



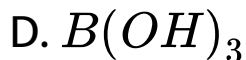
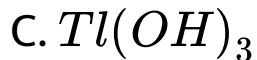
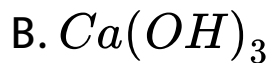
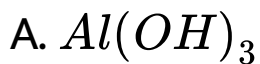
CHEMISTRY

BOOKS - DISHA CHEMISTRY (HINGLISH)

p-BLOCK ELEMENTS (Gp-13 AND 14)

Mcqs

1. Which of the following hydroxide is acidic?



Answer: D



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2. Boric acid is polymeric due to

A. its acidic nature

B. the presence of hydrogen bonds

C. its monobasic nature

D. its geometry

Answer: B



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3. The $I. E_1$ among group 13 members follows

as

A. $B > Al < Ga < Tl$

B. $B > Al > Ga > Tl$

C. $B > Ga > Al > Tl$

D. $B > Ga < Al < Tl$

Answer: C



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4. In aluminates, the coordination number of Al is

A. 4

B. 6

C. 3

D. 1

Answer: B



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5. Match the columns



A. A-II, B-II, C-III, D-I, E-I

B. A-II, B-III, C=III, D-I, E-I

C. A-I, B-III, C-iii, D-I, E-II

D. A-I, B-II, C-II, D-III, E-I

Answer: B



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6. The melting pt. of 13 group follows the order

A. $B > Al > Ga > In > Tl$

B. $B > Al > Ga > In > Tl$

C. $B > Al > Tl > In > Ga$

D. $B > Al < Ga < In < Tl$

Answer: C

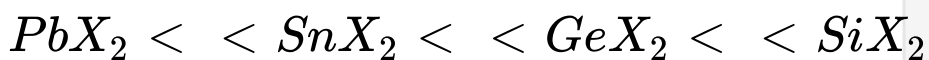


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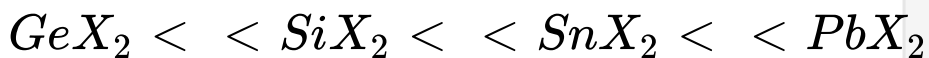
7. The stability of dihalides of Si, Ge, Sn and Pb

increase steadily in the sequence

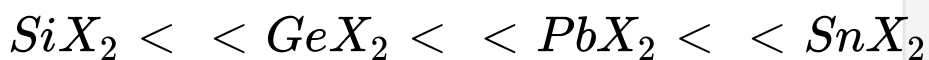
A.



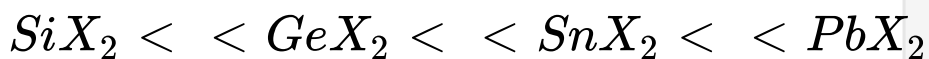
B.



C.



D.



Answer: D



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8. The catenation tendency of C, Si and Ge is the order $Ge < Si < C$. The bond energies (in $KJmol^{-1}$) of C-C, Si-Si and Ge-Ge bonds, respectively are

A. 167, 180, 248

B. 180, 167, 348

C. 348, 167, 180

D. 348, 180, 167

Answer: D



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9. Which of not the use of orthoboric acid?

A. As an antiseptic and eye wash

B. In glass industry

C. In glazes for pottery

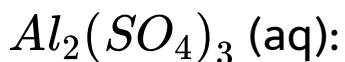
D. In borax-bead test

Answer: D



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10. On adding ammonium hydroxide solution to



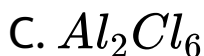
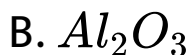
- A. A precipitate is formed which does not dissolve in excess of ammonium hydroxide
- B. A precipitate is formed which dissolves in excess of ammonia solution
- C. No precipitate is formed
- D. None of these

Answer: A



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11. Heating in aqueous solution of aluminium chloride to dryness will give



Answer: B



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12. Which of the following statement(s) is/are incorrect?

(i). Higher boranes are not flammable. (ii).

Boranes are hydrolysed by water to give orthoboric acid.

(ii). Boranes undergoes cleavage reactions with Lewis bases to give borane adducts.

A. (i) only

B. (ii) and (iii)

C. (iii) only

D. (i) and (ii)

Answer: A



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13. Which among the following oxides react with alkali? B_2O_3 , Al_2O_3 and Tl_2O

A. B_2O_3 and Al_2O_3

B. Al_2O_3 and Tl_2O

C. Only B_2O_3

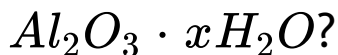
D. B_2O_3 and Tl_2O

Answer: A



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14. In the following sets reactants which two sets best exhibits the amphoteric character of



Set 1: $Al_2O_3 \cdot xH_2O$ and OH^-

Set 2: $Al_2O_3 \cdot xH_2O$ and H_2O (aq)

