  
II. Each boron atom has three B – O bonds  
III. Two boron atoms have four B – O bond while other two have three B – O bonds  
IV. Each boron atom has one –OH group

Select correct statement(s) :

- (A) I, II      (B) II, III      (C) III, IV      (D) I, III

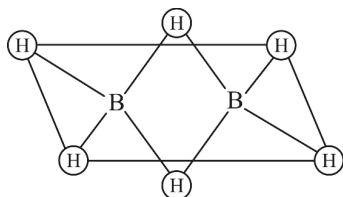
\*93. Select correct statement(s) :

- (A) Borax is used as a buffer
- (B) 1 M borax solution reacts with equal volumes of 2 M HCl solution
- (C) Titration of borax can be made using methyl orange as the indicator
- (D) Coloured bead obtained in borax bead test contains metaborate

\*94. The reason for small radius of Ga compared to Al is :

- (A) Poor screening effect of d and f orbitals
- (B) Increase in nuclear charge
- (C) Presence of higher orbitals
- (D) Higher atomic number

\*95. Which of the following statements are correct. Answer on the basis of figure :



- (A) The two bridged hydrogen atoms and the two boron atoms lie in one plane
- (B) Out of six B – H bonds, two bonds can be described in terms of 3-centre 2-electron bonds
- (C) Out of six B – H bonds, four B – H bonds can be described in terms of 3-centre 2-electron bonds
- (D) The four terminal B – H bonds are 2-centre 2-electron regular bonds