

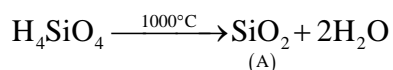
10. GROUP 14 ELEMENTS (IV A)

PREVIOUS EAMCET BITS

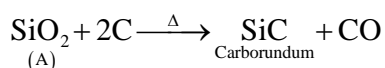
1. Identify B in the following reaction $\text{H}_4\text{SiO}_4 \xrightarrow[-\text{H}_2\text{O}]{1000^\circ\text{C}} \text{A} \xrightarrow[\Delta]{\text{Carbon}} \text{B} + \text{CO}$ (2008 E)

- 1) Corundum 2) Quartz 3) Silica 4) Carborundum

Ans : 4.



Sol:



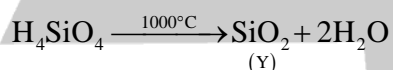
2. Hydrolysis of SiCl_4 gives compound X and HCl on heating to 1000°C X loses water and forms Y. Identify X and Y respectively (2008 M, 2009 E)

- 1) SiO_2 and Si 2) H_4SiO_4 and SiO_2 3) SiO_2 and SiC 4) H_2SiO_4 and SiC

Ans : 2.



Sol:



3. Calorific value of Producer gas is low because of (2007 E)

- 1) High percent of N_2 2) Low percent of CO_2
3) High percent of CO 4) Low percent of N_2

Ans: 1.

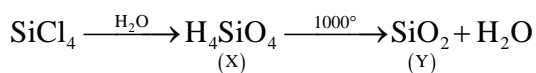
Sol: In producer gas nitrogen percentage is more which is a uncombustible gas therefore producer gas has less calorific value.

4. $\text{SiCl}_4 \xrightarrow{\text{H}_2\text{O}} \text{X} \xrightarrow{1000^\circ\text{C}} \text{Y}$

In the above reaction X and Y respectively are (2007 M)

- 1) SiO_2 and Si 2) H_4SiO_4 and SiO_2 3) H_2SiCl_8 and SiO_2 4) H_4SiO_4 and Si

Ans : 2



Sol:

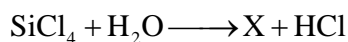
5. Which of the following is used for making optical instruments. (2006 E)

- 1) SiO_2 2) Si 3) SiH_4 4) SiC

Ans: 1

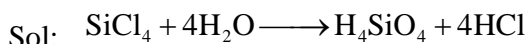
Sol: SiO_2 is used in making optical instruments.

6. What is X in the following reaction. (2006 M)



- 1) H_4SiO_4 2) SiH_4 3) $(\text{SiOOH})_2$ 4) $\text{Si}(\text{ClO}_4)_4$

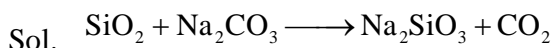
Ans: 1



7. SiO_2 is reacted with sodium carbonate. What is the gas liberated ? (2005 E)

1. CO 2. O_2 3. CO_2 4. O_3

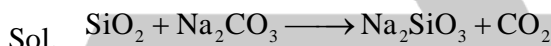
Ans: 3



8. Which of the following is not correct ? (2005 E)

- SiO_2 is used as acid flux
- The distance between the layers in graphite is 3.35×10^{-8} cm
- SiO_2 reacts with Na_2CO_3 and liberates CO
- The hybridisation of C in graphite is sp^2

Ans: 3



In the above reaction CO_2 is liberated but not CO.

9. Which one of the following is used as an acidic flux in metallurgy? (2004 E)

1. CaO 2. SiO_2 3. Na_2CO_3 4. SO_2

Ans: 2

Sol. SiO_2 is used as acidic flux in metallurgy.

10. What is number of free electrons present on each carbon atoms in graphite (2003 M)

1. zero 2. 3 3. 2 4. 1

Ans: 4

Sol. In graphite each carbon atom undergoes sp^2 hybridisation and one free electron is present on each carbon atom.

11. Which one of the following is correct set of SiO_2 (2002 M)

1. Linear, acidic 2. Linear, Basic 3. Tetrahedral, Acidic 4. Angular, Basic

Ans: 3

Sol. SiO_2 is acidic and it has tetrahedral structure .

12. The catenation tendency of C, Si and Ge is in the order $\text{Ge} < \text{Si} < \text{C}$. The bond energies in (KJ.mol^{-1}) of C – C, Si – Si, Ge – Ge respectively are (2001 E)

1. 167, 180, 348 2. 180, 167, 348 3. 348, 167, 180 4. 348, 180, 167

Ans: 4

Sol. As the bond energy increases catenation power also increases. Therefore the order of bond energies is $\text{Ge} - \text{Ge} < \text{Si} - \text{Si} < \text{C} - \text{C}$

C – C > Si – Si > Ge – Ge

13. Which of the following is used in the preparation of aerated water (Soda) (2000 E)

1. CO 2. CO_2 3. SO_2 4. HCl

Ans: 2

Sol. In aerated water CO_2 is used.

14. A mixture of CO, H_2 and hydrocarbons is called (1999 M)

- 1) Water gas 2) Carburetted water gas 3) Semi water gas 4) Producer gas

Ans: 2

Sol. Carburetted water gas in mixture of water gas and hydrocarbon that is CO, H_2 and hydrocarbon.

15. SiO_2 is soluble in (1999 E)

- 1) H_2SO_4 2) HNO_3 3) HCl 4) HF

Ans: 4

Sol. SiO_2 is insoluble in all acids except in HF.

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