Set 3: $Al_2O_3 \cdot xH_2O$ and H^+ (aq)

Set 4: $Al_2O_3 \cdot xH_2O$ and NH_3 (aq)

A. 1 and 2

B. 1 and 3

C. 2 and 4

D. 3 and 4

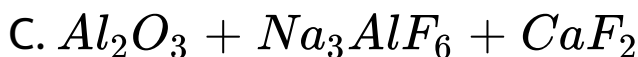
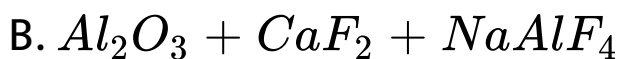
Answer: B



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15. Aluminium is extracted from alumina (Al_2O_3) by electrolysis of a molten mixture of

:

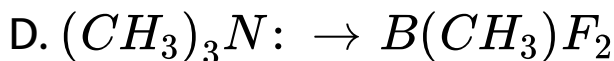
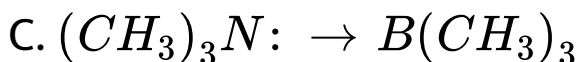
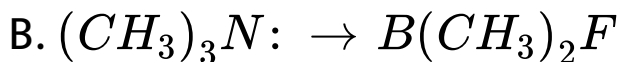
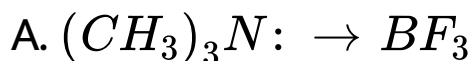


Answer: C



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16. Which of the following has the minimum heat of dissociation



Answer: C



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17. The hybridisation of boron atom in orthoboric acid is

A. sp

B. sp^2

C. sp^3

D. sp^3d

Answer: B



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18. Which among the following can act as reducing agent

(A) $SnCl_2$, (B) CO and (C) $PbCl_2$?

A. (A) and (B)

B. (B) and (C)

C. (C) and (A)

D. Only (B)

Answer: A



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19. What is the oxidation state and hybridisation of boron in compound formed when BCl_3 undergoes reaction with the water?

A. 3, sp^2d

B. 3, sp^3

C. 4, sp^3

D. 3, sp^2d

Answer: B



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20. Identify the statement that is not correct as far as structure of diborane is concerned

A. There are two bridging atoms and four terminal hydrogen atoms in diborane

B. Each boron atom forms four bonds in diborane

C. The hydrogen atoms are not in the same plane in diborane

D. All, B-H bonds in diborane are similar

Answer: D



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21. Specify the coordination of geometry and hybridization of N and B atoms in 1: 1 complex of BF_3 and NH_3

A. N:tetrahedral, sp^3 , B:tetrahedral, sp^3 .

B. N:pyramidal, sp^3 , B:tetrahedral, sp^3 .

C. N:pyramidal, sp^3 , B:Planar, sp^3 .

D. N:pyramidal, sp^3 , B:tetrahedral, sp^3 .

Answer: A



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22. Which of the following shows bond in silicon:



Answer: B



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23. CO_2 and N_2 are non-supporters of combustion. However for putting out fires CO_2 is preferred over N_2 because CO_2

A. does not burn

B. forms non-combustible products with
burning substance

C. is denser than nitrogen

D. is a more reactive gas

Answer: C



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24. Which of the following statement(s) is/are incorrect?

(i). Trichlorides on hydrolysis in water form tetrahedral $[M(OH)_4]^-$ species.

(ii). Hybridisation state of metal in tetrahedral species is sp^3 .

(iii).Aluminium chloride in acidified aqueous solution forms $[Al(OH)_4]^-$ ion.

A. (i) and (ii)

B. (ii) only

C. (iii) only

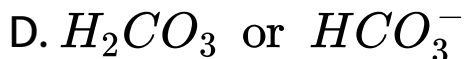
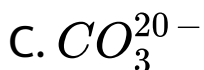
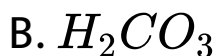
D. (i) and (iii)

Answer: C



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25. ____ helps to maintain pH of blood between 7.26 to 7.42



Answer: D



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26. The soldiers of Napoleon army while at Alps during freezing winter suffered a serious problem as regards to the tin buttons of their uniforms. White metallic tin buttons got converted to grey powder. This transformation is related to

A. a change in the partial pressure of oxygen in the air

B. a change of the crystalline structure of tin

C. an interaction with nitrogen of the air at
very low temperature

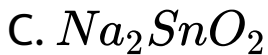
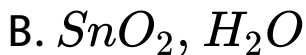
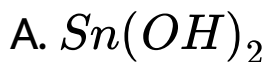
D. an interaction with water vapour
contained in the humid

Answer: B



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27. On addition of excess of sodium hydroxide solution to stannous chloride solution, we obtains:



D. None of these

Answer: C



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28. The reducing power of divalent species decrease in the order

A. $Ge > Sn > Pb$

B. $Sn > Ge > Pb$

C. $Pb > Sn > Ge$

D. None of these

Answer: A



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29. The gas evolved on heating CaF_2 and SiO_2 with concentrated H_2SO_4 ,

on hydrolysis gives a white gelatinous precipitate. The precipitate is,

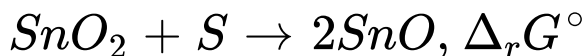
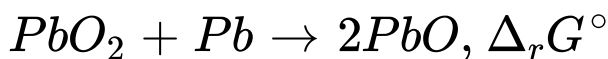
- A. Hydroflousilic acid
- B. silica gel
- C. siliric acid
- D. calciumthorosilicate

Answer: D



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30. In view of the signs of $\Delta_r G^\circ$ for the following reactions:



Which oxidation states are more characteristics for lead and tin?

A. For lead +2, For tin +2

B. For lead +4, for tin +4

C. For lead +2, For tin +4

D. For lead +4, For tin +2

Answer: C



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31. A metal M forms chlorides in its +2 and +4 oxidation state. Which of the following statement about these chlorides is correct?

A. MCl_2 more ionic than MCl_4

B. MCl_2 more easily hydrolysis than
 MCl_4

C. MCl_2 more volatile than MCl_4

D. MCl_2 more soluble in anhydrous ethanol than MCl_4

Answer: A



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32. Which of the following statement about H_2BO_3 is not correct?

A. It is a strong tribasic acid

B. It is prepared by acidifying an aqueous solution of borax

C. It has a layer structure in which planar BO_3 units are joined by hydrogen bonds

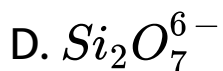
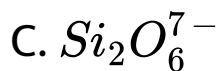
D. It does not act as proton donor but acts as Lewis acid by accepting a lone pair of electrons.

Answer: A



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33. Pyrosilicate ion is



Answer: D



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34. For making good quality mirrors, plates of float glass are used. These are obtained by floating molten glass over liquid metal which does not solidify before glass. The metal used can be

A. tin

B. Sodium

C. Magnesium

D. Mercury

Answer: D



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35. PbF_4 , $PbCl_4$ exists $PbBr_4$ and PbI_4 do not exist because of

- A. large size of Br^- and I^-
- B. Strong oxidising character of Pb^{4+}
- C. Strong reducing character of Pb^{4+}
- D. Low electronegativity of Br^- and I^-

Answer: B



36. Ge(II) compounds are powerful reducing agents whereas Pb(IV) compounds are strong oxidants. It is because

A. Pb is more electropositive than Ge

B. Ionization potential of lead is less than that of Ge

C. Ionic radii of Pb^{2+} and Pb^{4+} are larger than those of Ge^{2+} and Ge^{4+}

D. of more pronounced inert pair effect in lead than in Ge

Answer: D



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37. The structure and hybridization of

$Si(CH_3)_4$ is

A. Bent, sp

B. Trigonal, Sp^2

C. Octahedral, $d^2 sp^3$

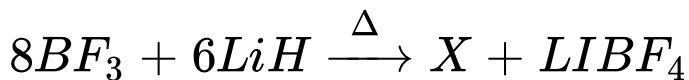
D. Tetrahedral, sp^3 .

Answer: D



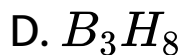
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38. In reaction



A. B_4H_{10}

B. B_2H_6



Answer: B



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39. In aluminates, the coordination number of

Al is



C. Helium

D. All of these

Answer: D



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40. Graphite conducts electricity because of

A. weak van der waal's forces between
layers.

B. covalent bonding between carbon atoms
of layers.

C. delocalized electrons in each layer

D. sp^2 hybridisation of carbon in each
atoms in layers.

Answer: C



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41. A group 14 element is oxidised to form corresponding oxide which is gaseous in nature, when dissolved in water pH of the water decreases further addition of group 2 hydroxides leads to precipitation. This oxide can be

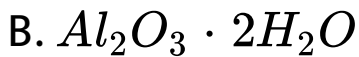
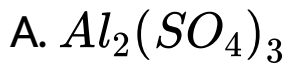


Answer: C



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42. Cabotundum is

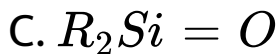
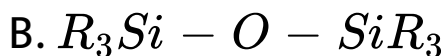
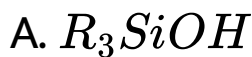


Answer: D



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43. R_3SiCl on hydrolysis forms



D. None of these

Answer: B



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44. Which of the following species exists (A)

$|SiF_6|^{2-}$, (B) $|GeCl_6|^{2-}$ and (C) $|Cl_6|^{2-}$?

A. (A) and (B)

B. (B) and (C)

C. Only (C)

D. (A) and (C)

Answer: A



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45. Which of the following attacks glass

A. HCl

B. HF

C. HI

D. HBr

Answer: B



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